Developing and Evaluating 'Zest for Life!': a New HENRY Behaviour Change Programme for Young People

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Submitted to the University of Hertfordshire in partial fulfilment

of the requirements of the degree of PhD with Industry Experience

November 2023

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Acknowledgements

First and foremost, I must thank my supervisory team. To my primary supervisor Neil, there is more to thank you for than will fit on the page so I will (try to) stick to the big picture which I know will make you smile. Your guidance has helped me develop my writing, analytical thinking, and research skills for which I am grateful. Thank you for keeping me on track and stopping me from digging too far into those rabbit holes. I hope I did not make your first PhD supervision too challenging, and maybe we will finally make it to the same conference one year! Nick, thank you for your support with the systematic review, I am sure like me you have not been able to look at those TIDieR guidelines in the same way since! Angel, it was an honour having you as a supervisor, though I still do not know where you found the time to do so! Your expertise in pretty much everything was highly valuable. It was wonderful to be included in activities for your Bedfordshire students and those early lectures on behaviour change gave me a great introduction for starting my work in a field of psychology new to me. Katie, thank you for joining the team and supporting me in my final year. It was a comfort knowing you were there, and I appreciated having a space to talk.

This PhD would not have been possible without HENRY's vision to develop a new programme grounded in evidence. Their collaboration with UH afforded me the opportunity to pursue a PhD that resonated with me on a personal level and was matched to my skills and experience. I would like to thank all my HENRY supervisors, Sian and Kim for welcoming me so warmly to HENRY and sharing their vision for the project, and Laura whom I never met in person but who made me feel part of the team every week during our virtual meetings. To Becca and Claire with whom I worked most recently, developing and delivering the new programme, thank you for your willingness to discuss, debate, and negotiate every element of Zest for Life! It was a pleasure to deliver the programme with you both, sharing in the thrill and joy of seeing our hard work used to make a difference to young people and parents. I would also like to mention Gemma, thank you for sharing your expertise and so expertly embodying HENRY values from which I could learn. I could not have asked for a better co-facilitator to support me to develop my HENRY skills during my industry year.

The programme developed during this PhD would not be what it is without the invaluable input offered by so many participants who found the time during the height of the pandemic to contribute to this research. You all have my sincere thanks, as do staff at the schools who agreed to let HENRY deliver the programme to their students.

To my fellow PhD students who welcomed me so openly, thank you for someone always being available on our WhatsApp community when needed. As we moved through our PhDs during the pandemic, the group became invaluable to share our difficulties, answer each other's questions, provide support, and generally feel connected in the absence of being able to meet in person. The unconditional support we have shown each other is testament to our resilience, compassion, and determination, as well as our dedication to research. A special thank you to Joey for answering my never-ending questions on statistics! A big thank you also to Abby for putting up with listening to my interviews and checking my transcripts.

Finally, I would like to acknowledge the unwavering support I received from my family and friends throughout my PhD journey. Life threw me many curve balls throughout my PhD, and it meant more than I can express to be able to lean on you in my times of need. Heartfelt thanks go to my parents for supporting me practically and emotionally throughout all my higher education endeavours, and to my mum for being a dependable and patient proofreader. My darling niblings, you bring such joy and sunshine to my life and spending time with you was a guaranteed way to relieve and distract myself from the stresses of my work. Watching you grow up from the start of my PhD to now has only strengthened in my mind the importance of my research. If I have been able to impart even a fraction of the knowledge and skills I have gained to help you develop positive physical activity and eating behaviours, having to work instead of spending time with you will have been worthwhile. To my precious Goddaughter, you were a surprise addition to my life yet one I could not imagine being without. Looking forward to your wonderfully warm baby cuddles and smiles has been a motivating force for me and I hope my work helps make the world a better place in which you can grow up.

Personnel

The research undertaken for this PhD was supported by various people within and outside the university. Transparent reporting within this thesis of conducted research activities makes clear where the author, HA-W, received support. This thesis uses initials to refer to members of the academic and HENRY team, presented below.

NH – Neil Howlett, University of Hertfordshire, Primary PhD Supervisor

AMC – Angel Chater, University of Bedfordshire, PhD Supervisor

NT – Nick Troop, University of Plymouth, PhD Supervisor

KN – Katie Newby, University of Hertfordshire, PhD Supervisor

BS – Becca Sheahan, HENRY, Family Support Manager, PhD Company supervisor

CF – Clarie Farrell, HENRY, Head of National Services & Innovation

Abstract

Physical activity (PA) and healthy eating (HE) behaviours during adolescence confer health benefits, yet many adolescents (hereafter referred to as young people) fail to meet national recommendations for both behaviours, justifying the need to intervene. Such interventions can come from third sector organisations such as HENRY who currently provide behaviour change programmes to parents of younger children. In seeking to develop an evidence-informed programme for young people themselves, HENRY partnered with the University of Hertfordshire which founded the brief for this research. The aims of this research were therefore to (1) review existing literature on PA and HE behaviour change interventions to identify promising behaviour change techniques, while simultaneously reviewing the literature on best practice in training deliverers of such interventions, (2) discern influences on young people's PA and HE behaviours and identify recommended elements of a new behaviour change programme, and (3) develop and evaluate a new behaviour change programme to support young people's PA and HE behaviours and wellbeing.

The pragmatic approach adopted by this research started by reviewing potential intervention design and evaluation frameworks, selecting the Behaviour Change Wheel and APEASE criteria as the best method for developing and evaluating the new behaviour change programme. The systematic review then considered the effectiveness of PA and/or HE interventions at post-intervention and longer-term maintenance. From this, promise ratios identified promising behaviour change techniques associated with each behaviour, i.e., practical social support and information about health consequences for PA, and problem solving, action planning, self-monitoring of behaviour, unspecified social support, instruction on how to perform the behaviour, information about health consequences, and behavioural practice/rehearsal for HE. The review also aimed to consider best practice in training deliverers of behaviour change interventions though scant literature meant no conclusions could be drawn.

A series of qualitative studies conducted with key participant groups discovered influences on young people's PA and HE behaviours through reflexive thematic analysis. Results from young people

(*n* = 23, mean age 14 years), practitioners (*n* = 10, mean age 30 years), and commissioners (*n* = 7, mean age 40 years) identified a range of influences encompassing personal e.g., knowledge, social e.g., role of parents and peers, and environmental e.g., availability, factors. Each study additionally identified elements of behaviour change programmes considered important and beneficial by participants such as the need for fun, practical, and interactive activities delivered from a solution-focused approach by skilled practitioners. Data from these studies were triangulated to form a behavioural diagnosis during programme development. This diagnosis revealed the necessity of including parents and being holistic in nature through inclusion of wellbeing topics, and thus the brief was amended to reflect these findings.

The Behaviour Change Wheel was used to develop the new programme. All eight steps were followed which identified target behaviours for PA and HE, and ascertained determinants of behaviour to be targeted through a behavioural diagnosis using the COM-B model of behaviour and the Theoretical Domains Framework. Appropriate intervention types i.e., Education, Training, Enablement, Modelling, Environmental restructuring (for HE behaviour only), and Persuasion, were selected using APEASE criteria to determine appropriateness for the new programme. One policy option, Service provision, was selected using APEASE criteria. Possible behaviour change techniques, including those identified in the systematic review, were considered against APEASE resulting in the inclusion of 17 for PA and 23 for HE from the groups Goals and planning, Feedback and monitoring, Social support, Natural consequences, Comparison of behaviour, Repetition and substitution, Comparison of outcomes, Reward and threat, Regulation, Antecedents, and Covert learning.

Following identification of components using the Behaviour Change Wheel, they were incorporated into the new programme guided by principles from the qualitative interviews and HENRY. Specifically, two versions of the programme were developed for different age groups, namely 11-13-year-olds and 14-16-year-olds, while parental sessions were created to be delivered in the evening. Sessions were designed to be interactive and practical to both impart knowledge and foster skill development. The HENRY approach e.g., use of inclusive language, was built into sessions as were

other HENRY elements e.g., use of physical objects to divide young people into groups within sessions. Ultimately, Zest for Life! was created as an eight-session programme for both young people and parents. Sessions were 1.5 hours for all participants, delivered in person to young people and online to parents.

The newly created Zest for Life! programme was delivered by HENRY and evaluated through the concluding part of this research. The pragmatic APEASE formative evaluation of 23 participants (18 young people, 5 parents) found the programme to be acceptable, practicable, and equitable to young people and their parents. Participants reported benefits of the programme on their PA and HE behaviours such as increased fruit and vegetable intake, food swaps, and increased PA, in addition to wellbeing such as improved sleep and a more positive mindset, while negative spill-over effects were minimal. The evaluation synthesised feedback which can be used to further enhance the programme for future participants. Additionally, recommendations for further evaluation were made, such as obtaining feedback from facilitators who deliver the programme, assessing fidelity, and use of alternative measures capable of capturing the range of behavioural changes made by participants. Overall, the evaluation has provided initial evidence for the feasibility of the Zest for Life! programme.

Publications and presentations

Published articles

Allcott-Watson, H., Chater, A., Troop, N., & Howlett, N. (2023). A systematic review of interventions targeting physical activity and/or healthy eating behaviours in adolescents: practice and training. *Health psychology review*, 1–24. Advance online publication. https://doi.org/10.1080/17437199.2023.2173631

Conference presentations and posters

Allcott-Watson, H., Chater, A., Troop, N., & Howlett, N. (2022). *A systematic review of interventions targeting physical activity and/or healthy eating behaviours in adolescents: practice and training*. Paper presented at the British Psychological Society Division of Health Psychology annual conference, Bristol.

Allcott-Watson, H., Howlett, N., Troop, N., & Chater, A. (2023). *A qualitative study investigating young people's opinions on barriers and facilitators to physical activity and eating well, and the development of a new behaviour change programme*. Poster presented at the British Psychological Society Division of Health Psychology annual conference, Sheffield.

Prelude: Thesis overview

The research presented in this thesis represents the work undertaken for a Hertfordshire Knowledge Exchange Partnership PhD. These PhDs provide opportunities for the University of Hertfordshire (UH) to partner with an external company. This allows the student to immerse themselves within the company for a year, supported by a company supervisor, before starting the traditional three-year PhD programme during which research that benefits both the student and company is conducted. This PhD was funded by the Local Enterprise Partnership, European Regional Development Fund, UH, and HENRY. This prelude provides an overview of the thesis along with a brief outline of the research undertaken.

Chapter 1 introduces HENRY, a charity with whom this research was conducted, in addition to outlining the problem at hand and the aims of the PhD. Chapter 2 considers the methodology adopted including the philosophical stance of the research and selected intervention development method through consideration of available design and evaluation frameworks. Additionally, overarching frameworks applicable to the field of behaviour change are considered. This chapter culminates with selection of the Behaviour Change Wheel (BCW; Michie et al., 2011c), and APEASE (Acceptability, Practicability, Effectiveness, Affordability, Spill-over effects, Equity; Michie et al., 2014; West et al., 2019) as the design and evaluation frameworks respectively.

Chapter 3 presents the systematic literature review conducted to synthesise existing knowledge on physical activity and healthy eating behaviour change interventions for young people (Allcott-Watson et al., 2023). The review followed PRISMA guidelines (Preferred Reporting Items for Systematic reviews and Meta-Analyses; Page et al., 2021) and a protocol was published beforehand (registration number CRD42020175245). Included studies were assessed for risk of bias and considered against the TIDieR checklist (Template for Intervention Description and Replication; Hoffman et al., 2014). Promise ratios for behaviour change techniques (BCTs) used within included studies were calculated indicating which show promise at changing young people's PA and HE

behaviours. The review also included articles reporting the training of professionals to deliver behaviour change interventions (BCIs) in order to determine best practice.

Chapters 4 through 6 present a series of interview studies conducted with three distinct participant groups, young people, practitioners, and commissioners, representing key stakeholders i.e., those who may use BCIs, those who may deliver them, and those who may 'buy' or commission them. The aim of these studies was to gain information for a behavioural diagnosis to inform step four of the BCW and to seek input on the development of the new programme. Thus, elicited information included the influences on young people's PA and HE behaviours, the support they need and want in order to change their behaviour, and how best that support can be provided to them. Transcripts from each study were reflexively thematically analysed (Braun & Clarke, 2006) separately leading to identification of recommended programme elements. Data from all three studies was then triangulated during step four of the BCW (Chapter 7).

Chapter 7 details the development of the new programme, Zest for Life!, using the BCW. A behavioural diagnosis using the COM-B model (Capability, Opportunity, Motivation-Behaviour; Michie et al., 2011c) and TDF (Theoretical Domains Framework; Cane et al., 2012) was conducted in step four based on knowledge gained through the studies in Chapters 4 through 6. The chapter then provides transparent reporting on how intervention types, policy options, BCTs, and mode of delivery were selected. The developed intervention is presented using TIDieR items along with details of the content and how BCTs were operationalised.

Chapter 8 presents results of a formative evaluation using APEASE (Acceptability, Practicability, Effectiveness, Affordability, Spill-over effects, Equity; Michie et al., 2014; West et al., 2020) to assess the feasibility of the Zest for Life! programme. This adopted a mostly qualitative approach utilising interviews with participants of the programme. The transcripts were deductively coded to the APEASE criteria and presented narratively. Quantitative outcome measures were included in the evaluation to gain insight into the impact of the intervention on participants. Finally, a mixed-methods programme feedback form constituted the third element of the evaluation designed

to be used in lieu of participants opting into the interview. The chapter concludes with recommendations for modifications to the Zest for Life! programme based on the evaluation.

Finally, Chapter 9 summarises the research and ties together the findings, implications, and future considerations for HENRY, research, and policy makers. Woven throughout the thesis are personal reflections from the author having conducted the research while embedded within HENRY for its entirety. The impact this had on the research is considered from a reflective perspective in order to provide context to the decisions made along the way. It is acknowledged that this research would have looked different had it not been conducted as a dual-organisation partnership, and the reflective sections provide an insight into this and the impact the partnership had on the research approach and journey.

Chapter 1: Introduction and aims

1.1. HENRY

This HKEP (Hertfordshire Knowledge Exchange Partnership) PhD partnered with HENRY (Health, Exercise and Nutrition for the Really Young), a charity based in Oxfordshire which aims to provide children the best start in life. HENRY was founded in 2009 following a review by Mary Rudolf on the evidence-base of effective early years interventions to prevent obesity. The report identified 19 themes for action (Rudolf, 2009) and in essence became the blueprint for HENRY. With funding from the Department of Health, the Department for Children, Schools and Families, and the Child Growth Foundation, Mary Rudolf and Candida Hunt built HENRY to fill the gap in provision of practical interventions to reduce childhood obesity.

HENRY started by offering training for professionals working with families and a programme for parents of children aged 0-5, now called Healthy Families Right From The Start (HFRFTS). This programme aims to support parents to develop the skills, knowledge, and confidence required to make positive behavioural changes to provide their young children the best start in life. The eight-week programme delivered either in person or online to groups of parents, focuses on improving family's physical activity (PA) levels, nutrition, and emotional wellbeing, and develop parenting skills. A service evaluation and cohort study have shown positive changes to family's PA, fruit and vegetable (F&V) consumption, intake of high fat/sugar foods, and screen time (Willis et al., 2014; Willis et al., 2016). To further the evidence-base on the effectiveness of the programme, a full scale randomised controlled trial is currently underway following feasibility testing (Bryant et al., 2021).

The HFRFTS programme is now just one of many offered by HENRY. Of note is Healthy Families Growing Up, a similarly formatted programme with the same objectives as HFRFTS but to parents of children aged 5-12, and Preparation for Parenthood, a pre-natal programme. The extensive range of workshops now offered includes Healthy Teeth, Starting Solids, Fussy Eating, Eating Well for Less, Let's Get Active, Portion Sizes, and Looking after Ourselves. HENRY's model is such that they are

commissioned by local authorities to help fulfil their obesity prevention strategies. HENRY programmes are either delivered directly, or through a partnership approach where HENRY trains local professionals to deliver the programmes themselves with continued monitoring and support provided by HENRY partnership support officers. The latter, therefore, involves training professionals in 'the HENRY approach' and skills in group facilitation to deliver the programmes and workshops.

Additionally, HENRY offers training for practitioners to develop skills, knowledge, and confidence to positively support families by, for example, opening the door to conversations with parents about children's weight. The courses, for example Core Training, A Healthy Start in Childcare, and Creating the Conditions for Change, support practitioners to adopt a strengths-based and solution-focused approach to working with parents. This approach has been found to benefit practitioners' professional practice, policy within their employment settings, and practitioners' own PA and healthy eating (HE) behaviours (Willis et al., 2012). HENRY are currently commissioned in approximately 70 local authority areas across all constituents of the UK.

HENRY's original vision for preventing obesity in the early years has expanded over the years not just to older children, but to providing more holistic support for all areas of childhood including social and emotional development (Roberts & Rudolf, 2017). In this expanded ethos of providing children with the best start in life, HENRY wish to continue expanding and cover the entirety of childhood and adolescence up to adulthood. However, a deviation from the existing model of working exclusively with parents of children was considered appropriate to account for adolescent's increasing autonomy and independence from caregivers. Thus, the creation of a partnership with UH to develop a programme for adolescents in a rigorous manner ensuring it is evidence-informed. The original plan for the HKEP was for HA-W to spend the first year working with HENRY to understand the company and its aims, familiarise themselves with HENRY programmes and the HENRY approach, build relationships with staff, and complete training to become a HENRY facilitator to deliver programmes. The subsequent three years would then be spent developing a behaviour change programme for young people, colloquially referred to within HENRY as 'the teens programme'.

However, the Covid-19 pandemic required the plan to be altered which, therefore, saw HA-W undertaking a limited immersive experience through remote working whilst simultaneously starting on the research tasks. Positively, some HENRY training courses were completed before the pandemic and a switch to online group programmes during Covid-19 meant immersion through delivering HFRFTS was possible. Since restrictions eased, the Train the Trainer course along with an observed delivery have been completed resulting in HENRY Trainer status in addition to Facilitator. The impact of Covid-19 continued to affect the research especially through presenting challenges to recruitment and conducting qualitative studies during lockdowns. Staffing and structural changes within HENRY also meant that HA-W had five company supervisors over four years, with only one member of staff present from both conception of the project to completion. The challenges these issues presented are considered throughout the thesis from a reflective stance.

1.2. Needs assessment

As stated, HENRY's wish to add a programme to their repertoire guided this research's population and behaviours of interest. The developed programme had to meet the needs and wishes of HENRY, namely to expand the age range currently covered by existing programmes. Therefore, the target population was set as 10–19-year-olds, and behaviours were focused on PA and HE, with wellbeing also included to provide consistency and fit with HENRY's objectives and ethos. A review of the epidemiological evidence, below, shows the population in question display low levels of PA and HE behaviours which warrants the provision of support, though further enquiry into determinants is required.

Consideration was given to the best terminology to use to describe this population and behaviours. Within the UK the terms young people, teenagers, adolescents, and youth are often used interchangeably. The World Health Organisation (WHO, 2014) classifies 10–19-year-olds as adolescents, yet in the UK 18- and 19-year-olds are considered adults (Family Law Reform Act 1969). Therefore, while the WHO age range was adopted, 'young people' was considered a more appropriate phrase. A broad understanding of PA, in line with the WHO (2022), was adopted to encompass the

many different categories e.g., cardiovascular and muscle-building activities, and methods e.g., sports and daily movements, of being active. Similarly, HE was considered an umbrella term encompassing multiple elements such as fruit and vegetable intake, limited consumption of foods high in fat and sugar, balancing meals across food groups, portion sizes, and water intake (National Health Service (NHS), 2022b, 2023a, 2023c. 2023d; WHO, 2020). These all contribute to achieving HE, with no single element able to satisfy all the requirements of eating well. HE is often referred to as a 'healthy diet' (e.g., British Nutrition Foundation, n.d., NHS, 2022b), though within the public domain 'diet' has become synonymous with weight loss and behaviours such as calorie restriction (e.g., Mayo Clinic, 2023). As such it does not fit with HENRY's vernacular and the term healthy eating was preferred, used interchangeably with 'eating well.'

Current UK guidelines advise adolescents undertake a daily average of 60 mins of moderate-to-vigorous PA (MVPA) across the week (UK Chief Medical Officers, 2019). However, Sport England (2019) found that only 43% of 11–16-year-olds are meeting this guideline with 35% doing less than 30 minutes per day, with boys more active than girls (49% vs 42%, respectively, meeting the guideline). During adolescence there is a decline in PA (Brooke et al., 2016; Ortega et al., 2013). This could have negative consequences given that rates of PA during adolescence tend to continue, or decline, into adulthood (Corder et al., 2019; Hayes et al., 2019), and low levels of PA during adulthood put them at risk of cognitive impairment, depression, heart disease, type 2 diabetes, and certain cancers (Physical Activity Guidelines Advisory Committee, 2018). PA during adolescence offers physical health benefits such as better bone strength (Christoffersen et al., 2015) and metabolism (Bell et al., 2018), in addition to positive effects on mental health including fewer depressive symptoms (Rothon et al., 2010), better executive functioning (Vanhelst et al., 2016), and higher self-esteem (Kristjánsson et al., 2010).

Alongside declining rates of PA, adolescents' diet quality also tends to deteriorate (Lytle et al., 2000) as they start making their own dietary decisions (Wang & Fielding-Singh, 2018). Healthy diets are considered to contain a balance of all the food groups, including the consumption of a minimum number of fruits and vegetables per day, in addition to the limited intake of free-sugars, total sugars,

fats, and salt (NHS, 2022b, 2023a, 2023d; World Health Organisation, 2020). A healthy diet provides protection against some health conditions including cancer (Key et al., 2020; Liese et al., 2015) and cardiovascular disease (Hartley et al., 2013), in addition to being required for optimal growth and development during adolescence (Salam et al., 2016). One measure of a healthy diet is the intake of fruit and vegetables, with current UK guidelines advising the consumption of at least five different portions per day (NHS, 2022b). However, data shows that only 8% of 11–18-year-olds are meeting this recommendation (Public Health England, 2018), a figure which has remained quite stable for several years (Bates et al., 2014, 2016, 2019; Public Health England, 2018). As with PA, eating behaviours formed during adolescence can also continue into adulthood (Movasagh et al., 2017).

1.3. Aims

As can be seen from the evidence on the current levels of PA and HE behaviours amongst young people in the UK, there is a need to intervene to help protect them from the plethora of health risks associated with low levels of these behaviours. HENRY hopes to provide such an intervention for young people living in the UK through an evidence-informed behaviour change intervention. Therefore, the overall aim of the research presented in this thesis was to develop and evaluate an evidence-informed HENRY behaviour change programme to support improvements in young people's PA and HE behaviours, and wellbeing. This was achieved through completion of the following steps:

1. A systematic literature review to synthesise existing PA/HE interventions for young people and identify potentially beneficial behaviour change techniques (Chapter 3).
2. Interviews with young people, practitioners, and commissioners to gain knowledge on influences on young people's current PA/HE behaviours and seek input on the best way to support young people through a behaviour change programme (Chapters 4-6).
3. Design and develop a new behaviour change programme using the Behaviour Change Wheel incorporating the results of the interviews and systematic review (Chapter 7).
4. Conduct a formative evaluation of the feasibility of the new programme through testing with young people in a real-world setting (Chapter 8).

Chapter 2: Methodology

In order to meet the aims of the PhD, consideration was given to the best methodological approach to adopt. Firstly, various philosophical stances within ontology and epistemology can drive method selection so a brief overview of each of these constructs is provided to understand the approach ultimately adopted in this research. Secondly, when designing, developing, and evaluating a new behaviour change intervention (BCI), researchers can choose from a multitude of frameworks to guide the process. These are considered, along with overarching guidelines, leading to selection of the approach adopted for development and evaluation of the new HENRY BCI.

2.1. Philosophical stances

Ontology is concerned with the nature of reality or being and explains relationships between the world and human understanding of it i.e., it addresses whether reality is completely separate to our being and understanding of it, or whether reality is so entwined with our being that our understanding of it will always reflect human perspectives. These opposing views sit at the ends of a continuum from realism which states that reality is entirely separate from human interpretation i.e., there is only one truth which we can discover through appropriate research techniques (Coyle, 2021), to relativism which states that reality is entirely dependent on human interpretation i.e., there are multiple realities dependent on time and context and research shows us one reality (Coyle, 2021). Somewhere between the two, sits critical realism which posits that there is a reality which we can understand, though acquiring knowledge on it is subjective and socially influenced (Madill et al., 2000) so we can only partially access this reality through research (Shannon-Baker, 2016). Generally speaking, realism is aligned with quantitative research methods i.e., the one truth can be accessed in a measurable way, while relativism and critical realism align with qualitative methods i.e., a version of the truth can be accessed through interpretation.

Meanwhile, epistemology is concerned with the nature of knowledge and what it is possible for us to know. This is not totally distinct from ontology, and in essence they are linked with ontology

addressing the question of ‘what can we know?’ and epistemology addressing the question of ‘how can we come to know it?’ (Daniel & Harland, 2015). Epistemology likewise has realist and relativist stances. A realist epistemology, positivism, asserts that one true knowledge can be obtained through objective and unbiased methods which align to quantitative methods (Park et al., 2020). On the other hand, constructionism, as a relativist epistemology, declares that knowledge is subjective and dependent on various social and cultural contexts in which we live (Burr, 2015), and qualitative research methods construct a version of knowledge, true for that population, time, place etc. To use the analogy of Braun and Clarke (2013), positivism discovers knowledge much like an archaeologist digs up artefacts, the process of digging being separate to what is discovered, while constructionism creates knowledge much like a sculptor creates a sculpture, where the process of sculpting influences the final sculpture.

Between these two positions lie postpositivism and contextualism, the differences of which is very nuanced and only a brief description is required to understand the placing of these on the continuum from realism to relativism. Postpositivism asserts that while there is a singular truth (as with positivism), we can never fully understand it due to insufficient tools and techniques which means resulting knowledge is simply a ‘best guess’ (Young & Ryan, 2020). Contextualism meanwhile states that as with constructionism, knowledge is influenced by contexts and researchers own positions, yet there is a truth for the context at hand (Tebes, 2005).

Another methodology that can be adopted is Pragmatism which sits outside the philosophical concerns of ontology and epistemology, though broadly it accepts that there is both a reality ‘out there in the real world’ and one constructed within our minds (Creswell & Creswell, 2023) thus accepting both realist and relativist perspectives. Pragmatism itself makes no assumptions about the world and being beyond this, and considers knowledge for its practical usefulness (Guthrie, 2010). The focus of a pragmatist approach is on the research question or aims, and useful methods to achieve them (Guthrie, 2010; Shannon-Baker, 2016) or solve problems (Creswell & Creswell, 2023; Shannon-Baker, 2016). Indeed, the research problem can be considered the starting point from which the most

appropriate methods to solve the problem are selected (Guthrie, 2010). Thus, a pragmatist approach can adopt multiple methods which are aligned to different philosophical stances in order to conduct research that best addresses the research question or aims. In this way, a pragmatist approach aligns with mixed-methods research that calls on both quantitative and qualitative methods as this provides the best understanding of a research problem (Creswell & Cresswell, 2023) and benefits from the strengths of each method (Gabrielsen et al., 2019; Shannon-Baker, 2016) while offsetting the weaknesses of each (Creswell & Plano Clark, 2017).

2.1.1. Adopting a philosophical stance

A pragmatic approach fits best with the aims of this research which is focused on providing a practical solution to the problem of young people failing to regularly engage in physical activity (PA) and healthy eating (HE) behaviours. However, in providing a solution it is important to first understand the problem, and this is best understood using mixed methods (Creswell & Creswell, 2023). To this end, part of this research acknowledges the realist ontology and that objective measures of PA and HE levels can indeed provide a quantitative picture of the problem for young people. Here, accepting that there is an objective truth about the extent to which young people engage in PA and HE behaviours allows the research to understand the scope of the problem and justify the need to intervene. This picture has already been provided in the previous chapter using existing literature. However, this is only part of understanding the problem, the other part being why young people are not regularly active and eating well.

As influences on behaviour do not lend themselves to being measured objectively, due to the complexity and interplay of factors and subjectivity of individual perceptions, qualitative methods, aligning with a constructionist epistemology, are most appropriate. Here, a relativist ontology acknowledges that each young person's set of circumstances are contextualised by social and cultural factors which from their perspective influence them to be active and eat well. Using a qualitative constructionist method, we gain our own understanding through interpretation and exploration of the data, and through thematic analysis we create a truth relative for this context. Finally, once we

have the best understanding of the problem that we can, we can attempt to find and test a solution. In assessing the impact of a new intervention, subjective qualitative exploration of impact, combined with self-reported quantitative measures of changes in behaviour, will provide a richer and more accurate picture than either one on their own. In this situation a mixed-methods approach is most suitable and is used in the evaluation of the new programme. Mixed-method evaluations of interventions for young people are common and have been utilised across multiple behaviours including PA (Chiva-Bartoll et al., 2021; da Silva Banderia et al., 2022), eating disorders (Stewart et al., 2021), mental health treatments (Gabrielsen et al., 2019), and management of physical health conditions (Frøisland et al., 2012). Further, a mixed method approach has been applied to other HENRY evaluations such as when evaluating the feasibility of training and delivery of a volunteer led programme (Howlett et al., 2021). In summary, a pragmatic approach that uses a mix of quantitative and qualitative methods has been adopted to best approach and answer the research questions, and meet the research aims.

2.2. Reviewing design and evaluation frameworks

Best practice for designing and evaluating BCIs has been the topic of research for many decades resulting in various approaches, models, guides, and frameworks one can follow. In terms of approaches, these vary from partnership approaches such as co-production where end-users have equal say in the development process (NIHR, 2021), person-based where interventions are built around views of the target population (e.g., Yardley et al., 2015), theory and evidence-based approaches such as the Behaviour Change Wheel (Michie et al., 2011c) and Intervention Mapping (Bartholomew et al., 1998), efficiency-based approaches such as Multiphase Optimization Strategy (Collins et al., 2007), or a pragmatic selection of approaches (O'Cathain et al., 2019a). All these approaches overlap each other to some extent with emphasis placed on different actions or processes (O'Cathain et al., 2019a).

Within these approaches are the individual models, guides, and frameworks, and whilst they use various terminology to describe themselves, 'design frameworks' and 'evaluation frameworks' can

be considered suitable umbrella terms. In essence, design frameworks provide a blueprint of how to go about creating BCIs (Crosby & Noar, 2011), a systematic method considered best practice (Craig et al., 2008). By comparison, evaluation frameworks provide guidance on how best to evaluate interventions, the results of which can be used to guide future decisions on modifications and resource allocation, in addition to allowing the design of more effective interventions through identification of effective active components (Craig et al., 2008). Some design frameworks incorporate evaluation while others do not and can be paired with a standalone evaluation framework to take the researcher from design through to evaluation.

Many design frameworks have been developed, each with unique characteristics, some with similarities, and all with the intention of developing an intervention that has the best chance of enacting positive behavioural change. As explained by O'Cathain et al. (2019b), developing interventions that are designed to work is important to reduce resource waste. One of the commonalities across design frameworks is the use of theory to explain why the components of an intervention are expected to result in the desired change. Evidence that this improves the effectiveness of BCIs is however lacking (e.g., Prestwich et al., 2014), though a recent umbrella review posited problems with the evidence base rather than a faulty supposition (Dalgetty et al., 2019). Indeed, the theory-effectiveness hypothesis perseveres, and the use of theory continues to be encompassed in emerging guidelines and recommendations for BCI development (e.g., Skivington et al., 2021), though this may be for the purpose of assessing the mechanisms by which interventions work or not, rather than to improve effectiveness.

Alongside individual design frameworks sit what can be considered 'overarching guidelines' on the development of BCIs. Unlike design frameworks these guidelines do not offer researchers a systematic method for developing interventions. Instead, they highlight important considerations which can impact the direction of the research undertaken. The most pertinent for BCI development is joint guidance by the Medical Research Council (MRC) and National Institute for Health and Care Research (NIHR; Skivington et al., 2021), though others by the National Institute for Health and Care

Excellence (NICE) are also relevant (e.g., NICE, 2007, 2014). These guidelines, along with various design and evaluation frameworks are presented below. Choosing which frameworks to use may depend on multiple factors including, but not limited to, available time and resources, ease of use, known strengths and limitations, and familiarity or previous experience. The discussions below outline each framework and highlight their strengths and limitations, leading to selection of which to use in this research.

2.2.1. Overarching guidelines

2.2.1.1. MRC/NIHR framework for developing and evaluating complex interventions

The MRC has published a framework on the development of complex interventions. The framework has seen various revisions since its origins in 2000 (Campbell et al., 2000; MRC, 2000) with extensions published in 2006 (Craig et al.; Craig et al., 2008) and most recently in 2021 through a collaboration with the NIHR (Skivington et al.). This joint publication was in response to methodological and theoretical advances since 2006 and saw a shift from interventions being classified dichotomously as effective or not, to a broader conceptualisation of effectiveness including acceptability, cost-effectiveness, and transferability (Skivington et al., 2021). Since conception of the framework, which was based heavily on drug trials, BCIs have been considered complex interventions (Campbell et al., 2000), and in reality, most interventions are complex (Craig et al., 2006). Complexity is considered to arise due to number of components, number of targeted behaviours, required skills of deliverers and participants, number of groups or levels targeted, or permitted flexibility (Skivington et al., 2021). As such it is possible to see how this applies to BCIs aimed at changing PA and HE behaviours i.e., any such intervention will contain a number of interacting components, target multiple behaviours, and require skills in both the delivers and participants.

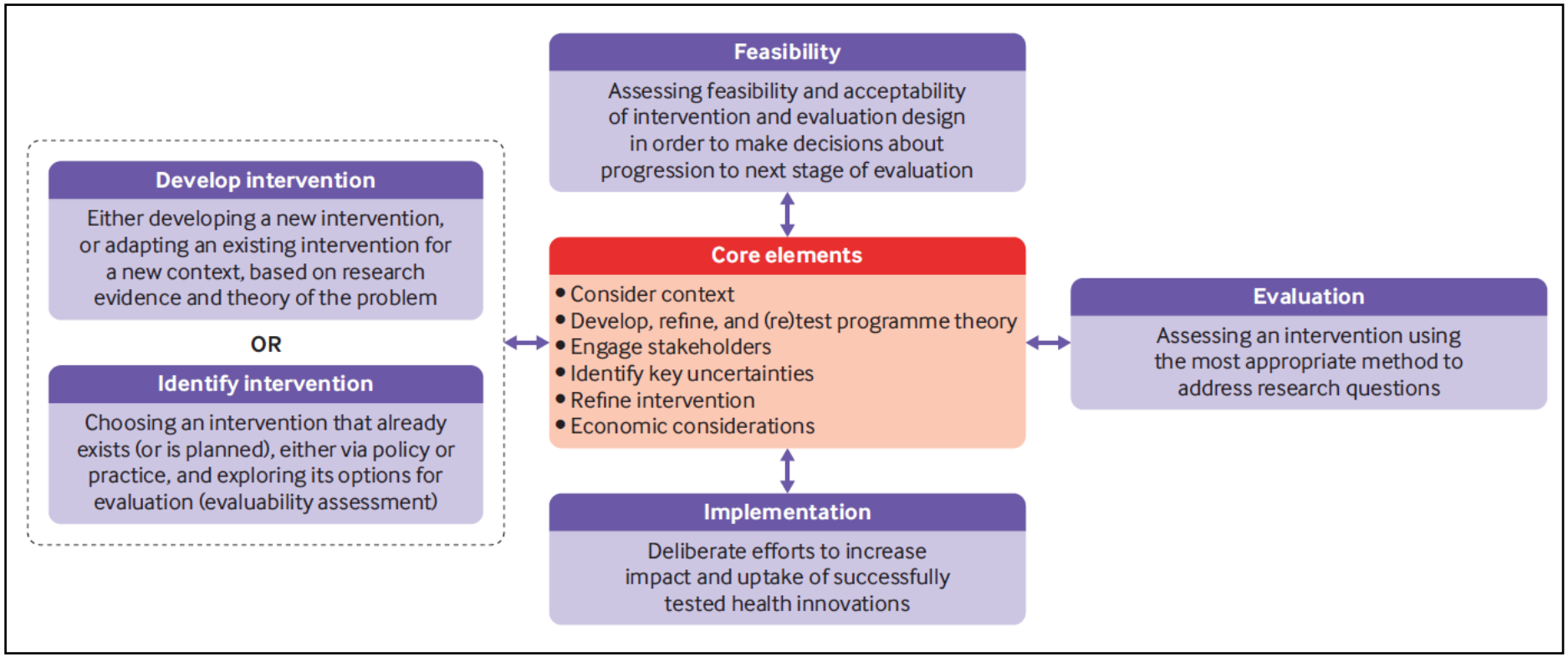
The original framework specified a phased approach to design and evaluation starting with identification of a theoretical or evidentiary rationale for expected effect, then phases which identify components, assess feasibility and acceptability, address methodological issues, and implement the intervention into practice (Campbell et al., 2000; MRC, 2000). The 2006 update made some alterations

to terminology, expanded the framework to designs other than randomised controlled trials (RCTs), and emphasised understanding the context in which interventions are delivered, though the underlying principles of the framework remained much the same. The latest and current framework adopts the most comprehensive approach to date acknowledging a range of evaluation objectives for multiple stakeholders and expanding research principles in-depth.

The current four phases, (1) Identify/develop intervention, (2) Feasibility, (3) Evaluation, and (4) Implementation, are shown in Figure 2.1. Several core elements sit at the heart of the framework, underpinning all phases including considering the context of the intervention, developing programme theory, engaging stakeholders, addressing key uncertainties, refining the intervention, and considering economic evaluation. Of particular note are programme theory and stakeholder involvement which, whilst listed separately, are interrelated. The former is concerned with how an intervention is expected to lead to change and the identification of barriers that may impede this, information which can feed into a logic model or system map. Programme theory is based on relevant theory, evidence, and involvement from a diverse range of stakeholders including those targeted by, those delivering, and those with a professional stake in the intervention. This stakeholder involvement is required during all phases of research to create an intervention likely to work as intended, though it is acknowledged that stakeholders may have competing interests and transparent recording should be used to document these.

Figure 2.1.

Joint MRC and NIHR framework for developing and evaluating complex interventions (Skivington et al. 2021)



Overall, the development phase entails all aspects of planning and designing an intervention including planning feasibility testing and evaluation. This starts with either developing a new intervention or identifying an existing one that can be modified to meet the needs of a new population, setting, or behaviours. The framework does not provide specific guidance on how to develop the intervention but does refer readers to other guidance which provides key considerations for the development phase, many of which are contained within existing design frameworks e.g., involve stakeholders, use theory, and review published evidence. The feasibility phase assesses elements including retention, data collection, acceptability, appropriateness of content and delivery, cost-effectiveness, and capacity to deliver the intervention. Evaluation can seek to determine effectiveness in the traditional sense, though the framework encourages considering a wider stance including evidence of change both at the individual and systems level. Other elements include selecting outcome measures and determining any other impact the intervention has had. The implementation phase addresses issues around reach, uptake of services, and contextual factors that influence impact. The framework encourages consideration of implementation from the beginning to ensure the intervention can be adopted in real world settings.

2.2.1.2. NICE guidance

NICE is sponsored by the Department of Health and Social Care (Gov.uk, n.d.) and advises on evidence-based practice that ensures patients receive the best care that is also cost-effective (NICE, 2023b). This is achieved through the production of guidance, quality standards, and appraisal documents used by local authorities (LAs) and practitioners to guide commissioning and treatment pathways. Amongst these are guidance on individual and general approaches to behaviour change. BCIs may ultimately end up in the public health sector either through development with, for example, an NHS trust, or through LAs commissioning interventions, as is the case with HENRY. This makes NICE guidelines particularly relevant when developing a new HENRY programme, especially as commissioners are recommended to commission only those that meet NICE guidelines (NICE, 2014).

The guidance on general approaches to behaviour change (NICE, 2007) lays out eight key principles, (1) plan interventions and programmes, (2) assess social context, (3) educate and train, (4) individual-level interventions and programmes, (5) community-level interventions and programmes, (6) population-level interventions and programmes, (7) evaluate effectiveness, and (8) assess cost-effectiveness. Through these principles, the guidelines recommend planning interventions that take account of the national and local contexts, to be as specific as possible about what was done and why it is expected to result in change based on theory, provide training for deliverers to successfully support people to change their behaviour, and evaluate interventions for effectiveness, acceptability, feasibility, equity, safety, and cost-effectiveness using outcome measures and qualitative research. Whilst the principles make different recommendations depending on level of change the guidance stresses that available interventions should be consistent across all levels.

The 2014 guidance on individual-level behaviour change recommends the use of proven BCTs, aligned to the BCT taxonomy version 1 (Michie et al., 2013), including goals and planning, feedback and monitoring, and social support. Other BCTs are listed in NICE guidance for obesity which cover PA and HE behavioural interventions, such as framing/reframing and rewards (NICE, 2023a). The use of BCTs and providing a rationale for each one's use is one of 17 recommendations in the 2014 guidance (NICE). The first six recommendations are used to expand the first principle within the NICE general guidance on behaviour change (2007). Collectively, these six recommendations advise that interventions should be developed with, and be acceptable to, stakeholders; not drive health inequalities; aim to both initiate and maintain change; build in evaluation plans from the start; assess fidelity i.e., how well the intervention was delivered as intended; identify the required skills of deliverers; be evidence-based. The remaining recommendations expand on some of these topics. Of note is the training and assessment of deliverers with guidance outlining specific skills and knowledge required such as communicating effectively, building rapport, knowledge of and ability to deliver BCTs, and facilitating group discussions. These align with professional competencies to deliver behaviour change interventions (Dixon & Johnston, 2010). Another recommendation to note is that

interventions should assess and address people's capability, opportunity, and motivation to change i.e., the COM-B model of behaviour (Michie et al., 2011c; section 2.2.2.5.).

There is much overlap between the general approach guidance (NICE, 2007) and the individual-level approach guidance (NICE, 2014), the repetition of which makes the guidelines bulky and reduces accessibility to non-experts and professionals (Curtis et al., 2018). Additionally, the 2014 guidance applies to a mixture of professionals, some aimed more towards commissioners and some at intervention developers which also contributes to the heft of recommendations presented. A synthesized, streamlined version of the individual-level approach which encompasses the general approach specifically for intervention developers would be helpful in order to follow the guidance more systematically. However, the benefit of being informed about guidelines for commissioners when contracting services cannot be undervalued for this research given its aims. Therefore, the guidance for commissioners can be seen as principles to hold in mind during development of the new intervention to ensure the resulting HENRY programme is suitable and appealing to commissioners.

2.2.2. Design frameworks

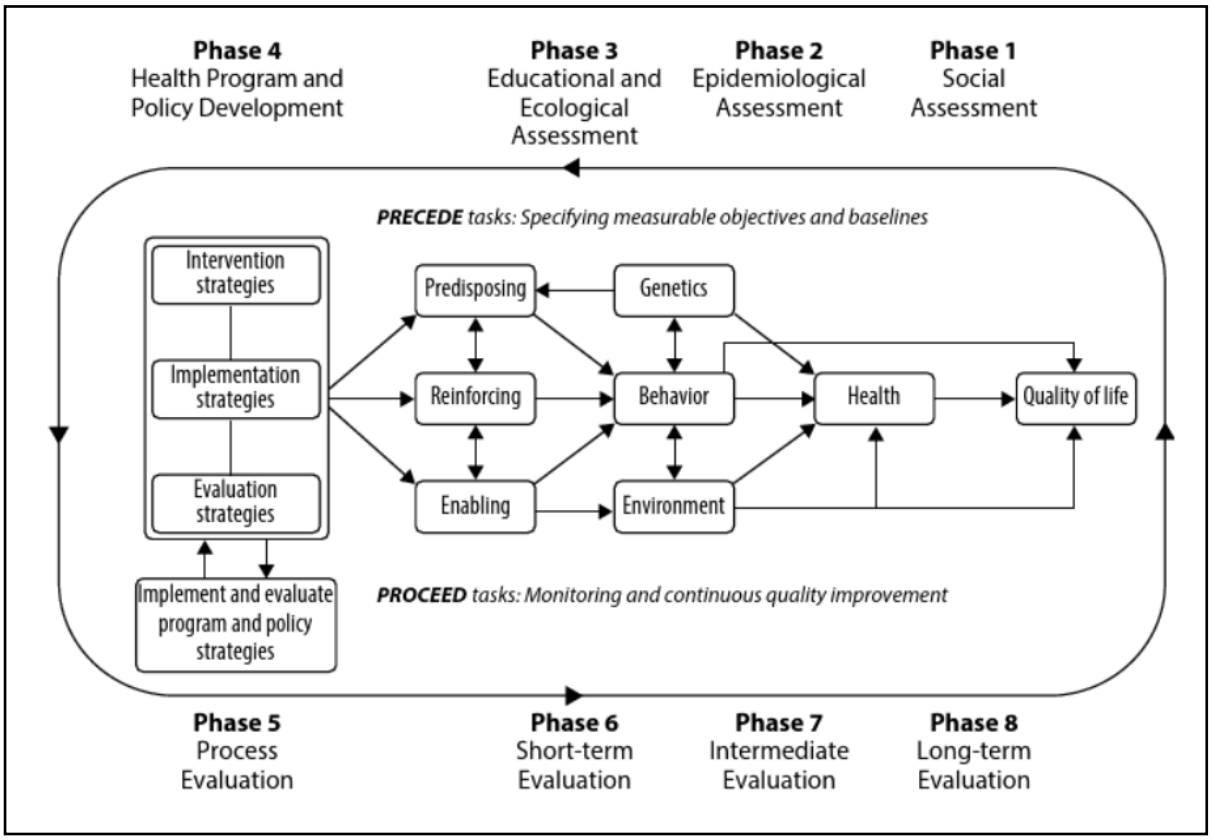
2.2.2.1. PRECEDE-PROCEED

The PRECEDE-PROCEED model (Figure 2.2) has its origins as an evaluation framework first described by Green in 1974. However, it wasn't until 1980 that it was presented as PRECEDE, before the addition of PROCEED in 1991 to complete the model (Porter, 2016). The model has been refined over the subsequent years in response to a growing appreciation of public and patient involvement in health promotion interventions and to streamline the model (Gielen et al., 2008), and through insight from application (Green et al., 2022). PRECEDE, standing for Predisposing, Reinforcing and Enabling Constructs in Educational/Ecological Diagnosis and Evaluation, represents the first four phases of the model that aim to diagnose the problem and develop the intervention. PROCEED, standing for Policy, Regulatory and Organisational Constructs in Educational and Environmental Development, provides the last four phases and aims to implement and evaluate the intervention. The phases are currently labelled (1) Social assessment, (2) Epidemiological assessment, (3) Educational and Ecological

assessment, (4) Health program and policy development, (5) Process evaluation, (6) Short-term evaluation, (7) Immediate evaluation, and (8) Long-term evaluation (Green et al., 2022; Figure 2.2.).

Figure 2.2.

PRECEDE-PROCEED model (Green et al. 2022)



A strength of the PRECEDE-PROCEED model is the involvement of community members to develop the social assessment, though this involvement appears focused at a local level, and it is unclear whether wider stakeholder engagement such as with commissioners is recognised. Another strength is the use of theory encouraged by the model. However, the model does not provide guidance on which theory to apply, only to use theory related to identified predisposing, reinforcing, and enabling factors. It is possible that this might involve multiple overlapping or conflicting theories which would only serve to confuse and complicate the process. Positively, the PRECEDE-PROCEED model includes a comprehensive evaluation element, with four phases dedicated to this task. A framework

guides developers through designing the evaluation phases with overarching principles, or standards, to follow such as utility, feasibility, proprietary, accuracy, and evaluation accountability (Lovato & Ottoson, 2022).

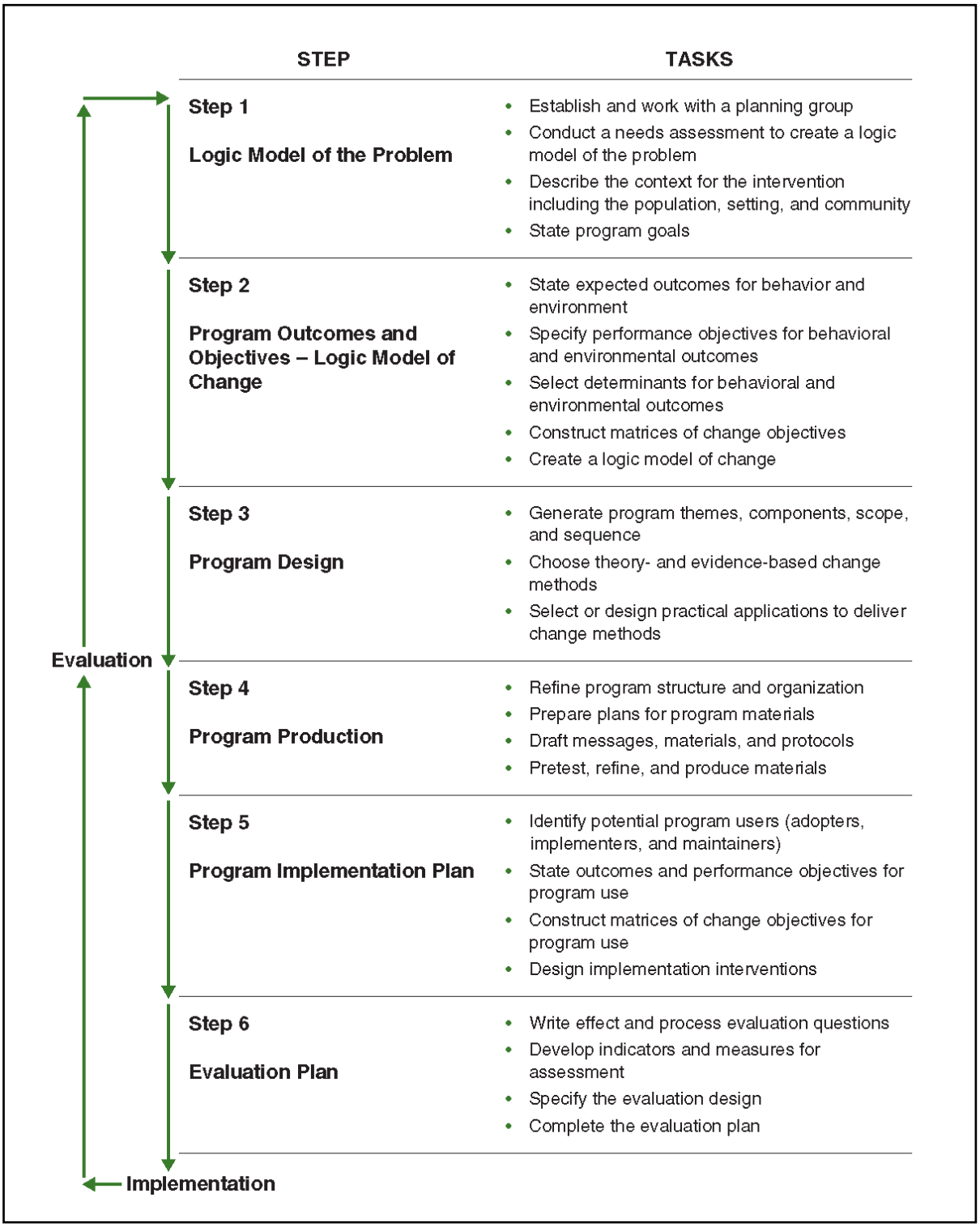
Weaknesses of the model include little guidance on deriving intervention content and components, so much so that Gielen et al. (2008) suggest using Intervention Mapping (Bartholomew et al., 1998) during this phase of the model. Additionally, the model is population centred rather than individual, with assessments in the PRECEDE phase designed to be conducted at the population level (Porter, 2016), though the socio-ecological perspective of the model does acknowledge influences acting at an individual level. Despite this, the model could be seen to apply more to population-wide health promotion initiatives such as those used by governments, especially as addressing environmental systems is threaded throughout the model (Gielen et al., 2008), rather than small-scale projects that aim to change behaviour at an individual level. Additionally, with the ultimate goal being to improve quality of life, the model could be used to initiate changes to the environment resulting in better quality of life without addressing individual's behaviour (Porter, 2016).

2.2.2.2. Intervention Mapping

Intervention Mapping (IM) was presented in 1998 by Bartholomew and colleagues in recognition that understanding theories of behaviour change is insufficient for theory to be used in BCI development. IM therefore provides a framework for integrating theory as well as other core elements including findings from literature and data collected from target populations. Bartholomew et al. (1998) developed the IM framework over multiple years through considering previous work, practical application, and post-graduate teaching activities. The up to date six steps of IM (Figure 2.3.) are (1) Logic model of the problem, (2) Programme outcomes and objectives, and logic model of change, (3) Programme design, (4) Programme production, (5) Programme implementation plan, and (6) Evaluation plan (Bartholomew Eldredge et al., 2016). Each step is broken down into smaller steps which can be followed in a linear manner, though it is expected that earlier steps be revisited as decisions are made throughout the process.

Figure 2.3.

Intervention Mapping steps (Bartholomew Eldridge et al. 2016)



The first step involves conducting a needs assessment to create a logic model of the problem and identify goals for the intervention. In step two, change objectives outline what individuals need

to learn or what needs to change in the environment. These are derived from existing literature and conducting empirical research on determinants of the target behaviour and identifying relevant theory. This step concludes with a logic model of change. Step three defines intervention methods i.e., theoretically derived techniques that influence behaviour, matched to the programme objectives from step one and practical ways to deliver them e.g., role play to develop skills or community meetings to deliver persuasive communication. Step four creates the components of the intervention and its materials, then assesses their acceptability to implementers and participants. Step five identifies the plan for adoption and implementation at acceptable levels of fidelity. The final step, six, measures the impact of the intervention on behaviour and health outcomes, as well as determinants and the environment.

Positively, IM encourages the use of participatory research, in line with MRC guidance (Skivington et al., 2021) and the application of theory related to determinants of behaviour. It also includes evaluation though step six does not provide a specific framework, instead the model advises the use of program objectives and the needs assessment as a blueprint (Bartholomew et al., 1998). Therefore, evaluations could be biased by simply not writing evaluation questions for areas that did not work well. Positively, more detailed guidance is provided in later publications on the use of IM, though only through example questions and referring to other researchers work (Bartholomew Eldridge et al., 2016). Other critiques of IM include lack of external validation of the behaviour change methods (Kok et al., 2016), limited evidence base for the effectiveness of methods to change determinants (Fernandez et al., 2019), and users of the model have reported it to be resource intensive and only understandable due to expertise in health psychology (McEachan et al., 2008; van Mol et al., 2017). Additionally, whilst use of theory is encouraged, IM does not guide selection of theory, nor does it guide selection of active components and the associated behaviour change methods (Kok et al., 2016) for naming, describing, or reporting components has not been validated.

2.2.2.3. MINDSPACE

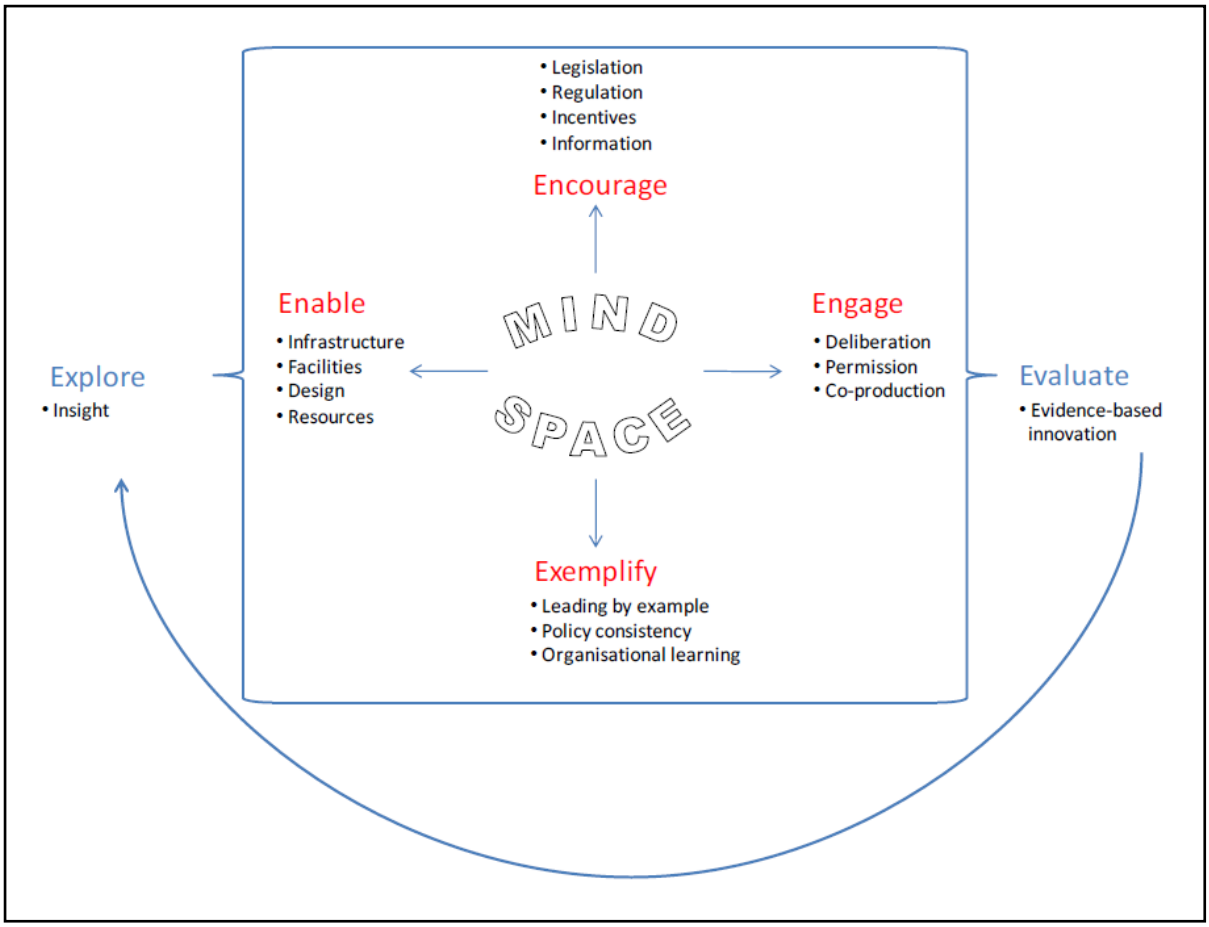
MINDSPACE (Dolan et al., 2010) resulted from a Cabinet Office request for the Institute of Government to review the use of behavioural theory for public policy, given one of the main purposes of public policy is to influence behaviour (Dolan et al., 2010). Therefore, this design framework only encompasses designing BCIs in the form of government policy, though that policy can result in interventions enacted at all systems levels. MINDSPACE (Figure 2.4.), which stands for Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments, and Ego is a synthesis of what were considered non-coercive methods to influence behaviour. In brief, Messenger covers the influence of who delivers messages, Incentives covers mental shortcuts such as the desire to avoid losses, Norms covers the influence of others' behaviour, Defaults covers a proclivity to go with the flow, and Salience covers being drawn to what is novel or relevant. Priming covers sub-conscious influences, Affect covers the influence of emotions, Commitments covers seeking of consistency with public promises and reciprocity, and Ego covers people acting in ways that induce feeling better about themselves.

MINDSPACE was created to act as a checklist of influences to consider when creating policy. The MINDSPACE report (Dolan et al., 2010) asserts behaviour is determined by two factors, automatic and reflective thinking. This is synonymous with 'System 1' and 'System 2' thinking, terms coined by Stanovich (1999) following years of development and refinement of dual-processing theories originating in the 1970s-1980s (e.g., Evans, 1984; Wason & Evans, 1974; for an overview see Evans & Stanovich, 2013). System 1 thinking is automatic, quick, requires little effort or control, while System 2 thinking is effortful requiring attention and is associated with concentration and choice (Kahneman, 2012). Dolan et al. (2010) make the distinction between behaviour change strategies that influence what people consciously think, i.e., System 2 thinking, and those that focus on people's automatic decision making, i.e., System 1 thinking. The authors acknowledge MINDSPACE predominantly adopts the latter approach given that the former does not always lead people to make the 'best' decision (Dolan et al., 2010). By contrast, adopting an approach that acts on automatic processes alters the

context in which people live and creates a 'choice environment' which nudges people in the 'right' direction. For example, providing information that most people in a specific population or setting have switched to sugar-free fizzy drinks could make people subconsciously follow the 'norm.' MINDSPACE is applied through the 6Es framework, which was expanded from the original 4Es framework from the Department for Environment, Food and Rural Affairs (DEFRA, 2008). The framework consists of, Explore i.e., gain insight on how MINDSPACE can best be used for target populations before policy is created; Enable i.e., provide infrastructure and resources and overcome barriers preventing the behaviour; Encourage i.e., provide information and use incentives; Engage i.e., co-production and discussions with the public; Exemplify i.e., lead by example and provide consistent policies; Evaluate, i.e., determine the success of the policy.

Figure 2.4.

The 6Es framework for applying MINDSPACE (Dolan et al., 2010)



The MINDSPACE report provides detailed explanations of each influence and the 6Es framework with which to apply each appropriate element within any policy. However, rather than providing a guide to designing interventions, albeit at a policy level, MINDSPACE appears to be more an incoherent list of influences on behaviour, covering modes of delivery, strategies, mechanisms of action, and psychological constructs (Michie et al., 2011c). As such, it is difficult to see how to use it in a systematic method to produce an effective BCI. Positively, the framework does acknowledge seeking input from stakeholders and evaluating impact. It also offers a unique contribution through 'Exemplify' and leading by example. This poses the question of the role played by BCI deliverers besides providing information i.e., do they act as role-models during this process and does incongruous behaviour impact effects? To elaborate, where a deliverer provides information on the importance of HE, then during a break consumes crisps and chocolate in front of participants, to what extent might this influence participants behaviour more than the information they received? This is an interesting consideration and not one present in other frameworks but appears worthy of at least investigation and possibly consideration for inclusion within other frameworks for developing BCIs.

2.2.2.4. EAST

Following MINDSPACE, many of its authors went on to develop the EAST framework through the Behavioural Insights Team (BIT). Originally located within UK Government, the BIT took lessons learnt through MINDSPACE and developed what they consider a simpler and shorter framework, EAST. Standing for Easy, Attractive, Social, and Timely, these are considered the principles for applying behavioural science to bring about behaviour change (Service et al., 2014). Thus, to effectively influence behaviour the intervention must be easy in that messages and steps are simple, accessing the intervention is hassle-free requiring little effort, and it aligns with the default option. The intervention must also be attractive so that our attention is drawn towards it and there are rewards for doing it. The intervention must be social, both in terms of committing to do it with other people and building support networks, but also it should show that the behaviour is what most other people

are doing. Finally, the intervention must be timely so that costs and benefits are immediate, plans are in place to overcome barriers, and prompts are provided at the most opportune time, namely when current habits are disrupted.

The EAST framework constitutes stage three of four stages to intervention development (Service et al., 2014). These are (1) define the outcome i.e., identify the behaviour to be changed and what amount of change is required to make intervention worthwhile, (2) understand the context i.e., speak to the target audience to understand their perspectives on the behaviour, (3) build the intervention using the EAST framework, and (4) test, learn, adapt i.e., implement the intervention and measure effects ideally through RCTs. The EAST framework is aimed at policy makers to create a choice environment that nudges people into making the 'better' choice. From reading the handbook (Service et al., 2014), there is however a sense that the framework has been designed to apply more to single one-off behaviours, such as opting into a pension or organ donation scheme, than to complex behaviours that require repetition over a longer period of time, such as engaging in regular PA. This limits the potential application of the EAST framework to developing BCIs such as that posed by this research.

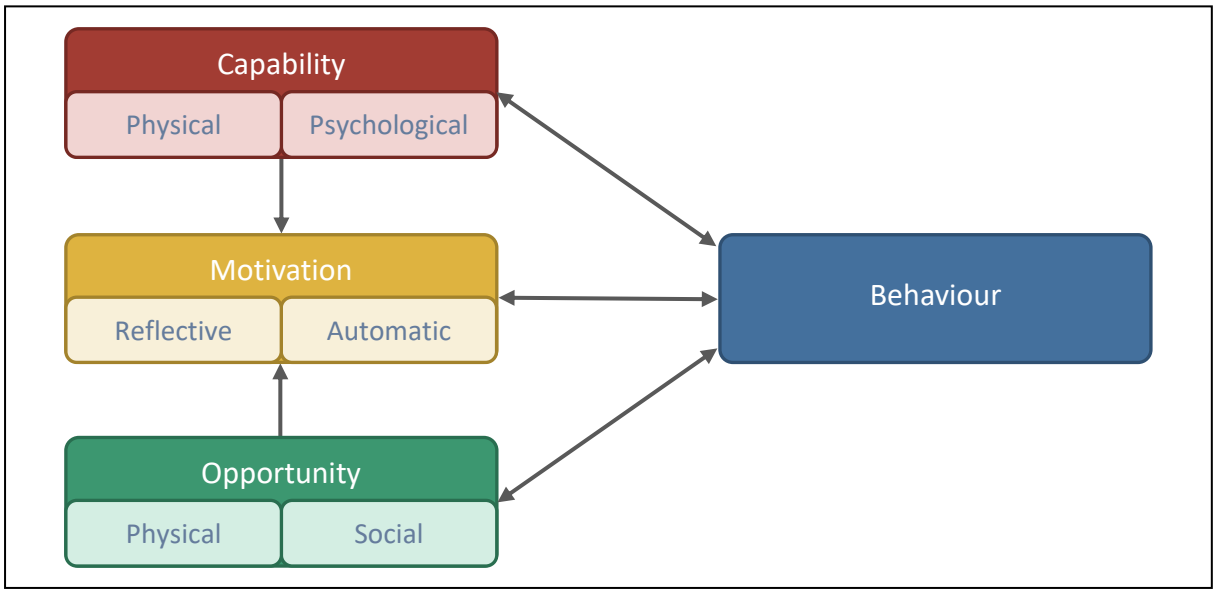
2.2.2.5. Behaviour Change Wheel

The Behaviour Change Wheel (BCW; Michie et al., 2011c, 2014) was created in an attempt to resolve three problems, (1) recognition that using theories/models of behaviour is necessary for the development of BCIs yet there is no guidance on how to select and apply them, (2) existing theories/models fail to encompass all influences on behaviour meaning these cannot be taken into consideration when planning the intervention, and (3) existing frameworks for classifying BCIs lack comprehensiveness, coherence, and links to a model of behaviour. The result is a framework that encompasses 19 other frameworks of BCIs along with a new model of behaviour. This has been borne out of considering the necessary requirements for voluntary behaviour to occur, in this instance taken from criminology which asks whether someone has the means (ability to commit the crime), motivation (reason for committing the crime) and opportunity (chance to commit the crime) (Michie

et al., 2011c). Thus, the COM-B model (Figure 2.5.) specifies that for any behaviour to occur, the person must have capability, opportunity, and motivation.

Figure 2.5.

The COM-B model of behaviour

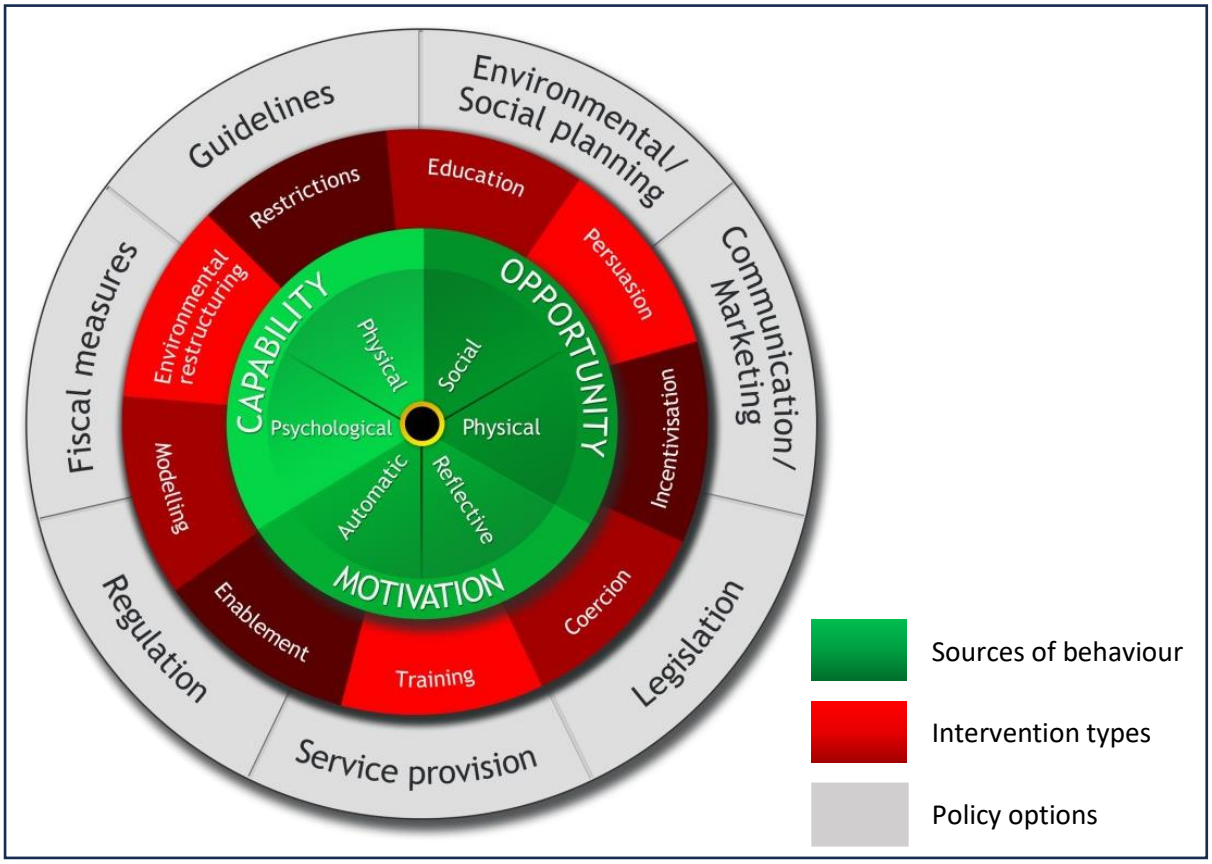


Each of the COM components is sub-divided resulting in six components overall, (1) physical capability e.g., skills, strength, stamina, (2) psychological capability e.g., knowledge, self-regulation, (3) physical opportunity e.g., time, location, equipment, (4) social opportunity e.g., pressure, norms, culture, (5), reflective motivation e.g., plans, beliefs, intentions, and (6) automatic motivation e.g., impulses, habits. Reflective and automatic motivation align with System 2 and System 1 thinking, respectively, as discussed previously. The interaction of all the components is shown via arrows (see Figure 2.5.), which illustrates how they interact both with each other and with behaviour. To illustrate, having the capability and opportunity to enact the behaviour increases motivation to do so, and enacting the behaviour increases capability, opportunity and motivation to do so again. To change behaviour, one or more of the COM components needs to change to make a person's COM system

more conducive to performing the target behaviour. Identifying which COM components to change is determined through a behavioural diagnosis.

Figure 2.6.

The original Behaviour Change Wheel (Michie et al., 2014)

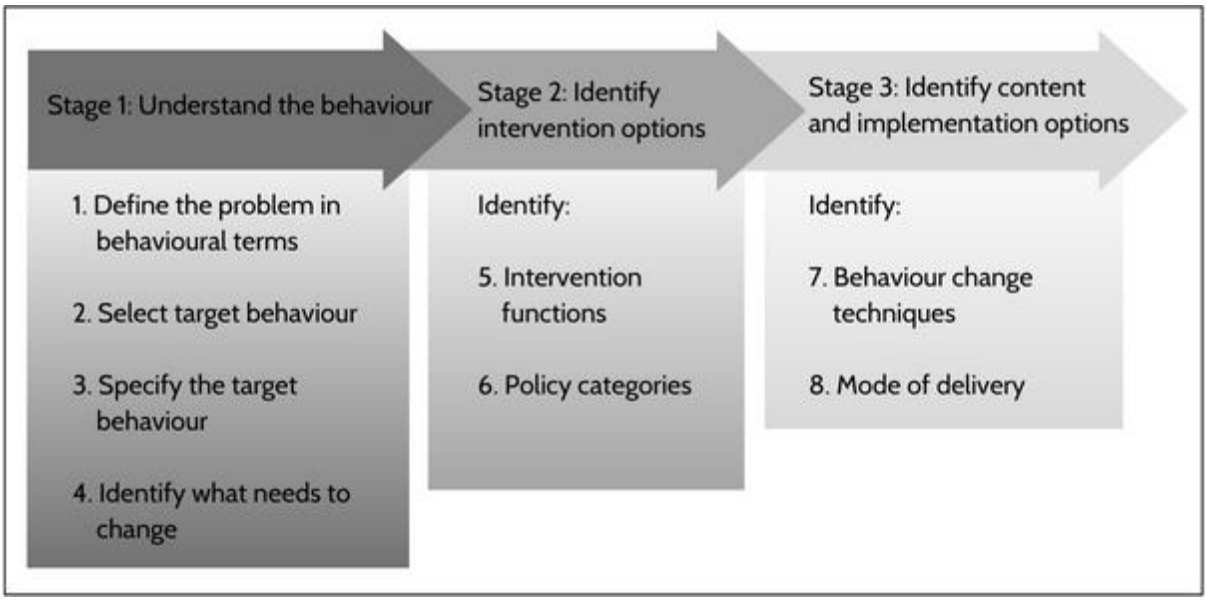


The COM-B model of behaviour sits at the hub of the BCW as seen in Figure 2.6. Expanding circles moving outwards then show intervention types (so called in newer guidelines (West et al., 2020), originally called intervention functions (Michie et al., 2011c)), and policy options (renamed in West et al., 2020 from 'policy categories' in Michie et al., 2011c). The newer terminology will be used throughout the rest of this thesis. In lay terms the BCW has behaviour at the core, then the intervention, then support for the intervention on the outside. Applying the BCW to develop a BCI starts at the hub and moves outward through an eight-step process split across three stages, applied iteratively as required (Figure 2.7.). Stage 1, steps 1-4, results in a detailed understanding of the

problem at hand and a behavioural diagnosis of what needs to change. Stage 2, steps 5-6, identifies appropriate strategies to change behaviour and support the intervention (intervention types and policy options), then Stage 3, steps 7-8, selects BCTs and mode of delivery.

Figure 2.7.

Behaviour change intervention design process using the Behaviour Change Wheel (Michie et al., 2014)



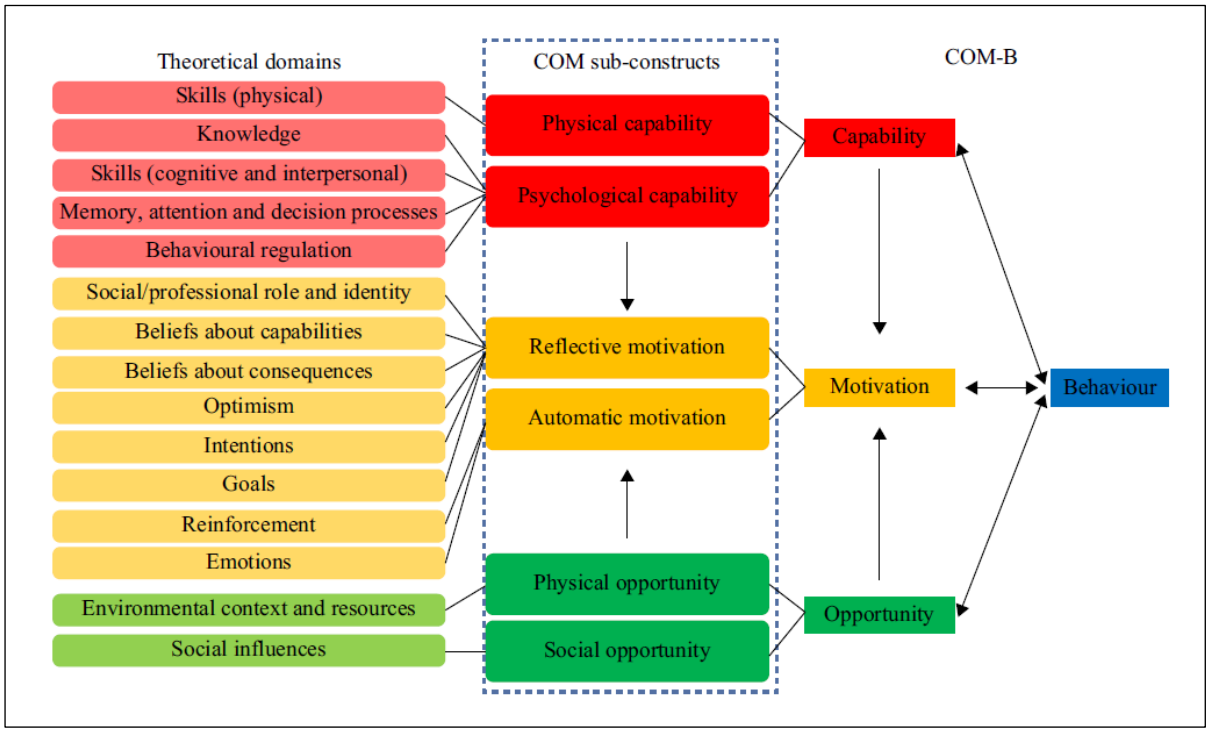
Nine intervention types (ITs) i.e., activities used to change behaviour, were identified through synthesising existing frameworks (Michie et al., 2011c). These are Education, Persuasion, Incentivisation, Coercion, Training, Restriction, Environmental restructuring, Modelling, and Enablement. Through expert consensus, ITs have been linked to each COM component based on likelihood of impact (Michie et al., 2014). This helps researchers move from understanding what needs to change, to identifying how to bring about change. An intervention can use single or multiple ITs to target a component of the COM-B model. For example, an intervention could use either education or training or both to impact psychological capability. Determining appropriate ITs is guided by criteria that considers whether each strategy has acceptability, practicability, effectiveness, affordability, spill-over effects, and equity (APEASE criteria; West et al., 2020).

The outer layer of the BCW shows which policy options (POs) can be used to support the delivery of an intervention. These are approaches or strategies used at a structural level e.g., authority, organisation, or government, that support and allow the intervention to be delivered. Michie et al. (2011c) identified seven POs, Communication/marketing, Guidelines, Fiscal measures, Regulation, Legislation, Environmental/social planning, and Service provision. These are linked to ITs so that after identification of how to bring about change to COM elements has been determined, suitable and likely effective ways to support the intervention at a structural level can be selected (Michie et al., 2014). For example, to deliver the IT 'education', suitable POs are communication/marketing, guidelines, and service provision. As with ITs, researchers can select any number of linked POs, using the APEASE criteria to guide selection.

Alongside creation of the BCW was the theoretical domains framework (TDF; Michie et al., 2005). Much like development of the COM-B, the TDF was developed in recognition that use of theory is beneficial to intervention development yet there are many theories from which to choose and no system for selecting one (Michie et al., 2005), in fact, one review identified 82 theories from which researchers could draw (Davis et al., 2015). Further, it has been noted that some theories overlap with each other while others are missing constructs (Michie et al., 2005). Creation of the TDF overcomes these problems by synthesising 33 theories of behaviour and behaviour change e.g., the Theory of Planned Behaviour (Ajzen, 1991) and Social Cognitive Theory (Bandura, 1986). The result is a framework of 84 constructs e.g., social pressure and self-efficacy, clustered into domains thereby offering researchers a way to integrate key constructs derived from theory into BCIs. As originally developed, the TDF had 12 domains (Michie et al., 2005) which evolved to 14 through further investigation when it was mapped to the COM-B (Cane et al., 2012; Figure 2.8.).

Figure 2.8.

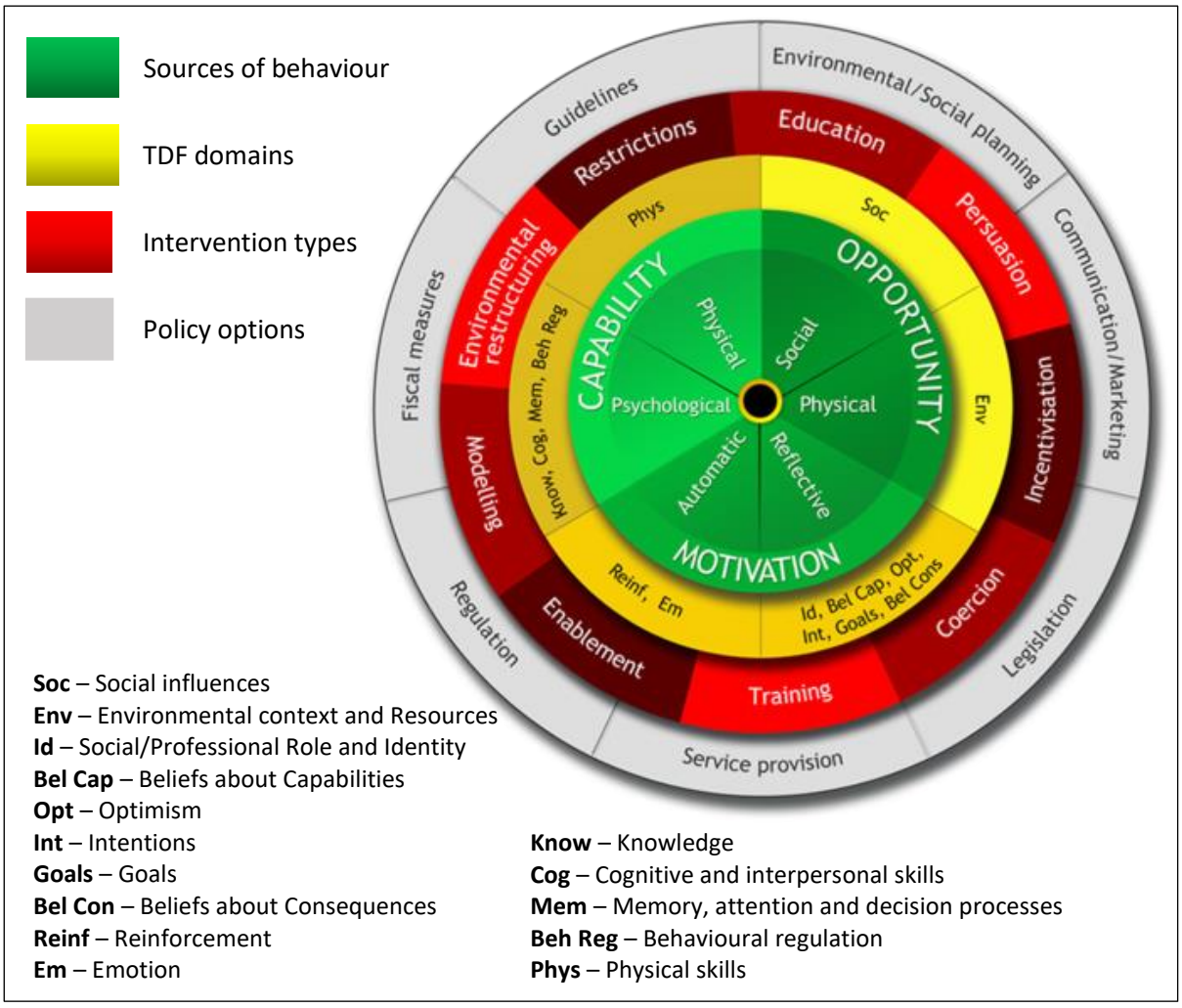
The Theoretical Domains Framework mapped to the COM-B model, from Chater et al. (2022)



The 14 TDF domains are (1) Knowledge, (2) Skills (split into physical, and cognitive and interpersonal), (3) Social/professional role and identity, (4) Beliefs about capabilities, (5) Optimism, (6) Beliefs about consequences, (7) Reinforcement, (8) Intentions, (9) Goals, (10) Memory, attention and decision processes, (11) Environmental context and resources, (12) Social influences, (13) Emotion, and (14) Behavioural regulation. Thus, the TDF allows researchers to consider the cognitive, affective, social, and environmental influences on behaviour (Atkins et al., 2017). Linking of these domains to the COM-B (Cane et al., 2012) allows for a more comprehensive and specific behavioural diagnosis to be produced, assisting in identifying important influences on behaviour required to be addressed for change to occur. They have also been linked to ITs (Michie et al., 2014), meaning that appropriate activities to change specific influences on behaviour can be selected. The integration of the TDF as part of the BCW is now shown through an additional layer sitting between the COM-B model and ITs, Figure 2.9.

Figure 2.9.

Updated Behaviour Change Wheel showing integration of Theoretical Domains Framework



Note. TDF = Theoretical Domains Framework.

There are five main strengths of the BCW. Firstly, it links a model of behaviour to a framework for developing a BCI. Understanding why behaviours occur is fundamental to designing an intervention that can be expected to work (e.g., Michie et al., 2011c). Yet, as highlighted in the development of the BCW, only seven of the 19 frameworks of behaviour change identified were linked to a specific model of behaviour (Michie et al., 2011c). Therefore, when using one of these frameworks without a link to a model of behaviour, there is no clear rationale for why the intervention is expected to be successful at changing behaviour. The BCW is not subject to this issue given the presence of the COM-B model of behaviour at its core. Secondly, the BCW is comprehensive having combined 19 other frameworks

of BCI design. The original work by Michie et al. (2011c) shows how none of the included 19 frameworks contained all ITs and POs identified by their review. Therefore, to use any one of those frameworks to design a new intervention would miss considering the whole range of ITs and POs.

Thirdly, the integration of the TDF means that interventions developed using the BCW have considered a comprehensive range of theoretical determinants of behaviour. This is important given supposition that interventions based on theory are more successful than those that are not (Cane et al., 2012), though this assertion is considered in light of the earlier discussion in this chapter which contemplated whether theory use makes interventions more effective. Further, the TDF expands the COM-B components meaning a more specific behavioural diagnosis can be conducted and used to guide selection of appropriate ITs, POs, and BCTs that are most likely to be effective.

Fourthly, the BCW guides selection of BCTs from the BCT taxonomy version 1 (BCTTv1; Michie et al., 2013). A BCT is an active component of an intervention that is observable, replicable, and irreducible that impacts behaviour (Michie et al., 2013). The BCTTv1 provides a standardised vocabulary to describe the active components of BCIs to improve reporting, evaluation, and replication. Previous taxonomies have been created for behaviour specific interventions such as smoking cessation (Michie et al., 2011b), excessive alcohol consumption (Michie et al., 2012), and the CALO-RE taxonomy for PA and HE (Michie et al., 2011a). The development of the BCTTv1 provides a universal taxonomy to describe intervention components which can allow for generalisability across behaviours increasing accessibility for practitioners. Further, the MRC/NIHR guidance on the development of complex interventions states that an existing intervention could be identified and adapted to target a different behaviour (Skivington et al., 2021), a process that can be better facilitated when interventions are reported according to a universal taxonomy.

Within the BCW, the BCTTv1 has been linked to both ITs and TDF domains meaning that active components of interventions are theoretically linked to both the selected IT and identified TDF behavioural determinants. Use of the BCTTv1 also confers with MRC guidance that an intervention should be described in full, providing an understanding of the components so it can be delivered

faithfully and to make it reproducible (Craig et al., 2006), achievable through reporting the intervention according to the TIDieR checklist (Template for Intervention Description and Replication; Hoffman et al., 2014; see Chapter 3 for details).

Finally, the BCW is applicable to all levels of change from individual to groups to whole populations, across all levels of systems from small-scale research projects to governmental strategies. This makes it a universal framework capable of being used in the development of any BCI. Overall, the BCW provides, to date, the most comprehensive framework for developing BCIs. Critiques have reported use of the BCW to be time-consuming but that it provides a clear framework to follow (Ojo et al., 2019; Webb et al., 2016). Potentially this may limit the use of the BCW to researchers/ developers with more time available or those with more experience and familiarity of the framework.

2.2.3. Evaluation frameworks

In addition to the design frameworks discussed above, some of which have evaluation built into them, other separate evaluation frameworks exist and are worth considering. Most notably these are RE-AIM and APEASE which has its origins as part of a design framework and recent advances have seen it applied to evaluations, discussed below.

2.2.3.1. APEASE

The APEASE criteria was created as part of the development of the BCW (Michie et al., 2014). Initially designed to assist in intervention development, it also has applications to intervention evaluation (West et al., 2020). While the ethos of the criteria has remained consistent over time, some changes to terminology have occurred. For example, in 2019 (West et al.) 'Effectiveness and cost-effectiveness' was simplified to 'Effectiveness' with the cost-effectiveness consideration shifted to the 'Affordability' criterion. This then shifted back to the 'Effectiveness' criterion in 2022 (West and Gould) though the simpler name persevered. Originally titled 'Side-effects/safety', this criterion too developed over the years, changing to 'Spill-over effects' from 2020 (West et al.) onwards. As originally developed 'Affordability' appeared before 'Acceptability' (Michie et al., 2014), which was switched in 2019 (West et al.) making 'Acceptability' more prominent.

The criteria encourage those responsible for design and evaluation to consider whether an intervention has Acceptability, Practicability, Effectiveness, Affordability, Spill-over effects, and Equity. Acceptability considers whether and to what degree the intervention is acceptable to stakeholders including the target audience, deliverers, funders, and relevant community groups. Practicability assesses whether the intervention can be delivered at scale given available materials and resources and whether it can be sustained. Effectiveness covers the positive impact the intervention has on the target audience and the extent to which it achieves policy objectives. Affordability considers whether costs can be covered to deliver the intervention at the intended scale return on investments. Spill-over effects detail any effect on the target audience whether positive or negative that was not intended by the intervention. Finally, equity considers the extent to which the intervention will impact health differences between individuals or groups (e.g., advantaged and disadvantaged sectors of the population).

Parallels can be drawn between the APEASE criteria, considerations of the 'feasibility' and 'evaluation' phases of the MRC/NIHR framework for developing and evaluating complex interventions, and NICE guidelines. Notably, they all cover acceptability, affordability, effectiveness, and side-effects. However, as noted by Sekhon et al. (2017) there is no agreed definition of acceptability, so it is unclear whether these frameworks are referring to a shared or individual understanding of the construct. Indeed, the Theoretical Framework of Acceptability (TFA) has found the construct to be multi-faceted, made up of seven component constructs including affective attitude, burden, perceived effectiveness, ethicality, intervention coherence, opportunity costs, and self-efficacy (Sekhon et al., 2017). The MRC/NIHR framework also covers practicability through 'capacity to deliver the intervention', and NICE guidance also covers equity. The fact that these concepts appear in multiple frameworks implies the field of behaviour change accepts their importance and relevance for evaluating interventions. Use of APEASE as an evaluation framework is limited though not unprecedented (e.g., Brierley et al., 2022) and as such offers an innovative approach to evaluation and an opportunity to contribute to the evidence-base on its use.

2.2.3.2. RE-AIM

The RE-AIM (Reach, Efficacy, Adoption, Implementation and Maintenance) model is a way to assess the public health impact of health promoting interventions beyond efficacy (Glasgow et al., 1999). The creators highlight that interventions are often tested in ideal settings utilising motivated participants and deliverers, evaluations of which produce inaccurate results on efficacy which do not generalise to other populations and settings. Thus, the RE-AIM model incorporates representativeness of participants and settings to provide a broader and more accurate evaluation of interventions. The model expands previous work by Abrams et al. (1996) who defined an intervention's impact formulaically as Reach multiplied by Efficacy, providing the first part of the model's name, 'RE'. Glasgow and colleagues (1999) added three other dimensions to consider settings in which the intervention is delivered, Adoption, Implementation, and Maintenance, combined to complete the model's name, RE-AIM. Each dimension is represented on a 0-1 scale.

In terms of each dimension, Reach considers the proportion of people who have received the intervention, in addition to the representativeness of those who take part. Efficacy considers the positive and negative effects, behavioural outcomes for participants, deliverers and supporters, and holistic quality-of-life measures for participants. Adoption considers the extent to which settings adopt the intervention or policy, as well as their representativeness and barriers to adoption. Implementation considers the extent to which the intervention is delivered as intended at the individual level i.e., adherence, and setting level i.e., fidelity, measured at six to 12 months. Maintenance at the individual level considers the permanence of behaviour change, while the setting level refers to the extent to which an intervention or policy becomes routine practice, measured at a minimum of two years.

The updated RE-AIM model (Glasgow et al., 2019) includes costs as an overarching issue to be considered and also includes systematically documenting adaptations that occur before, throughout, and after implementation, as well as a focus on qualitative evaluation. Not all domains need to be assessed in any given evaluation, though guidance on when this situation is warranted remains limited

which may explain why adoption, maintenance, and representativeness of individuals and settings are reported less frequently than other dimensions (Glasgow et al., 2019). The former could be understandable considering the suggested timescales are up to two years, which has considerable resource implications. However, given that the model strives to enhance evaluation of representativeness of individuals and settings it is concerning that this has not been achieved. In contrast, a strength of the model is that it considers dimensions at both individual and setting levels. However, it has been found that making distinctions between Reach and Adoption is proving problematic for evaluators (Glasgow et al., 2019).

2.2.4. Selecting a design and evaluation framework

There are clear overlaps between the MRC/NIHR framework and NICE guidelines such as involving stakeholders, evaluation, and considering the context. However, the MRC/NIHR framework provides a more systematic overview of developing and evaluating behaviour change interventions than those by NICE. By contrast, the NICE guidelines provide more specific guidance relevant for various levels i.e., individual, community, population, and in terms of content with suggested BCTs. In part this may be due to NICE guidelines focusing on BCIs while the MRC/NIHR framework remains universal for all forms of interventions including those considered more medical such as drug trials. Despite this, from perusing the literature it is apparent that many BCIs reference the MRC/NIHR framework and not the NICE guidelines. Given the importance of developing an intervention that HENRY can take to LA commissioners, this research will consider both the MRC/NIHR and NICE guidelines throughout the process of development and evaluation.

As with the overarching guidelines, the presented design and evaluation frameworks share many commonalities and elements which align with the MRC/NIHR framework and/or NICE guidelines. For example, the MINDSPACE framework of providing consistent policies fits with NICE guidelines to ensure population-level interventions are consistent with community and individual level ones. Additionally, the BCW use of BCTs meets NICE recommendations for being specific about content and what is done. Further, NICE guidelines specifically highlight the COM-B model to

understand behaviour which sits at the heart of the BCW. On balance, the BCW has been selected as the design framework to develop the new intervention. The strengths of the BCW overcome limitations of other models such as IM and PRECEDE-PROCEED which do not provide specific guidance on selection and use of theory, or selection of active components.

The BCW also includes more intervention options than either IM or MINDSPACE. Additionally, the authors have written a comprehensive step-by-step guide to using the BCW (Michie et al., 2014) making it easy to use, a sentiment reinforced through considering the ease of summarising each model for the purposes of this chapter. Finally, the BCW is becoming an industry standard. It is the model of choice for public health interventions at national (West et al., 2020) and local levels (West et al., 2019) and has been used extensively in this context across the UK (Moffatt, 2023). The BCW does not contain an integrated evaluation framework, per se. However, the APEASE criteria used within the BCW to guide selection of intervention components can be used as an evaluation framework and it aligns closely with considerations in the MRC/NIHR framework and NICE guidelines. Therefore, combining the BCW with an APEASE evaluation will provide consistency between design and evaluation phases of the research.

Chapter 3: A systematic review of interventions targeting physical activity and/or healthy eating behaviours in adolescents: practice and training

This chapter presents a systematic literature review conducted by HA-W for the purpose of this PhD, published as:

Allcott-Watson, H., Chater, A., Troop, N., & Howlett, N. (2023). A systematic review of interventions targeting physical activity and/or healthy eating behaviours in adolescents: practice and training. *Health Psychology Review*. 10:1-24. doi:10.1080/17437199.2023.2173631. Epub ahead of print.

A copy is presented here, though in order not to duplicate information within chapters of the thesis, sections of the published introduction have been relocated to Chapter 1. Doing so allows this chapter to focus purely on the review without reexplaining the problem at hand, which was however necessary to include in the published article. The manuscript was written by HA-W and reviewed by NH, AC and NT who suggested amendments to wording. The article has been re-formatted for presentation in this thesis.

3.1. Introduction

With increasing autonomy and independence from parents, adolescence is an opportune time to intervene and support the development of healthful behaviours. Some reviews have concluded that school-based physical activity (PA) interventions are effective (Carlin et al., 2016; Metcalf et al., 2012). Others have concluded that there is limited (Dobbins et al., 2013; Hynynen et al., 2016) or no evidence (Love et al., 2019b) for effective school-only interventions, but strong evidence for school-based interventions which actively involve the family (Van Slujis et al., 2007). Some reviews have found that effectiveness is limited to PA conducted during school hours and does not transfer to leisure time PA

(De Meester et al., 2009) while others have found that leisure time PA is improved through school-based interventions (Krielmer et al., 2011).

Fewer reviews have been conducted on healthy eating (HE) interventions and have tended to combine children and adolescents (Chaudhary et al., 2020; Racey et al., 2016), or adolescents and young adults (Chau et al., 2018). Others have considered HE in the context of either obesity prevention (Brown et al., 2019) or treatment (Al-Khudairy et al., 2017; Quelly et al., 2015). However, reviews investigating dietary quality in adolescents, including fruit and vegetable consumption, have found inconclusive evidence for nudge strategies (Nørnberg et al., 2016) or practical sessions on preparing and cooking food (Calvert et al., 2019), but promising evidence for website interventions (Rose et al., 2017) or the use of media within face-to-face interventions (Calvert et al., 2019). One review found mixed evidence for involving families (Murimi et al., 2018) while another determined that more effective interventions involved peers (Calvert et al., 2019). Finally, one review found that the majority of ineffective studies targeted more than one dietary behaviour (Calvert et al., 2019).

The inconsistent evidence base for both PA and HE could be due to the differing content between individual interventions. The development of the BCT taxonomy v1 (BCTT v1; Michie et al., 2013) now provides a standardised vocabulary for describing intervention content. This allows for the identification of intervention content which can then be compared and replicated in future studies. The taxonomy is frequently used to identify promising BCTs as part of a review (e.g., Martin et al., 2013) or from empirical research (e.g., Ojo et al., 2019), which can then be applied to new behaviour change interventions (e.g., Howlett et al., 2017).

Another reason for the inconsistent evidence base could be due to the differences in methodologies of the interventions (e.g., who delivers it). Some studies utilise their own research staff to deliver the intervention while others train professionals already in contact with participants such as teachers or nurses. The training of professionals is an under-researched area but has the potential to greatly affect the success of an intervention. Knowing what skills professionals have developed and their proficiency of using those skills to deliver the intervention as intended (fidelity), can provide

insights into why some interventions are successful and others are not. However, the level and quality of training provided are rarely considered or explored in terms of best practice for future interventions. A taxonomy related to the BCTT v1 has subsequently been developed by Pearson and colleagues (2020) and provides a standardised vocabulary to identify the ingredients of training programmes that may impact on the ability of professionals to deliver the intervention with optimal fidelity to planned content. Fidelity is the subject of a range of recent research (e.g. McGee et al., 2018), supported by the development of the Template for Intervention Design and Replication checklist (TIDieR; Hoffman et al., 2014). TIDieR is a standardised reporting tool to allow for intervention methodologies, content, and fidelity to be reported and replicated. Knowing how well an intervention was delivered according to the manual can provide valuable insights into the success or failure of different trials.

This review sought to explore the short and longer-term promise of PA and HE behaviour change interventions for young people, the associated promising BCTs at both time points and best practice of training professionals to deliver these types of programmes. None of the reviews highlighted have systematically considered the distinction between short-term effects on behaviour ('behaviour change') and longer-term effects ('maintenance'). To experience the benefits of PA and HE through to adulthood, the intervention needs to be able to produce effects after it has ended. During this maintenance phase, further behaviour change (from post-intervention) may be achieved, behaviour change may be sustained (from baseline or post-intervention), or new change from baseline may occur. All scenarios are evidence of the intervention having a positive longer-term effect.

Therefore, this review will consider behaviour change outcomes at post-intervention as well as maintenance, of at least six months after the end of the intervention, as per a previous review of adult PA literature (Howlett et al., 2019). To our knowledge this is the first review to consider only studies which have assessed both behaviour change and maintenance of PA and HE behaviours in adolescents, and the behaviour change techniques that are associated with effective PA or HE interventions at both time points. Additionally, this review will assess included studies against the

TIDieR checklist to allow for an assessment of reporting standards. A further unique contribution of this review is the inclusion of papers discussing approaches to the training of deliverers in interventions. By considering the training approaches used within PA and HE interventions, it is possible to gain insights into potential best practice leading to better outcomes for the professionals being trained and any knock-on effects for young people.

The aims of this review are: 1) to assess whether interventions targeting PA and/or HE among adolescents show promise in promoting behaviour change and maintenance; 2) to identify which BCTs from the BCTT v1 are associated with promising interventions targeting PA and/or HE behaviour among adolescents in relation to both behaviour change and maintenance; 3) to investigate the optimal approaches to training deliverers of interventions targeting PA and/or HE behaviour among adolescents.

3.2. Method

This review has been reported in accordance with the PRISMA Statement (Page et al., 2021; Appendix A). The review was registered with PROSPERO in May 2020 (registration number: CRD42020175245).

3.2.1. Eligibility criteria and search strategy

Both the inclusion/exclusion criteria and the search terms were built around the PICOS domains, as shown in Table 3.1. Intervention studies were eligible for inclusion where they used an RCT or quasi-experimental design with an active or passive control group. Participants had to be aged 10-19 years old with no chronic health conditions. Interventions had to primarily target PA and/or HE and be delivered in community settings. A primary outcome measure of PA or HE had to be used at baseline and at a minimum of six months post-intervention (referred to as 'maintenance'). A measurement at post-intervention (referred to as 'behaviour change') was not required. In addition to intervention studies, the review also included papers which reported on the training of professionals to deliver PA or HE interventions to young people aged 10-19 years old. It was not required that these papers relate to intervention studies included in the review.

Table 3.1.

Eligibility criteria and search terms

	Inclusion criteria	Exclusion criteria	Search term
Population	Study participants aged 10-19 years old.	Participants with chronic health conditions	(Adolescent* OR adolescence OR teenager OR teen* OR youth OR juvenile OR young person* OR young people)
			AND
Intervention	Any intervention whose primary aim was to improve PA or HE behaviours including fruit and vegetable consumption.	Interventions delivered in hospitals or in-patient settings. Feasibility trials. Interventions for the treatment of eating disorders.	([behav* intervention* OR BCT* OR behav* change technique* OR behav* change OR behav* change strateg*] OR [healthy eating OR healthy food OR health promotion* OR healthy eating programme OR healthy eating intervention OR eating behav* OR "fruit and veg* intake" OR "fruit and veg* consumption" OR "five a day" OR "5 a day" OR "5-a-day" OR diet OR eating habit*] OR [activit* OR physical activit* OR physical activit* promotion OR physical activit* intervention OR exercise OR exercise promotion* OR exercise programme OR exercise intervention] OR [training OR best practice OR lessons learned OR reflections OR learning OR feedback OR delivery])
Comparator	A comparator control group, either active or passive.	Single arm interventions	
			AND
Outcomes	Study's primary outcome was an objective or subjective measure of either PA or HE, assessed at baseline and at least six months post intervention.		(physical activit* OR activity OR walking OR exercise OR diet OR healthy eating OR eating behav* OR "fruit and veg*" OR healthy food)
			AND
Study design	Any study that used an RCT or quasi experimental design.	Case studies, case series, observational studies.	(RCT OR randomized controlled trial* OR randomised controlled trial* OR clinical trial OR quasi-experiment*)

3.2.2. Information sources

The following databases were included in the search: EMBASE, PsycINFO and PsycEXTRA all accessed through Ovid, CINAHL Plus and SPORTDiscus both accessed through EBSCOhost, Cochrane

Central Register of Controlled Trials (CENTRAL) via cochranelibrary.com/central, PubMed via pubmed.ncbi.nlm.nih.gov/ and Scopus via scopus.com. Grey literature was searched using PsycEXTRA (Ovid) and OpenGrey via opengrey.eu. Searches were conducted by title and abstract and were limited to publications written in English. Results included all entries from database inception to 20th July 2021. Reference lists of included studies were searched manually.

3.2.3. Selection process

Search results were exported into EndNote X8. Deduplication was conducted via EndNote and through manual screening and deletion. Records were initially screened by title and abstract (HW) according to the inclusion and exclusion criteria, with a random 10% screened independently by NH. Those which met the criteria were then assessed for eligibility according to the full text. Full text screening was conducted independently by two reviewers (HA-W, NH). During full text screening the authors of five papers were contacted to seek clarification of a study element and a further one author was contacted for results corresponding to a published protocol. Three authors provided the requested information; where no response was received the study was excluded from the review.

3.2.4. Data collection process and data items

Data was extracted (by HA-W and independently moderated by NH) and collated into a pre-piloted Excel spreadsheet using the following headings: general, study characteristics, participants, intervention features, outcomes and results (see Appendix B).

3.2.5. Study risk of bias assessment

For RCTs risk of bias was assessed using version 2 of the Cochrane risk-of-bias tool (RoB 2; Sterne et al., 2019). This tool assesses RCTs in five domains as low risk, some concerns or high risk before an overall rating is made. Assessments were made using the RoB 2 Excel tool which automatically applies an algorithm to calculate level of risk dependent upon reviewers' responses to signalling questions. HA-W and NH independently assessed risk of bias, with an agreement of .82 (Krippendorffs alpha). Risk of bias in quasi-experimental studies was assessed using the Risk of bias in non-randomised studies – of interventions tool (ROBINS-I; Sterne et al., 2016). The ROBINS-I tool

assesses risk across seven domains as low, moderate, serious, critical or no information. All risk of bias assessments were conducted independently by two reviewers (HA-W, NH).

3.2.6. TIDieR

Intervention studies were also assessed against the TIDieR checklist which contains items prompting the reporting of an intervention in sufficient detail to allow replication (Hoffman et al., 2014). The 12 Items were rated as present, missing, incomplete or not applicable. All studies were rated by one reviewer (HA-W) and five (38%) were rated independently by a second reviewer (NT), showing an inter-rater reliability of .89 (Krippendorffs alpha). The remaining studies were moderated by NT and NH.

3.2.7. Behaviour change techniques

Intervention content reported in any published paper (including protocols) relating to the experimental and active control groups of included intervention studies was coded using the BCTT v1 (Michie et al., 2013). For studies targeting both PA and HE, BCTs were coded separately for the PA and HE content. Where BCTs were referred to generically, it was assumed it be present for both PA and HE content. Training papers were coded using a modified taxonomy aimed at coding the training content for healthcare providers (Pearson et al., 2020). Coding was conducted independently by two reviewers (HA-W, NH), consulting a third (AMC) to resolve discrepancies. Krippendorffs alpha showed an inter-rater reliability of .93.

3.2.8. Synthesis methods

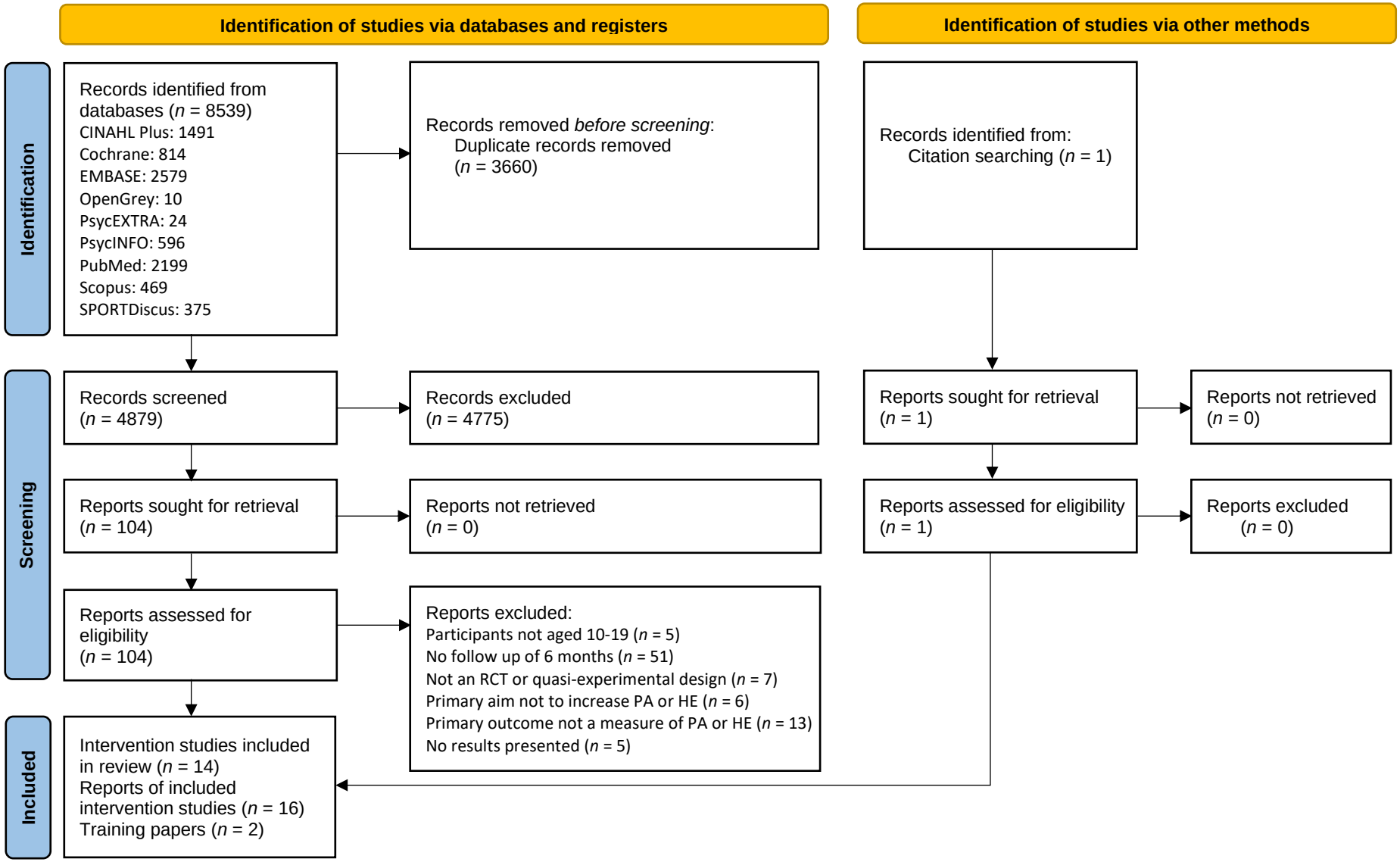
Given the heterogeneity of outcome measures, a meta-analysis was not possible. Therefore, the promise of intervention studies was considered in terms of presented results at post intervention and follow up. Promise ratios were used to explore whether studies achieved statistically significant improvements in primary outcomes and whether study promise was related to specific BCTs. All intervention studies were eligible for the calculation of promise ratios, which, presented in table format, were calculated using the method of Gardner et al. (2016) based on original work by Martin et al. (2013). In brief, BCTs had to appear in at least two studies and had to be unique to a study's

intervention group i.e., not in the control group as well. Ratios were calculated as the number of times the technique appeared in a very or quite promising intervention divided by the number of times it appeared in non-promising interventions. An intervention was considered to be very promising when results on any measurement of the primary outcome showed both a within and between group significant difference in favour of the experimental group. Quite promising interventions were ones that showed either a within or between groups significant difference in favour of the experimental group, while those that showed neither of these were considered non-promising. BCTs were considered promising when used in at least twice the number of promising than non-promising interventions i.e., their ratio was ≥2. Promise ratios were calculated separately for PA and HE interventions, and further split into behaviour change measured at post-intervention and behaviour change maintenance using follow up results.

To explore best practice in the training of deliverers, it was intended to compare the content of training as identified with the BCT taxonomy by Pearson et al. (2020) between promising and non-promising studies. However, given the nature of the studies relating to the included training papers this was not possible and a narrative synthesis of the BCTs used and outcomes of the training was conducted instead.

Figure 3.1.

PRISMA diagram showing search results



3.3. Results

3.3.1. Study Selection

Figure 3.1. shows the PRISMA flowchart with the final review containing 14 intervention studies and two training papers.

3.3.2. Study characteristics – intervention studies

Study characteristics for intervention studies can be seen in Table 3.2. Studies were conducted in a variety of countries. Of the 14 included intervention studies, seven targeted PA, three HE, and four targeted both. A total of 13,243 participants, 47% female, ranging in age from 9-19 years were included in this review split between PA (*n* = 8560, 47% female) and HE studies (*n* = 6234, 49% female). Three studies included 9-year-olds (Jemmott et al., 2011; Meydanlioglu & Ergun, 2019; Viggiano et al., 2015), below the intended age range, however the vast majority of participants were aged 10 or older. One study used a female only population (Taymoori et al., 2008) and another used a male only population (Jago et al., 2006). Most conducted RCTs (Corder et al., 2020; Cui et al., 2012; Isensee et al., 2018; Jago et al., 2006; Jemmott et al., 2011; Kuroko et al., 2020; Lin et al., 2017; Prado et al., 2020; Prins et al., 2012; Ridgers et al., 2021; Taymoori et al., 2008; Viggiano et al., 2015) though two used a quasi-experimental design (Ardic & Erdogan, 2017; Meydanlioglu & Ergun, 2019).

Ten studies reported the intervention being based on theories of behaviour change, with half of these citing Social Cognitive Theory (Cui et al., 2012; Jemmott et al., 2011; Meydanlioglu & Ergun, 2019; Prins et al., 2012; Ridgers et al., 2021). Six studies used an active control group which were all the same duration as the experimental group (Ardic & Erdogan, 2017; Jago et al., 2006; Jemmott et al., 2011; Prado et al., 2020; Prins et al., 2012; Taymoori et al., 2008). Only two studies used an objective measure of PA, accelerometers (Corder et al., 2020; Jago et al., 2006), the others used self-reported questionnaires or an activity log. All but four studies were conducted within schools during term time, one was conducted online (Ridgers et al., 2021), one in local parks plus other unspecified locations (Prado et al., 2020), one online plus unspecified locations (Jago et al., 2006), and the other took place in local education facilities during school holidays (Kuroko et al., 2020). Interventions

ranged in duration from six days to six months with an average of 11 weeks in PA studies and 9 weeks in HE studies. The mean duration of follow up post intervention was 10 months for PA studies and 12 months for HE studies.

Table 3.2.

Study characteristics of included intervention studies

Study details **Inclusion/exclusion criteria**	**Demographics** **Age presented as mean(*SD*) unless otherwise stated**	**Duration of intervention and follow up**	**Number of participants at each time point**	**Primary outcome and method of measurement**	**Baseline scores mean(*SD*) unless otherwise stated**	**Result post-intervention mean(*SD*) unless otherwise stated**	**Result follow up mean(*SD*) unless otherwise stated**
Ardic (2017) **Country:** Turkey **Design:** Quasi-experimental **Groups:** Intervention and control **Intervention group activities:** Weekly 40-minute sessions for 15 weeks. 10-15 minutes of PA each session, educational information provided on PA and nutrition, homework set during sessions, daily pedometer use. **Control group activities:** Pedometers, health topics not covered in intervention group. **BCTs used:** Problem solving; Goal setting (outcome); Self-monitoring of behaviour (PA only)*; Information about health	**Age** E: 12.8(0.81) C: 12.85(0.75) **% Female** E: 53.3 C: 47.6 **Ethnicity** Not measured	**Intervention** 15 weeks **Follow up** 6, 12 months	**Baseline** E: 50 C: 50 **Post** E: 45 C: 42 **6m FU** E: 35 C: 35 **12m FU** E: 33 C: 33	Daily fruit and vegetable consumption, physical activity behaviours score (questionnaires)	**Fruit and veg** E: 2.21(1.07) C: 2.30(1.13) **PA behaviour** E: 15.57(3.05) C: 16.95(2.99)	**Fruit and veg** E: 2.67(1.17) C: 2.34(0.80) **PA behaviour** E: 18.45(2.88) C: 16.45(3.92)	<u>6mFU</u> **Fruit and veg** E: 2.96(1.13) C: 2.29(0.75) **PA behaviour** E: 18.77(3.69) C: 16.25(3.85) <u>12mFU</u> **Fruit and veg** E: 3.01(0.97) C: 2.33(0.81) **PA behaviour** E: 18.66(3.23) C: 16.24(3.85)

consequences; Behavioural practice/rehearsal (PA only) **Inclusion:** 12-15 years old, agreed to take part **Exclusion:** Physical or mental disability							
Corder (2020) **Country:** UK **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Weekly 1-hour sessions for 12 weeks. Mentors and peer leaders encouraged students to try new activities and log activity points on website, accelerometer use. **Control group activities:** No intervention **BCTs used:** Goal setting (behaviour); Self-monitoring of behaviour; Social support (unspecified); Instruction on how to perform the behaviour; Demonstration of the behaviour; Social comparison; Material incentive (behaviour); Material reward (behaviour); Social reward; Social incentive; Reduce negative emotions; Restructuring the social environment; Identification of self as	**Age** E: 13.2(0.4) C: 13.2(0.4) **% Female** E: 48.9 C: 46.6 **Ethnicity** E: 83.5% white, 6.3% mixed, 4.3% Asian, 2.7% African/Caribbean, 2.0% other. C: 86.1% white, 6.2% mixed, 3.2% Asian, 2.2% African/Caribbean, 1.3% other.	**Intervention** 12 weeks **Follow up** 10 months	**Baseline** E: 1543 C: 1319 **Post** E: 1232 C: 1156 **Follow up** E: 1166 C: 1001	Average daily minutes of MVPA (accelerometer)	E: 35.6(18.3) C: 35.6(18.9)	E: 33.6(22.1) C: 35.5(21.4)	E: 25.6(21.5) C: 27.6(20.6)

role model; Reduce reward frequency; Verbal persuasion about capability **Inclusion:** All students in year 9 in the 2016-17 academic year **Exclusion:** None							
Cui (2012) **Country:** China **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Weekly 40-minute sessions for 4 weeks. Peer leaders delivered sessions providing education on PA. **Control group activities:** No intervention **BCTs used:** Goal setting (outcome); Social support (unspecified) **Inclusion/exclusion:** Not reported	**Age** E: boys = 12.7(0.5) girls = 12.6(0.5) C: boys = 12.8(0.5) girls = 12.6(0.4) **% Female** E: 47.49 C: 42.86 **Ethnicity** Not measured	**Intervention** 4 weeks **Follow up** 6-7 months	**Baseline** E: 358 C: 371 **Post** Not measured **Follow up** E: 346 C: 336	MVPA (questionnaire)	E: 190.1(10.8) C: 196.7(11.1)	Not measured	E: 171.6(11.2) C: 171.3(11.4)
Isensee (2018) **Country:** Germany **Design:** RCT **Groups:** Intervention and control	**Age** E: 13.68(0.65) C: 13.71(0.66) **% Female** E: 46.2 C: 49.9	**Intervention** 12 weeks **Follow up** 12 months	**Baseline** E: 790 C: 506 **Post** E: 774 C: 513	Days of week with 1hr MVPA (questionnaire)	E: 3.96(0.11) C: 4.34(0.14)	E: 4.37(0.10) C: 4.39(0.13)	E: 4.13(0.11) C: 4.13(0.14)

Intervention group activities: Four 45-minute sessions receiving education on PA, daily pedometer use for 12 weeks and students log steps on website. Between class competitions based on collective step counts. **Control group activities:** No intervention **BCTs used:** Goal setting (behaviour); Problem solving; Feedback on behaviour; Self-monitoring of behaviour; Social support (unspecified); Social comparison; Material reward (behaviour) **Inclusion:** Not reported **Exclusion:** Schools for disabled students	**Ethnicity** Not measured		**Follow up** E: 709 C: 414				
Jago (2006) **Country:** USA **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Weekly 20-minute PA sessions during Scout troop meetings for 8 weeks (award ceremony in week 9). Weekly website use to develop problem solving skills for PA behaviour, set weekly goals, and report progress.	**Age** E: 13 C: 13 **% Female** E: 0% C: 0% **Ethnicity** Spring wave E: 68.1% Anglo-American, 3.3% African American,	**Intervention** 9 weeks **Follow up** 6 months	**Baseline** E:240 C: 233 **Post** E: 231 C: 228 **Follow up** E: 209 C: 208	Mins per day in light or MVPA (accelerometer)	**(**Mean(SE)) **Light PA** Spring wave E: 143.6(4.9) C: 145.0(5.6) Fall wave E: 136.7(4.2) C: 132.1(4.1) **MVPA** Spring wave E: 27.1(2.2)	Mean(SE) **Light PA** Spring wave E: 155.9(4.9) C: 150.3(5.4) Fall wave E: 129.9(3.9) C: 132.0(3.5) **MVPA** Spring wave E: 25.3(2.2)	Mean(SE) **Light PA** Spring wave E: 136.2(5.3) C: 136.2(6.1) Fall wave E: 136.1(4.5) C: 125.7(3.8) **MVPA** Spring wave E: 29.4(2.4)

Control group activities: Fruit and vegetable intervention **BCTs used:** Goal setting (behaviour); Problem solving; Review behaviour goal; Social support (unspecified); Instruction on how to perform the behaviour; Behavioural practice/rehearsal; Graded tasks; Material reward (behaviour) **Inclusion/exclusion:** Not reported	18.7% Hispanic, 9.9% other C: 78.1% Anglo-American, 4.7% African American, 7.8% Hispanic, 9.4% other Fall wave E: 79.2% Anglo-American, 2.0% African American, 12.1% Hispanic, 6.7% other C: 68.9% Anglo-American, 4.8% African American, 14.4% Hispanic, 12.0% other				C: 28.1(2.5) Fall wave E: 23.9(1.9) C: 21.1(1.8)	C: 27.7(2.4) Fall wave E: 24.1(1.7) C: 22.8(1.6)	C: 28.9(2.7) Fall wave E: 27.2(1.9) C: 24.2(1.7)
Jemmott (2011) **Country:** South Africa **Design:** RCT **Groups:** Intervention and control	**Age** E: 9-11 years = 21% 12-13 years = 61.4 14-18 years = 17.6	**Intervention** 6 days **Follow up** 3, 6, 12, 42, 54 months	**Baseline** E: 495 C: 562 **Post**	% meeting fruit and vegetable guideline in last 30 days, **PA**	**Fruit and veg** E: 46.46% C: 51.07%	Not measured	6m** **Fruit and veg** E: 50.30% C: 46.09% **PA**

Intervention group activities: Daily 2-hour sessions for 6 days. Education provided on range of health topics including PA and HE. **Control group activities:** HIV/STD intervention **Inclusion:** Grade six, provided written assent and consent **Exclusion:** Not reported **BCTs used:** Goal setting (behaviour) (PA only); Problem solving (HE only); Action planning (PA only); Commitment; Biofeedback (PA only); Social support (practical); Instruction on how to perform the behaviour (HE only); Information about health consequences; Behavioural practice/rehearsal (PA only)	C: 9-11 years = 25.6 12-13 years = 58.7 14-18 years = 15.7 **% Female** E: 50.9 C: 54.5 **Ethnicity** Not measured		Not measured **6m FU** E: 483 C: 547 **12m FU** E: 477 C: 545	% meeting PA guideline in last 7 days (questionnaires)	C: 35.05%		E: 48.08% C: 38.08% <u>12m</u> **Fruit and veg** E: 49.29% C: 45.37% **PA** E: 50.30% C: 42.17%
Kuroko (2020) **Country:** New Zealand **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Phase 1 – Five 6-and-a-quarter hour cooking sessions including demonstrations, information on nutrition and kitchen safety, and cooking.	**Age** E: 14.1(0.8) C: 14.3(0.7) **% Female** E: 60 C: 78 **Ethnicity** E: Maori 14%, New Zealand	**Intervention** 7 weeks **Follow up** 12 months	**Baseline** E: 91 C: 27 **Post** E: 85 C: 26 **Follow up** E: 86 C: 27	Diet quality (questionnaire)	E: 60(14) C: 57(14)	Change: E: 2(13) C: -2(12)	Change: E: -2(13) C: -2(9)

Phase 2 – Six weekly deliveries of ingredients for home cooking alongside online support. **Control group activities:** Measurement only **BCTs used:** Social support (unspecified); Instruction on how to perform the behaviour; Demonstration of the behaviour; Behavioural practice/rehearsal; Generalisation of the target behaviour; Credible source; Material reward (behaviour); Adding objects to the environment **Inclusion:** Not reported **Exclusion:** Having another sibling enrolled in the study, disability that prevented them from working safely in the kitchen	European and other 86%. C: Maori 15%, New Zealand European and other 85%.						
Lin (2017) **Country:** Iran **Design:** RCT **Groups:** 2 intervention and 1 control **Intervention group activities:** Adolescent group – One 20-minute discussion on F&V consumption, food log for 1 month. Adolescent + Mothers group – same as	**Age** A: 14.62(3.01) A+M: 14.49(3.24) C: 14.12(2.35) **% Female** A: 47 A+M: 52 C: 49 **Ethnicity**	**Intervention** 1 month **Follow up** 6 months	**Baseline** A: 462 A+M: 510 C: 483 **Post** A: 456 A+M: 502 C: 478 **Follow up**	Daily fruit and vegetable consumption (questionnaire)	**Fruit** A: 3.03(1.46) A+M: 3.42(1.29) C: 3.30(1.62) **Vegetables** A: 2.00(0.99) A+M: 2.11(1.13)	**Fruit** A: 3.31(1.06) A+M: 4.49(1.16) C: 3.04(1.18) **Vegetables** A: 2.33(1.02) A+M: 2.89(1.25)	**Fruit** A: 3.28(1.18) A+M: 4.47(1.36) C: 2.76(1.24) **Vegetables** A: 2.34(1.09) A+M: 2.92(1.18)

adolescent group, with mothers invited to attend a discussion on F&V consumption. **Control group activities:** Measurement only **BCTs used:** Problem solving; Action planning; Self-monitoring of behaviour; Information about health consequences; Pros and cons; Comparative imagining of future outcomes **Inclusion:** Not reported **Exclusion:** School already involved in a nutrition programme	Not measured		A: 449 A+M: 493 C: 474		C: 2.17(1.56)	C: 2.08(0.96)	C: 1.91(0.95)
Meydanlioglu (2019) **Country:** Turkey **Design:** Quasi-experimental **Groups:** Intervention and control **Intervention group activities:** Twelve 40-minute sessions over 6 weeks. Educational sessions on PA and HE. **Control group activities:** Waitlist **BCTs used:** Goal setting (behaviour); Action planning (HE only); Self-monitoring of behaviour (HE only); Social support (unspecified); Instruction on how to perform the behaviour	**Age** E: 9 years = 14.1% 10 years = 73.4% 11 years = 12.5% C: 9 years = 15.8% 10 years = 70.2% 11 years = 14% **% Female** E: 48.4 C: 58 **Ethnicity** Not measured	**Intervention** 6 weeks **Follow up** 6 months	**Baseline** E: 64 C: 50 **Post** Not reported **Follow up** Not reported	Food behaviour, PA level (questionnaires)	**Food behaviour** (median) E: 6 C: 4 **PA level** (median) E: 3 C: 2.9	**Food behaviour** (median) E: 10 C: 4 **PA level** (median) E: 3.5 C: 2.8	**Food behaviour** (median) E: 6.5 C: 4 **PA level** (median) E: 3.8 C: 3.1

(HE only); Information about health consequences; Behavioural practice/rehearsal (HE only); Behaviour substitution (HE only) **Inclusion:** Not reported **Exclusion:** Not reported							
Prado (2020) **Country:** America **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Eight 2.5-hour sessions (group sessions) and four 1-hour sessions (family sessions) over 12 weeks (one session per week). During group sessions young people engaged in 1.5 hours of PA, last hour spent in discussions with parents on PA and HE. Family sessions were private meetings with facilitators to practice skills. **Control group activities:** Treatment as usual **BCTs used:** Instruction on how to perform the behaviour; Demonstration of the behaviour; Behavioural practice/rehearsal; Credible source (PA only)	**Age** E: 13.04(0.87) C: 12.99(0.79) **% Female** E: 49.3 C: 55 **Ethnicity** E: US born = 60.7%, foreign born = 39.3% C: US born = 67.9%, foreign born = 32.1%	**Intervention** 12 weeks **Follow up** 24 months	**Baseline** E: 140 C: 140 **Post** E: 122 C: 123 **Follow up:** E: 81 C: 95	PA, dietary intake (questionnaires)	**MVPA mins per month** E: 360(665) C: 360(827.5) **Cups fruit and veg** E: 2.49(2.43) C: 2.49(2.27)	Not reported	Not reported

Inclusion: Hispanic student in 7/8th grade, BMI ≥85th percentile, live with an adult willing to take part, plans to remain in area for duration of study. **Exclusion:** BMI <85th percentile adjusted for age and sex, serious health issue for either parent or child.							
Prins (2012) **Country:** The Netherlands **Design:** RCT **Groups:** 2 intervention (YouRAction, YouRAction+e) and 1 control **Intervention group activities:** Three 35 minute sessions. YouRAction group – During class students logged onto website which provided knowledge and addressed motivation for PA behaviour, homework set after sessions 2 and 3. YouRAction+e group – same as other group plus students received information on PA opportunities in local area. **Control group activities:** Non-tailored PA and HE website	**Age** EA: 12.7(0.5) EB: 12.7(0.5) C: 12.6(0.4) **% Female** EA: 47.2 EB: 49.1 C: 46.6 **Ethnicity** EA: 25.2 non-western EB: 22.1 non-western C: 17.7 non western	**Intervention** Not reported **Follow up** 1, 6 months	**Baseline** EA: 366 EB: 423 C:424 **Post** Not measured **Follow up** EA: 301 EB: 328 C: 355	Compliance with MVPA guidelines, daily minutes spent in MVPA (questionnaires)	**Compliance** EA: 17.3% EB: 15.3% C: 12.6% **Mins MVPA** EA: 126.1(142.1) EB: 117.3(104.4) C: 134.9(125.6)	Not measured	**Compliance** EA: 13% EB: 15.7% C: 18.8% **Mins MVPA** EA: 108.1(109.5) EB: 115(90.6) C: 111.5(92.6)

BCTs used: Goal setting (behaviour); Problem solving; Action planning; Review behaviour goal; Behavioural contract; Commitment; Feedback on behaviour; Self-monitoring of behaviour; Information about health consequences; Social comparison; Pros and cons; Self-incentive; Avoiding/reducing exposure to cues for the behaviour **Inclusion:** Schools: located within Rotterdam or the Hague, educational level of VMBO-t or higher Students: all students in classes selected **Exclusion:** Schools: not reported Students: Student or parent opts out							
Ridgers (2021) **Country:** Australia **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Weekly PA missions provided via Facebook group for 12 weeks in addition to behaviour change resources. Young people provided with Fitbit. **Control group activities:** Waitlist	**Age** E: 13.8(0.4) C: 13.7(0.4) **% Female** E: 48.6 C: 56.4 **Ethnicity** Not reported	**Intervention** 12 weeks **Follow up** 6 months	**Baseline** E: 144 C: 131 **Post** E: 136 C: 124 **Follow up** E: 117 C: 116	Daily MVPA mins (accelerometer)	E: 36.6(19.3) C: 39.1(18.4)	Not reported	Not reported

BCTs used: Goal setting (behaviour); Problem solving; Action planning; Review behaviour goal; Review outcome goal; Commitment; Self-monitoring of behaviour; Social support (unspecified); Social support (practical); Social support (emotional); Instruction on how to perform the behaviour; Social comparison; Prompts/cues; Habit reversal; Graded tasks; Social reward; Identification of self as role model **Inclusion:** Schools: within 60km of the university, socio-economic indexes for areas score of ≤5. Students: at least 13 years old, in year 8, access to internet outside of school, did not engage in regular PA, did not meet guidelines for PA, had not previously used a wearable activity tracker **Exclusion:** Not reported							
Taymoori (2008) **Country:** Iran **Design:** RCT	**Age** EC: 14.77(0.48) ED: 14.74(0.42) C: 14.87(0.43) **% Female**	**Intervention** 6 months **Follow up** 6-7 months	**Baseline** EC: 55 ED: 54 C: 52 **Post**	Mean mins of PA per day (activity log)	EC: 27.16(12.02) ED: 28.56(11.30)	EC: 75.80(27.52) ED: 73.61(28.73)	EC: 60.04(24.87) ED: 56.79(27.58)

Groups: 2 intervention (THP group – intervention based on Health Promotion model and constructs from the Transtheoretical model; HP group – intervention based on Health Promotion model only) and 1 control **Intervention group activities:** THP and HP groups – Four 45–60-minute education sessions on PA tailored to assessed stage of change, over 24 weeks. Three individual 20-25-minute counselling sessions and one individual phone call. Mothers received two 60-minute sessions on PA and supporting their daughters. One session of mountaineering for young people and mothers. **Control group activities:** Usual PE program **BCTs used:** Goal setting (behaviour); Problem solving; Action planning; Review behaviour goal; Commitment; Social support (unspecified); Social support (practical); Information about health consequences; Demonstration of the behaviour; Prompts/cues; Behaviour substitution; Graded tasks; Non-specific reward; Self-reward;	EC: 100% ED: 100% C: 100% **Ethnicity** EC: 14.77(0.4) ED: 14.74(0.42) C: 14.87(0.43)		Not reported **Follow up** Not reported		C: 30.63(12.29)	C: 37.26(20.45)	C: 46.26(21.89)

Reduce negative emotions; Avoiding/reducing exposure to cues for the behaviour; Verbal persuasion about capability **Inclusion:** Female, in the preparation stage of change at baseline, in grade 9 or 10 **Exclusion:** Not reported							
Viggiano (2015) **Country:** Italy **Design:** RCT **Groups:** Intervention and control **Intervention group activities:** Weekly 15-30-minute sessions for 20 weeks. In small groups students played a board game to learn about nutrition. **Control group activities:** No intervention **BCTs used:** Not reported **Inclusion:** School: located in Naples or Salerno **Exclusion:** Individual: refused to take part	**Age** Mean **(**range**)** E: 13.3 (13.2-13.4) C: 13 (12.9-13.04) **% Female** E: 45 C: 49 **Ethnicity** Not measured	**Intervention** 20 weeks **Follow up** 12 months	**Baseline** E: 1663 C: 1447 **Post** E: 1076 C: 1080 **Follow up** E: 624 C: 421	Score on Adolescent Food Habits Checklist (questionnaire)	(Score and 95% confidence intervals) E: 9.7 (9.2-10.1) C: 10.2 (9.8-10.5)	(Score and 95% confidence intervals) E: 14.4 (14.0-14.8) C: 10.9 (10.6-11.2)	(Score and 95% confidence intervals) E: 11.6 (11.1-12.0) C: 10.5 (9.9-11.0)

Note. E = experimental group, C = control group, FU = Follow up, A = Adolescent experimental group, A+M = Adolescent plus mothers experimental group, EA = YouRAction experimental group, EB = YouRAction+e experimental group, EC = THP experimental group, ED = HP experimental group, PA = Physical activity, MVPA = moderate to vigorous physical activity

Listed BCTs used in intervention groups only, unless marked with * which indicates use in both intervention and control groups

**Follow up data at 42 and 54 months reported by authors but not used in this analysis

3.3.3. Risk of bias in intervention studies

3.3.3.1. RCTs

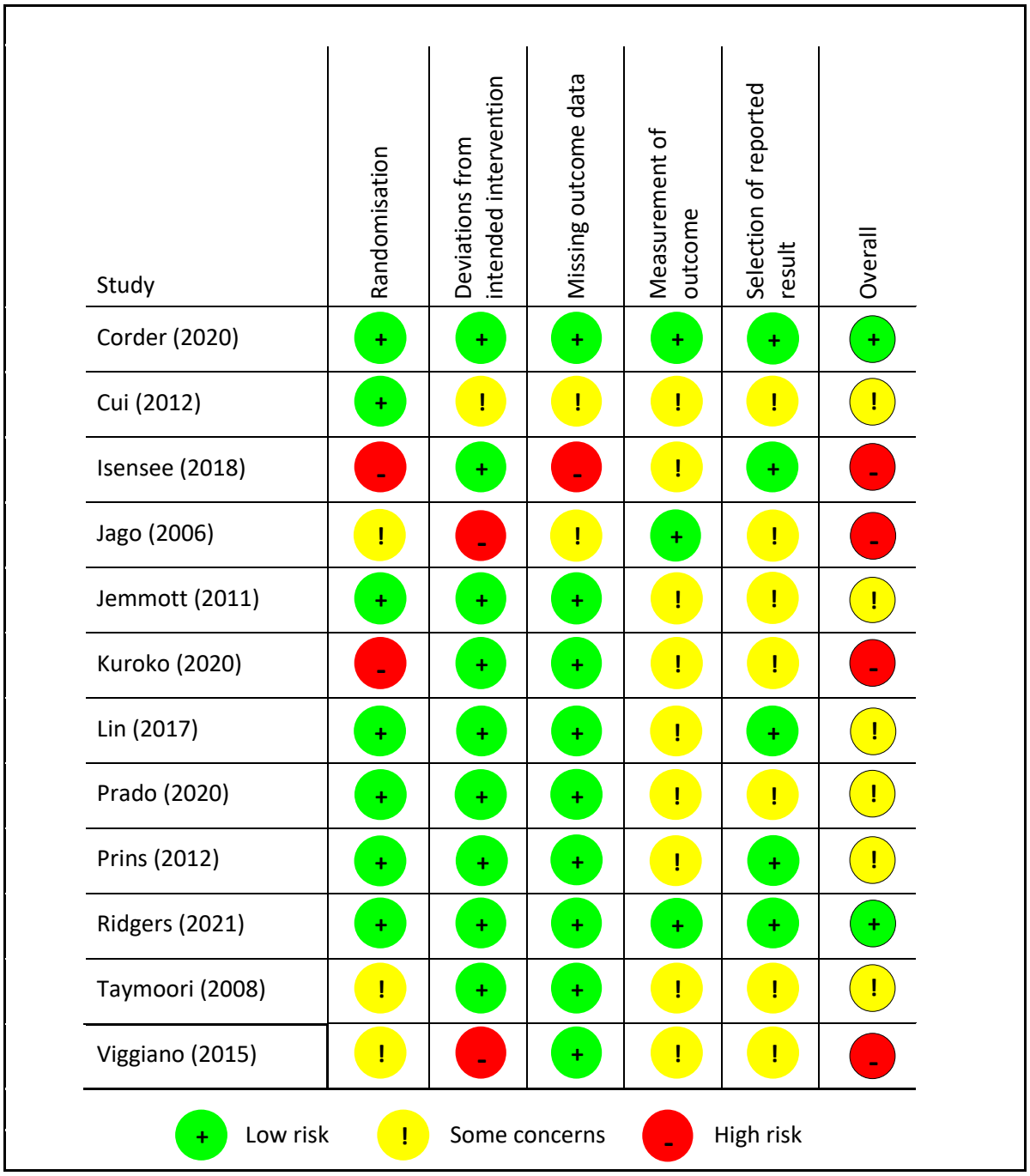
As seen in Figure 3.2. only two RCTs were assessed as having a low risk of bias in all domains (Corder et al., 2020; Ridgers et al., 2021). Four studies were considered to be at high risk of bias overall (Isensee et al., 2018; Jago et al., 2006; Kuroko et al., 2020; Viggiano et al., 2015), and six at some risk (Cui et al., 2012; Jemmott et al., 2011; Lin et al., 2017; Prado et al., 2020; Prins et al., 2012; Taymoori et al., 2008). The domains most consistently rated as low risk were deviations from the intended intervention and missing outcome data (9/12 studies each), while the domains with the highest risk across all studies was randomisation and deviations from the intended intervention (2/12 studies each).

3.3.3.2. Quasi-experimental intervention studies

One study was rated as being at moderate risk of bias overall (Meydanlioglu & Ergun, 2019) and the other at serious risk (Ardic & Erdogan, 2017). Both studies were rated at low risk in four domains (confounding, selection of participants, classification of interventions, deviations from the intended interventions), moderate risk for measurement of outcomes, whilst insufficient information for selection of the reported result meant both studies were rated as No Information (NI). In the missing data domain, one study was rated as serious risk (Ardic et al., 2017) and the other as NI (Meydanlioglu & Ergun, 2019).

Figure 3.2.

Domain and overall risk of bias ratings for intervention RCT studies



3.3.4. TIDieR

Intervention studies ranged in the number of items they reported from one to ten, with an average of 6. The most frequently reported items were brief name (*n* = 13), procedure (*n* = 12), rationale and when and how much (both *n* = 11). All studies were rated as incomplete for materials,

usually due to not providing copies of, or access to, the materials. All three studies that provided tailored interventions reported the details (Jemmot et al., 2011; Prins et al., 2012; Taymoori et al., 2008). Only two studies reported both planned and measured adherence/fidelity (Corder et al., 2020; Prins et al., 2012), while three studies partially reported adherence/fidelity despite not reporting the intention to do so (Jago et al., 2006; Kuroko et al., 2020; Prado et al., 2020). A further two studies reported some aspect of adherence/fidelity after either planning to do so (Ridgers et al., 2021), or partially discussing the plan (Cui et al., 2012). A summary of included TIDieR items can be found in Table 3.3., while Appendix C details the contents of each item.

Table 3.3.

Summary of TIDieR items reported in intervention studies

TIDieR item	Ardic (2017)	Corder (2020)	Cui (2012)	Isensee (2018)	Jago (2006)	Jemmott (2011)	Kuroko (2020)	Lin (2017)	Meydanlioglu (2019)	Prado (2020)	Prins (2012)	Ridgers (2021)	Taymoori (2008)	Viggiano (2015)
Brief name	P	P	P	P	P	P	P	M	P	P	P	P	P	P
Rationale	P	P	P	P	M	P	I	P	P	P	P	P	P	I
Materials	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Procedures	P	P	P	P	P	P	P	I	P	P	P	I	P	P
Deliverer	M	I	P	I	I	P	I	M	I	I	P	I	I	I
How (mode of delivery)	I	P	P	P	P	P	P	I	P	I	P	I	P	P
Where (location)	P	P	P	P	M	P	P	M	P	I	P	I	P	P
When and how much	P	I	P	I	P	P	P	I	P	P	P	P	P	P
Tailoring	n/a	n/a	n/a	n/a	n/a	P	n/a	n/a	n/a	n/a	P	n/a	P	n/a
Modifications	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Planned adherence/fidelity	M	P	I	I	M	M	M	M	M	M	P	P	M	M
Actual adherence/fidelity	M	P	I	M	I	M	I	M	M	I	P	I	M	M

Note. P = present, I = incomplete, M = missing, n/a = not applicable

3.3.5. BCTs – PA studies

Seventeen techniques appeared only once, and 21 were used by multiple studies, resulting in 38 unique BCTs used across PA studies. The number of BCTs used per intervention ranged from 2 to 17, the average being 8.6. The most frequently coded techniques were 1.1 'goal setting behaviour' (*k* = 8), 1.3 'social support unspecified' (*k* = 7) and 1.2 'problem solving' (*k* = 6). A full list of BCTs used in each study can be found in Appendix D and Table 3.2.

3.3.6. Promise ratios – PA studies

Table 3.4. shows the promise classifications for all studies. Jemmott et al. (2011) measured outcomes at 6, 12, 42 and 54 month follow ups. Given the 42 and 54 month follow ups were of a far greater duration than those used in all other PA studies (range 6-12 months), it was decided to use only the 6 and 12 month follow up results. Neither Jemmott et al. (2011), Cui et al. (2012) nor Prins et al. (2012) measured outcomes at post-intervention so were excluded from the behaviour change analysis at this time point.

With regards to behaviour change, 14 BCTs were assessed. Of these, one showed promise: 5.1 'information about health consequences' (used in promising studies only). Promise ratios for maintenance were calculated for 18 BCTs. Two of these were found to be promising: 3.2 'social support (practical)', (ratio = 2), and 5.1 'information about health consequences' (ratio = 4). Promise ratios for all BCTs can be seen in Table 3.5.

3.3.7. BCTs – HE studies

The number of BCTs reported in HE studies varied from none to eight, with an average of 4.9. The most common BCTs were 4.1 'instruction on how to perform the behaviour' and 5.1 'information about health consequences' (both *k* = 4), and 1.2 'problem solving' and 8.1 'behavioural practice/ rehearsal' (both *k* = 3). In total there were 20 unique BCTs identified in HE studies occurring 34 times.

Table 3.4.

Classification of behaviour change and maintenance results of intervention studies for Promise Ratio calculations

Author (year)	Physical activity studies		Healthy eating studies	
	(Behaviour change)	(Maintenance)	(Behaviour change)	(Maintenance)
Ardic (2017)	Quite	Very	Quite	Very
Corder (2020)	Non	Non	n/a	n/a
Cui (2012)	n/m	Non	n/a	n/a
Isensee (2018)	Very	Very	n/a	n/a
Jago (2006)	Non	Non	n/a	n/a
Jemmott (2011)	n/m	Very	n/m	Very
Kuroko (2020)	n/a	n/a	Very	Non
Lin (2017)	n/a	n/a	n/m	Very
Meydanlioglu (2019)	Very	Very	Very	Very
Prado (2020)	Non	Non	Non	Non
Prins (2012)	n/m	Non	n/a	n/a
Ridgers (2021)	Non	Non	n/a	n/a
Taymoori (2008)	Quite	Very	n/a	n/a
Viggiano (2015)	n/a	n/a	Very	Non

Note. n/a = not applicable as study did not measure that outcome, n/m = not measured as study did not measure outcomes at that time point

3.3.8. Promise ratios – HE studies

Table 3.4. shows the promise classifications for all HE studies. The Jemmott et al. (2011) study was treated the same as for PA promise ratios meaning it was considered very promising at follow up but did not have a post-intervention outcome. Likewise, Lin et al. (2017) did not measure outcomes at post-intervention and was excluded from analysis at that time point.

As shown in Table 3.5., for behaviour change, four BCTs showed promise, 4.1 'instruction on how to perform the behaviour' and 8.1 'behavioural/practice rehearsal' (both ratio = 2) and two were

used only in promising studies, 3.1 'social support (unspecified)' and 5.1 'information about health consequences' (both *k* = 2). Promise ratios to assess maintenance showed four BCTs used in only promising studies: 5.1 'information about health consequences' (*k* = 4), 1.2 'problem solving' (*k* = 3), 1.4 'action planning' and 2.3 'self-monitoring of behaviour' (both *k* = 2).

Table 3.5.

Promise ratios for BCTs used in intervention studies

	Physical activity studies		Healthy eating studies	
BCT (No.)	Promise ratio for behaviour change	Promise ratio for maintenance	Promise ratio for behaviour change	Promise ratio for maintenance
Goal setting behaviour (1.1)	1	1		
Problem solving (1.2)	1.5	1		3*
Goal setting outcome (1.3)		1		
Action planning (1.4)	1	1		2*
Review behaviour goal (1.5)	0.5	0.3		
Commitment (1.9)	1	1		
Feedback on behaviour (2.2)		1		
Self-monitoring of behaviour (2.3)	0.5	0.3		2*
Social support unspecified (3.1)	1	0.8	2*	1
Social support practical (3.2)	1	2		
Instruction on how to perform the behaviour (4.1)			2	1
Information about health consequences (5.1)	3*	4	2*	4*
Demonstration of the behaviour (6.1)	0.5	0.5	1	
Social comparison (6.2)	0.5	0.3		
Prompts/cues (7.1)	1	1		

Behavioural practice/rehearsal (8.1)	0.5	1	2	0.5
Graded tasks (8.7)	0.5	0.5		
Material reward behaviour (10.2)	0.5	0.5		
Avoidance/reducing exposure to cues for the behaviour (12.3)		1		

Note. Promising BCTs are highlighted green

*number of times technique used in only promising studies

3.3.9. Study characteristics – training papers

Table 3.6. shows study characteristics for papers reporting on the training of professionals to deliver interventions. As can be seen, both sets of training were delivered by research staff in Australia.

3.3.10. Narrative summary – training papers

Kennedy et al. (2019) delivered a one-day professional development workshop to 27 teachers delivering the intervention, with 17 in a control group. They measured teachers' confidence and perceived personal fitness at baseline and six months later. Results showed that teachers in the experimental group reported significant increases on both measures in comparison to the control group with medium to large effect sizes (Partial eta squared 0.19 and 0.13 respectively). Lonsdale et al. (2019) used a combination of face-to-face workshops and online resources to train teachers to deliver more active PE lessons. A total of 94 teachers took part in the study, split equally between experimental and control groups. At post-intervention significant effects were found for all measures of teacher behaviours in favour of the experimental group. Large effect sizes were found for maximising movement, reducing transition time, building student's competence and supporting students (Cohens *d* 1.96, 4.36, 1.67 and 1.92, respectively). This was reflected in significant increases in MVPA during PE lessons for students whose teachers were in the experimental group (Cohens *d* .85).

3.3.11. BCTs – training papers

One paper used nine BCTs to train deliverers while the other used four. One code was discussed with the third reviewer. Both studies used ‘feedback on behaviour’, ‘behavioural practice/rehearsal’ and ‘adding objects to the environment’. Additionally, Kennedy et al. (2019) used ‘instruction on how to perform the behaviour’ while Lonsdale et al. (2019) included ‘goal setting behaviour’, ‘problem solving’, ‘action planning’, ‘self-monitoring of behaviour’, ‘social support unspecified’ and ‘demonstration of behaviour’.

Table 3.6.

Study characteristics of included training papers

Study details	**Trainee details**	**Training details**	**Trainee outcomes**		
Author (year) Kennedy (2019) **Country** Australia **Inclusion/exclusion criteria** Not reported	**Trainees** Teachers **% female** 48 **Numbers** E: 27 C: 17	**Trainer** Research team **Method of training (location)** Face to face (not reported) **Format** Not reported **Number and duration of sessions** 1xfull day **Length of training programme** 1 day	**Confidence** Baseline E: 4.1(0.9) C: 4.3 (0.9) 6 months E: 4.9 (0.7) C: 4.5 (0.8)	**Perceived fitness** Baseline E: 3.6 (1.0) C: 4.3 (0.6) 6 months E: 4.0 (0.8) C: 4.2 (0.6)	
Author (year) Lonsdale (2019) **Country** Australia **Inclusion criteria**	**Trainees** PE teachers **% female** 44.68 **Numbers** E: 47 C: 47	**Trainer** Research team **Method of training (location)** Face to face (University and teachers' schools) and website **Format** Group and individual	**Reducing transition time** Baseline E: 10.28 (1.78) C: 11.50 (3.64) Post E: 22.03 (4.10)	**Building students' competence** Baseline E: 17.31 (3.36) C: 18.41 (4.73) Post E: 22.83 (5.30)	**Students MVPA in lessons** Baseline E: 18.19 (6.15) C: 18.85 (7.17) Post E: 24.06 (8.99)

School: students in grades 8 and 9, funded by NSW DoE, principal, head PE teacher and at least one grade 8 PE teacher agreed, in Western Sydney, postcode showing below median for social disadvantage. Individuals: all PE teachers **Exclusion criteria** Not reported		**Number and duration of sessions** 2xfull day workshops, 1xhalf-day workshop, 3x1 hour implementation tasks, 3x 30-minute group mentoring sessions **Length of training programme** 1 year, split across two academic years	C: 10.62 (2.53) **Supporting students** Baseline E: 13.72 (3.14) C: 13.75 (3.07) Post E: 19.90 (4.23) C: 13.93 (3.50)	C: 16.83 (2.63) **Maximising movement and skill development** Baseline E: 18.28 (3.48) C: 17.50 (5.24) Post E: 27.90 (6.77) C: 18.10 (4.44)	C: 18.48 (8.20)

Note. E = experimental group, C = control group

3.4. Discussion

This review synthesised studies of interventions across PA and HE for adolescents that included a measure of longer-term behaviour change, in addition to the training of professionals to deliver interventions. Regarding the first aim, this review has found mixed evidence of behaviour change post-intervention for both PA and HE behaviours, with preliminary evidence showing positive longer-term effects at maintenance. For PA studies, half showed short-term promise at post-intervention and continued to show promise longer-term at maintenance. Further one study did not measure outcomes at post-intervention but showed promise longer-term. The situation was similar for HE studies. Here, four studies were promising post-intervention and two continued to demonstrate promise at follow up. A further two studies that did not measure at this time point showed longer-term promise. These results show that while some studies resulted in positive behavioural change for participants, better effects of the intervention were seen during longer-term maintenance after the support had ceased. In line with the definition of maintenance used in this review, the results show that for some studies behaviour change occurred during the intervention and the longer-term. For others, changes to behaviour were noted over the longer-term. This suggests that change can occur both within and after intervention studies from which adolescents will benefit.

Consistent with previous reviews of health behaviour interventions, the majority of studies included in this review showed some-to-high risk of bias. The nature of behaviour change interventions often precludes researchers from blinding participants. Thus, studies utilising self-report measures are considered to be at some risk of bias due to the knowledge of intervention allocation, which can result in response bias and subsequent over-inflated effects. The use of objective outcome measures such as accelerometers, can help mitigate this bias.

Contrary to De Meester et al. (2009) this review found that studies targeting both PA and HE did not appear to be less effective than those targeting only one behaviour. Given that this review included only one school-based PA study that actively involved family members, this review is unable to either support or disagree with the conclusions of Van Slujis et al. (2007) who reported that there

was strong evidence for these types of interventions being effective. However, this review found similar results to Murimi et al. (2018) as the included HE studies that involved parents demonstrated mixed evidence for effectiveness. This review agrees with the overall conclusions from other reviews (e.g., Dobbins et al., 2013; Hynynen et al., 2016) in that evidence for school-based PA interventions is mixed. Within this review, 80% of PA interventions were school-based and only half were effective for maintenance with less than half effective for initial behaviour change. Therefore, it would be prudent for future research to test delivery within other locations such as the community, or at the least adopt a multilevel approach by including both school and parents which has shown promise (Murimi et al., 2018; Van Slujis et al., 2007).

The second aim through the calculation of promise ratios, identified a number of promising BCTs. For PA interventions, behaviour change was associated with the use of 'information about health consequences', while maintenance was associated with 'practical social support' and 'information about health consequences'. For HE interventions, behaviour change was associated with 'unspecified social support', 'instruction on how to perform the behaviour', 'information about health consequences' and 'behavioural practice/rehearsal'. Maintenance was associated with 'problem solving', 'action planning', 'self-monitoring of behaviour' and 'information about health consequences'. As this is the first review to calculate promise ratios for PA and HE interventions in adolescents using the BCTT v1 rather than the CALO-RE taxonomy (e.g., Martin et al., 2013) it is not possible to draw direct comparisons with the findings of other reviews. However, although using different methodologies, many of the promising BCTs identified in this review were found to be effective in a review of PA interventions for 5–18-year-olds (Carlin et al., 2016). Additionally, 'information about health consequences' was present in 100% of potentially effective interventions in a review of mother-daughter PA interventions (Brennan et al., 2021), though again the methodologies differed.

The final aim of this review was to investigate the training of professionals to deliver PA and HE interventions to adolescents. The two included training papers found that staff reported increased

confidence and improved performance to facilitate MVPA during lessons. Given the scarcity of training papers available there is little that can be gleaned in terms of best practice. Therefore, the knowledge and skills of practitioners that lead to better outcomes for trained professionals and participants remains unknown. The training of professionals and the subsequent impact on outcomes remains an area for future studies to explore. This can be facilitated through including training considerations as an integral part of intervention design, evaluation and reporting to allow the exploration and identification of best practice.

3.4.1. Implications

This review has highlighted several studies contributing to knowledge of change and maintenance of PA and HE behaviours in adolescents, though there is room for improvement in the design and reporting of such studies. Of the included studies, nine were published after the TIDieR checklist was released in 2014. However, none of the included studies documented all the recommended items, on average they included half of applicable items, meaning that none of them could be explicitly replicated to be used in practice within public health services. The worst reported TIDieR items were on fidelity, and two things should be noted here. Firstly, without measuring fidelity, i.e., whether components were delivered as they were intended, it is impossible to know what the deliverers did and what the participants actually received. The fact that professionals face challenges in using skills consistently (Moore et al., 2012) and may skip parts of the content which they are not comfortable delivering or believe to be necessary or beneficial (e.g., Whiteside et al., 2016) suggests that some participants may receive an intervention different to the one intended. Secondly, fidelity and adherence are combined in the TIDieR checklist despite measuring different things. Within this review, some studies were assessed as having reported this item when they had only discussed adherence, which tells us nothing about fidelity. We recommend separating adherence and fidelity within TIDieR to ensure both are considered and reported.

In coding BCTs, there were difficulties around using the taxonomy due to both ambiguous language in describing intervention content and lack of clarity in the application of BCTs. For example,

this review found instances of BCTs referenced to the PA or HE component of dual targeted interventions, but also instances where the BCT was not related to a target behaviour. Therefore, authors are encouraged to list BCTs separately for each behaviour targeted. Authors are also encouraged to use language that is consistent with the BCT taxonomy to facilitate straightforward coding. One way to achieve this, as demonstrated by Corder et al. (2020), is to report which BCTs have been used, alongside an explanation of how the intervention components fulfil the criteria for each technique.

Another difficulty with coding was around the definitions in the taxonomy itself. To illustrate, 1.1 ('goal setting, behaviour') states "set or agree on a goal" (Michie et al., 2013, supplementary data pg.11). As stated, the BCT could be coded as present if the goal is set by the deliverer without the agreement of the participant. However, NICE recommends for behaviour change interventions that deliverers should "agree goals for behaviour" (NICE, 2014, pg.13) while the competency framework for the delivery of behaviour change interventions specifies deliverers have an "ability to agree goals" (Dixon & Johnston, 2010, pg.26). It could be argued that if someone does not agree with a goal it is unlikely that they will work towards it. This suggests the need to refine the BCT taxonomy to specify who set the goals and whether they were set, and agreed, at an intervention level (e.g., deliverers set goal for every participant to complete 150 mins of MVPA per week) or at the individual level (e.g., personalised goals based on each participant's abilities). Until such a refinement occurs researchers should note whether the participants have agreed to behavioural, or outcome, goals.

Evaluation of training programmes for deliverers is rarely reported in the literature, despite this review including nine studies that trained people other than the research team to deliver the interventions. In the field of mental health, the training and skills of professionals are frequently investigated in relation to patient outcomes (Liness et al., 2019), and as much as 16% of the variance in outcomes has been attributed to the relationship between patient and professional alone (Del Re et al., 2012). The field of behaviour change should likewise consider the role the deliverer plays in participant outcomes.

3.4.2. Strengths and limitations

To our knowledge this is the first systematic review to distinguish between initial behaviour change and maintenance phases, code against the TIDieR checklist and BCTT v1, and review training papers for PA and HE interventions in adolescents. It should be noted that this review was conducted using only published material, an approach used in many other systematic reviews (e.g., De Meester et al., 2009; Martin et al., 2013). This, combined with lack of reporting of fidelity means that BCTs (1) may have been omitted from coding because they were not reported in full (2) may have been erroneously coded to both target behaviours due to lack of specificity in reporting, (3) may have been planned to be delivered but not actually received by participants. The identification of promising BCTs may therefore be considered as preliminary.

Due to this review including only studies that included a measure of maintenance (i.e., longer-term behaviour change), a relatively small number of articles were included. This is not a limitation of this review, rather it reflects a sparse literature base on this topic. Similarly, the need for studies to use a primary outcome of PA or HE impacted on the number of studies eligible to be included. This highlights how few behaviour change interventions aim to primarily measure actual behaviour change. Instead, many studies aim to measure the *outcomes* of behaviour change, usually anthropometric measures such as BMI or weight. While this can provide useful information, it is the changes in behaviour that drives changes in outcomes.

Additionally, it should be noted that BCTs do not appear in isolation and it is possible that groups of BCTs have synergistic effects. Similarly, coding for BCTs does not account for dose: some BCTs may naturally occur multiple times, e.g., social support, whereas some may only be done once, e.g., goal setting. Finally, BCTs have been identified as promising on the basis of promise ratio calculations, the methodology of which combines interventions classified as quite promising with those considered very promising. In doing so, the process is in danger of artificially inflating the promise of some BCTs which might be considered ineffective if only very promising interventions were considered. In this review only three studies were considered quite promising at any time point.

Reviews with larger numbers of quite promising studies may be more susceptible to overinflation of results and therefore should stay mindful of this issue when drawing conclusions.

3.4.3. Conclusions

This review provided a synthesis of the international evidence on adolescent PA and HE behaviour change interventions and their maintenance of at least six months. It was found that some adolescent PA and HE interventions are promising at post-intervention, with stronger evidence for maintenance. Given the importance of sustaining behaviour change, the BCTs found to be associated with maintenance should be considered for inclusion in future studies where possible. For PA interventions these are 'practical social support' and 'information about health consequences', while for HE interventions they are 'problem solving', 'action planning', 'self-monitoring of behaviour' and 'information about health consequences'. Although the BCT taxonomy helps identify what goes into an intervention, we argue that evaluating fidelity is equally important in future studies. With that, an improvement in the reporting of interventions and training is warranted, to be addressed by both authors and editors. Additionally, commissioners would be well served to consider the impact of fidelity on future bids for public health tenders. Future efforts should go into refining the BCT taxonomy and TIDieR checklist in light of the issues raised in this review. The number of studies eligible for inclusion in this review highlights the maintenance of adolescent PA and HE behaviour change as an area of priority for future research.

Chapter 4: Exploring young people's perspectives on physical activity, healthy eating, wellbeing, and seeking input on the development of a new behaviour change programme

4.1. Introduction

The evidence that adolescents face health risks from not being active and eating well warrants the provision of interventions to support young people to improve these behaviours. Indeed, many interventions have been developed and trialled with mixed results as reviewed in Chapter 3. Suitable approaches to developing new programmes were discussed in Chapter 2, and this chapter presents the final step in the first stage of designing a new programme using the Behaviour Change Wheel, i.e., 'understand the behaviour'. In this case, through consultation with young people, as recommended by the Medical Research Council guidelines on developing complex interventions (Skivington et al., 2021). The consultation process allows for the identification, by young people themselves, of the influences to engaging in physical activity (PA) and healthy eating (HE). Any programme that aims to support changing these behaviours in young people needs to know what is stopping them from more regularly taking part in PA and HE, then provide support for and solutions to those barriers whilst making the most of identified facilitators (Shepherd et al., 2006). Further, seeking the views of young people on the design of a new programme has the potential to make it appealing and acceptable to future service users which can impact retention and drop-out rates.

The influences on PA faced by young people have been explored in previous research. However, the studies tend to focus on specific populations such as low socioeconomic status groups (Romero, 2005), female only groups (Cowley et al., 2021), particular ethnicities (Stride, 2014), those living with certain disabilities or illnesses (Barnett et al., 2012; Denford et al., 2020; Wright et al., 2019), or are in the context of obesity prevention or weight management (Browne et al., 2022). Additionally, some studies have sought quantitative data on the barriers, using this information to investigate correlations with other variables and/or create a hierarchy of barriers (e.g., Fernández et al.,2017; Rosselli et al., 2020). However, obtaining quantitative information on the barriers to PA through a

predefined list such as that in the Barriers to Being Active Quiz (Centre for Disease Control and Prevention, n.d.-a) could be considered leading and restrictive and does not provide the rich, in-depth data achieved through qualitative methods, even when the questionnaire is based on a model of behaviour (e.g., Taylor et al., 2016). Also, whilst it is important to target research at specific groups with characteristics of interest i.e., those who typically engage in lower levels of PA, these studies are of less relevance to a generalised approach as will be adopted by the new programme. Therefore, in this instance it is more important to explore current research conducted in the general adolescent population, ideally through qualitative methodologies.

Some qualitative data has identified influences on PA in international populations (e.g., Abdelghaffar et al., 2019). However, there is evidence that culture plays a role in being physically active as shown by Musaiger et al. (2013). These authors conducted a study to identify barriers to young people's PA across seven Arab countries. They identified differing barriers between countries leading them to conclude that differing socioeconomic, cultural, and sociocultural factors were responsible. Similarly, Safi and Myers (2021) investigated barriers to PA amongst Afghan adults living in either Afghanistan or the UK. Whilst there was crossover of identified barriers, the magnitude of the barriers differed between country of residence. For example, both groups reported lack of time, being tired, lack of confidence, and exercise clothes as barriers to PA but these were more pertinent for participants living in Afghanistan than the UK. Conversely, single-sex facilities and having to be fully covered outside the home were greater barriers for females in the UK than Afghanistan. This highlights the importance of researching barriers within the target country itself.

When considering the literature on UK-based studies, it is clear there is a limitation to the research, namely how current it is. Understanding PA continually evolves and progresses as advances are made to research practice, measurement tools, guidelines, and models of behaviour. Thus chronologically 'older' research needs to be viewed through this lens to inform current understanding of PA that will be useful for the aims of this study. A recent review explored PA barriers for 13–18-year-olds (Martins et al., 2021). Ten UK-based studies were included, of which four focused on a

specific ethnic group of girls, another four included only females, and one focused on only a highly deprived area (Martins et al., 2021). Overall, fives themes encompassing personal e.g., skills, knowledge, and motivation, social e.g., peers and family, and environmental influences e.g., infrastructure, weather and safety, were identified. Broadly speaking, these themes can be seen in literature detailing influences on UK young people, see below, though nuances between countries requires a closer look at only UK populations where the new programme will be delivered.

As can be seen from the characteristics of UK studies included in the Martins et al. (2021) review, exploration of PA influences on young people in the general population within the UK is limited. One study however, by Harris et al. (2018) reports on focus groups with 11–15-year-old students eliciting perceptions of health, fitness, and PA. The authors discovered most students associated fitness with specific types of exercise which were more intense in nature such as running, and did not perceive everyday activities such as walking, or activities done for fun such as rollerblading to contribute to fitness gains. Gaps in knowledge were also identified, with authors stating that young people were unaware of PA recommendations and had only a surface level awareness of the benefits of PA on health which did not include psychological benefits, though some made the link to cognitive functioning and academic performance (Harris et al., 2018).

A further finding was a discrepancy between knowledge of how to be more active and performance, acknowledged by young people (Harris et al., 2018). Reasons for this discrepancy included illness, fatigue, laziness, the weather, effort required, opportunities, parental influence, and how easy it is to not be active. In terms of facilitators, students felt schools encouraged healthy behaviours but realised they could do more such as by providing information about the consequences of being unhealthy, offering a range of PE activities, relaxing rules on PE attire, and providing varied lunch and afterschool clubs with attendance encouraged. This contrasts with Strömmer et al. (2021) whose participants reported they would not seek advice and support from teachers, though the difference in findings could be related to type of support being sought i.e., individual personalised

support versus school-wide initiatives and approaches. As can be seen these results are yet to be confirmed with other samples and conflicting findings warrant further investigation.

A similar situation exists with the HE literature, some studies have used quantitative methods (Al-sheyab et al., 2019), focused on specific population groups such as adolescent girls in South Africa (Sedibe et al., 2014), or were conducted outside the UK (O'Dea, 2003). An added consideration with this behaviour is the unique food availability within each country depending on a range of factors such as ability to grow certain foods and to import globally. Indeed, huge variability in eating patterns across the globe have been found for adolescents (Neufeld et al., 2022) which warrants a review of UK based studies exploring influences relevant to this research. UK-based studies from the 1990's have been synthesised by Shepherd et al. (2006). In their systematic review they included eight studies of 11–16-year-olds that explored perceptions of HE. Whilst barriers and facilitators were identified by authors, this was not the primary aim of the studies, as evidenced by only two studies specifically asking about facilitators. Therefore, evidence contributed by this review is limited.

A smattering of individual studies through the 2000's and 2010's offers some insight. For example, Stevenson et al. (2007) identified four themes influencing the eating behaviour of 12–15-year-olds in Northern Ireland and Ireland: (1) influences on food choice: physical and psychological rewards (included taste of unhealthy food), (2) the balanced diet, perceptions of food and eating behaviour, (3) perceptions of contradictory messages, and (4) conceptual issues: healthy eating and perceptions of dieting. Additionally, Rawlins et al.'s (2013) 8–13-year-old participants from England provided insight on perceived influences through focus groups. They found that young people lacked knowledge of the food groups and a balanced diet in addition to holding inaccurate beliefs about the healthiness of certain foods. This was likewise found with 16-20-years-olds who similarly lacked knowledge of HE and considered it to consist only of eating fruit and vegetables (F&V; Davison et al., 2015).

The availability of healthy food options has been raised in previous literature as an influence on food choice by young people. Rawlins et al. (2013) found young people disliked the taste and

presentation of healthy school meals which limited their options. Additional barriers include having meals provided by others reducing efficacy to make food choices, easy availability of fast food, and perceived cost of healthy food compared to alternatives (Davison et al., 2015).

The latest literature supports many of the above findings. For example, Calvert et al. (2020) found 11–13-year-olds perceived barriers to be parents providing unhealthy food and the ready availability and convenience of cheap unhealthy food, while Vogel et al. (2022) found 13-14-year-olds lack understanding of why energy drinks are unhealthy. The latest literature also expands upon influences mainly through understanding of social and environmental factors. For example, peer influence has been found to be influential for young people in both positive and negative ways as a means of gaining social acceptance (Calvert et al., 2020; Strömmer et al., 2021; Vogel et al., 2022), and more subtle influences on behaviour have been found by Calvert et al. (2020) who reported that young people are susceptible and influenced to eat unhealthily by cues such as food wrappers, smells, and TV adverts. Meanwhile, Strömmer et al. (2021) found 13–14-year-olds do not prioritise health above other commitments such as school and family, and engaging in healthy behaviours must fit in with their lives and other activities they want to do. Finally, it has been found that while young people know how to improve their eating behaviours and the risk of health conditions, they still maintain unhealthy practices (Calvert et al., 2020; Harris et al., 2018; Vogel et al., 2022). These studies, while valuable, were each conducted with narrow age ranges, and it is unknown whether identified influences are applicable to a wider age-range of young people.

As evidenced by the review of literature above, there is a need to investigate current influences on PA and HE behaviours of UK-based young people aged 10-19 years to whom the new programme will be aimed. Doing so prior to developing new programmes has been noted for the assistance the results provide in the development process (Shepherd et al., 2006). It also provides an opportunity to explore the development of new programmes with young people themselves, adding their voice to the process. This method has been adopted by other researchers such as Van Kessel et al. (2016) who used focus groups in Australia to inform the design and development of a new online

social network-delivered PA intervention. The 19 teenage girls identified influences on their PA behaviours as well as providing insight on the proposed intervention including what appealed to them and what would put them off. The authors (Van Kessel et al., 2016) concluded that the focus groups provided novel insight which enhanced the knowledge base, demonstrating the benefit of seeking young people's views prior to intervention development. Similarly, Lau et al. (2019) ran focus groups with 13–15-year-olds to inform the development of a PA education module for use in Kuala Lumpur. Opinions were sought as to the content, design, and format of the modules with results used to develop the programme alongside professionals.

The current study was designed to contribute towards a behavioural diagnosis as a pre-cursor to the development of a new support programme for young people. Therefore, the aim of this study was to identify the factors that influence the PA and HE behaviours of young people in the UK, and to understand the best design of an intervention to support young people to positively change these behaviours. The research question was 'What factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?'

4.2. Method

Ethical approval for this study was obtained prior to recruitment from the University of Hertfordshire's Health, Science, Engineering and Technology Ethics Committee with Delegated Authority (protocol number LMS/PGR/UH/04197; Appendix E). This study utilised the consolidated criteria for reporting qualitative research (COREQ) checklist (Tong et al., 2007). The study was conducted by HA-W, a female former mental health practitioner and research assistant with experience working with young people and conducting interviews and focus groups. At the time of the study HA-W was a PhD student with a current Disclosure and Barring Service (DBS) check.

4.2.1. Design

This study adopted a qualitative design. In addition to being recommended by the MRC for the development of complex interventions (Skivington et al., 2021), qualitative methods allow for an

exploration of a topic which does not lead the participants to respond within parameters unavoidable with quantitative investigation. Within a qualitative approach there are different methods that could be used. Much of the research presented above used focus groups to obtain data, which can hear the voices of a larger number of people. Yet, they are not without drawbacks. While they can encourage discussion and debate between participants, they can also lead to participants feeling pressured to conform to what others are saying. A good example of this can be seen in the transcripts of Stevenson et al. (2007) who concluded that participants agreed with a previous statement from a peer due to an expectation of having to share the same view. This would have made it harder for young people to disagree with the statement and to voice that within the group. Additionally, as interviews were to be conducted online due to Covid-19 restrictions, online one-to-one interviews were preferable to online focus groups. Online interviews have been found to produce very similar content to face-to-face interviews (Woodyatt et al., 2016) and have been adopted by other researchers during the pandemic (e.g., Bel-Serrat et al., 2023).

4.2.2. Participants and eligibility

The idea of sample size for qualitative research is an area of much debate (Boddy, 2016; Dworkin, 2012). What has prevailed through this debate is the idea of data saturation, which refers to the point in qualitative research when no new information is generated from new responses (Guest et al., 2020). However, this then raises the question of how to know with confidence when no new data is appearing. To answer this, Francis et al. (2010) developed a 10+3 criterion, whereby an initial 10 interviews are conducted then further interviews take place until three consecutive interviews yield no new data. In a systematic review of methods to assess data saturation, including Francis' method, saturation was reached between 9-17, with an average of 12-13 interviews (Hennink & Kaiser, 2022).

However, it is noted that the creators of the Thematic Analysis (TA) method used in this study reject the idea of data saturation in analyses such as these (Braun & Clarke, 2021). To Braun and Clarke, themes are generated by the researcher in reflexive TA and this generation can continue indefinitely, with new data serving to refine, adapt, or replace existing interpretations of the data. It

is posited that data saturation is used as a post-hoc rationale for a pragmatically determined sample size, an approach advocated and used by the authors (Braun & Clarke, 2021). As this research adopted a pragmatic approach, no prior sample size was set. Further, in line with conducting reflexive TA, sampling was not driven by data saturation.

The study was open to any young person residing in the UK aged 10-19-years-old, reflecting the target population for the new programme. The ability to converse in English was also required, with no other eligibility or exclusion criteria relating to participant characteristics. However, due to the Covid-19 pandemic, interviews had to be conducted online and therefore participants needed to have access to an electronic device which supported an internet-based meeting.

4.2.3. Recruitment

Participants were recruited through word-of-mouth utilising connections of the academic and HENRY members of the research team, through an advertisement on the university's undergraduate research participation website for Psychology students, and liaison with the university's patient and public involvement group. Further, the study was advertised on the websites of a local sports organisation and a national obesity support organisation, though no participants were ultimately recruited through these methods. Participants had not met HA-W prior to interview though two were nieces of a friend who made the connection and may have been aware of her beforehand.

4.2.4. Materials

A semi-structured interview schedule (Appendix F) utilising open-ended questions was created with the aim of eliciting and exploring the thoughts and opinions of young people. Prompts were included to support participants to provide a comprehensive response. A draft schedule was trialled with one young person. Through feedback and discussion minor changes to the phrasing of some questions were made to the schedule with no major changes to the essence of the questions. Questions relating to PA and eating behaviours in young people covered meaning/understanding of each behaviour e.g., "W*hat do you think it means to young people to be physically active?*", influences on engagement e.g., "*For young people who want to eat more healthily what would make it easier and*

what would make it harder?", and support required for change in these areas e.g., "*What support do you think young people need to be able to change their physical activity patterns?*" Further questions explored thoughts and opinions on the design and delivery of a new programme aimed to support young people starting with "*If you were designing a new programme to support young people with physical activity, healthy eating and wellbeing, what would it look like?"* An open-ended final question allowed for participants to provide any further information they thought relevant. The initial interview schedule was crafted by HA-W before being refined based on feedback by NH and AMC.

A demographic sheet (Appendix G) was prepared to collect basic information including age, sex, and ethnicity using Office for National Statistics ethnic groupings. Given the nature of the interview topics, it was important to gather the existing level of PA and HE from participants to help contextualise the results. Therefore, included on the demographics sheet were two questions relating to current level of PA and HE. For the former, a single item measure used by Sport England (n.d.-a) which has comparable validity to a longer PA questionnaire (Milton et al., 2011) and accelerometers (Milton et al., 2013) was selected for brevity, "*In the past week, on how many days have you done a total of 30 min or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise, and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that maybe part of your job*?" The latter was assessed through a single item measure of quality of diet, "*In general, how healthy is your overall diet?*" answerable on a scale of *excellent*, *very good*, *good*, *fair*, *poor*. The origin of this measure is unclear, though it has been found to be valid (Loftfield et al., 2015) and has been used in national nutrition surveys in the United States of America for many years (e.g., Powell-Wiley et al., 2014; Woglom et al., 2020).

4.2.5. Procedure

Participants were invited to contact HA-W via email to express interest. Those who expressed interested in taking part were provided digitally with an information sheet (Appendix H for under 16-year-olds; Appendix I for over 16-year-olds) and had the opportunity to ask questions prior to agreeing

to take part. For young people under 16 years old, an adult with parental responsibility, in this study it was always a parent, was also provided digitally with an information sheet (Appendix J) explaining what the study would involve for their child. For participants under 16 years of age, parents were required to provide written consent (Appendix K), while young people were required to provide written assent (Appendix L). Young people aged 16 years and older were deemed able to make their own decisions (General Medical Council, 2020) and could thus provide written consent for themselves (Appendix M). Taking part in the study was voluntary and no material incentives were offered. For participants recruited through the University's research website, students were given credits contributing towards their research participation requirement for their degree. Following consent, a suitable time for the interview was agreed with the participant and HA-W. Prior to the interview participants were asked to complete and return the demographic sheet.

At the start of interviews HA-W advised participants that they were able to take a break, pause, or stop the interview at any time though nobody asked to do so. Participants were able to have a parent present during the interview, opted for by one young person. Participants were able to choose the online platform through which they were interviewed with one selecting Microsoft Teams, six choosing Google Meet, and 16 opting for Zoom. Interviews were conducted between August 2020 and March 2021, and lasted on average 22.96 minutes (range 9-55 minutes). Interviews were recorded using an Olympus DM-450 digital voice recorder and deleted following verbatim transcription. Following the interview, debrief sheets were provided to participants under 16-years-old (Appendix N), 16 years and over (Appendix O), and their parent where applicable (Appendix P) reminding them they could withdraw their data from the study, although no participants requested to do so.

To allow for anonymity, all participants were allocated a pseudonym from a list of names generated by a third party unrelated to the research who were blind as to the purpose of the list. Pseudonyms were allocated to participants in the order in which they provided consent. Where participants real names were similar to that of any proposed pseudonym, for example using the fictitious names Will and William, that pseudonym was removed and the next name on the list was

allocated. Participants were allocated a name considered congruent with their self-identified sex on the demographics sheet.

4.2.6. Analysis

Interviews were initially transcribed live. For interviews conducted via Zoom or Microsoft Teams, the Otter (Otter.ai, n.d.) (*n* = 17) automated transcription software was used, while the extension Tactiq (Tactiq HQ Pty Ltd, n.d.) was used for interviews performed via Google Meet (*n* = 6). These initial transcripts were then amended by HA-W to reflect a verbatim record of the interview as checked against the audio recording, where possible. Various speech elements were omitted as they had no bearing on the analysis and allowed for a tidier transcript. These were 'ums', 'ers', pauses and repetitions, except for when vocal inflections indicated the word was repeated for emphasis. A random 10% subsample of anonymised transcripts was checked for accuracy by an independent PhD student.

Transcripts were then inductively coded by HA-W in NVivo (version 12 Pro) using the original process of Thematic Analysis (TA; Braun & Clarke, 2006), now referred to as Reflexive TA (Braun & Clark, 2019). Despite evolved thinking about TA from the authors since 2006 (Braun & Clarke, 2023b) and recent guidance on conducting high-quality analyses (e.g., Braun & Clarke, 2023a), the 2006 paper provides the most accessible guidance on conducting TA and was used in this study. Reflexive TA is a six-step process, though it is important to note that the method is iterative rather than sequential. Steps may be conducted in parallel with each other, and the process may go back a step before moving on. However, the process always starts with familiarisation of the data through the creation and reading of transcripts. As detailed above, transcripts were created using an automated software, transferred to Microsoft Word, then manually edited against the voice recording. Once complete, transcripts were read simultaneously with listening to the voice recording to double check for errors and to provide an immersive multisensory experience with the data. Subsequent readings of the transcripts occurred without the audio which at that point had been deleted to comply with ethics requirements.

Step two involves coding the transcripts for features that provide key reflections on the research question. Assigned codes use a few words or short phrases to either semantically reflect the data or to assign meaning in what was said. Here, the first transcript was read and coded for any content relevant to the research question, using more semantic based codes initially. Each transcript was then read and coded in turn, using the same codes already created where appropriate, and creating new codes for new content. In doing so, reading of one transcript often sparked recall of content from another transcript, in which instance the previous transcript was reviewed to check the material had been coded and to consider the phrasing of the code now being used across multiple transcripts. Thus, the names of codes were modified, sometimes multiple times, and some codes came to reflect meaning beyond the semantic level. This was most relevant to data relating to expressed influences, understanding, and meaning, and how they are constructed and perceived within participants' worlds. Responses related to the new programme were coded more practically with less interpretation of the data. This ensured the related theme/subthemes were pragmatic for incorporating into development of the new programme. For the participant whose parent attended and contributed to the interview, only excerpts provided by the young person were coded. Speech where the young person agreed with their parent's contribution or was prompted by their parent was not considered to truly reflect the thoughts and opinions of the young person and were thus excluded from the analysis.

In the third step of analysis, codes related to each other are grouped together at the broader level of themes or subthemes, each one representing some pattern within the data. As data in this study covered a range of topics, all codes were initially grouped into topics of PA, HE, wellbeing, or the new programme to help organise the data. All codes relating to PA were then reviewed, looking for patterns. As patterns were observed, a parallel process of grouping codes under new codes considered either a subtheme or a theme was performed. The next topic was then considered, with patterns between the topics becoming apparent and integrated into the same themes/subthemes, or new themes/subthemes created. This process continued until all individual codes from all topics had

been considered. At this stage, codes which did not contribute to a theme/subtheme were moved to a separate code and reserved for later. Quotes for each theme/subtheme were exported into a theme table in Microsoft Word, and a theme map was created outlining the structure of the themes/ subthemes to assist in the next step of the analysis.

Step four involves refining themes based on consideration of whether all the coded extracts support the theme within which they have been placed. Once this is the case, themes are then reviewed to ensure they are representative of all the data and cohesively fit together with each other. At this stage consultation was sought from NH and AMC. The theme table and map were reviewed with consideration given to each quote placed under each subtheme/theme. Quotes were moved, or removed, through discussion of where they fit best, if at all. This step was done simultaneously with the penultimate step which involves refining themes and subthemes to ensure each is distinct from the others with no overlap, while at the same time providing a coherent story both within and across themes. The titles of themes/subthemes were modified to better reflect the data contained within each one as they were moved around in the previous step. At the same time, the themes/subthemes were ordered to ensure there was flow from one to another without overlap. These stages resulted in some of the initial subthemes being removed, with the data either providing a better fit in another subtheme or being removed completely for not representing the data sufficiently.

Finally, the story of the data was written using quotes to illustrate and support the components of each theme. This was written by HA-W and is presented in the results section below. When writing the narrative of the data, the preceding steps were revisited as appropriate. This usually resulted from there being insufficient rich material around which to write a narrative. In some cases, subthemes were expanded to accommodate complementary data, and in some cases the data were removed from the analysis. When writing the narrative, the previously discarded data was reviewed to check whether it now fit with the newly restructured themes/subthemes. Usable quotes were then included in the analysis under the appropriate subtheme. The written narrative was reviewed by NH and AMC and further refined through continued discussions.

4.3. Results

4.3.1. Participants

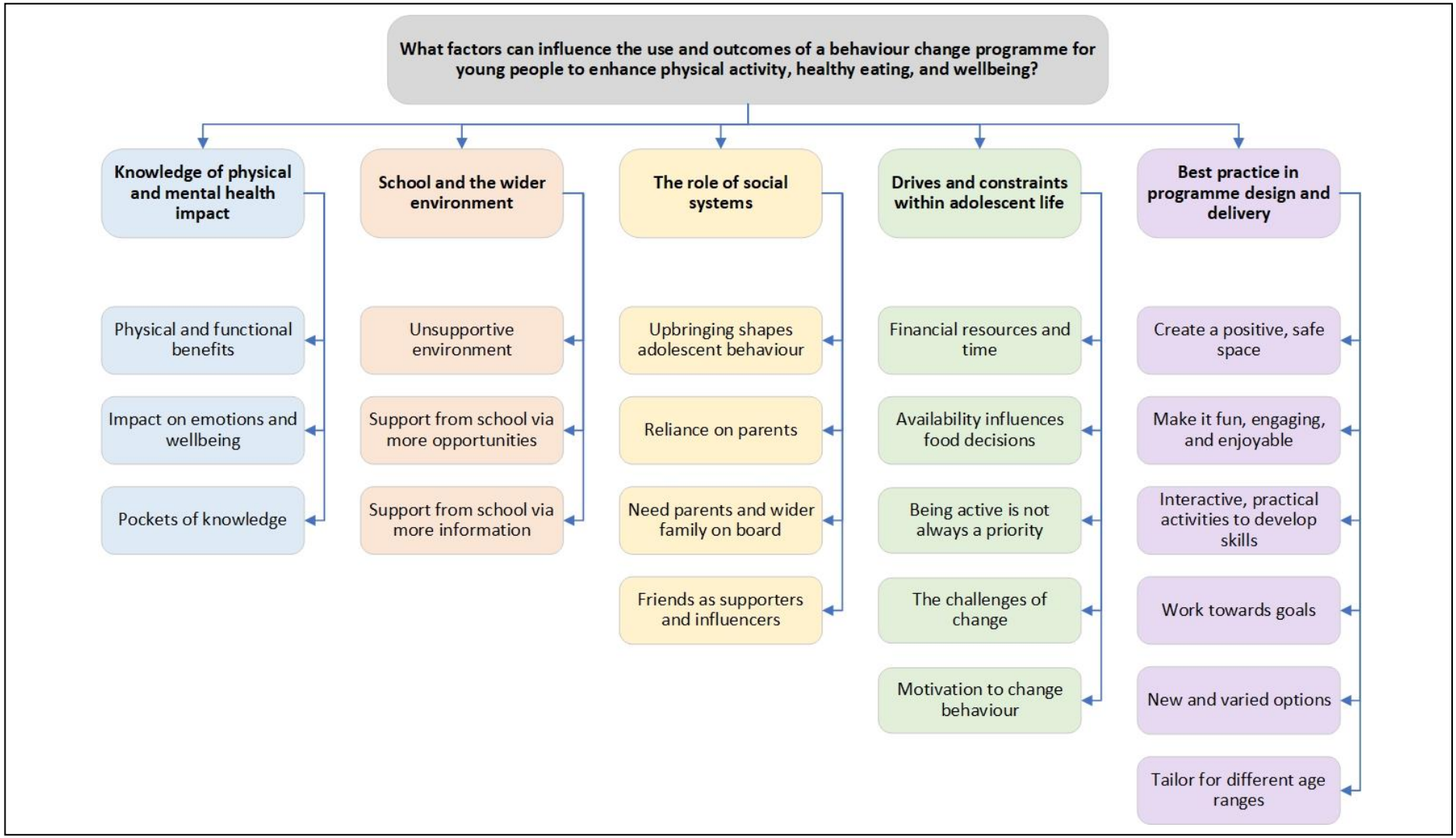
A total of 23 young people took part in an interview of whom 18 were female. Participants ranged in age from 11-19 years old, the average being 14 years and 9 months (*SD* = 2.1). Twenty young people identified as White British, one as White other, one as Mixed/multiple ethnicities, and one person preferred not to disclose their ethnicity. The average number of days in the previous week where participants had completed at least 30 minutes of PA that increased their breathing rate was 4.6, range 0-7 days. All participants rated their diet quality as 'fair' or above with one scoring it as 'fair,' eight as 'good,' 12 as 'very good,' and two as 'excellent'.

4.3.2. Themes

To answer the research question, 'What factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?', five themes were developed following coding: (1) Knowledge of physical and mental health impact, (2) School and the wider environment, (3) The role of social systems, (4) Drives and constraints within adolescent life, and (5) Best practice in programme design and delivery. Subthemes were constructed to explore a specific aspect of each main theme in more detail, see thematic map in Figure 4.1. Themes and subthemes linked to codes are shown in Appendix Q. All themes and subthemes are presented in the narrative below along with quotations (with participant pseudonym and age in years) to illustrate, support, and enrich the findings.

Figure 4.1.

Thematic map for interviews with young people



4.3.2.1. Theme 1: Knowledge of physical and mental health impact

Young people displayed some knowledge around PA and HE, though this was limited to overarching concepts rather than specific details. They expressed some awareness of the benefits of PA and HE, both in relation to physical health and mental health. They appreciated that both PA and HE are behaviours that contribute to wellbeing through the emotions felt when engaging in these behaviours. However, young people did express having gaps in their knowledge.

4.3.2.1.1. Subtheme 1.1: Physical and functional benefits. Young people listed many benefits of PA and HE in relation to physical health. It was expressed that in addition to supporting organ functioning, such as the heart and lungs, PA and HE decrease the risk of developing health conditions such as high cholesterol and diabetes:

> *"Makes sure that your heart's working properly, your lungs are working properly, physically yeah. Live longer, have less health problems probably later down in life."* (Phoebe, 17)

Young people also spoke about benefits such as weight management, strength, muscle development, speed, and stamina. Further, young people considered the benefits on appearance including body shape and clear skin. They also acknowledged other benefits of PA and HE behaviours which appear to relate to function and ability. To illustrate, young people were aware that fuelling the body correctly provides energy, as does being active, both of which help one to sleep better. Further, it was explained that PA develops fitness which allows for participation in more activities and both PA and HE help manage stress and engage with learning through concentration:

> *"If you're active then it helps with your learning as well. And if you eat healthily, it also helps with your learning and making sure that you're concentrating."* (Penny, 12)

4.3.2.1.2. Subtheme 1.2: Impact on emotions and wellbeing. Young people made a link between physical benefits of PA and HE on the body with emotional benefits. They felt that the

physical benefits on body and appearance leads to being happier with how they look, having fewer worries about their appearance and this boosts their confidence and self-esteem:

> *"If you exercise and eat well and you kind of feel good within yourself you get you have the body that you want, then I think that definitely gives you, you know, when you look in the mirror and you think, 'okay I'm feeling confident,' like in social situations you won't constantly be thinking, 'oh my god what do I look like.'"* (Baylee, 17)

Young people also expressed a direct link between PA, HE, and mental wellbeing through endorphin release, "*it actually releases hormones that make you happier when you exercise*" (Chloe, 14). Young people felt that engaging in PA and HE behaviours also contributes to wellbeing through associated emotions, i.e., feeling good or better about yourself when behaving healthily. It was felt that PA and HE provide one with a better, more positive mindset and give a sense of achievement or productivity:

> *"And I feel after I've come back from a run or done physical activity, there's always this feeling … that feeling of afterwards of you going 'Oh I ran', even if it was like 5k you're like, 'I ran 5k, that's more than most people do in a day'. And I've done that. … I'm tired, but I know this is gonna make me feel good for the rest of the day and I know that I've at least done something."* (Owen, 16)

Young people also spoke about negative emotions associated with eating behaviours, specifically feelings of guilt or regret when eating unhealthy food:

> *"Say you eat something bad, you feel good at the moment, but then once you've eaten it you kind of feel like, 'Oh that was a bit maybe I shouldn't have eaten that, I feel a little bit kind of fat now, maybe I should have eaten something a bit better.'"* (Francis, 16)

4.3.2.1.3. Subtheme 1.3: Pockets of knowledge. Young people displayed some knowledge of PA and HE, though gaps were also evident and acknowledged. PA was seen as serving multiple purposes including using it as a break from the activities of the day or to socialise. Young people identified that being active means getting your heart rate up and not being sedentary by sitting down too much. However, they expressed not always knowing how to be active, and they appeared to be unsure of recommended frequency and duration, with suggestions of between 10 to 30 minutes per day, or less frequently. There was discussion that the intensity of PA is more important than the duration and it was questioned whether less intense activity, such as walking or yoga, would count as being active:

> *"It depends how hard you're working at the time, cause if you were to do like 10 minutes working as hard as you can, then that will count, but then if you're not working as hard you might do like half an hour or 20 minutes or something a day, or less in a week."* (Ruth, 14)

Whilst young people referenced eating five portions of F&V a day as contributing to HE, it was also acknowledged that a balance of food from all food groups is needed in order to get energy and the required vitamins and minerals:

> *"It means eating like a balanced diet. So not just, cause often I feel like when I was younger I kind of thought it was like just eating green foods and fruit and vegetables but like in PSHE, in school they taught us about balanced diets and eating bits from each food group."* (Chloe, 14)

HE was also seen as eating enough food, not skipping meals, and staying hydrated. Young people gave consideration to avoiding foods high in fat and sugar, *"it means just avoiding like fast food, things high in sugar, high in fat"* (Juliet, 19), but lacked knowledge of the different types of fats

and the role of salt in HE. Young people felt there are misconceptions about being healthy and it is challenging to know which information is correct when it is contradictory to each other.

4.3.2.2. Theme 2: School and the wider environment

Young people spoke about the environment being non-conducive to PA and HE behaviours, whether that be through infrastructure of where they live or the abundance and easy availability of junk food. It was viewed that this pattern was continued within schools through canteens offering a wide selection of unhealthy food with few healthy alternatives. As such, young people felt that school meals should be improved to make it easier for them to eat healthily. Schools and teachers were also mentioned as a source of support for young people, both through increasing opportunities for PA and HE and providing information on these topics.

4.3.2.2.1. Subtheme 2.1: Unsupportive environment. Young people spoke about the ease with which 'junk food' is available and how this presents an easier or more convenient option to them over cooking meals at home:

> *"The fact that there's so many easy ways just to get like there's McDonald's and KFC just to easily get food. Instead of having to cook it yourself. You can just get it easily."* (Susan, 12)

Young people felt that the environment is proliferated with unhealthy options which makes it harder to source healthier options when socialising. It was acknowledged that it would be easier to make healthier food choices if there were more healthy options available. Young people also spoke about marketing strategies that offer deals on items such as chocolate bars, and place unhealthy food at the front of stores:

> *"As soon as you walk in the door at the Co-op outside my school you've got the, like the stand of cookies and freshly baked doughnuts and things."* (Edith, 17)

With regards to PA, access was important to young people who stated that a lack of green spaces such as fields or parks is not conducive to being active in the environment in which they live. It was perceived that living in towns with busy roads makes it harder to be active outside in addition to less pleasant, while living in a countryside location with open space makes it easier and nicer:

> *"If you live in the city it's quite hard to go through to a park, a run or something. And yeah, obviously living in the countryside is a lot easier, more fields stuff like that."* (Jeff, 13)

4.3.2.2.2. Subtheme 2.2: Support from school via more opportunities. Young people named school as a source of support for both PA and HE behaviours given they are there *"for quite a lot of the day and the week"* (Amelia, 15). They spoke about the role of staff within schools, feeling they are able to encourage and guide young people into healthy behaviours, for example through nudging them to join school sports clubs:

> *"Just having that extra push, shove and just helping you get to, sort of getting you involved is kind of can be quite an issue for quite a lot of people, and that's teachers are usually, generally very good at that sort of things because it's often involved in their job."* (Owen, 16)

Young people also considered school to be an environment that could promote healthier behaviours through the provision of more opportunities. This includes opportunities to eat well such as providing healthy options in the canteen where there is a greater presence of foods considered unhealthy in comparison to healthy ones. It was acknowledged that healthy options do exist albeit hidden away and not promoted as much, while some healthy options such as a salad bar have been removed in response to the Covid-19 pandemic. Young people felt there is however opportunity to provide more healthy options in the canteen, *"your school could definitely support you by at lunches they could sell healthier food"* (Penny, 12). It was suggested that PA opportunities through after-school

clubs could also be provided. Young people spoke about compulsory P.E. lessons and how this helps them to be active but reflected that this opportunity diminishes as students get older, a pattern that was considered unhelpful:

> *"I would love it to be part of like just even an hour a week as part of my school timetable would be so much better … that would be a lot easier if that was involved."* (Phoebe, 17)

4.3.2.2.3. Subtheme 2.3: Support from school via more information. In addition to increased opportunities, young people expressed schools as being able to support them by providing more information to fill gaps in knowledge:

> *"If at school then you learn about healthy eating and how it helps you, then you would want to eat more healthily in your diet."* (Penny, 12)

It was acknowledged that PA and HE are topics covered within schools, though it was felt there is more that could be done, *"they do talk about it quite a lot, but I think it could be expanded upon"* (Phoebe, 17). They mentioned Personal, Social, Health and Economic (PSHE) lessons which could be used to impart knowledge on multiple aspects of PA and HE including the importance and benefits of both behaviours, in addition to the consequences of non-engagement:

> *"[Tell] people about healthy eating and physical exercise and what good things it does for you and what not doing it can do for you. All the bad things it can do if you eat unhealthily and you don't get out enough."* (Shirley, 13)

They conveyed wanting ideas on how to be active and get fit, both inside and outside the home. This included exploring a range of different sports or exercises that contribute to being active of which young people may not be aware. Further, they were open to developing an understanding

of which foods contribute to eating well and which ones do not, how to make healthy substitutions, how much of each food group to have, and how to prepare healthy food:

> *"I need someone to tell me what's healthy and what's not, because I sit there and I'm like I think this is quite healthy. And then when you look at the dietary thing at the front and I'm like, Oh that's not healthy. … properly teach me, I don't know because, you can have something so healthy and then you add a sauce to it and it makes it really unhealthy and it's like but how am I supposed to know all this."* (Juliet, 19)

4.3.2.3. Theme 3: The role of social systems

The role of other people within social systems was considered. Young people expressed a belief that their current behaviour is a result of their upbringing during which they were dependent on their parents to provide guidance and opportunities. Young people expressed still being reliant on their parents which limits their ability to have autonomy in engaging in healthy behaviours. Finally, young people spoke about friends being a source of support and influence, to engage in either healthy or unhealthy behaviour.

4.3.2.3.1. Subtheme 3.1: Upbringing shapes adolescent behaviour. Young people reflected on the role played by their upbringing, specifically making connections between their experiences as young children and their eating patterns and levels of PA as adolescents. It was perceived that young people whose parents are physically active instil that behaviour in their children from a young age, and it becomes the norm within the family to be active:

> *"I've grown up in an environment where we all do a lot of physical activity, so that's kind of just what we do. And it's something that I've always done my whole life."* (Edith, 17)

Indeed, young people who expressed being physically active now, credited that to their parents' behaviour while they were growing up, *"the reason I am active now and the reason I eat healthy now is because it's been instilled in me at such a young age"* (Ben, 15). For young people who

have not had that passion for being active role-modelled for them in the early years, starting to become active later in life can be more challenging. Young people expressed that their current preferences for healthy foods are due to the foods they have been given over their formative years, and their ability to prepare and cook healthy meals is due to their parents involving them in cooking from a young age:

> *"My parents, you know, they taught us all how to cook from quite a young age. That's definitely helped, you know, we cook like me and my brothers cook dinners most of the time. So I know that there is a lot of healthy stuff going into the food."* (Baylee, 17)

4.3.2.3.2. Subtheme 3.2: Reliance on parents. Young people expressed a sense of not being in control of certain aspects of their lives and for which they are reliant on their parents. With regards to PA, this focused on needing parents to drive them to facilities or places where the activity is taking place such as a swimming pool or gym when, due to proximity, they are unable to use their own methods of transportation such as walking or cycling:

> *"It's quite hard to go like swimming or like I do horse riding so my mum has to drive me there so it's harder."* (Amelia, 15)

For HE this was concerned with parents being in charge of the food shopping, *"my parents do the food shop so I don't really have a lot of say"* (Baylee, 17), and cooking the meals. Thus, for young people who want to eat healthily, they are reliant on their parents to provide them with food that allows them to do so:

> *"If I wanted to eat more healthier it would probably be dependent on what my mum was buying in the house I'd have to say. Yeah, definitely depending on what she's getting as a weekly shop."* (Phoebe, 17)

Therefore, young people stated that their food choices at home are limited to what their parents buy for the family or the meals they cook for them:

> *"I don't want to be going out of my way to cook my own dinner all the time. Like, sometimes I do but if we're eating as a family, I'm going to be eating the same meal they cook."* (Juliet, 19)

4.3.2.3.3. Subtheme 3.3: Need parents and wider family on board. Young people spoke about the role of family in PA, HE, and making changes to these behaviours. Whilst the main focus was on parents, young people also acknowledged the role of other family members such as siblings or other people living in the house. Given that young people are reliant on parents, it was expressed that they need their parents to be onboard with any behavioural changes they want to make, "*you need people like, need support from your family*" (Ruth, 14), and therefore parents could be included in programmes to help facilitate this "*not just kids, like also telling parents about how important [PA and HE] is*" (Sarah, 15).

With regards to HE, young people placed the onus on parents to provide healthy food. Thus, parents need to be onboard so they will buy more healthy food for the home and consequently provide healthier meals:

> *"Your family would definitely help you by, as I said like cooking you healthier meals or offering you healthier foods."* (Penny, 12)

Further, young people spoke about how parents must try and accommodate everyone's preferences when planning meals and thus if the whole family were on board with eating healthier it would be easier to achieve. To that end, young people spoke about collaborating as a family to discuss and plan meals together. It was suggested that having the whole family on board would lead to the presence of fewer unhealthy foods in the house and role-modelling of eating healthy foods by all family members:

"So I feel like if my whole family wanted to eat more healthily that's kind of how it happens because once there's like bad food in the house it's kind of too tempting. So I feel like if we all didn't want to eat the bad food then if it wasn't in the house in the first place it would be easier." (Chloe, 14)

Parents were also seen as someone with whom young people can engage in PA. It was felt that being active with parents would make it easier for young people to be active, *"if I had my parents supporting me, maybe if they came with me to do certain things, I would do more exercise"* (Chloe, 14). Parents were also felt to be a source of encouragement when perhaps the young person does not want to be active and can provide reminders to get up on the weekends for activities or to go and do something active after school.

4.3.2.3.4. Subtheme 3.4: Friends as supporters and influencers. Friends were identified as fulfilling two roles for young people: providing support and influencing their behaviour. Of the latter, young people expressed that they engage in unhealthy behaviours such as eating fast food or sitting inside playing computer games because that is what their friends do and they have a desire to fit in. However, young people acknowledged that if their friends decided to eat healthier or be more active, they would follow suit:

"100 percent if my friends were eating healthy, I would too. Me and my friend in particular we always eat McDonald's like always, it's almost become a little addiction, and I feel like if she was to turn around and be like 'I'm not getting it no more,' I'd be like 'Oh why am I getting it then.' I don't wanna be eating it by myself." (Juliet, 19)

With regards to friends providing support, young people expressed the joy and camaraderie of shared experiences with friends. To this end young people expressed HE to be easier when their friends are eating healthily and not encouraging them to eat unhealthy food. Similarly, it was felt that

engaging in PA with friends makes it more enjoyable in addition to providing a source of encouragement, motivation, and accountability:

> *"So if you go to a club with your friends then that will definitely help you because you're looking forward to seeing your friends and doing the sports. So if they're like by your side when you're doing it then they could like cheer you on."* (Penny, 12)

Given the influence of friends and the support they provide, young people identified that they would be more likely to attend programmes when their friends were going. It was voiced that attending with friends means they already know someone there and would feel less nervous, but also so they were not doing it on their own, *"I'd want to go more if my friends did it with me, instead of doing it by myself"* (Susan, 12).

4.3.2.4. Theme 4: Drives and constraints within adolescent life

Young people spoke about factors that influence their behaviour which, whilst not unique to adolescents, were considered to be prominent features of their lives. Firstly, young people spoke about the numerous resources required to eat well and be active, which often they lack due to financial constraints or time. Therefore, young people make use of what is available to them, which often is not the healthiest option when it comes to food. Thinking specifically about PA, young people identified that this is not always a priority and is trumped by other activities which are more important or more desirable. Finally, young people expressed finding change difficult and discussed the role motivation plays in engaging in healthy behaviours.

4.3.2.4.1. Subtheme 4.1: Financial resources and time. Young people spoke about the resources required to be active and eat well. Money to cover the cost of using sporting facilities such as gyms and the perceived higher cost of healthy food was discussed, *"it's more expensive to eat healthily than all the fast-food stuff is cheaper"* (Susan, 12), as was equipment needed for some physical activities, such as trainers. It was felt that young people lack money and equipment which creates a barrier and limits options to be active or eat well. However, the greatest resource mentioned

by young people was time. It was perceived that young people lack time to be active due to other commitments such as schoolwork, after-school activities, chores at home, and socialising. Young people voiced the need to have more time available to them in order to be active:

> *"I think what would make it easier would be having more time. Cause sometimes it's hard when you've got schoolwork to do and then you've got other commitments as well, it can sometimes be hard to find the time."* (Isla, 17)

Due to the perceived lack of time for PA, young people felt that time could also prevent them from attending programmes. Where they can attend, young people declared a preference for programmes that are not time-intensive, and which would not add to the pressures of other commitments:

> *"A lot of young people would feel that way because they're already wanting to hang out with their friends, they've already got a load of schoolwork, and they don't want to have to feel stressed and pile on too much."* (Juliet, 19)

4.3.2.4.2. Subtheme 4.2: Availability influences food decisions. Young people spoke about the availability of unhealthy food and how this influences what they decide to eat. Whilst this was mostly contained to the food available at home, other settings such as social events were mentioned, in addition to the influence of what other people around you are eating. It was felt that when at home and hungry, young people will eat what is available to them. This means that they will eat unhealthy food when that is what is stocked in the kitchen:

> *"If you've got like ice cream, then obviously you're gonna have the ice cream if you're hungry, and so it's about the food that you have that you buy as well I think and have in your house."* (Edith, 17)

Young people also spoke about the availability of unhealthy food providing temptation which is hard to resist. Therefore, it was stated that having that type of food around makes it harder to eat healthily. There was a sense that young people eat healthy food when it is available and when there is no temptation to eat otherwise due to the presence of unhealthy food:

> *"Not buying junk food, like not getting having it in house because if it's in the house then you just want to eat it, if it's not you don't want to."* (Susan, 12)

4.3.2.4.3. Subtheme 4.3: Being active is not always a priority. There was a sense from young people that other activities trump being active, whether intentional or otherwise. It was acknowledged that some young people do not view PA as a priority because there are other activities they would prefer to do, such as playing video games and socialising with friends, even when they know it is important:

> *"I do a little bit every now and then but I don't, I think it's important but I don't personally prioritise it that much."* (Baylee, 17)

However, beyond that sense of choosing to make it a priority, young people spoke about activities that out of necessity must be made a higher priority than being active. This was exclusively related to homework and preparing for exams:

> *"As we're going back to school might get a lot more homework which might get in the way. And then I have to prioritise my homework."* (Sarah, 15)

Due to how young people order their priorities, they expressed a reluctance to attend programmes which they do not view as a priority, *"if people don't see it as a priority they would be less likely to do it"* (Isla, 17).

4.3.2.4.4. Subtheme 4.4: The challenges of change. Young people expressed finding change difficult because they have already established personal patterns of activity and eating. Further,

changes to eating patterns can mean giving up unhealthy foods that taste good and this presents a barrier to be overcome. It was felt that changing behaviour takes a fair amount of time, not only to make the changes, but to get used to new patterns. Change was presented as a double-edged sword, it must happen slowly in order to make it achievable, but that slowness means results take time to become apparent and can lead to reverting back to previous ways:

> *"When you start to eat healthier, it's not like an immediate thing, like you have to keep going with it to see changes, and I think some people would be like, 'Oh I'm not seeing any changes might as well just stop doing it.'"* (Diane, 15)

Additionally, it was felt that sticking to change can be difficult and can be a slippery slope back to previous patterns. Therefore, it was felt young people need support with making changes *"you definitely need help to do it because it's not easy"* (Penny, 12).

4.3.2.4.5. Subtheme 4.5: Motivation to change behaviour. Motivation as it relates to young people was discussed at length and can be summarised into three points: motivation comes from multiple sources, young people lack internal motivation, and having motivation makes it easier to be active or eat well. It was acknowledged that motivation can come from a range of sources in multiple ways. It can come from the young person themselves by thinking about the outcome and the benefits of being healthy, setting goals, rewarding themself, enjoying and being interested in the activity, and feeling accomplished by engaging in a particular behaviour, for example:

> *"At the end of the workout when you when you accomplish something that gives you motivation to do something again."* (Miley, 14)

However, young people felt they struggle with motivating themselves and therefore this increases the importance of receiving motivation from others:

> *"I'd need support from people around me like motivation for me to do something because I know it's very hard to motivate yourself to do something because people*

tend to give up because of lack of motivation. So I think a lot of support would be needed like the people around me like giving me motivation to do something." (Miley, 14)

This source of motivation can be given through a verbal interaction, by sharing in an activity together, competing against each other, or observing other people's progress and achievements, all of which increase one's motivation to engage in a particular behaviour. Young people recognised that having motivation, regardless of its source, makes it easier to be active. They mentioned lack of motivation as a barrier to being active, where in this situation they can procrastinate and never follow through. Conversely, when they are motivated, they are more likely to engage in the activity:

"I feel like if your friends do it as well it's kind of motivation to kind of join in and you can all do it together and that makes it easier." (Chloe, 14)

4.3.2.5. Theme 5: Best practice in programme design and delivery

Young people considered various aspects of programmes that are conducive to supporting them with enhancing their PA and HE behaviours. Notably, they want a safe, positive space that is fun and engaging. They also voiced wanting information to be delivered in interactive, practical ways to make sessions more engaging and to provide an opportunity to develop skills. Young people expressed wanting to see progress and how their life has been improved by changes, with goals being a way to focus on what it is they want to achieve. It was acknowledged that there are multiple ways to achieve being more active and eating healthily, so it is important that young people are presented with options on how to succeed. Finally, young people considered the age range of people on the programme and felt it needs to be delivered to those of similar ages.

4.3.2.5.1. Subtheme 5.1: Create a positive, safe space. Young people spoke about the atmosphere of programmes, expressing the need to feel comfortable in order to ask questions and have discussions around sensitive topics about which they may feel insecure or embarrassed. Young people were clear that if they did not feel comfortable, they would disengage:

"I think probably the atmosphere is quite important as well. I know if I don't really feel comfortable in a situation I don't really want to do it again. So I think it's quite important that it's quite relaxed so that you feel comfortable doing it and comfortable asking questions." (Amelia, 15)

The onus to create a comfortable atmosphere was placed on those delivering it. Young people felt that a comfortable environment could be created by practitioners keeping it positive through being constructive rather than critical, condescending, or confrontational and not making them feel guilty when they haven't progressed or have missed a session:

"I would want the information to be delivered in a constructive way not in a criticising way. I wouldn't want to go feeling like my like lifestyle was being criticised." (Phoebe, 17)

Young people advised against practitioners putting pressure on young people to make changes or to make them too quickly as this was seen as something that would deter them from attending future sessions. Further, young people felt practitioners should keep sessions relaxed and not too serious, managing group dynamics effectively.

4.3.2.5.2. Subtheme 5.2: Make it fun, engaging, and enjoyable. The words 'fun' and 'engaging' were consistently used by young people to describe the qualities of programmes they consider important. It was stated that these are the elements that make young people want to attend something. Young people also felt it is important that programmes are not boring and instead provide enjoyment in order to continue returning each session. Young people explained that boring sessions could be interpreted as the programme not being important and thus, they are more likely to dropout:

"Very interactive because I know like for me if it wasn't interactive I wouldn't really want to do it or I wouldn't feel like it was important … or found it quite boring and not

really like worth your time, you sort of didn't really want to be there, didn't really enjoy it." (Amelia, 15)

Despite the insistence that programmes need to be fun, there was little insight on how to make sessions fun, though the use of games was tentatively suggested. In terms of being engaging and not boring, young people were clearer on what is not appealing, namely anything too *"schooley"* (Edith, 17). This included using textbooks, sitting while writing or listening, or watching a video for the whole session, though short videos were viewed as being engaging:

"I'd probably do like a couple of videos but they'd be quite kind of short and snappy because you don't want people to just sit there and just kind of, over a screen for like 15 minutes." (Francis, 16)

4.3.2.5.3. Subtheme 5.3: Interactive, practical activities to develop skills. Young people expressed the importance of sessions being interactive and practical. In part this was to increase engagement, but also to develop skills. Young people highlighted that PA needs to be done with the correct technique to avoid injury, and so it is beneficial to include demonstrations and a chance to practice:

"If you do it yourself then you can show people how to do it properly and safely. You know, it's kind of aimed at the beginners. But if you show them how to do an exercise safely and properly then they'll get the most out of it." (Francis, 16)

Similarly, young people felt it would be helpful to have demonstrations of eating well through taste testing healthy food, in addition to cooking meals to develop skills. Young people recounted how they often receive information on what they need to achieve e.g., eat healthily, but aren't told how they can achieve it:

"You often hear statistics and stuff but then you can't quite like it sounds really appealing but then you don't really know how to put it into practice … like we're often told to do things but not how to do things so I think that would be the most helpful." (Chloe, 14)

Therefore, young people expressed a desire for practical information on how to achieve being more active and eating healthily. Suggestions were offered for interactive activities to achieve this and help them develop skills, for example, practice balancing a meal and planning a healthy menu, or trying a new sport or exercise.

4.3.2.5.4. Subtheme 5.4: Work towards goals. Young people spoke about the connection with seeing progress and sticking with programmes. For young people, seeing the benefits of going to sessions and making changes was reason to continue attending:

"If I saw that they were making positive changes or I felt like I was like getting better because of something my lifestyle was becoming healthier because of it. Yeah, probably if I was seeing benefits and enjoying it I would go back." (Phoebe, 17)

Conversely, finding it too challenging to make changes or failing to see progress and feeling it is not of benefit were listed as reasons to disengage with sessions. Therefore, it was suggested that young people have goals to work towards throughout the programme, so they are aiming to achieve something by the end:

"The feeling of that I'm working towards something better, just to have a goal at the end, whatever that is, that would make me do it." (Edith, 17)

In this way, young people have a way to monitor progress and stay focused on the end goal and the journey to get there, rather than where they are starting from.

4.3.2.5.5. Subtheme 5.5: New and varied options. Young people voiced wanting variety from programmes. This included changing up the activities that were done each session, in addition to the information presented. Both were considered important to retain attendance. Of the latter, young people expressed wanting to discover new information which they did not already know, and, in this way, there is an element of learning taking place which appeared appealing to them:

> *"I'd have to feel that I was actually getting something from it and learning new things and not just being told, you know, you've got exercise it's good for your health. And I would have to feel that I'm being taught new things that I didn't know about before."* (Rose, 18)

With regards to learning new information, young people spoke about recipes for all three daily meals beyond salads, and ways to be active. However, this new information must be combined with options *"always have options for them. Otherwise they will [be] less interested because they don't see anything that they can actually do"* (Miley, 14), so that everyone can find something that is at their own individual level and is, therefore, achievable for them to take away and continue with at home:

> *"That's the priority making sure that they get something out of it, that they can take into their home life and things for their life in general, that they can carry with them throughout."* (Isla, 17)

In terms of PA this would include options for beginner, intermediate, and advanced abilities. For HE this would include allowing for a sweet tooth and meal planning to include a variety of food to avoid repetition.

4.3.2.5.6. Subtheme 5.6: Tailor for different age ranges. Young people spoke about the need to tailor programmes to different age ranges. They demonstrated insight into the developmental stages of adolescents and the differences between those at the younger end e.g., 11 years old, and those at the higher end e.g., 19 years old. Key differences between younger and older adolescents

were highlighted including knowledge, processing and understanding information, maturity levels, how information is best presented, how to converse with them, behaviour, attention spans, and support required:

> *"I feel like if I was told if you don't eat or exercise then you know you might get poorly, something like that at the age of 11, I might feel a bit 'oh God that's a bit scary.' But I feel like from the age of like 16, I feel you have a better understanding, you're more educated on, you know things like healthy lifestyles. I feel like that would be fine."* (Baylee, 17)

Given these differences, young people were keen to be in groups with young people of a similar age, thus necessitating the need for programmes to be split into age groups:

> *"I feel like it would definitely have to be people my own age … I feel like it'd have to be like 19- and 17-year-olds maybe 16-year-olds then like below, kind of group them separately, because obviously, at different ages, you have different abilities you need different support."* (Juliet, 19)

4.4. Discussion

This study aimed to understand, from young people themselves, influences on their PA and HE behaviours, required support to improve these behaviours, and the desirable components of a behaviour change programme to provide support. The findings of this study are discussed generally here, with the findings relevant for the behavioural diagnosis discussed further in Chapter 7. Five themes were created, covering a range of behavioural influences, recommended content, and optimal delivery methods. The PA influences identified in this study are similar to barriers from other research including perceptions of a lack of time (Abdelghaffer et al., 2019; Strömmer et al., 2021) and need for additional knowledge (Harris et al., 2018). The largest gaps in knowledge appeared to be awareness of recommendations, knowledge of which activities count as being active e.g., walking, and the

benefits of being active for health. The former has been found by other researchers (Harris et al., 2018) which brings into question the effectiveness of education and dissemination of governmental recommendations within the UK. Further, based on suggestions from young people in this study that 10 minutes PA per day is sufficient, campaigns such as '10-minute Shake Up' (NHS, n.d.-a), which advocate for 10-minute bursts to more easily incorporate activity into daily life, may inadvertently be perpetuating inaccurate guidelines contributing to misunderstanding.

Congruent with Harris et al. (2018) this research also found that knowledge of the benefits of PA was limited to superficial links rather than specific knowledge of diseases and mechanisms of health protection. However, in contrast to the aforementioned authors, this study found that young people are in fact aware of the psychological and mental health benefits of being active. This difference could be explained by this study taking place during the Covid-19 pandemic during which there was a large push to keep the nation active with communication mediums highlighting the importance of being active for mental health (Bennett, 2020; Sport England, 2021; World Health Organisation, n.d.), taking part in exercise being listed as one of only four reasons to leave the house during lockdowns (Cabinet Office, 2020), and initiatives such as 'PE with Joe' pulling in record numbers of participants (The Body Coach, 2023).

Knowledge of HE was also found to be incomplete among young people in this research. This is congruent with other studies (e.g., Davison et al., 2015; Rawlins et al., 2013; Saribay & Kirbas, 2019; Vogel et al., 2022) that show young people lack comprehensive nutritional knowledge, suggesting that education of this topic has not progressed much over the last decade. However, young people were aware of the recommendation for F&V intake, which could be linked to the national '5-a-day' campaign introduced in 2003 as part of the 'Change4Life' movement, now called 'Better Health' (NHS, n.d.-b). While some studies show that knowledge is associated with eating well, a larger number fail to show this (e.g., Calvert et al., 2021; Vogel et al., 2022) suggesting that knowledge alone is not sufficient to enable HE for young people (Thankur & Mathur, 2022). This indicates that supporting young people to overcome barriers preventing them from acting on knowledge to engage in HE is

warranted. It also supports the assertion from young people to include practical activities to develop skills in addition to education, supported by Davison et al. (2015) who discovered that young people found lectures made them passive participants and preferred active participation through interactive and practical learning activities. Such an approach would meet young people's needs for programmes to be fun, engaging, and enjoyable, qualities that marry up with the EAST framework (Easy, Attractive, Social, Timely; Service et al., 2014) discussed in Chapter 2.

It is unsurprising that peers are considered both a barrier and a facilitator for young people. Peers play an important role for young people during the critical period of brain development during adolescence with many simply wanting to fit in leading to conformity (Laursen & Veenstra, 2021). This could help explain the priority young people give to healthful behaviours such as PA and HE. As shown in this study, even when young people know the importance of PA it sometimes is not a priority for them, a similar finding to Strömmer et al. (2021) who found young people do not prioritise exercise when faced with other demands on time. Priorities may explain findings from other researchers where despite knowledge on how to behave healthily, young people still engage in unhealthy behaviours (e.g., Calvert et al., 2020; Harris et al., 2018; Vogel et al., 2022).

It is possible that the lack of priority found here potentially has some unique elements related to the Covid-19 pandemic where potential education losses were rife (Department for Education, 2021, 2022) and which may have had more impact for older adolescents preparing for GCSE and A level exams (Montacute et al., 2022), causing a shift in priorities. However, the preference to spend time in other activities such as playing video games or socialising with friends, whether through peer pressure or not, appears to be a worldwide phenomenon for this age range (Abdelghaffar et al., 2019; Cowley et al., 2021). It would be prudent for further research to investigate the role priorities play for young people, especially in the context of peer pressure, and how educators, researchers, and service providers can work with them to help adapt their priorities to encompass health and embed favourable health-related behaviours within their existing lifestyle i.e., PA with friends.

The role of parents was discussed as important by young people given that even in the adolescent years, there is still a reliance and dependence on this relationship. That young people view themselves as lacking resources and that many forms of PA and HE carry a high financial burden, may further explain why young people are keen to have their parents on board with change. Including parents within PA and HE interventions for young people is not new, as shown in a recent systematic review where three of the 14 included studies utilised a parental element (Allcott-Watson et al., 2023; Chapter 3). However, interventions often use theory (e.g., Prado et al., 2020) or reference other successes (e.g., Lin et al., 2017) to justify the inclusion of parents with no consideration of how to navigate this approach or the acceptability of this to young people. Whilst this study did not explore how to integrate parents into a programme for young people, it did find that parents are seen as both a gatekeeper, with the ability to present or remove barriers, and an important source of practical and emotional support when changing behaviour. Thus, their involvement, where appropriate, in making changes to activity and eating patterns is both needed and valued by young people.

This study has confirmed findings of others (Calvert et al., 2020; Davison et al., 2015) showing that young people are influenced by the choices available to them. Therefore, when the food options available to them fall predominantly in the unhealthy category, it can be understood why young people are not able to regularly eat healthily. This suggests the need for large scale change within the food environment to ensure the availability of healthy options at affordable prices to young people, especially within schools where young people may have only the canteen from which to get lunch. Further, whilst some young people in this study appeared aware of the intentional use of advertisement, promotional offers, and product placement of foods high in fat, sugar, and salt to influence purchasing by young people, this was not the case for all. Therefore, further education around how these marketing and advertising strategies sway food choices needs to occur so that young people are equipped to deal with these pervasive influential messages.

Regulatory changes are also important in shaping the food environment for young people. The recent ‘Food (Promotion and Placement) (England) Regulations 2021’ and the ‘Health and Care

Act 2022' which prohibit the promotion, placement, and advertisement of foods high in fat, sugar, and salt is a positive step in making a more supportive food environment. However, these regulations are limited in that they do not apply to smaller shops which young people may be more likely to visit, they do not apply to high street advertising along routes to and from schools, and some restrictions apply only to England leaving the rest of the UK without the protections afforded through the legislation. Therefore, whilst a positive move forward, there is more to be done at a governmental level to ensure young people are living in environments conducive and supportive of eating well.

4.4.1. Strengths and limitations

This study obtained a measure of PA levels of participants to contextualise the results. This is important given that there are perceptual differences between those who engage in PA and those who do not (Coleman et al., 2008). From the measure used it was not possible to determine the proportion of participants who met the current guidelines to average 60 minutes of MVPA daily spread across the week (UK Chief Medical Officers, 2019). However, participants ranged in their levels of activity from reporting no PA in the last seven days, to being active every day. Therefore, it is fair to conclude that participants demonstrated a wide range of PA levels expected to be found in the UK population. This constitutes a strength of this study as participants with low levels of PA are well placed to inform on the influences that they feel stop them engaging in PA, while more active young people are well suited to articulate the influences that allow them to engage in PA (Wright et al., 2019). Use of a different measure to more accurately capture PA levels, linked to the guidelines for young people, should be considered for future studies. In terms of self-reported quality of diet, no participants gave a 'poor' rating and half stated 'very good'. This could indicate a response bias relating to social desirability, an issue with the question lacking specificity, participants in this study generally eating a better diet than would be expected across the UK population, or a combination thereof.

This study was conducted during the Covid-19 pandemic in months when national and local lockdowns were in place and young people were being schooled from home. This led to difficulties accessing young people resulting in mostly word-of-mouth recruitment which may have led to bias in

the characteristics of those who took part. Participants were not asked for information on socioeconomic status (SES) meaning the diversity of participants is unknown, though they were required to have access to a mobile device or computer with internet access which may have been accessible to more affluent young people. Indeed, access to computers for home schooling during the pandemic was raised by the media as a barrier to participation in online education (Skopeliti, 2021). This potential limitation in participation from diverse SES groups is noted, especially given associations between SES and physical activity (Love et al., 2019a; Pearson et al., 2022), and fruit and vegetable consumption (Moore & Littlecott, 2015). Furthermore, the predominance of White ethnicities indicates a lack of representation from other ethnic groups making it harder to generalise the findings, particularly to those more likely to be experiencing wealth or health inequalities. Positively, participants were of mixed genders and ages within the target range. The disproportionate percentage of females to males can be viewed as a strength given that adolescent females are less active than their male counterparts (Guthold et al., 2020; Sport England, 2022) and thus it is important to hear from them specifically.

4.4.2. Implications

This study has furthered the evidence base by identifying current influences on young people's engagement in PA and HE. Of importance is that young people continue to lack knowledge around PA and HE. Commissioners and policy makers should be aware that educational interventions could therefore be useful to fill these knowledge gaps for young people. However, the findings from this research, and others (e.g., Calvert et al., 2020), suggests education alone is insufficient to effectively change young people's behaviour. The multi-faceted and -layered understanding of young people's behaviour obtained through this study suggests a systems-wide approach is required to truly benefit young people at a community or population level. To illustrate, young people discussed how the environment is not always conducive to health-oriented behaviour, changing of which requires input from local and national governmental authorities.

Further, the fact that knowledge gaps persevere despite the National Curriculum including learning on nutrition and activity across key stages 1-3 (Department for Education, 2013; Department for Education, 2015) warrants a systems-wide approach to PA and HE education. Government officials responsible for setting the curriculum should take note of this and instigate remedial action. Recent legislative changes (The Relationships Education, Relationships and Sex Education, and Health Education (England) Regulations 2019) have seen PA, HE, and mental health included in statutory PSHE classes in England though guidance continues to lack specific detail on what is delivered and how (Department for Education, 2019). This reinforces the need for the training of teachers to be included in such an approach to ensure their knowledge is complete, which is not always the case (Harris, 2014). Further, training teachers in conversation skills as per Strömmer et al.'s (2021) conclusion could make them a source of personal support for young people with regards to health-oriented behaviours.

Only a systems-wide approach would ensure a top-down messaging system for young people and, combined with policies related to the environment e.g., product placement in supermarkets and active travel infrastructure, would provide consistent policy, intervention, and messaging on the value of PA and HE behaviours which is prevalent in NICE guidelines on behaviour change (2007) and the government's own MINDSPACE framework (Dolan et al., 2010). Such an approach would help set regular PA and HE as the socially accepted norm and make it easier for young people to adopt healthier behaviours with hopefully less peer influence to the contrary.

Based on the findings of this study, it is possible to identify key elements that would help maximise the success of future programmes as shown in Box 4.1.

Box 4.1.

Recommendations for future programme design based on interviews with young people

Future programmes should:

- Fit in with young people's other commitments, not be too time consuming.
- Be free and accessible locally.

- Include parents so they are on board with changes and able to provide support.
- Motivate young people to improve their PA and HE behaviours and acknowledge progress along the way.
- Provide education to fill PA and HE knowledge gaps through fun, interactive methods which engage young people.
- Support young people to find ways to be active that are free, require minimal resources, and are local.
- Support young people to find ways to eat well that are cheap and easy to make.
- Utilise young people's appreciation of the importance of wellbeing to get across messages on PA and HE.
- Offer options on how to achieve healthy PA and HE behaviours.
- Use constructive language and not pressure young people to do too much too fast.
- Foster a safe, comfortable, relaxed environment that is fun to attend.
- Be set up in a way that is different to school-based learning environments.
- Use practical activities as opportunities for young people to develop skills.
- Include taste testing of new foods and try new sports/activities.
- Delivered to groups of young people of similar age.

4.4.3. Reflections of a qualitative researcher

This section is designed to reflect on the conducted thematic analysis, acknowledging my role within the analysis and to consider any limitations this may put on it. Prior to this PhD I was familiar with and had some experience of using TA with qualitative data, albeit on a smaller scale. Embracing the Braun and Clarke (2006) approach to reflexive TA with regards to sample size and data saturation, felt strange to say the least. However, it was also freeing as along the journey I came to feel unburdened from trying to hold myself accountable in the way one would with quantitative data. Not sampling based on data saturation ended up working in my favour where, due to specific difficulties in working memory from dyslexia, transcribing audio files proved to be an incredibly time-consuming enterprise. Despite using automatic transcription programmes to produce initial transcripts, these were not wholly accurate and required considerable manual amendments resulting in a backlog of transcripts. These then took second place to conducting new interviews for fear of not capturing

participants when they were able to take part (indeed, so thankful was I to have people agree to take part and to be flexible to meet their availability, that I often scheduled interviews back-to-back), further confirming that assessing data saturation along the way was not pragmatic.

The backlog also meant that transcripts were not sent to participants as this could not be done in a timely manner which may not have been fruitful. Doing so however would have allowed participants to check content or fill in missing parts which, due to the online method, meant disruptions to microphones or internet services caused disturbances in some audio recordings. This resulted in instances where speech was not heard or was unclear and I was only able to fill in so many blanks myself. With hindsight it would have been useful to have a back-up device.

Throughout this analysis I was conscious of my role as an active influence on the themes that I created, as indeed they do not 'emerge' from data but are a product of my personal interpretation. I am aware that I have strong feelings on environmental influences on PA and HE behaviours, so I selected my language for the narrative very carefully to avoid adding emotion or judgement that did not reflect that of the participants. Whilst I was conscious of doing this throughout the narrative, it was more important on the areas that tapped into my personal feelings and opinions on the topic, whether that be due to an agreement or disagreement with young people's opinions. Reviewing the narrative with my supervisors buffered against this making sure un-biased language reflected young people's voices through the analysis and especially with the narrative.

The dual focus of the interviews, i.e., (1) understanding influences on behaviour and identifying what needs to change to inform the behavioural diagnosis, and (2) opinions on a new programme, presented unique challenges for analysing the transcripts. Firstly, while the process of Reflexive TA was used across the data, some required less analysis and interpretation than others, i.e., opinions on the new programme which needed to be practical to inform development. Separating the data like this proved cognitively tricky at times and required lots of time to pause, assess, and remind myself of the research question and the purpose of each piece of data. Whilst this is probably a helpful approach in any thematic analysis, it seemed particularly salient here.

Secondly, all the data seemed highly valuable, and I could see much of it being useful for the next stages of the PhD. Therefore, at times I tried to incorporate too much for fear of, as I perceived it, wasting the data. Throughout the analysis, consulting with my supervisors who have more experience with TA than myself proved beneficial. Presenting and explaining my work to them helped the analysis stay on track ensuring it was an asset to this PhD and useable in the following stages, in addition to developing my skills. With hindsight, one option could have been to conduct interviews for the sole purpose of the behavioural diagnosis. This would have allowed a more in-depth exploration of influences on behaviours and how to overcome them. These interviews could then have been followed up with a second set exploring how a new programme could best support young people with their PA and HE behaviours. Whilst this option clearly has merits, it also would have involved more time, resources, and participants, the latter of which would certainly have been challenging given the pandemic. Further, by combining the two aspects, it allowed participants to consider elements of the new programme in light of self-identified influences, potentially leading to better thought-out links between the two.

4.4.4. Conclusion

This study has extended the knowledge base on influences on young people to be physically active and eat healthily. It has also provided valuable insight into the design of a new behaviour change programme for young people. The programme can now be designed with consideration of the influences young people face when engaging in health-oriented behaviours and content that supports them to overcome barriers can be created. Further, the programme can also look to maximise the facilitators which allow young people to more regularly be active and eat well. Listening to the voices of the young people and incorporating the design aspects they consider appealing, whilst simultaneously avoiding those considered to be off-putting, has the potential to result in an acceptable and enjoyable programme for young people.

Chapter 5: Exploring practitioner's perspectives on young people's behaviour and seeking input on the development of a behaviour change programme for young people

5.1. Introduction

When considering efforts to support young people's engagement with physical activity (PA) and healthy eating (HE), it is prudent to consider the wider context: one part of which is the delivery of behaviour change interventions (BCI) by professionals. Practitioners delivering health-related programmes to young people are well placed to provide insight such as their perceptions of the influences experienced by young people which can contribute to behavioural diagnoses. Additionally, practitioners are in a unique position to inform development of new programmes. This may include the challenges they have faced when working with young people, useful strategies for overcoming these, and ideas on best-practice of how programmes should look.

Previous research into influences on young people's engagement with PA and HE from the perspective of others has typically involved teachers (e.g., Kumar et al., 2016; Verstraeten et al., 2014; Vogel et al., 2022). Within the UK, Mackintosh et al. (2011) explored barriers to PA for primary-school aged (typically 4-11 years) children in the general population. Here, teachers felt that parents could be a barrier to their children engaging in PA but also that they could be facilitators through role-modelling and providing opportunities, support, and encouragement.

When considering adolescent behaviour, Harris et al. (2018) likewise found similar results when they qualitatively investigated UK teacher's perspectives on young people's engagement with PA and HE. The teachers felt that young people had sound knowledge of how to be healthy but found acting on it was challenging for multiple reasons creating a knowledge/behaviour disparity. They felt this disparity was caused by parents not buying healthy food and providing healthy meals, and parents not promoting or facilitating PA opportunities for their children. In this way, parents can contribute to barriers to PA and HE experienced by young people. The teachers also noted other reasons for the knowledge/behaviour disparity, specifically peer pressure, cost, ease of access, preference for

unhealthy options, health not being a priority, and lack of facilities and transportation options within the community. Peer pressure was also acknowledged by teachers in a qualitative exploration of young people's consumption of energy drinks who felt social desirability and social 'norm' influenced consumption (Vogel et al., 2022).

Studies seeking non-teacher perspectives have done so in the context of improving access to PA for young people with disabilities. Wright et al. (2019) interviewed Australian clinicians who provide PA opportunities for youth living with special needs. As with UK based teacher informed studies, the clinicians concluded that the presence of engaged parents who prioritise PA for their children contributes to the success of interventions. This is similar to results from Steinhardt et al. (2021) who found Norwegian healthcare professionals consider supportive parents as facilitators for their child with a disability to engage in PA.

Whilst perspectives from those other than young people are valuable, they can be enhanced through triangulating with that of other stakeholder groups, including young people themselves. This can increase the credibility of findings and enriches the data to explain multiple aspects of phenomena (Noble & Heale, 2019) or inform intervention development. With regards to understanding young people's PA and HE behaviours, the triangulation of data from multiple sources does exist (e.g., Vogel et al., 2022) but is limited. However, the importance of such an approach can be seen through a study by Wright et al. (2019). The authors investigated barriers and facilitators to PA for young people with physical disabilities from the perspective of both young people and the professionals who provide access to PA provision. The authors noted that whilst there were similarities in the facilitators identified by both sets of participants i.e., appropriate opportunities, the professionals identified a broader range. To illustrate, young people identified personal factors as facilitators such as enjoyment and health, while professionals identified both personal factors such as previous experience and age, in addition to social and environmental facilitators such as parental support and programmes that promote feelings of achievement. This difference between the participant groups' responses,

representing perceptions of facilitators at different levels highlights the benefit of seeking and comparing multiple perspectives.

Additionally, Davison et al. (2015) explored barriers and facilitators for young people classified as not in education, employment or training (NEET) and discussed approaches to health education albeit without the intention of developing a new programme. They interviewed 16 to 20-year-olds as well as social care providers and both groups advocated for an approach that encourages agency through active, practice-based methods. In this instance it can be seen how each participant group has contributed to the collective findings of the other, increasing the credibility of the results. By contrast, conflicting results from participant groups serves to bring awareness to areas that need attention. For example, Harris et al. (2018) found that while teachers believed young people had good knowledge of health and PA, this was contradicted by the knowledge displayed by young people. It was discovered that the teachers' own knowledge was limited, thus identifying the need for their knowledge to be increased just as much as the young peoples'.

Few published studies describe the involvement of professionals in the development of a health-related programme specifically for adolescents. One exception is the GoActive intervention by Corder and colleagues which aimed to increase the PA of Year 9 (typically 13-14-year-olds) UK adolescents. As part of the development process, they consulted with teachers who advocated using tutor periods to deliver the intervention as they viewed this as the most appropriate time for a brief intervention (Corder et al., 2015). This was acted on and incorporated into the intervention in all but one school (Corder et al., 2020). The subsequent process evaluation did not report how acceptable this was to teachers delivering the intervention (Jong et al., 2020a) but did identity that the allocated time was viewed favourably by participants (Jong et al., 2020b). This example illustrates how the input from professionals has the potential to improve the content and/or delivery of behaviour-change programmes, especially when the potential deliverers of the programme are consulted. However, schools are just one setting for interventions and teacher derived data is limited to knowledge and experience of this specific location. Therefore, professionals from other settings can offer insight into

working with young people in other spaces, e.g., the community, and on programmes which are not mandated through the school but are voluntary to attend.

As has been seen, it is beneficial to consult professionals for their perspectives and opinions on programme development. However, the existing literature shows this is primarily limited to hypothetical programmes (Davison et al., 2015; Hart et al., 2015), developing programmes for young children (e.g., Body et al., 2012; Mackintosh et al., 2011), or for adolescents with a specific characteristic such as NEET (Davison et al., 2015). Further, research tends to focus on teacher consultation for school-based programmes (e.g., Boddy et al., 2012; Corder et al., 2015; Mackintosh et al., 2011; Power et al., 2010) as this is the setting choice for many interventions with young people (Allcott-Watson et al., 2023). This study aims to fill these identified gaps in research and contribute to the literature by consulting with relevant professionals to both further understanding of young people's PA and HE behaviours and inform on the development of a new BCI. The latter will involve learning from practitioner's experiences of what does and does not work when delivering programmes to young people, thereby hopefully circumventing known pitfalls or challenges. As the delivery location of the new programme was to be decided following stakeholder consultation, this study utilised community-based practitioners to obtain information relevant to a range of settings beyond schools. The research question was, 'From a practitioner perspective, what factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?'

5.2. Method

A full method section for interviews in this qualitative study has been provided in Chapter 4. This section outlines only the specific methods relating to this participant group. This study utilised the consolidated criteria for reporting qualitative research (COREQ) checklist (Tong et al., 2007). The ethics approval detailed in Chapter 4 applied to all participant groups in this study (protocol number LMS/PGR/UH/04197; Appendix E) and was obtained prior to recruitment.

5.2.1. Design

These interviews formed part of a series of studies seeking the voices and input of young people, practitioners, and commissioners. In brief, this study adopted one-to-one qualitative interviews.

5.2.2. Participants and eligibility

Sampling was driven by pragmatics i.e., access to participants, rather than deciding a sample size a priori or in relation to data saturation. Eligibility criteria for this group included past or present experience of delivering health-based interventions to young people and the ability to converse in English. Access to a device with internet access to take part in the interview online was also required due to restrictions imposed during the Covid-19 pandemic during the time of recruitment and interviews in July 2020-March 2021. Participants had not met HA-W prior to interview.

5.2.3. Recruitment

Participants were recruited through word-of-mouth utilising contacts known to the academic and HENRY research team. The study was also advertised on a local sports organisation website though ultimately no participants were recruited via this method. Participants who took part were asked to share details of the study with colleagues or other known contacts and two participants were recruited through this method. The recruitment process was the same as the young person participant group, detailed in Chapter 4. In brief, participants expressed interest via email to HA-W who collected informed written consent after providing an information sheet of the study particulars and answering questions. All participants who provided consent completed an interview.

5.2.4. Materials

The demographic sheet (Appendix G) used for young people was also used for this participant group. The semi-structured interview schedule used for young people was adapted to include questions from the perspective of practitioners working with young people (Appendix R). Questions covered practitioners' perspectives of young people's understanding of PA and HE, e.g., "*For young people who want to do more physical activity, what would make it harder for them and what would*

make it easier?", in addition to support required when changing these behaviours, e.g., "*What support do you think young people need to be able to change their eating patterns?*" Practitioners were asked about their thoughts and opinions on a new programme to support young people with health-oriented behaviours, "*If you were designing a new programme to support young people with physical activity, healthy eating and wellbeing, what would it look like?*" Additionally, practitioners were asked about their experience of working with young people and delivering health-based interventions, in addition to the challenges they face in these situations and possible solutions, e.g., "*What barriers do you think are faced by practitioners when trying to support young people to make changes in their lives and how can these be overcome?*" A selection of prompts were available to elicit further thought and exploration of the topics.

5.2.5. Procedure

Participants received an information sheet (Appendix S), provided consent (Appendix M), and completed the demographic form prior to being interviewed on a platform of their choice including Zoom (*n* = 3), Microsoft Teams (*n* = 4), and Google Meet (*n* = 3). Interviews were conducted by HA-W between July 2020 and March 2021, lasting an average of 44 minutes (range 22-74 minutes) with no participants requesting a break. In addition to the technical issues outlined in Chapter 4, on one occasion the digital voice recorder ran out of battery. In this instance the Otter software (Otter.ai, n.d.) obtained an automated transcript though there was no recording against which to check the accuracy. A debrief sheet (Appendix O) was sent to participants after the interview outlining their ability to withdraw data from the study, though no one did so.

5.2.6. Analysis

Recordings were initially transcribed using Tactiq (Tactiq HQ Pty Ltd, n.d.) for Google Meet interviews (*n* = 3) or Otter (Otter.ai, n.d.) (*n* = 7) for all other platforms. Transcripts were amended by HA-W to be verbatim before Reflexive Thematic Analysis (TA; Braun & Clarke, 2006) was performed. The detailed procedure for TA has been outlined in the previous chapter. For this analysis, the process started with immersion in the data through transcription and reading the transcripts. Coding occurred

in a new NVivo (version 12 Pro) file and started with more semantic labels. As there were fewer participants and fewer codes in this participant group, codes were not grouped by topic. Instead, all the codes were reviewed with similar codes combined where appropriate and labels amended to reflect the new content. This process was repeated multiple times until themes and subthemes were formed. A draft theme map and theme table, containing all quotes relevant to each subtheme, were created in Word and refined through consultation with NH. The first draft of the narrative was then written, and themes/subthemes were further refined through continued consultation with NH.

5.3. Results

5.3.1. Participants

A total of 10 practitioners, six female and four male, participated in an interview. The majority classified themselves as White British (*n* = 9), with one identifying as Other White ethnicity. Participants ranged in age from 21-49 years, mean 30 years 9 months (*SD* = 8.0). Four practitioners were in roles delivering PA programmes, six were working in weight management/healthy lifestyle services either in the NHS or private sector, and all were in traditional face-to-face roles working directly with young people, Covid-19 notwithstanding. The average number of days in the last week that participants reported having completed a total of 30 minutes or more of PA was 5.2, indicating that on average participants were meeting national recommendations of PA for adults. Seven participants rated their diet quality as 'very good', and three as 'good'.

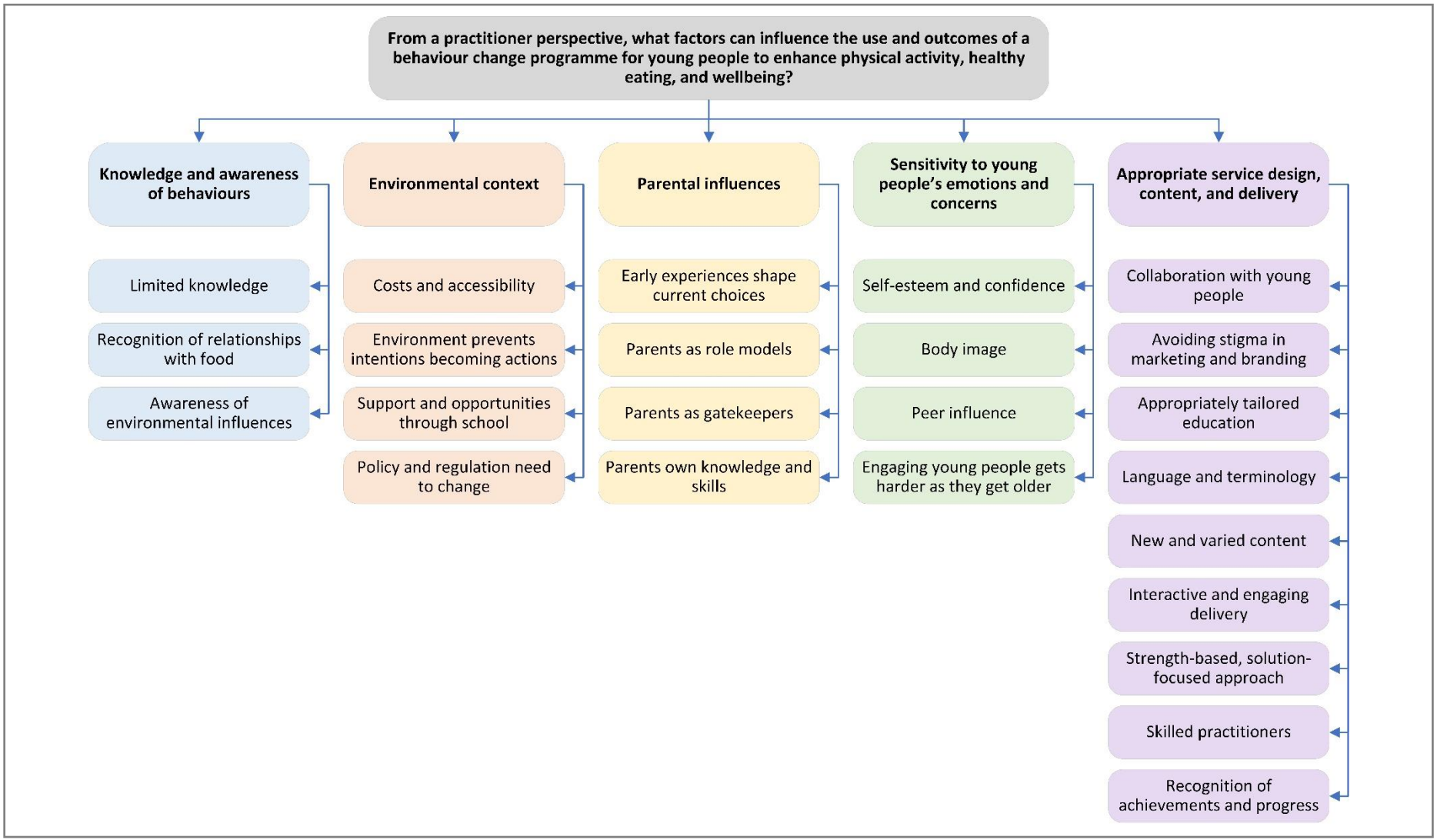
5.3.2. Themes

Five main themes were constructed following the coding process in response to the research question which was 'From a practitioner perspective, what factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?' Themes were (1) Knowledge and awareness of behaviours, (2) Environmental context, (3) Parental influences, (4) Sensitivity to young people's emotions and concerns, and (5) Appropriate service design, content, and delivery. Generally, the first four themes cover the perceived influences on young people's PA and HE behaviours and, where discussed, the impact these have on engagement

with professionals. The final theme relates to practitioner perspectives on elements of the new programme including approach, features, and methods of delivery. Each theme had multiple subthemes as presented in Figure 5.1. and are explained in detail below using pseudonymised quotes to enrich and illustrate the findings.

Figure 5.1.

Thematic map for interviews with practitioners



5.3.2.1. Theme 1: Knowledge and awareness of behaviours

Practitioners stated that young people lack knowledge around the how and why of being active and eating healthily. It was felt young people also lack awareness of their own motivations for engaging (or not) in these behaviours and as such do not have full ownership of these behaviours. It was considered how this may in part be due to environmental influences acting on young people, of which practitioners believe young people are not aware.

5.3.2.1.1. Subtheme 1.1: Limited knowledge. Practitioners expressed that young people have incomplete understanding of what it means to eat healthily. There was a strong consensus that young people perceive HE to consist of eating fruits, vegetables and salads, in addition to avoiding certain foods, "*I think for what it means to young people is no snacks, no crips, no chocolate, no fizzy drinks*" (Joe, 23). There was some thought that young people would be able to identify a particular food as healthy or not, but that they lack in-depth knowledge around moderation and balancing food groups. It was also felt there is narrow knowledge of the food that is available in supermarkets and that young people lack cooking skills. Finally, some practitioners expressed that young people do not realise the multiple options for HE:

> "*[Young] people that I've worked with have always found it a surprise that you can have frozen and tinned fruits and veg and that will still count as well.*" (Hayley, 32)

As for PA, there was some consensus that young people view PA as something that is fun and social, but practitioners perceive them to have little awareness of what counts as being active. It was mentioned that young people see PA as taking part in structured sports or engaging in high intensity activities such as running and do not appreciate lighter forms of activity or using their cardiovascular system during daily activities:

"When we first start talking about it, it is very much 'oh yeah, running, I need to do something running' rather than being out and about and just enjoying the environment.'" (Heidi, 37)

There were varying views on young people's knowledge of the benefits of being active from not thinking about the benefits at all, *"they're probably not overly thinking about the physical benefits to their body"* (Jack, 31), to being aware of the range of benefits, *"I think most young people in my experience understand the importance of it for emotional social and physical health"* (Meredith, 31).

5.3.2.1.2. Subtheme 1.2: Recognition of relationships with food. One challenge that came through from practitioners is that young people do not consider their relationships with food. Thus, they lack awareness of motivations for their eating behaviours including reasons for choosing particular foods or eating at particular times. Practitioners appreciated that there are multiple reasons why young people eat including for comfort, social acceptance, as part of their identity, or out of boredom or habit:

"So, really exploring and focusing on things like, what do I eat in response to? Do I eat in response to hunger? Or do I eat because I'm feeling bored? Or is it habit do I walk past the fridge and just open it because that's what I do? Am I a comfort eater do I eat in response to emotion? So exploring those kinds of things with young people is really important." (Heidi, 37)

Practitioners felt that this lack of self-awareness means young people do not have ownership of their eating behaviours. Therefore, they require support to understand their current relationships with food and to gain ownership and autonomy:

"With teenagers, rather than giving them food to eat just for the sake of it, it's actually getting them to identify it and take ownership of when they feel hungry or when they feel full." (Steve, 32)

5.3.2.1.3. Subtheme 1.3: Awareness of environmental influences. Practitioners expressed belief that young people are not always aware of the influence the environment has on their behaviour. It was felt that the environment exerts influence over young people through advertisement, marketing of take-away food along school routes, and placement of high fat/sugar/salt foods within supermarkets:

> *"It'd be beneficial to put some content in there about our environment and inform the children of how that actually does have an impact on them, the adverts they see, the radio they listen to, potentially what their friends say, or things that they might see on their journeys to school on billboards or bus boards whatever they're called."* (Leonora, 25)

Several practitioners referenced the Bite Back Campaign which acknowledges the extent to which young people are unaware of the environmental influences acting upon them in relation to food and aims to empower young people to gain insight on this issue and potentially take action to instigate or support change:

> *"Things like the Bite Back campaign … which is really interesting where they sort of take this, this theory of, that kind of natural youth angst, and say, 'okay, I just want to make you aware that this particular marketing approach has been sneaking up on you, in the sense that, did you know that they put X number of billboards there, they face that on the shelf in that way, they pipe the smell it to the front of the supermarket, etc, etc,' and kind of really raise the consciousness of teenagers as to how marketing is, and advertising, is kind of trying to manipulate environment to end in this purchase."* (Melinda, 49)

5.3.2.2. Theme 2: Environmental context

Practitioners spoke about the environmental context in which young people live. It was felt that the environment presents barriers to young people's PA and HE which creates a disconnect

between what young people are taught and how they are actually able to behave within the environment. Governmental policies were seen as one cause of, and solution to, this issue, while schools were seen as a source of support for young people.

5.3.2.2.1. Subtheme 2.1: Costs and accessibility. Practitioners expressed multiple ways that the environment is unsupportive of young people eating well and being active. Two of the most prominent barriers were cost and accessibility and these were often discussed simultaneously, *"healthier food is more expensive. It's harder to buy"* (Joe, 23). PA opportunities were considered expensive for young people, and often require some form of transportation to which young people may not have access and parents may not be able to provide. The surrounding infrastructure was also noted to be a prominent barrier for young people to be active, especially outside in more urbanised areas:

> *"Some families don't feel safe going into green spaces or parks to enable children to be active … or there's not enough in the area. Like for example London, there's not enough green spaces in particular areas."* (Meredith, 31)

5.3.2.2.2. Subtheme 2.2: Environment prevents intentions becoming actions. The perceived unsupportive environment for young people to be active and eat well was considered to make it hard for young people to act on knowledge or intentions. This was seen to create a dissonance between what young people are told through messages from home, schools etc. and what the environment actually provides:

> "*I think schools need to be, they'll say one thing in the classroom and teach them about the Eatwell guide for instance cause that ticks their box. And then the canteen will be full of chocolate brownies and sausage rolls*." (Heidi, 37)

As such, young people may not always be able to make healthy choices around eating and PA:

"so creating that environment in the first instance is the key thing because at the moment they're you know, they're often given a message via parent, or perhaps school, you know, delivered, and then they step out into the world with actually none of that makes any sense, it doesn't really happen, 'here's your Eatwell guide, this is the sort of thing, it'd be great for a healthy diet', step outside the door, what's in the canteen? you know, sausage roll." (Melinda, 49)

5.3.2.2.3. Subtheme 2.3: Support and opportunities through school. It was stated that young people spend a lot of their week within a school setting and with teachers. As such it was felt that both teachers and the school system have the potential to provide support and opportunities to young people. For PA, it was suggested schools provide after-school clubs though it was acknowledged that these require funding and staffing which is not always available. For HE, providing healthy options in the canteen and role modelling by teachers were considered important:

"So I think leading by example. So, if they're having their lunch in front of the children or anything like that, making sure that they're eating healthily, especially in front of them so showing that behaviour that you want the children to replicate." (Charlie, 21)

Practitioners also felt that all teachers should provide consistent messages on PA and HE, and these topics should be incorporated into the curriculum or taught in PSHE lessons:

"C*hanges in curriculum potentially as well to even just make sure that it's actually part of the school learning to understand healthy eating and why we should be doing that as we get older and the benefits of it*." (Leonora, 25)

5.3.2.2.4. Subtheme 2.4: Policy and regulation need to change. It was felt that the set-up of the environment is the result of policies set at national or local governmental levels and that these have created inequalities for some young people. There was a sense that policy goes hand-in-hand

with knowledge: policy shapes the environment and knowledge helps people to act within that environment. When the environment is unsupportive of health, the knowledge cannot be used e.g., someone may want to go for a walk because they know it is good for their health, but not have any green space or safe pavements to do so. Therefore, it was felt that too often policy and knowledge do not match, though they need to:

> *"As I've said, with the knowledge you need to have policies that match it and unfortunately, you can have all the knowledge in the world but if you have no access or can't afford something the knowledge is kind of stagnant really."* (Leonora, 25)

There was suggestion that policies do not focus on health and as a result other things are given greater priority. It was discussed how policies should adopt a stance of promoting health as the default, "*actually think around, initially what should our default be? Our default options should be how can we actively get children to school"* (Steve, 32)*,* and that health should be valued from the top at government level and all the way to young people in communities:

> *"One of the key things I would say, is making sure that eating well is valued sufficiently at the right political levels, and government levels. … The other thing I would say, is making sure that filters right down through the institutions and once you get that kind of senior buy-in, it needs to be built into the appropriate places. So for instance, a school's scheme of work, or a regulatory piece that is then disseminated down say right through the school."* (Melinda, 49)

5.3.2.3. Theme 3: Parental influences

Parents were seen to play a large role in the lives of young people and were considered in terms of how they can both support and hinder their children. It was acknowledged that this starts from early life experiences and continues through the adolescent years. Whilst parents were seen as needing to be on-board with young people wanting to make behavioural changes, it was

acknowledged that some parents would benefit from support themselves to help their teen through the journey and this can be achieved through inclusion in behaviour change programmes.

5.3.2.3.1. Subtheme 3.1: Early experiences shape current choices. There was a sense that young children develop habits or behaviours based on their upbringing and this shapes their behaviour in the teenage years:

> *"Children are very, they're like sponges aren't they … they just obviously get pulled into habits from well from their life what they've been grown up have grown up with."* (Hayley, 32)

It was felt that when HE or PA is ingrained in young people at an earlier age, it is more likely to still be present once they reach adolescence:

> *"I think if it's ingrained in you, and you have a positive experience from it, then it's not so bad for when they like carry on and grow up with it as well."* (Bronwyn, 27)

Similarly, young people will replicate meals they have been served as children once they start making independent choices:

> *"15 plus [dad] was like 'you can make yourself some dinner tonight'. And then I'd still be like right chicken nuggets and chips in the oven."* (Joe, 23)

5.3.2.3.2. Subtheme 3.2: Parents as role models. It was identified that parents act as role models for their children. As role models, parents can encourage and support certain behaviours. This can happen through providing the same meals for the whole family, whereby young people are encouraged to enjoy the same range of foods as their parents. However, caution was issued around when parents have less healthy practices such as restrictive eating or dieting:

> *"There's a bit too much sort of diet culture focus on it when they hear their parents saying 'oh you know can't eat this I've got to watch my weight' and things, I think that*

kind of thing can seep into children quite easily. And they can then kind of grab onto that as thinking that's healthy eating." (Hayley, 32)

It was also acknowledged that when young people do not see their parents engaging in certain behaviours such as regular HE or PA, it makes it harder for them to engage in these behaviours:

"If the family environment particularly isn't very motivated to exercise or aren't, haven't grown up in the environment of being in an active community, I think that definitely makes it harder for the young people especially teens." (Meredith, 31)

5.3.2.3.3. Subtheme 3.3: Parents as gatekeepers. Practitioners acknowledged that young people are dependent on their parents who can often act as gatekeepers through overt acts of denying them the chance to engage in specific activities:

"Parents might stop their children from coming as well. You do have parents that decide actually this isn't for my family, which isn't necessarily the child's choice, that's the parents' choice." (Leonora, 25)

It can also be more subtle through what parents choose, or are able, to provide within the confines of their own situation. For PA this was around providing equipment and co-ordinating transport, while for HE this was considered to include choosing what food to buy for the household and what to cook for their children:

"So you know it's easy to just chuck chicken nuggets and chips in the oven and like that's ready in 20 minutes, get it out, dish it up." (Joe, 23)

5.3.2.3.4. Subtheme 3.4: Parents own knowledge and skills. Practitioners felt that not only are parents a potential source of support for young people, but that having them onboard with behavioural changes is important for their success:

"If your family are not wanting to eat healthier, of course, often children aren't in control of what they're cooking. … If your parents or your caregivers don't want to do that, they're potentially not going to buy the foods in the house so you're not going to have that opportunity there." (Hayley, 32)

However, it was acknowledged that some parents may find it challenging to support their children depending on their own knowledge and skills. For example, if parents do not understand and appreciate the benefits of being active, they are unlikely to support them to engage in PA. Similarly, when parents lack skills, for example cooking, they will stick with meals they are able to prepare easily:

"*It's just easier just to get a ready meal because that's what they [parents] know. They don't necessarily know how to cook.*" (Bronwyn, 27)

Practitioners perceived that parents may need support so they come to understand and appreciate the importance of PA and HE, knowledge which can then be used to support their children. This could be achieved through inclusion of parents in programmes, "*I would definitely include the families in some of the sessions*" (Hayley, 32). Additionally, practitioners suggested that problem solving barriers from the parent's perspective would be beneficial in this situation.

5.3.2.4. Theme 4: Sensitivity to young people's emotions and concerns

The adolescent years were highlighted as being a challenging time to engage with young people. It was acknowledged that young people may struggle emotionally with confidence and concerns about their body which actively impacts the choices they make around activity and eating. It was acknowledged that peers have a lot of influence over each other during the adolescent years which presents challenges to engagement.

5.3.2.4.1. Subtheme 4.1: Self-esteem and confidence. Practitioners spoke about young people lacking self-esteem and confidence when it comes to PA. Multiple reasons for this were offered including judgement of skills, "*feeling daunted that there would be lots of people there, that would*

maybe judge them for not being as good at the fitness side of things" (Heidi, 37), appearance, "*a lot of them weren't very confident in the school environment or in their friend environment outside of school because they felt that they would be judged for trying to do things because they were maybe bigger than their friends*" (Hayley, 32), or self-belief "*they're worried like 'we want to play football or gymnastic well' but just don't feel that they're going to be good at it*" (Joe, 23).

It was felt that young people are not always able to express this to people working with them, or may not be aware of the issue themselves which can create barriers for practitioners:

> "*They'll be internalising all sorts of things that they don't feel that they can tell the very enthusiastic me about like, 'well I don't like my body so I'm not going to put a pair of shorts on'. Or 'I'm that cripplingly shy that doing a team sport for me would completely make me freak out.' … I'll often have to coax and tease out of them sort of what the problem is and what the barriers are, and that only comes after about six months of making a relationship with them*." (Heidi, 37)

5.3.2.4.2. Subtheme 4.2: Body image. Body image was discussed in relation to both PA and HE behaviours. It was posited that young people may obtain their understanding of what the human body should look like through social media which provides a skewed picture:

> *"So talking around sort of how bodies are portrayed in the media or online or on social media. And what actually a body does look like and how a body is, you know obviously the ideas that we have to, I guess young people sort of believe this is what we should look like but actually it's not, and just normalising it."* (Steve, 32)

Practitioners expressed how for some young people concern about their weight and appearance impacts their eating choices. They also recounted that young people have confided in them about how their body image impacts their ability to engage in PA. It was reported that this may

include changing clothes in front of others or having to wear particular clothes that make parts of their body visible to others, though this appears to relate more to females than males:

> *"So body image I think and certainly the girls. If you're not allowed to wear joggers instead of wearing and are told to wear shorts for something like netball that can put girls off enough to literally shy away from sports."* (Heidi, 37)

5.3.2.4.3. Subtheme 4.3: Peer influence. Peers were highlighted for the role they play in the lives of young people. The language used by the practitioners suggested peer pressure is more of a covert influence rather than one young person directly telling another to do something, with young people being led by their friends, copying their friends, engaging in whatever behaviour leads to social acceptance, or noticing a difference between themselves and others behaviour:

> *"If they see that they're having something different to what they're having, I think that might be, sort of they might find that a bit more difficult to just stick to it and keep up with it."* (Charlie, 21)

It was viewed that peer influence can make it more challenging for individuals to stick with the healthy behaviours they may already have, leading young people to behave in a way that does not always support health:

> *"That sort of peer pressure, social situation that seems to be very important in terms of either promoting, but for quite often, not being, actually being the barrier."* (Melinda, 49)

5.3.2.4.4. Subtheme 4.4: Engaging young people gets harder as they get older. It was felt that early intervention targeted towards younger children and instilling positive behavioural patterns is easier than targeting young people as teenagers. For adolescents, behavioural patterns were seen

as more ingrained which can make changing them more challenging. It was also expressed that teenagers are more complex than younger children due to their developmental stage:

> *"I find more challenging with older children, than it is with younger because they've got more of their own minds as such, and their own individuality and personalities have developed so I feel like it's a lot harder for older children, it's not to be pessimistic, but I do feel like it's more challenging for that kind of age range."* (Leonora, 25)

There was suggestion that young people are less likely to engage with health programmes because the act of engaging is viewed to be socially undesirable, or the topic is considered not interesting:

> *"We've certainly struggled especially in secondary schools with that age range around 14 plus, that healthy eating is seen as a boring subject and it's not something that's interesting."* (Meredith, 31)

5.3.2.5. Theme 5: Appropriate service design, content, and delivery

Much consideration was given to the features of behaviour change programmes that would lead to the best potential outcomes for young people. Collaboration with young people was considered a key element, as was focusing on the strengths of young people and recognising their successes. Specific considerations were given to how programmes are sold to young people through marketing and branding to make it appealing and overcome stigma. Additionally, it was felt that programmes need to cover content that is new to young people and be delivered in fun, interactive ways using appropriate language. Finally, it was stated that the skills of the practitioner would also have an impact on outcomes for young people.

5.3.2.5.1. Subtheme 5.1: Collaboration with young people. There was a sense that collaboration is the best way to ensure programmes meet the needs and wants of young people, i.e., rather than providing information they already know:

"*So it would be good to sort of get a small group together with young people and say 'right tell us your thoughts on this, tell us about healthy eating' and then see 'right, well actually we found out that they all know everything about healthy eating, they just don't do it'. They don't do it because 'I can't afford it', okay, so, how can we make some of healthy cheaper meal plans whatever it is.*" (Jack, 31)

It was perceived that this collaboration would encourage buy-in leading to greater chances of engagement from young people. It was acknowledged that the needs and wants of young people can be contrary to what adults perceive these to be. As an example, one practitioner referenced a new programme that was introduced by their service and through consultation with young people they found out on which type of PA they would like it based. The practitioner reflected how they had not considered the activity young people ended up choosing, so by including them they produced something that was of interest to them:

"It comes down to working together in partnerships with organisations, but also the young people to understand their lives and what it is that they would want and what they need. I think that's key. Otherwise, because for years we've put things together and never even asked it, what they want, and then it comes to everyone like 'why aren't we engaging people?' and it's because they've never been interested in what we want to do." (Meredith, 31)

5.3.2.5.2. Subtheme 5.2: Avoiding stigma in marketing and branding. There was a perception that stigma from the way that programmes are marketed could be a deterrent for young people attending. This covered the stigma the young person might feel were it perceived to be a punishment, or if the programme were marketed as fixing problems:

"*Stigma, I guess, if it was sold to them as 'well you've got a problem that we need to fix' that would put them off going.*" (Heidi, 37)

It also covered stigma that might be conveyed from other young people who could draw attention to the attendance of others:

> "*The marketing is absolutely critical so you don't go 'oh you're going to that with that' but you know, it would have to really be pitched in a really positive sensitive way that didn't put the very people you're trying to help off, because they're going 'oh no everyone's saying I'm going to the HENRY room' or wherever and they're like 'ugh.'"* (Melinda, 49)

5.3.2.5.3. Subtheme 5.3: Appropriately tailored education. There was consensus that education could be used to fill the gaps in knowledge and skills. This could include cooking skills, providing recipes, meal planning, budgeting, information on how the body works and what it needs, and knowledge of alternatives to meat and dairy in addition to tasting these alternatives. Practitioners relayed how the young people that engage with them want knowledge on how to eat healthily, but specifically how HE fits within their lives and within their current norms:

> *"They did agree that there was too, even though they use them there's too many chicken shops in Luton. It's easy. It's very easy to do that on the way home from school. So they were keen on learning more about how to still go to the chicken shop but choose healthier options, finding a balance."* (Meredith, 31)

Practitioners voiced the need for young people to learn the link between PA and HE. It was suggested that HE can be linked to PA as a requirement of good physical performance. Further, practitioners felt that physical health needs to be linked to mental health and that appropriate education should be holistic and cover a range of topics related to health and wellbeing. Positively, practitioners voiced that young people are keen to learn about wellbeing and how to improve this:

> *"I'd from like a start point 'okay we're going to talk about the five ways to wellbeing' which I find are really keen on. And then each week, talk about different things like*

diet and how they're all important, like sleep, and how these things can all help you … come back to the five ways to wellbeing and say 'look over this course we've done these different things, we spoke about hydration, we spoke about sleep, we spoke about mental health, about anger, we spoke about how physical activity is important, and then all link it all together." (Joe, 23)

5.3.2.5.4. Subtheme 5.4: Language and terminology. Practitioners felt that the phrase 'healthy eating' is a particular turn off for young people and is not a phrase that will lead to engagement:

"We've always come from that aspect of healthy eating. Now, it's not to say it's like everywhere but we do find that if we talk about nutrition, healthy eating, anything weight-related, we struggle with engagement and the interest isn't there." (Meredith, 31)

Other considerations were that language use has the potential to demonise certain foods by being labelled as 'bad' and can then be associated with guilt which young people can then extrapolate into thinking they can never eat those foods. Instead, language should acknowledge that young people will eat unhealthy foods at times, and enjoy doing so, but their consumption should be limited for the purposes of their health:

"I guess delinking it from guilt or emotional foods. So, you know, sometimes people turn around, or a practitioner might turn around and say 'oh we can't have those foods they're bad for you', or 'they're the unhealthy foods'. They shouldn't really be seen like that, they should be seen as foods that you can have sometimes, you can, and enjoy them obviously, they're foods you shouldn't be having every day and that's the way you should be doing it." (Steve, 32)

Further, practitioners also felt that language needs to be age appropriate and highlighted the different language needs of older versus younger adolescents:

> *"So tailoring it almost to their age group I think would be really important, particularly in terms of the language that's used as well. Obviously the development of a 11 year old in comparison to a 19 year old is quite different language wise."* (Charlie, 21)

5.3.2.5.5. Subtheme 5.5: New and varied content. There was a real sense that the content would need to be new to young people, something that they had not already learnt in school, and different each session to maintain engagement:

> "*Having it so that each session for instance would be different for them as well to keep it engaging. So although it's following the same topic, making sure that there's something new in every session for them to learn … learning things that they're not learning within school or college for instance as well. So making it completely different from possibly anything that they've learnt before."* (Charlie, 21)

It was felt that repeating information already known to them would make the content dry and boring, whereas new information would provide a challenge, though caution was issued in making it too hard:

> *"It's just that fine line between like not making it too hard, but giving them that little bit of a challenge as well."* (Bronwyn, 27)

5.3.2.5.6. Subtheme 5.6: Interactive and engaging delivery. Practitioners felt that the way content is delivered needs consideration. Words around fun, practical, interaction, and engagement were repeated multiple times by practitioners, and it was felt that young people want programmes to be distinct from their experience at school. Instead, programme content needs to be conveyed in

practical, hands-on ways to engage young people and stop them getting bored, with active learning being provided as an example of how to achieve this:

> "*I think they love being hands-on. They love the 'having a go', seeing it, being able to see they can do it.*" (Jack, 31)

Practitioners shared their examples of tried and tested interactive activities such as the 'sugar activity', building water towers to represent daily water consumption, meal planning, investigating diets, or preparing, cooking, and eating new foods. Engagement was seen as providing a better learning opportunity and can even lead to covert learning:

> "*There definitely needs to be a sort of practical element to it as well. So some sort of, particularly sort of games, and things like that where they're interacting, almost without realising it, and developing skills and learning, sort of new concepts and new things without realising."* (Charlie, 21)

5.3.2.5.7. Subtheme 5.7: Strength-based, solution-focused approach. Practitioners explained how they use, to good effect, problem solving techniques to identify with a young person the barriers at play for them, and then to find solutions to overcome them:

> *"Find out why the young person isn't active, at the moment, and what barriers exist, so to alleviate them, and for them to take ownership of those sort of actions."* (Steve, 32)

In this way, practitioners are focusing on how to improve things for the young people, rather than concentrating on what the young person is not doing well. Thus, programmes can benefit from adopting an approach which focuses on the strengths of young people and what they are already doing well:

"*And a really nice kind of positive approach that isn't focused on what we shouldn't be doing and what's wrong … Because when you just look on 'we shouldn't be doing this', then that's really disheartening."* (Heidi, 37)

5.3.2.5.8. Subtheme 5.8: Skilled practitioners. It was expressed that young people will take away more from sessions if the practitioner is viewed by young people as being skilled and knowledgeable about the topic area. Practitioners voiced the need for young people to have a positive relationship with the people who deliver the programme, achieved through practitioner continuity each session and through establishing trust:

"*I think the struggle might be for some is the relationship between the young people and the staff or the youth workers I think that's key. If you don't have that, they're not going to want to change or listen to you or trust you or believe you."* (Jack, 31)

It was also felt that working with young people is unique and practitioners need a degree of resilience to manage challenges such as young people pushing back. As such it is necessary for practitioners to have a passion for working specifically with young people, which in turn can facilitate the building of rapport, trust, and engagement:

"We have an adult programme and the staff that deliver and love the adult programme really struggle and don't enjoy working with the younger people. So I think that is definitely something a practitioner has to be passionate about working with young people and wanting to help and support." (Meredith, 31)

5.3.2.5.9. Subtheme 5.9: Recognition of achievements and progress. Practitioners spoke about the importance of recognising the changes and progress that young people make during programmes. Analogies were drawn with video games which can be appealing to young people because they provide continuous positive feedback for achievement. It was posited that this pattern

of providing positive feedback can be replicated within a programme setting to encourage repetition of the new behaviour:

> *"I guess one of the facts is that, for instance gaming is so addictive, I shouldn't say addictive but people get hooked on games, is because you keep on getting this feedback, if you're getting, I guess this positive affirmation of what you're doing. The same should be with programmes interventions you know, 'well done for doing that, great for doing that' and being very specific in your feedback, so being you know, it's pointing out the specifics or area they've improved on and why they've improved on that, so great for putting effort into this. … building on their confidence in terms of an intervention group that's definitely important aspect."* (Steve, 32)

It was stated that acknowledging and celebrating positive change and progress provides encouragement for young people to continue with their new way of doing things and can help build their confidence:

> *"Everyone's always more encouraged to do to continue with something if they're feeling that they've achieved something or they're progressing along the way. So yeah so perhaps giving some kind of way to mark progress."* (Hayley, 32).

5.4. Discussion

This study aimed to explore practitioners' perspectives of influences on young people's PA and HE behaviours, the support required to change these behaviours, and opinions on a new behaviour change programme. A final aim was to triangulate data between practitioners and young people. To this end, there were some themes that overlapped indicating agreement between the two groups. Specifically, these were knowledge, role of parents and peers, the environment, and elements of new programmes such as language use, acknowledging progress, making it fun, and including practical activities. Triangulation of data is further explored below and in Chapter 7. Practitioners

identified a range of influences acting on young people to regularly engage in PA and HE, notably lack of knowledge, parental and peer influence, and the school and surrounding environment.

The perception from practitioners that young people lack knowledge on PA and HE is inconsistent with teacher perspectives (Harris et al., 2018). It is possible the nature of the relationship plays a role in these perceptions, with those working with young people during health-based programmes having more accurate perceptions. Certainly, this study has found practitioners perspectives to align with knowledge displayed by young people (Chapter 4). There is ample literature demonstrating the impact of peer relationships during adolescence in terms of PA and HE (e.g., Calvert et al., 2020; Hawks et al., 2022; Vogel et al., 2022). From the way peer influence is perceived by practitioners, as leadership rather than pressure, it is possible that peers could positively influence healthy behaviours in others. This has been found in a systematic review of young people's experience with PA where 21 out of 30 included studies reported on the positive influence of peers (Martins et al., 2021). This supports the use of peer leaders in behaviour change interventions (e.g., Corder et al., 2020; Jago et al., 2021) and fits with behaviour change theories that have peer components, or subjective norms e.g., Theory of Planned Behaviour (Ajzen, 1991).

This study identified themes around parents as both gatekeepers and role models. Consistent with other research (Harris et al., 2018; Mackintosh et al., 2011), this study found that parents are perceived to have a large influence over their children's behaviour and can act as both a barrier and a facilitator. Further to Mackintosh et al. (2011) who found that role modelling by parents was considered a facilitator, this study additionally identified the negative side of role-modelling by parents, e.g., modelling diets or restrictive eating as healthy behaviour, which can present a barrier to young people engaging in genuine HE. This indicates parents would benefit from education around HE, such as support to enhance their own knowledge and skills. This assertion is supported by both results from this study and a recent systematic review (Liu et al., 2021) in which results from seven of the included studies identified lack of parental knowledge as a barrier to providing healthy meals at home. Conversely, eight studies found that parental cooking skills acted as a facilitator for young

people's HE (Liu et al., 2021). This indicates that a behaviour change programme for young people may prove unsuccessful unless barriers faced by parents are directly addressed.

The environment was raised as a prominent influence, which is consistent with literature that highlights lack of accessibility due to infrastructure and transport (Harris et al., 2018). Practitioners in this study also spoke about the impact of subversive marketing and advertising designed to influence adolescents' food choices. Practitioners felt that young people are not aware of this environmental influence, though studies with young people themselves shows otherwise, albeit awareness is not pervasive (Calvert et al., 2020; Chapter 4). Others have found that young people and parents hold misconceptions about particular foods due to marketing and advertising (Calvert et al., 2020; Goh et al., 2009). Given the mixture of findings this remains an area of importance for research in addition to understanding the ability of young people to tackle this issue which was not explored in this series of studies (Chapters 4-6). In the meantime, it is encouraging that this study has found those working with young people to be aware of the environmental influences acting on young people's decisions and that they are prepared to support them to recognise and navigate this challenge.

Two considerations in working with young people were highlighted in this study, namely the age of young people and the skills of the practitioner. It was expressed that it becomes harder engaging young people as they get older due to behaviours having been ingrained since childhood. Indeed, longitudinal studies support the persistence of childhood behaviours into adolescence for both HE (e.g., Ambrosini et al., 2014) and PA (e.g., Jones et al., 2013). As noted by practitioners, this makes early intervention more salient, though it does not eliminate the need for behaviour change support later in the teenage years. It does however, as posited by practitioners in this study, require skilled practitioners to work effectively with this population. While building rapport and trust are already acknowledged as key skills for practitioners working in the field of behaviour change (Dixon & Johnston, 2010), the findings of this study go one step further, namely that practitioners working with adolescents need a passion for working with this age group. Further, this study emphasised that practitioners should be knowledgeable in the topic areas being discussed from whom young people

can learn. As seen with Harris et al. (2018), when those delivering health messages have limited knowledge, young people's knowledge can be limited too.

This study has gathered insight on the development of a new behaviour change programme for adolescents. A range of elements were highlighted covering how to make it appealing to young people prior to joining and how to make it engaging to assist with retention. Foremost however, practitioners voiced the importance of consulting with young people in the design of new programmes. This is in line with MRC guidance (Skivington et al., 2021) and has been found to be beneficial in practice (e.g., Van Kessel et al., 2016). This study identified many aspects of programme development on which young people could inform such as marketing and branding, and language and terminology. Of the latter, practitioners expressed concern that labelling foods as 'bad' could lead to feelings of guilt when consumed by young people. From the results of the young person study (Chapter 4), it can be seen that this is already occurring. This highlights the importance of future programmes carefully considering the language used to refer to certain foods and is an area where young people could be consulted. Other aspects for consultation with young people include names, logos, images, and marketing blurbs to both make them appealing and avoid stigma, a potential barrier to engagement identified in this study.

There are two further considerations of language and terminology raised by both practitioners and young people which relate to programme design and delivery. Firstly, practitioners spoke about the age of the young people enrolled on programmes, with acknowledgement that younger participants will have a more limited vocabulary than older adolescents. This was also mentioned in the young person study, where participants similarly highlighted the different developmental stages of older versus younger adolescents requiring different approaches from deliverers. Secondly, young people expressed the need for a positive safe space created through deliverers being positive and not critical or condescending. This implies deliverers need to consider their language use when providing feedback or responding to young people to maintain the safe space desired by young people. This reinforces the subthemes in this study on using skilled facilitators to develop trust and adopt a

strength-based approach to focus on what young people are already doing well. This confers with results from Goh et al. (2009) whose participants advocated for programmes to focus on positive behaviours rather than negative ones.

It was expressed that content should be delivered in interactive ways to support young people's engagement with the session. To this end, traditional classroom-based approaches such as the use of PowerPoint slides would not suffice. Such methods have been found to be considered passive by young people (Davison et al., 2015) leading to disengagement. Therefore, hands-on methods of delivering programme content are the preferred option. This aligns with young people's need for sessions to be fun. Young people felt the onus is on deliverers to create a fun and engaging space, and practitioners appeared to believe this also as evidenced by the interactive activities they choose to implement in their roles. With young people expressing disengagement or drop-out from programmes that they consider boring, the potential impact of not providing fun, practical sessions is clear. This implies the need for a well-crafted programme utilising practical activities to encourage engagement and retention. In terms of content, practitioners expressed the need for it to be new i.e., not information already covered in school. However, given that the national curriculum provides no specific guidance on what students must learn with regards to PA and HE behaviours, it may be challenging to discern what content would be repetitive and what would be new.

5.4.1. Strengths and limitations

This study utilised a participant group that are not frequently accessed. As such, the results contribute a new perspective on perceived influences on young people's PA and HE behaviours, and the optimal ways by which a programme can be delivered. Due to the recruitment method utilised during the pandemic, some practitioners were from the same organisation in the same area of the country. However, responses were not limited to their current role and practitioners were free to, and encouraged to, draw upon relevant experience and expertise gained throughout their career. Seeking information from practitioners has allowed for triangulation of data from the young person interviews as outlined above and further explored in Chapter 7. Further, by seeking input from practitioners with

experience of delivering behaviour change programmes to young people, best practice has been identified which can be used to develop potentially successful programmes. The fact that some of the elements identified by practitioners for programme content/delivery are consistent with young people's opinions strengthens and increases credibility of these findings (Guthrie, 2010; Noble & Heale, 2019).

5.4.2. Implications

This study supports the recommendations made in Chapter 4 for a systems-wide approach to environmental change to support PA and HE behaviours in young people. Practitioners highlighted the role of policy and regulation as a source of environmental influence faced by young people with belief that these are central to bringing out meaningful change. Practitioners and young people (Chapter 4) have highlighted the importance of parents for facilitating young person behaviour change, leading to a recommendation for parents to have an active role in future programmes, similar to Goh et al. (2009). Further research should be conducted to explore the acceptability of this to parents, and methods for best integrating parental and young person involvement, ideally though co-development. Behavioural influences identified in this study need to be considered by developers at the planning stage of future behaviour change programmes. Additionally, the results of this study highlight key aspects of programmes considered important to practitioners and should be considered for inclusion in development and delivery of behaviour change programmes, shown below in Box 5.1.

Box 5.1.

Recommendations for future programme design based on interviews with practitioners

Future programmes should:

- Collaborate with young people to develop an appealing programme that is fun and engaging.
- Provide information to fill gaps in knowledge of PA and HE.
- Present topics in engaging ways.

- Use age-appropriate language for different age groups.
- Deliver content new to young people to encourage engagement.
- Avoid demonising unhealthy food through labels and judgements.
- Use practical delivery methods to impart knowledge and develop skills.
- Include problem solving.
- Recognise young people's progress and achievements throughout the programme.
- Include parents to help remove family barriers to engagement with PA and HE and develop parent's knowledge.
- Help young people understand their relationships with food leading to greater ownership of behaviour.
- Support young people to develop an awareness of environmental influences designed to manipulate their eating behaviours.
- Use skilled and knowledgeable facilitators who can manage adolescent behaviour and have a passion for this age range.
- Adopt a strengths-based approach to recognise and build on young people's existing skills and behaviours.
- Be sensitive to young people's concerns with body image, self-esteem, or confidence.

5.4.3. Reflections of a qualitative researcher

At this point, two participant groups have been initially analysed and this section explores the potential impact of collecting and analysing multiple datasets simultaneously. Importantly, analysing groups in succession was always going to result in some overlap of themes/subthemes for multiple reasons. Firstly, as each interview was conducted, possible themes/subthemes were forming in my head for one group and parallels with another group were being made. Therefore, at the point of coding and theme construction within NVivo I was already aware of commonalities between groups which could obviously have impacted my analyses potentially resulting in a focus on congruent opinions and neglect of more novel findings.

Secondly, it simply was not possible to forget the first analysis before approaching this one, though I did take a break between writing the young person narrative and starting this analysis in an

attempt to minimise influence. However, as I later discovered, the analysis of both groups continued for many months up to and including thesis writing. The extended process saw refinement of themes/subthemes and the narrative in response to consultation with my supervisors. Therefore, even after initial coding and theme generation, continual analyses for both groups occurred in parallel and could have influenced how themes/subthemes were reworked and refined to either differentiate findings between groups or corroborate each other. Having been working with the data for well over a year at this point, I do feel there is a genuine amount of overlap between the two groups. This is not surprising given that the practitioners in this study worked with young people on a daily basis and had access to young people's lives that allowed them to see their situations first hand.

From a practical point of view, difficulties recruiting during the pandemic were evident with staff furloughed and thus not reachable or being stretched thin supporting young people with little time for other activities. Whilst this was not a problem as sampling was not being driven by a pre-determined sample size, I was aware of the fewer practitioners compared to young people. However, when considering that these interviews were conducted as an adjunct to the young person group, a smaller sample is quite appropriate. Further, this is to be expected when considering the pools from which participants were drawn with there being more young people in the sampling frame than practitioners: as my supervisor pointed out frequently, if you want to explore what it is like to be the queen of England, then your sample size is one. Positively, I do not feel having fewer participants in this group has negatively impacted the results presented here which are rich, detailed, and have subsequently proven to be of great value in designing the new HENRY programme.

5.4.4. Conclusion

This study adds to the literature on what practitioners perceive as the influences on young people's PA and HE behaviours, a group whose perspectives are not commonly reflected. Through triangulating data with that of young people, it can be seen that many themes overlap indicating consensus and strengthening results. Best practice for programme design and delivery have been identified by those who deliver behaviour change programmes and should be considered for inclusion

in future programmes, with particular consideration given to elements that confer with opinions from young people to whom programmes are delivered.

Chapter 6: Exploring commissioner's perspectives on young people's behaviour and seeking input on the development of a behaviour change programme for young people

6.1. Introduction

When designing and developing behaviour change programmes it is recommended to involve service users (Skivington et al., 2021) to ensure the programme is suitable for their needs. However, before a programme reaches young people in the public domain in the UK it must first be considered at a commissioner level. Within the National Health Service (NHS) in England, commissioning of services resides with integrated care boards who are gatekeepers to the delivery of public programmes. Therefore, it is sensical to seek commissioners' input at the development stage to ensure the programme will meet the needs of those who commission services. Despite this, it is not commonplace for commissioners to be consulted on programme development as evidenced through the lack of literature exploring their perspectives, though there are examples of involving commissioners in the evaluation of interventions. For example, commissioners of the NHS diabetes prevention programme (Rodrigues et al., 2020) were included in a qualitative telephone-based evaluation using the Theoretical Domains Framework (TDF; Cane et al., 2012). Similarly, commissioners were included in an evaluation of a new health optimisation programme for patients living with obesity prior to orthopaedic surgery (McLaughlin et al., 2021), which combined commissioner, deliverer, and service user data on the experience of the new pathway designed to help patients lose weight before surgery.

It has been posited that commissioners understanding of an issue may impact the services they choose to commission (Ellis et al., 2017). This has been explored in relation to conceptualisation of self-management for those with long term conditions such as diabetes and stroke. Ellis et al. (2017) found that commissioners conceptualised 'good' self-management as residing with individuals who take responsibility for themselves and their actions. This led to consideration that services should help people to take responsibility and not encourage an entitlement-based approach (Ellis et al., 2017).

Considered in relation to the behaviours of interest in this research, this could in practice mean that commissioners who perceive barriers to physical activity (PA) and healthy eating (HE) to sit solely with young people's attitudes may only commission services that seek to change adolescent's thinking. Similarly, if lack of opportunity is not perceived to be an important influence by commissioners, they may not commission services that provide this for young people.

Commissioners may also make decisions based on evidence presented to them and its use in public-health commissioning decisions has been investigated by Curtis et al. (2018). In this qualitative study, researchers mapped commissioners influences to the TDF. Curtis et al. (2018) found that commissioners lack understanding of behaviour change and a preference for local data rather than academic research, possibly due to the perceived inaccessible nature of the literature which requires time and skills to access. Further, commissioners expressed feeling unconfident using evidence, as well as a belief it will have little impact on the success of programmes, meaning it is not valued. Finally, commissioners felt that evidence does not account for local context making it hard to translate research into practice. These findings provide insight into the challenges of commissioning evidence-based BCIs within public health and supports including commissioners in the development process to create an acceptable programme to those who may commission it.

With regards to this study, seeking commissioners' perspectives on their understanding of influences for young people's engagement with PA and HE provides another source for data triangulation with results from young people (Chapter 4) and practitioners (Chapter 5). This will show whether perspectives on this issue are consistent at all levels i.e., from those who commission services, to those who deliver services, and to those who use services. Further, it will provide insights on commissioners understanding of the issue at hand which, if there is credence to Ellis et al.'s (2017) assertion, may impact which services they commission for young people. Additionally, given the identified challenges faced by commissioners to use evidence-informed decision-making (Curtis et al., 2018), their perspective is valuable in developing a programme suitable for use within public health settings. Finally, speaking to commissioners as gatekeepers to the provision of public services for

young people will provide insight on elements of behaviour change programmes considered important from a commissioning perspective. This will allow for important elements to be encapsulated within the development of the programme as appropriate, with the intention of producing a programme more likely to be appealing to commissioners. The research question was 'From a commissioner perspective, what factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?'

6.2. Method

A comprehensive method section has been provided in Chapter 4 relating to all participant groups in this series of studies. The section here outlines methods relating to this specific participant group. This study utilised the Consolidated criteria for reporting qualitative research (COREQ) checklist (Tong et al., 2007). The same ethics approval detailed in Chapter 4 applied to this participant group also and was obtained prior to recruitment (protocol number LMS/PGR/UH/04197; Appendix E).

6.2.1. Design

The same design was utilised for all participant groups and has been outlined in Chapter 4. In brief, this study opted for one-to-one qualitative interviews.

6.2.2. Participants and eligibility

As with the other participant groups, no target sample size was set. Given the niche role of commissioning health-based interventions for young people, this group was expected to be naturally smaller than the other two. Recruitment was driven pragmatically based on time constraints, accessibility to participants, and availability of commissioners during the pandemic. Those with experience of commissioning health-based interventions for young people in the UK and able to communicate in English were eligible to take part. Participants required access to a device capable of supporting an online meeting. All participants were unknown to HA-W prior to interview.

6.2.3. Recruitment

Participants were recruited through word of mouth by the academic and HENRY research team utilising professional contacts. Additionally, one participant from the practitioner group shared

the study information with a commissioner who subsequently took part in this study. Participants contacted HA-W who provided a study information sheet (Appendix S) and was available to answer questions. Written informed consent (Appendix M) was provided by participants before data collection. All participants who provided consent took part in the interview and no participants requested to withdraw from the study.

6.2.4. Materials

A commissioner specific version of the interview schedule (Appendix T) phrased the questions to be answered from the perspective of commissioners. Participants were asked the same questions in terms of influences on young people's PA and HE behaviours and required support when making changes. Additionally, commissioners were asked about their experience of commissioning health-based programmes for young people e.g. "*What is your experience of commissioning these types of programmes in this population?*", challenges to implementing behaviour change programmes, e.g. "*What barriers do you think there are to implementing programmes to support young people to make changes in their lives and how can these be overcome?*", and what they consider to be important elements of commissioned programmes, e.g. "*What do you consider to be important elements of the programmes you commission?*", all with PA, HE, and wellbeing as the context.

6.2.5. Procedure

Participants in this group followed the same interview procedure as the other groups, as outlined in Chapter 4, including completing the demographic sheet (Appendix G) prior to interview. Participants were then interviewed online using Zoom (n = 3) or Microsoft Teams (n = 4) between October 2020 and March 2021. As with other groups, the use of an online platform resulted in moments where speech was unclear and occasional words were missed. Following the interview participants were provided with a debrief sheet (Appendix O) detailing their right to withdraw their data from the study though nobody requested this.

6.2.6. Analysis

All interviews were initially transcribed using the Otter automated software (Otter.ai, n.d.). Transcripts were then adjusted by HA-W to become a verbatim reflection of the interview. Transcripts were analysed by HA-W using Reflexive Thematic Analysis (TA; Braun & Clarke, 2006) as detailed in Chapter 4. For the analysis of this participant group, immersion in the data occurred through transcription and reading the transcripts. A new NVivo (version 12 Pro) file was used to conduct coding which started at the semantic level. Each transcript was coded before similar codes were grouped together where appropriate and labels were modified to reflect combined data. Codes continued to be reviewed in this way alongside grouping codes into themes/subthemes. These were then reviewed and amended accordingly to ensure they were representative of the data as a whole and with no overlap. A draft narrative was then written, and themes/subthemes were further refined through discussions with NH.

6.3. Results

6.3.1. Participants

A total of seven commissioners expressed interest, consented, and took part in an interview which lasted between 27 to 62 minutes (average 45.46 minutes). All identified as White British ethnicity, three were female and four male. Participants had a mean age of 40 years 3 months (*SD* = 7.7, range 35-57). Four participants were meeting PA guidelines of 150 minutes per week, with three completing at least 90-120 minutes in the last week. Four rated their diet quality as 'good', two as 'very good', and one as 'excellent'.

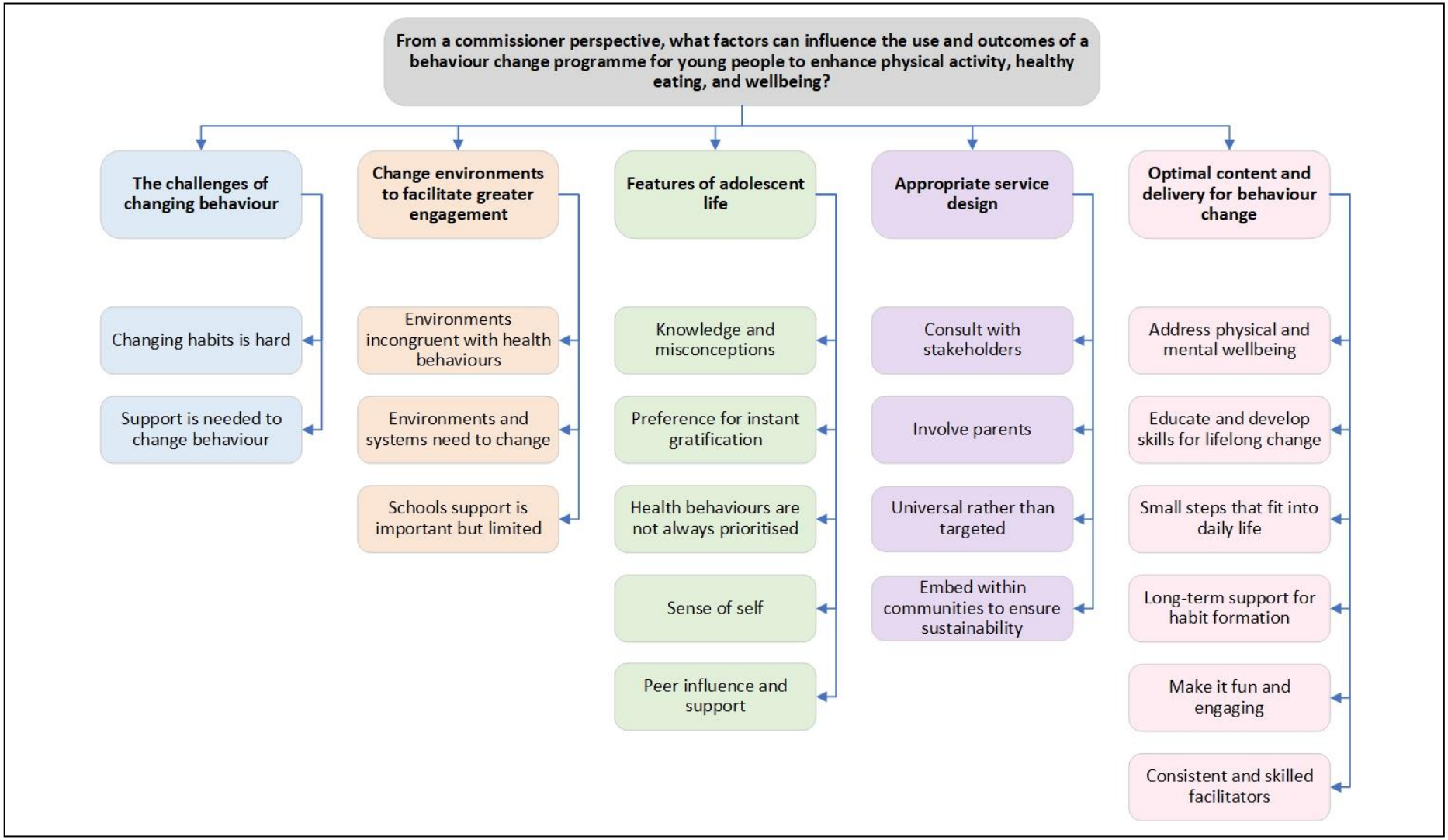
6.3.2. Themes

Four themes were created, as shown in Figure 6.1., in response to the research question, 'From a commissioner perspective, what factors can influence the use and outcomes of a behaviour change programme for young people to enhance physical activity, healthy eating, and wellbeing?'. Commissioners spent greater time considering the new programme than influences on behaviour, resulting in two themes related to programme design and use. Themes were (1) The challenges of

changing behaviour, (2) Change environments to facilitate greater engagement, (3) Features of adolescent life, (4) Appropriate service design, and (5) Optimal content and delivery for behaviour change. Subthemes explored specific aspects of each main theme. Each theme is presented along with the subthemes, using pseudonymised quotes to illustrate and enrich the results.

Figure 6.1.

Thematic map for interviews with commissioners



6.3.2.1. Theme 1: The challenges of changing behaviour

Commissioners spoke about the concept of 'change' and how this is hard for young people as they are more susceptible to peer influence. Therefore, young people require support from others in order to make behavioural changes.

6.3.2.1.1. Subtheme 1.1: Changing habits is hard. Commissioners acknowledged that change is challenging for anyone, adults or teenagers, but more so for the latter group. It was expressed that patterns of behaviour and habits with regards to eating and PA are already ingrained by the teenage years, the result of their environment and upbringing. It was felt that making changes to these behaviours is a tough undertaking for young people who are more subject to peer influence and pressure than adults:

> *"So in order for them to come out of that habit, that's a massive decision. If you think about the willpower that adults require, for a teenager, to think 'no I don't want that snack, I'm craving it but I'm going to do something different, or I'm gonna distract myself, or I'm not really hungry I just need a drink of water', does that make sense? Those kind of things for a teenager, is an awful lot to expect for them to step out of their normal, particularly if all of their friends are just having a bag of crisps after school."* (Heather, 39)

6.3.2.1.2. Subtheme 1.2: Support is needed to change behaviours. It was viewed that young people need support to make meaningful behavioural changes. Given how hard it is for anyone to make changes in their lives, and that young people do not have full independence, commissioners felt that they need to receive support from others in order to succeed:

> *"If they're on their own, the chances of success are slim because they don't yet have full choices over their dietary or activity behaviours."* (Heather, 39)

The most frequently suggested sources of support were parents/carers, teachers, and schools, though others were mentioned including peers, relatives, sports coaches, faith leaders, and social media. Commissioners felt that role modelling, practical support such as driving young people around, and financial support such as paying for equipment or membership fees, are all important. It was acknowledged that some young people will require more support than others, such as those who face more health-inequality:

> *"There are going to be certain groups who require more support than others. Those who are more deprived, those who face stronger inequalities, I think are going to need more support to overcome the barriers that they face through no fault of their own, effectively, through a victim of circumstance, really."* (Elijah, 38)

6.3.2.2. Theme 2: Change environments to facilitate greater engagement

Commissioners considered the environment to be generally unsupportive of young people being active or eating well and that this needs to change. They spoke about the need for systems to change in order to create supportive environments that allow young people to act on their intentions to engage in health-based behaviour. Schools were acknowledged as a key environmental influence that have potential to be supportive of young people but are often unable to deliver.

6.3.2.2.1. Subtheme 2.1: Environments incongruent with health behaviours. Commissioners felt that the environment is not always supportive of young people's PA and HE behaviours. Environmental aspects mentioned regarding PA focused on the layout of the infrastructure such as green and open spaces, gardens, cycle paths, walking routes, and the proximity of these features in young people's local areas:

> *"Access is a big potential problem. So whether that be where you live and what you've got in your local surroundings, whether that be people being worried about society, and you know where parents are less happy to let their young people go out and play unsupervised, and that's a big problem. Houses these days have small gardens and that again restricts people."* (Archie, 41)

This was in contrast to factors relating to HE which were concerned with availability of healthy options in locations where young people eat both inside and outside the home. Additionally, commissioners spoke about how food environments do not prioritise HE, which is not currently considered the norm:

> *"We need to establish those environments as healthy products being the norm rather than commercial, you know high sugar, fat, salt product being the norm, in places that children eat. So it's the entire environment in which they are exposed to food, from home, to cafes, to schools, to leisure centres, all those areas."* (Elijah, 38)

6.3.2.2.2. Subtheme 2.2: Environments and systems need to change. Commissioners spoke about the need to provide an environment conducive to being active and eating well so that young people can better act on intentions. To this end, it was felt that a supportive environment needs to be in place before young people intend to be active or eat healthily, otherwise their intentions cannot be enacted:

> *"I do think it's the environment first, followed by the inspiration later, because the inspiration will only be expressed when the environment is right. You'll have lots of very inspired kids if we have lots of campaigns and educational programmes, but those very inspired kids will leave the place that they've been inspired, either the front room where they've heard something on the TV, or school, or a HENRY programme, or a meeting with a doctor and they'll walk out into a street where their physical activity isn't prioritised and you're automatically finding it hard. So I think we've got to sort out the environment level first … I think they'll struggle to work to their full potential unless the wider world that people interact with supports their intentions."* (Elijah, 38)

Commissioners felt this would require changes to systems in which young people live as individual level change will only go so far unless the systems change to accommodate young people's

new behaviour. There was talk of institutional level change such as adopting a whole systems approach to increasing PA and HE for young people, as well as policy change at governmental levels:

> *"And I think there is a recognition now, I think at, given Covid I think people do realise that when you want serious population level health change, you need all of the different elements of a system to work collaboratively. And I think in Guernsey we've shown that beautifully with Covid and our response here, you know. I think the usual approach to health promotion, if we'd taken the usual health promotion approach to Covid, we would have just told people and given them leaflets and said 'oh don't worry it's your choice, to choose, it's your responsibility to choose better to eat well and to get more active', but actually we did the opposite. We told them that, but also we said but it's supermarkets responsibility to ask you to wear a mask, it's the government's responsibility to close the shops, it's employer's responsibility to make sure you're protected. And so we had a systems level approach and I guess that's what we've got to have with eating well and being active."* (Elijah, 38)

6.3.2.2.4. Subtheme 2.4: Schools support is important but limited. Commissioners stated that schools are an important source of support for young people and are well suited to provide education on, and opportunities for, PA and HE. Whilst it was acknowledged that some schools provide breakfast clubs and extra-curricular PA opportunities during lunch breaks or through sports clubs, it was also highlighted that most schools are limited as to the support they can provide. Proposed reasons for this included time constraints, an already full curriculum, the lack of priority afforded to health-based topics, or using canteen sales to generate income:

> *"Schools as far as I was aware when we looked into it they work on profit on their school meals and so you know if they filled it all up with salad and veggies and fruit and the kids didn't eat it, they'd be throwing it away and losing money so they do*

provide food that kids want to eat basically, which is not always the healthiest stuff." (Eloise, 57)

As such, commissioners spoke about schools requiring support in order to extend their provisions and in turn support young people to engage in healthy behaviours:

"Support, again, to schools to make, to enable schools to provide physical activity and again, steering away from, play for your teams sports and for your organised sports, but actually how do schools make children more physically active using, or other options apart from just your classic sort of team sports." (Carl, 36)

6.3.2.3. Theme 3: Features of adolescent life

There was attention paid to the uniqueness of the teenage years and the various aspects of adolescent life that can impact their ability to engage and make changes. Commissioners felt that young people lack knowledge and have misconceptions about PA and HE. Additionally, a preference for instant gratification rather than considering long-term benefits means they may not prioritise health-based behaviour. However, it was acknowledged this could also be due to perceiving health-based behaviour as congruent with their identity or not, as well as body image concerns. Finally, commissioners spoke about the role of peers who can both influence and support young people.

6.3.2.3.1. Subtheme 3.1: Knowledge and misconceptions. It was expressed by commissioners that they believe young people have a limited understanding of what constitutes PA or HE, through both a lack of knowledge and through misconceptions. With regards to the latter, commissioners felt that young people have basic knowledge of HE but lack knowledge on aspects such as portion sizes and balanced meals:

"When young people think what healthy eating, they think about it probably like your five a day, is what I think they perceive it as. So, rather than it being a necessarily a balanced diet is it yeah probably think about it's your fruit and veg that we need to eat because that's kind of instilled into them." (Carl, 36)

Further, it was expressed that young people associate HE as being strict with food intake or following a 'diet', in addition to perceiving it as expensive. As for PA, commissioners felt that while young people use this as a tool to relax, develop skills, manage weight, have fun, and manage their mental wellbeing, they don't always understand what counts as being active. It was asserted that young people count structured activities, sports, and physical education classes as forms of PA, but do not perceive everyday activities as being active:

> *"They wouldn't probably think maybe going for a walk or just playing out was being active. I think you know that they'd think that being active meant they'd have to participate in some sort of actual exercise rather than just physical activity."* (Eloise, 57)

6.3.2.3.2. Subtheme 3.2: Preference for instant gratification. Commissioners spoke about young people living in the present moment rather than thinking of their future which means they do not necessarily appreciate the long-term implications of today's behaviour:

> *"Kids live in the now … you know, not eating veg today means cardiovascular disease in 20 years time, the vast majority of [young] people will, you know discount that time perspective."* (Elijah, 38)

It was felt that the inability to consider future consequences results in a preference for instant gratification and to see instant results of changes to behaviour which makes it harder to engage them in behaviour change programmes:

> *"The thing is when I've spoke[n] to young people they very much want instant gratification, they can't look at the long-term benefits of being healthy, they think, 'yeah whatever, I might get this when I'm older' but they're not fussed they just want to eat whatever they want now and they're not worried about the future."* (Eloise, 57)

6.3.2.3.3. Subtheme 3.3: Health behaviours are not always prioritised. Commissioners considered that, while some young people have lots of demands on their time, some have options for how to spend their 'free' time. In both scenarios young people may not prioritise the pursuit of healthy behaviours, and this lack of priority may inhibit them from engaging in health-related programmes designed to support them through PA and HE:

> *"I can't imagine that it's a priority for them. Yes, that's tricky. Otherwise we would have loads of children and young people weight management services that are all full and we don't."* (Celia, 35)

Therefore, commissioners spoke of the necessity for programmes to appeal to something that is important to young people to align with their priorities, though it was acknowledged this will vary between each person:

> *"It's got to fit in with their current priorities or trump their current priorities especially if you're working with teenagers. Because you know for kids I think you can engage them with fun and hooks and those kinds of things, for teenagers and older adolescents I think you have to engage them in something that's important to them. And that can then be a wide range of different things. You know, fun is fun, but I think importance can, you know, fun when you're a six-year-old is generally similar to others experience of fun when you're six, but importance when you're 16 is a bit of a different kettle of fish depending on who you are."* (Elijah, 38)

6.3.2.3.4. Subtheme 3.4: Sense of self. Commissioners spoke about how the way in which young people view themselves will impact their behaviours. For example, it was felt that some young people don't see using leisure centres as fitting with their identity or their sense of who they are, possibly due to lack of use by themselves, their family, or community figures with whom they identify.

This lack of role modelling makes it hard for young people to see how services could be used by themselves:

> *"I think there's a, they don't see it as something for them, or for people like them, whatever that might be. We get that quite a bit, where its thinking it's sport or physical activity even sometimes is seen as something that certain people do and other people don't … So there's a, I guess a lack of role models in certain communities, in certain geographies within parts of Oxfordshire for example there's, there are a lack of maybe role models, it's not societally normal to see people like them whatever that is, wherever people like them is gender or whatever it might be, they don't see other people like them, and therefore it's harder to picture and bring about them doing it as well."* (Patrick, 36)

Additionally, commissioners raised the issue of body image and confidence which can impinge on engagement with health-based activities. Of the latter, commissioners mentioned how young people living with overweight or obesity may have lower self-esteem and lack confidence to engage in PA. Specific reference was made to young women and concerns they may have about their body image resulting in non-participation of PA:

> *"Appearance, body image, whether that's because they were worried about what their body looked like when it's being active or worried that being active would then ruin their hair or make them not attractive afterwards."* (Celia, 35)

6.3.2.3.5. Subtheme 3.5: Peer influence and support. Commissioners acknowledged the importance and influence of peers in young people's lives. This was mentioned in both a supportive and obstructive capacity, though more consideration was given to the former. It was felt that young people are more likely to engage in, and return to, programmes when their peers are present which creates a social atmosphere of camaraderie:

"It's easy doing groups, particularly with young people because they are more likely to do it if their friends are doing it. So that, as we know that peer group pressure becomes the most important thing in their life and talking about 13 to 14, 15-year-olds their brain is wired to do what their peers want to do, that's, they're the most important people to satisfy their lives." (Archie, 41)

The one caveat to this is that peers should be of similar age. Commissioners expressed the different needs of young people within the teenage years range and spoke of more successful programmes being those without a big age range as older teenagers don't want to be in groups with younger teenagers. It was also felt that peers can support each other outside programmes making it easier to engage in healthy behaviours. Given the importance of peers, it was suggested that programmes could benefit from utilising peers as a method of effective delivery:

"There would have to be some helpful kind of practical advice in there to kind of make it useful, but maybe it would be practical helpful advice from other young people as opposed to older people and specialists and maybe a kind of peer-to-peer thing." (Celia, 35)

6.3.2.4. Theme 4: Appropriate service design

Many elements of designing, writing, and the placing of health-based programmes were considered important by commissioners. This included consulting and involving stakeholders and making programmes universal for all young people rather than targeting a specific sub-group. Commissioners felt that parents should be involved in programmes and highlighted the importance of embedding programmes within communities to enhance sustainability making them available to young people for longer.

6.3.2.4.1. Subtheme 4.1: Consult with stakeholders. Commissioners voiced the importance of consulting not just young people, but also parents, practitioners, and the community in the design

and development of new programmes. To support this, commissioners referenced negative outcomes of previous projects that had not sought prior consultation:

> *"It's the young people themselves, what do they need, what do they want, why do they want it, how do they want it, that's the really important thing. I've seen some really well-intentioned programmes not get off the ground because they just didn't land very well with young people, and in almost all those cases they didn't speak to young people first."* (Archie, 41)

It was conveyed that consultation with stakeholders leads to better engagement from young people as they feel they have been listened to. Further, it was felt that consultation can identify and address beforehand barriers which might stop young people attending:

> *"There's been many examples where something's been commissioned that as the crow flies might be 600 metres away but what we don't know is that the streetlights don't work there after seven o'clock at night and people don't feel safe going there or whatever it might be. So, the local insight is just absolutely key and generally doesn't show up in mapping exercises."* (Patrick, 36)

While it was acknowledged that consultation with stakeholders is key, the issue of developing programmes in accordance with the evidence-base was raised. It was expressed that ideas proposed during consultations may be contradictory to what the evidence shows to be beneficial and thus needs to be considered alongside the evidence-base.

6.3.2.4.2. Subtheme 4.2: Involve parents. It was felt that young people in the teenage years still rely on parental involvement in their lives for practical support, and thus need their parents to be on board with changes they want to make. Commissioners stated that having their parents on board would facilitate change and make success more likely for young people:

"It's like a teenager suddenly turning up saying I want to be vegetarian and the parents do the shopping and they're like 'yeah not on your nelly', does that make sense? You can't expect to change a food culture in a home environment, unless you have the whole family support. So if a teenager genuinely wants to make lifestyle changes, whatever it might be, they've got to have the support of their parents, even if they're generally quite independent, because it might be that parent has to take them to that football club or that parent has to pick them up." (Heather, 39)

Commissioners advocated for parental involvement within programmes for young people as a way of getting them onboard. However, it was acknowledged that during the teenage years, young peoples' strive for independence may mean they do not want their parent in the room with them and thus, parents may need to be engaged separately:

"So, it might be a project for young people but actually the education the families alongside that's just as important to reinforce the good habits that you're delivering for young people. So having that, again, that sort of buy-in from all the people that are involved, really important. And it might be that looks slightly different for an adult than it does for a young person, but, educating that adult potentially is also really important." (Archie, 41)

6.3.2.4.3. Subtheme 4.3: Universal rather than targeted. Commissioners stated that young people may be stigmatised by peers for attending a programme either because of perceptions of what the programme is about, or simply because it is not attended by everyone. Therefore, commissioners felt it beneficial to make programmes universal for all young people, instead of targeting, for example, those who are living with overweight or obesity. This would stop young people feeling they had done something wrong or were being punished in some way which would detrimentally impact on their engagement:

"When you come to this kind of programme we want to move away from the potential implication that people have done things wrong, because you immediately lose their buy-in or they just feel guilty and low mood and then you're not in the right position to engage in something." (Heather, 39)

Such an approach also reinforces the fact that everyone needs to eat well and be active for their health and wellbeing. This normalises engagement with these types of programmes and reduces stigma which could be felt by both young people and parents:

"You can't really go around targeting the overweight and obese kids because obviously that'll put a stigma on it and it isn't just about that is it, as we know it's about eating healthily regardless of your weight." (Eloise, 57)

6.3.2.4.4. Subtheme 4.4: Embed within communities to ensure sustainability. Commissioners spoke about the importance of sustainability of health-based programmes, expressing a preference for sustainable ones over those considered standalone events. To this end, commissioners felt it important to consider how programmes continue to be delivered after funding or the initiative has ended:

"The thing that I hate I can start by doing, is if someone comes to you and says right we've got a problem let's commission something to solve it. And it doesn't work like that. So, you know, something like, I don't know, so let's go into schools and deliver a six-week programme on healthy eating and then come out. Okay, great, but what does that school do when you've disappeared, or when the funding stops or, you know. So for me, that would be something that I wouldn't want to do. So in kind of there's a systems model, active scales model and it's just called an event, so I wouldn't want to just commission an event." (Celia, 35)

It was felt that embedding programmes within communities and incorporating programmes into existing provision or within school curriculums can circumvent this hurdle in addition to providing other benefits such as using local deliverers who feel a connection to the community. Commissioners felt that upskilling the existing workforce and embedding programmes within the community leads to better outcomes for young people, in part due to them being more accessible when targeted in places where they already meet:

> *"[When] something's built into a provision they already engage with that's not physical activity, it sticks because they're already engaging with that intervention and physical activity is just one more thing that's added to it."* (Patrick, 36)

6.3.2.5. Theme 5: Optimal content and delivery for behaviour change

Commissioners considered important elements of programme content and delivery. They felt that programmes should be holistic in nature to comprise multiple aspects of health and wellbeing. Sessions themselves should focus on supporting young people and parents to boost their knowledge and gain an appreciation for the permanency of change. Further, sessions should develop practical skills for long-term use in a fun and engaging way, delivered by skilled facilitators. Consideration was given to how best to approach behaviour change to make it easier for young people to achieve. There was an acknowledgement that the approach needs to use small, achievable steps, developing daily habits that fit into young people's lives. Additionally, support should be for long enough to allow for habits to develop.

6.3.2.5.1. Subtheme 5.1: Address physical and mental wellbeing. Commissioners were conscious that PA and HE are only two aspects of health that fit within wider considerations of health and wellbeing. To this end, it was felt that programmes should be holistic and encompass other aspects of health and wellbeing including emotional wellbeing and mental health. It was proposed that the focus of programmes should be on improving overall health and wellbeing, using PA and HE as tools to achieve this:

"Children are then identifying or making more of a link between the physical and mental wellbeing and how they interlink with each other, and how they can use physical activity as a tool to, in many cases, the young people refer to it helps control their anxiety or anger management issues or stress." (Patrick, 36)

It was felt that a holistic programme is more substantive and addresses areas of concerns which young people feel are important in the current climate. However, commissioners cautioned the inclusion of weight loss or requiring young people to be weighed in sessions. They advised that in addition to being inappropriate for this age range where the focus should be on healthy growth rather than losing weight, it could make the programme 'clinical' in nature and be off-putting:

"My experience of commissioning these kinds of programmes generally is hit or hate anything that looks like it might be a fat club" (Heather, 39).

6.3.2.5.2. Subtheme 5.2: Educate and develop skills for lifelong change. Commissioners spoke about the importance of young people approaching change as a long-term investment to be continued after programmes have finished. To this end, it was stated that practitioners need to ensure that young people comprehend the expectation and necessity of changing their lifestyles and developing healthy habits which they can sustain for years to come:

"You need to talk about sustainability … you know this is a lifestyle change which means that in two years time when you're such and such age you'll still be doing this, and putting it into, so that they can begin to picture it." (Heather, 39)

As such, commissioners felt young people need to develop skills to achieve life-long changes. These could be skills such as problem solving, strategies to manage food cravings and making healthy swaps, or practical skills such as cooking, which was highlighted as lacking amongst young people and families and impedes their ability to engage in HE at home. Therefore, commissioners suggested the

inclusion of hands-on practice with preparing and cooking meals from scratch:

> *"Perhaps some joined up things with families around preparing healthy food, physically doing it, like cooking, making meals, understanding it's not as hard as perhaps they might perceive it potentially or not expensive. So some support around that I think is really important. So they're actually physically able, they have some physical skills."* (Archie, 41)

Alongside skill development, commissioners spoke about the importance of providing educational information to equip young people and parents with knowledge on PA and HE. A broad range of information was presented including apprising them of the benefits of PA and HE, the risks of not being active and eating well, the impact of these behaviours in different areas of their lives, availability of local services, dispelling myths, where to find further information, how to develop new habits, and current guidelines. To illustrate:

> *"The usual what makes a healthy diet, what are the risks of not having a healthy diet without scaring them too much. Likewise with activity, because and I'd focus on sedentary behaviours as well as activity, it's all very well being in a sports team and playing football three times a week but if you then spent hours and hours and hours on a screen being sedentary your risk is pretty much the same anyway."* (Heather, 39)

6.3.2.5.3. Subtheme 5.3: Small steps that fit into daily life. It was felt that making small, gradual changes is an appropriate approach to changing activity and eating behaviours in young people. Commissioners felt that small steps are more achievable for young people and makes it easier to eventually turn new behaviours into habits:

> *"Helping them to think how can I be more active? How do I squeeze 10 minutes in here? And making it achievable. So 10 minutes is better than nothing it doesn't have*

to be an hour and a half, do you see what I mean, so that it's bite sized chunks will be easier to get into those habits." (Heather, 39)

Additionally, it was voiced that changes need to fit into young people's daily lives i.e., new behaviours need to be as accessible as current behaviours, rather than young people having to go out of their way to specifically engage in those new behaviours. For example, making healthier food choices when eating in places they already visit, rather than going to a different restaurant:

"So if 'this is a McDonald's, you could have this instead and this is how you make it' or 'if you are going to McDonald's this is what you should be choosing don't have that that's even worse.'" (Eloise, 57)

For PA this would involve spending more of the day being active rather than seeking out a sports club or structured activity beyond their home and school lives.

6.3.2.5.4. Subtheme 5.4: Long-term support for habit formation. Commissioners spoke about the need for young people to be supported for a duration long enough to establish change through the creation of new habits which they can then sustain into the future. It was acknowledged that it takes many months for behavioural changes to become habitual, leading to assertion that traditional 6–12-week educational programmes are ambitious with assuming that sustainable change is possible with that timeframe:

"I think the fact that we might expect people to turn up to a set of weeks, and change some behaviour, then stop that, and then it's going to last for a long enough time to really make a difference on their physical activity and nutrition, I think we're probably a bit ambitious with that hope." (Elijah, 38)

As such, commissioners advocated for long-term support to allow young people to learn, practice, and embed new habits into their lives. However, it was reflected that it can be difficult to

maintain commitment to attending programmes which run for 'too long' so the two need to be balanced, although no specific time frames were referenced.

6.3.2.5.5. Subtheme 5.5: Make it fun and engaging. There was consensus from commissioners that the programme needs to be both fun and engaging. It was expressed that fun sessions will encourage young people to return each week and it won't feel like a chore for them to go, *"once you've got people there you want to make sure that they come back, so it's very much around being fun"* (Carl, 36). There was a belief that it is possible to make the programme fun and educational at the same time:

> *"So, whatever that programme is needs to have some element of high engagement, high fun, even if it's something that potentially is I don't know heavily educational, or around systemic lifestyle change, it can still be fun in making that happen. And again, talking to them about what they find is fun, is the important part of that. But I do think making it enjoyable and engaging is really, really important."* (Archie, 41)

6.3.2.5.6. Subtheme 5.6: Consistent and skilled facilitators. Commissioners felt it important that facilitators have prior experience of working with young people, so they are able to utilise skills to keep young people engaged. This included listening, valuing opinions, understanding young people, communication and questioning skills, empathy, and flexibility. Further, it was expressed that young people's current behaviour around eating and activity may be partly due to previous trauma in their lives. To this end it was suggested that facilitators be trauma informed so that they avoid causing further harm:

> *"Practitioners will need to be trauma informed in their practices so they can help unpick some of those challenges with the young people themselves, because again, if you risk another failure, you add to the challenge making it harder and harder as they go on."* (Heather, 39)

Alongside their skills it was felt that there needs to be consistency in facilitators and the same people should deliver each session of a programme. It was deemed that this will lead to better retention of young people as they can build and establish trust with the facilitators:

> *"There's been situations in the past where like there's been a change of whose running the session. They build up a really good rapport with somebody so if it's a real specific intervention, somebody is running that, great, and then for some reason that changes, that can be a real big, 'oh hold on, I come here because of that person I've lost that trusted relationship now', that seems to be a big thing."* (Patrick, 36)

6.4. Discussion

This study aimed to explore commissioner's perspectives and understanding of influences on young people's engagement with PA and HE behaviours and gain opinions on the development of a new behaviour change programme. This study found that commissioners believe young people to lack knowledge around PA and HE in addition to holding misconceptions, consistent with other groups such as practitioners (Chapter 5), and teachers and youth workers (Bel-Serrat et al., 2023). As such, they advocated for programmes to include educational content to provide knowledge. This lends support to the notion that commissioners understanding of an issue can impact their commissioning choices (Ellis et al., 2017). In this instance, commissioners acknowledged the difficulties faced by young people to be active and eat well i.e., lack of knowledge, and combined with a recognition of a need for support, they suggested use of educational programmes as a suitable provision to enhance knowledge. However, it is important to remember that knowledge alone is not always sufficient to change behaviour (Thakur & Mathur, 2022) though it is often required. Commissioners also spoke about the importance of developing practical skills that will also support PA and HE behaviours. This approach is consistent with that recommended by practitioners (Chapter 5), and youth workers and young people themselves (Chapter 4; Davison et al., 2015).

Commissioners spoke about sustainability, both in terms of the programme itself, and also in

terms of what the programme endorses. To this end, they were keen for programmes to support young people to develop lifelong strategies for maintaining and improving their health behaviours. It is unsurprising that this is of importance to commissioners given that positive changes can fade over time once active support has been withdrawn (Ory et al., 2010), though maintenance of behaviour change is possible (Allcott-Watson et al., 2023). In practice it is only when young people can sustain the changes independently, that they will not revert to where they started before the intervention. From a commissioner perspective, programmes that fail to achieve this for young people could be considered wasteful of time, resources, and money. At a time where central government funding for local authorities is reducing (Department for Levelling Up, Housing & Communities, 2022), it is important to upskill young people to take ownership of maintaining behavioural changes for life. To commissioners, this was seen to be achievable by supporting young people to make small changes that fit into their current lives with relative ease, an approach consistent with habit formation (Fogg, 2020).

Commissioners proposed that change is hard for everyone, but more so for adolescents who are particularly receptive to peer influence. The challenges of change are further exacerbated when considered alongside other aspects of adolescent's lives such as the preference for instant gratification and conflicting priorities for their time. This suggests that programmes need to fit into young people's lives easily so that they do not get trumped by other priorities, consistent with the EAST framework (Easy, Attractive, Social, Timely; Service et al., 2014). Further, it suggests that programmes may need to address young people's attitudes and expectations, helping them understand the relatively slow nature of behaviour change and subsequent outcomes, and an appreciation of the long-term gains in reducing health risks. Strategies for conveying these messages effectively, given young people's predisposition for living in the moment rather than considering the future, were not explored in detail in this study and remain an area for future research.

From the commissioner's perspective, programmes need to adopt a wider view of health to address wellbeing and mental health, using PA and HE as tools to improve overall health and

wellbeing. Given the timing of the interviews, conducted during the Covid-19 pandemic, it is understandable that the wellbeing of young people was high on commissioners' agendas. The press was regularly reporting on the detrimental impact of lockdown on young people's mental health (Brady, 2020; Hill, 2021) and official reports were showing increased rates of mental health disorders in young people (Vizard et al., 2020), increased referrals and waiting times for services (Morris & Fisher, 2022), with a possible increase in suicide rates (Odd et al., 2021). With acknowledgment that young people across the board were struggling with wellbeing, this could also have contributed to commissioners' support for universal rather than targeted programmes, alongside the potential stigma associated with the latter (e.g., Goh et al., 2009). In this way, holistic programmes offering universal support for wellbeing have the potential to provide much needed support to a larger range of young people. Commissioners also expressed awareness that budgetary constraints, having been worsened during the pandemic, may restrict the ability to commission very targeted programmes and thus holistic approaches tapping into the current and future needs of young people's wellbeing would be preferred.

Commissioners raised concerns about the environment, consistent with those raised by practitioners (Chapter 5). Both groups stressed the importance of policy and systems working to create environments that facilitate young people's health-related behaviours. This supports the conclusions made in Chapters 4 and 5 that a system wide approach is required to address issues at all levels, starting with national policy and infiltrating health-related priorities, values, and norms all the way to communities and individual households. It is reassuring that those who provide, and those who deliver, the services are aware of these issues and the impact they have on young people. There is both potential and need for future research to expand on this and investigate the situation at a government level and why health-supportive policies are not more forthcoming, or why government strategies over the last 30 years in England have predominately put the onus on individual level change rather than structural change to shape environmental influences (Theis & White, 2021). A suitable starting point could be to ask whether those making policy value health and wellbeing, and identify

challenges being faced to instigate policies that prioritise and support health at a population level. Some such policy is emerging, i.e., Food (Promotion and Placement) (England) Regulations 2021, though we are a long way from the proposal put forward by practitioners (Chapter 5) that all regulation should put the health and wellbeing of the population at its heart.

Some of the opinions from commissioners on programme design and delivery are consistent with those of practitioners (Chapter 5) and worth highlighting. Firstly, while practitioners advocated for consultation with young people, commissioners expanded upon this and included other stakeholder groups including parents and community members. Similar to Wright et al. (2019) who found that professionals opinions were broader than those of young people, this study has found commissioners and practitioners opinions can enhance and widen those of the other. This highlights the potentially different levels of thinking between professionals and supports including commissioners as a participant group in this series of studies. As a further example, while both groups spoke about potential stigma involved with attending behaviour change programmes, the practitioners advised on use of marketing and branding to reduce this, while commissioners advised on making the programme universal for all young people. Both views provide a potential solution to the influence of stigma, just from differing perspectives which commissioners also tied to budgetary constraints making universal programmes more appealing.

Finally, a similar situation is apparent with opinions on the use of skilled facilitators. Both spoke about specific skills required from facilitators to engage young people and develop relationships, with commissioners also considering the need for facilitators to be trauma informed. Again, this shows thinking at different levels, both of which have proven valuable to this research. Commissioner's opinions were not just consistent with practitioners, there were indeed overlaps with those of young people too (Chapter 4). For example, both commissioners and young people advocated for the new programme to provide education and skill development. Further, both groups acknowledged how difficult change can be for young people who have ingrained patterns of behaviour by the adolescent years yet lack full autonomy to change these patterns independently. They also both

realised that change takes a considerable amount of time to achieve. Further areas of overlap as relevant to the behavioural diagnosis are presented in Chapter 7.

6.4.1. Strengths and limitations

The commissioners who took part in this study expressed being incredibly busy due to the Covid-19 pandemic and the resulting impact on service provision. As such, participation may have been skewed towards commissioners who were better able to make the time to take part or those who more value research such as this. Positively, this study has utilised an under-represented group in the development of complex interventions. This study has, for the first time to the author's knowledge, given a voice to a key stakeholder group in the development of a health-based programme for young people. This means that those who hold the purse strings on public health funding have been able to convey their expectations and wants from behaviour change programmes which can be used to inform programme development. Further, this study provided an opportunity to triangulate data from three participant groups key to using, delivering, and purchasing behaviour change programmes. This is the first time, to the authors knowledge, that this has been done in this context i.e., programme development for young people's PA and HE behaviours. The results show it is important to explore a range of professional roles as evidenced through the different approaches to programme development and conceptualisation of the problem by practitioners working with young people and commissioners providing services.

It is important to note that as this study was coded last of the three participant groups, there were already codes and theme maps in place. Whilst each analysis was started fresh in a new NVivo file and conducted inductively rather than deductively to themes from other groups, there was knowledge of previous coding and theme maps. Therefore, it is possible that using the same researcher (HA-W) to conduct initial coding and analysis influenced this analysis, though this can be viewed positively. Firstly, continuity in researcher allows for an element of continuity in analyses with results influenced by only one researcher's positionality. Secondly, as perspectives were sought from multiple stakeholders with the intention of triangulating data, using the same researcher to analyse

results means they are best placed to pick up on similarities and differences between the data sets. As with the young person interviews, initial coding and theme development in this chapter were discussed with other researchers resulting in refinement of themes through collaboration. This process helped minimise HA-Ws influence from previous analysis by ensuring that themes developed here were indeed representative of the data.

6.4.2. Implications

This study has highlighted the importance of the environment for facilitating health-related behaviours in young people. This is consistent with other key groups including practitioners and young people (Chapters 5 and 4) which reinforces the message and strengthens the argument necessitating systems-wide change. The argument will not be repeated here (see aforementioned chapters) but is expanded by this study to include the need for policy makers to provide an environment appropriate for young people to realise their intentions and engage in regular PA and HE. Until this is addressed, young people, and indeed the whole population, will continue to face barriers from lack of infrastructure, proliferation of unhealthy options, and societal norms advocating unhealthy options. Key elements were identified by commissioners that should be considered for inclusion in future programmes, where possible, shown below in Box 6.1.

Box 6.1.

Recommendations for future programme design based on interviews with commissioners

Future programmes should:

- Consult with young people and other stakeholder groups on how they want the programme to look and be delivered.
- Provide universal support for all young people, rather than targeting specific groups.
- Foster development of lifelong skills for behaviour change.
- Adopt a small steps approach, fitting in with young people's current lives.
- Address gaps in PA and HE knowledge and misconceptions.

- Address attitudes towards change and an appreciation of long-term health, emotional, and environmental benefits.
- Address barriers to engagement in PA and HE, and maximise facilitators, to allow intentions to be realised.
- Address young people's wellbeing and mental health as part of a holistic programme, using PA and HE as tools for health improvement.
- Include parents to overcome family-based barriers and activate a support system for young people.
- Eschew weighing young people.
- Be delivered to groups of young people of similar ages.
- Create a fun, enjoyable atmosphere conducive to engagement and retention.
- Provide support of sufficient duration to allow for sustainable change.
- Be delivered using skilled and experienced facilitators who are consistent each session while utilising elements of peer delivery.
- Embed the programme within the community to enhance sustainability.

6.4.3. Reflections of a qualitative researcher

This was my most independent analysis of all three participant groups. While I did discuss the themes/subthemes and narrative with one of my supervisors, by this point I came to see these discussions as a tool to help me gain insight and clarity on the data rather than to check that I had done it 'right'. With my confidence growing I found I was able to constructively disagree, using the data to support me, with suggestions for edits to theme labels and narratives, refinement of which was ongoing for all three groups. That is not to say my analysis was perfect, on the contrary I found discussions of the data incredibly helpful in reflecting on my interpretation and reporting of it.

As the last of three consecutive analyses, there was a small element of TA and NVivo fatigue at this point which could have impacted the time and consideration I gave to coding the data. However, there was also a growing excitement of seeing this series of studies coming together and witnessing the benefits of including all three participant groups which was very engaging. It is important to note, that as the last of the analyses, I had already created theme maps for the two other

participant groups which could have influenced those I created here. Perhaps in an ideal world, interviews, transcription, coding, and analysis would not have started until each of the previous chapters had been completed and finalised. However, it was not feasible to do so here due to time constraints of the PhD. Further, my memory of the preceding analyses would always have remained and always had the potential to influence my analysis of the latter groups (practitioners and commissioners), making such an approach somewhat futile.

It must be remembered that all participant groups were contributing to a behavioural diagnosis, and all were investigating PA and HE in young people. Therefore, it can be viewed as a strength that all were analysed by the same person. I certainly feel that I, as a developer of the new programme, have a better understanding of what young people, practitioners, and commissioners want from it having performed all three analyses myself. Whilst influence from previous analyses is a potential limitation, it also meant I was wholly immersed in all the data that informed the development of the new programme. It also meant I was aware of opinions which may not have made it into the analysis but through my awareness of it, may have contributed to some feature of the programme.

As a final reflection, this part of the PhD was very busy. Despite difficulties recruiting participants, once interviews started there was plenty to do in terms of interviews, transcriptions, and analyses. At times this was very overwhelming made worse by the pandemic and feeling isolated to which I was not immune. Positively, I was grateful to have robust organisational skills to rely on in addition to being in regular contact with my supervisors, albeit remotely.

6.4.4. Conclusions

This is the first time, as far as the author is aware, that commissioners have been consulted on a new behaviour change programme for young people, prior to the design, to inform the development stage. Therefore, this study provides novel and unique insights into commissioner's perspectives and understanding of young people's PA and HE behaviours, as well as insights into

elements of programmes considered important to those who act as gatekeepers for the use of these programmes in the public domain.

Chapter 7: Development of a young person behaviour change programme for physical activity and healthy eating behaviours using the Behaviour Change Wheel

7.1. Introduction

The Behaviour Change Wheel (BCW; Michie et al., 2011c) has been selected as the development tool for use in this research, as discussed in Chapter 2. The BCW has many strengths such as inclusion of the COM-B as a model of behaviour and integration of 19 frameworks of behaviour change (Michie et al., 2011c), use of the TDF to consider theoretical determinants of behaviour (Cane et al., 2012), ability to develop interventions for use at any level from individuals to populations, and the selection of active components based on theoretical links to intervention types and TDF components. Despite reports of the BCW being time-consuming (Ojo et al., 2019), the comprehensiveness of the BCW, familiarity by the researchers involved, and its use of APEASE (Michie et al., 2014), which can provide consistency between development and evaluation, makes it the best choice for this study.

Whilst the level of reporting of its application varies, the BCW has been used to develop a range of behaviour change interventions (BCIs). It has been applied across all ages from children to adults and developed BCIs have targeted those with specific roles such as parents or nurses, or subsets of the population based on a shared characteristic of health or behaviour. Examples from the physical activity (PA) literature show Chater et al. (2022) used it to create a community-based PA intervention for adults at risk of cardiovascular disease or low mental wellbeing, and by Webb et al. (2016) to develop an intervention for nursing staff to deliver advice to cancer patients to increase their PA levels. Digital BCIs have also resulted from the BCW development process, as seen with Truelove et al. (2020) who developed a digital app to increase adult's PA and Robinson et al. (2013) who developed a smartphone app to increase attentive eating practices. Further use within the healthy eating (HE) literature can be seen with Toomey et al. (2020) who developed a parent-level intervention and practitioner-level implementation strategy to improve infant feeding practices using the BCW.

Within the literature concerning young people, Murtagh et al. (2018) used the BCW to create a PA intervention for adolescent girls and their mothers. By following the eight steps of the BCW, the authors obtained a behavioural diagnosis through interviews and focus groups with the target population and selected six intervention types: education, persuasion, incentivisation, training, modelling, and enablement. Face-to-face, group delivery was chosen, and 18 behaviour change techniques (BCTs) that met APEASE criteria were selected. These encompassed 11 clusters including goals and planning, feedback and monitoring, social support, shaping knowledge, natural consequences, comparison of behaviour, associations, comparisons of outcomes, reward and threat, identity, and self-belief. The mixed-methods evaluation assessed acceptability and feasibility of recruitment, content, and procedures (Corr et al., 2020). These were found to be mostly acceptable to participants and stakeholder involvement during development was highlighted as a strength. The authors found that quantitative and qualitative findings did not always align, e.g., improvements to communication noted in focus groups were not found in quantitative analysis, and there was no follow-up to determine maintenance of increases in step count.

The BCW can be used to develop a range of interventions with various characteristics. HENRY currently provide 'programmes' to parents of young children which consist of weekly sessions for a period of eight weeks delivering information and encouraging skill development, as discussed in Chapter 1. HENRY were keen for the new young person intervention to complement existing programmes by following a similar structure, though there was flexibility in what the programme would look like and how it would be delivered. It is not unusual in the development of BCIs for researchers to lack complete autonomy in influencing the design of interventions (Craig et al., 2008). Given HENRY's requirements it was expected that the programme would utilise the 'education' and 'training' intervention types and the 'service provision' policy option. The aim of this study was to develop an evidence-informed behaviour change programme to support young people with PA and HE behaviours using the BCW.

7.2. Method

The new programme was developed using the Behaviour Change Wheel (BCW; Michie et al., 2011c, 2014). This is an eight-step process split into three stages. The first stage aims to develop an understanding of the behaviour through four steps. Step one involves defining the problem in behavioural terms for clarity of what the behaviour is, who is involved with performing the behaviour, and where the behaviour occurs. Steps two and three then select and define the target behaviour. This stage culminates with the final step creating a behavioural diagnosis which outlines what needs to change within the person and environment in order to be able to perform the target behaviour. This is considered in terms of the COM-B system, situated at the hub of the BCW consisting of six components: physical and psychological capability, physical and social opportunity, reflective and automatic motivation.

An optional step is to expand upon the COM-B by using the Theoretical Domains Framework (TDF; Cane et al., 2012), as shown in Michie et al. (2014), to develop a more detailed understanding of the behaviour. In the current research, interviews with young people aged 11-19, practitioners, and commissioners provided data for the behavioural diagnosis. The method and results of these interviews have been presented in depth in Chapters 4, 5, and 6, respectively. In brief, participants from each group were asked for their opinions on influences acting on young people to engage in PA and HE behaviours, support required to change these behaviours, and what a new programme should look like. Themes from interviews were mapped to both the COM-B and TDF to provide a detailed behavioural diagnosis.

Stage two links the behavioural diagnosis ascertained through stage one to intervention types (ITs) and policy options (PO) in steps five and six, respectively. ITs are the means through which change can be achieved, of which there are nine: (1) Education, (2) Persuasion, (3) Incentivisation, (4) Coercion, (5) Training, (6) Restriction, (7) Environmental restructuring, (8) Modelling, and (9) Enablement. These have been linked to the COM-B and TDF meaning that potentially useful ITs can be ascertained through the COM-B and TDF components identified in stage one. In step five, the ITs

are then scrutinised using the APEASE criteria (first seen in Michie et al., 2014) to determine appropriateness for the context of the intervention. The APEASE criteria as per West et al. (2020), preferred for its more accessible language and used here (see Chapter 2 for an overview of the evolution of APEASE), assesses each IT for acceptability, practicability, effectiveness, affordability, spill-over effects, and equity.

Step six identifies POs through which the intervention can be delivered. The seven POs sit outside the intervention itself and are strategies that support the delivery of interventions at a structural level e.g., organisational, local authority, or governmental level. They are (1) Communication/marketing, (2) Guidelines, (3) Fiscal measures, (4) Regulation, (5) Legislation, (6) Environmental/social planning, and (7) Service provision. In the same way COM-B and TDF components are linked to ITs, these are linked to POs. Therefore, the ITs identified in step five serve to identify the POs that are likely to be useful. These too can be considered against the APEASE criteria to determine suitability for the intervention in question.

Stage three encapsulates the final two steps of intervention development: identifying behaviour change techniques (BCTs) in step seven and selecting mode of delivery in step eight. In this research, candidate BCTs were identified in three ways, (1) through promise ratios calculated in the systematic review in Chapter 3, (2) through the themes and subthemes of the thematic analyses conducted in Chapters 4-6, and (3) through the BCW using BCTs linked to the TDF and ITs in Michie et al. (2014). With regards to the latter, BCTs have been linked to the TDF through expert consensus (see pages 156-158 of Michie et al., 2014). Further investigation has updated the links, again through expert consensus (Connell et al., 2019), which has produced differing results within some TDF domains i.e., some previously established links were no longer evident and new links were established. However, not all BCTs previously linked to TDF domains were considered within this new analysis. To remain up to date with current consensus in the field of behaviour change, the latter results were considered to supersede the earlier ones, except for the BCTs that were not included latterly, in which case the BCT-TDF links made in Michie et al. (2014) were considered to stand.

BCTs have also been linked to ITs (see pages 151-155 of Michie et al., 2014) based on their frequency of use in each IT. In this research, all of the 'most frequently' used BCTs related to selected ITs were considered using APEASE. Additionally, the lists of 'less frequently' used BCTs for selected ITs were consulted, with any that appeared particularly relevant to this research being considered against APEASE also. It is important to note that BCTs have not been linked to the 'restriction' intervention type due to the nature of BCTs acting on individual's behaviour rather than how the environment restricts that behaviour.

The final step is to decide on the mode of delivery of the intervention. As with other steps, all possibilities should be considered and reduced to the most appropriate using the APEASE criteria. In this research, possible modes of delivery were reviewed from West & Gould (2022) which offers an updated and expanded list of possible delivery modes than is presented in the BCW guidebook (Michie et al., 2014) offering more choice. Additionally, this step was informed by the interviews conducted in Chapters 4-6 which elicited opinions on mode of delivery.

7.2.1. A collaborative process

The BCW was used to guide programme development in order to systematically incorporate evidence into the new programme making it evidence-informed, an element considered important by HENRY. The BCW was used by HA-W with support from NH and AMC. The programme also needed to meet HENRY's needs and thus input from staff within the development team were utilised, namely BS and CF who were overseeing the project within HENRY. Their input helped select topics for inclusion in addition to PA and HE, based on existing HENRY programmes and professional experience in previous roles. Through discussion with HA-W and NH, suggestions for additional topics were considered for relevance, associations with the main behaviours i.e., PA and HE, knowledge and familiarity of the topic, cohesion with other included topics, and delivery time required within sessions.

7.3. Results

The BCW is presented as a staged approach with steps, though these do not need to be linear in their use and the process can be iterative. Indeed, the authors acknowledge that flexibility is required in applying each step to intervention development (Michie et al., 2014). The development of the new HENRY programme detailed in this chapter used the BCW iteratively, borne out of necessity from conducting the research in a real-world scenario with a partner organisation. To this end, shifting deadlines for producing the programme content, manual, and materials required a flexible approach moving between and returning to steps of the BCW throughout. This resulted in simultaneous development using the BCW and writing of manuals and materials. To illustrate, developing themes from the interviews which informed step four, allowed some BCTs, e.g., 'goal setting' and 'problem solving', to be identified before reaching step seven and was written into the programme immediately whilst subsequent steps were performed. Further, the expressed opinions on mode of delivery from the interviews allowed step eight to be completed before it was reached in chronological order, i.e., step eight was completed after step four.

7.3.1. Step 1: Define the problem in behavioural terms

The problems being addressed have been reviewed in Chapter 1. In brief, young people engage in lower levels of PA and HE than is beneficial for them, putting their physical and mental health at risk.

7.3.2. Step 2: Select target behaviour

To reduce the risks of inactivity, young people need to regularly engage in PA. As better health benefits of PA are found at moderate intensity and beyond (Hay et al., 2012), the target behaviour is for young people to regularly engage in moderate-to-vigorous PA (MVPA). However, even light PA is beneficial and other elements are important for adolescent growth, specifically exercises that benefit bone and muscle strength which also form part of PA guidelines. As for HE, this cannot be achieved with one single behaviour, rather there are multiple elements that contribute to achieving this which include daily consumption of fruit and vegetables (F&V), limiting consumption of free sugars and total

sugars, and limiting intake of foods high in fat, sugar, or salt. Other behaviours include measuring portion sizes, eating meals balanced across the food groups, and drinking sufficient fluids. As everyone will vary in the extent to which they are achieving each of these elements, a suitable change for one person may not be applicable to another. Therefore, it is prudent to ensure all contributing elements are covered to maximise benefits of the programme.

7.3.3. Step 3: Specify the target behaviour

In terms of PA, the target behaviour is to engage in an average of 60 minutes of MVPA daily across the week, in line with recommendations (UK Chief Medical Officers, 2019). As for HE, the target behaviour is to improve HE such as through eating a minimum of five portions of F&V per day in line with guidance (National Health Service (NHS), 2022b). These are considered the primary target behaviours to be measured. There are however many other elements to HE and many ways in which the PA recommendations can be met, as presented above. To ensure the programme is relevant to a wide range of young people, all elements of PA and HE were considered under the overarching target behaviours stated above. These were the focus for development through the BCW though other relevant elements are included in Box 7.1. for context and transparency.

Box 7.1.

Elements of physical activity and healthy eating considered within programme development

PA recommendations can be achieved by:	• Active travel • Physical education (PE) classes • Extra-curricular sport • Bone and muscle strengthening activities e.g., lifting weights • Daily activities such as taking the stairs rather than the lift
Elements of HE can include:	• Consume a minimum of five portions of F&V per day (NHS, 2022b) • Limit the consumption of free sugars from fruit juice and smoothies to 150ml per day (NHS, 2023d) • Limit consumption of free sugars to 30g per day (NHS, 2023d) • Limit consumption of high-sugar drinks (NHS, 2023d)

	• Limit intake of salt to 6g per day (NHS, 2023b) • Limit the consumption of processed foods which tend to be higher in fat, sugar, and salt (NHS, 2023e) • Limit consumption of saturated fats (NHS, 2023f) • Balance meals according to the Eatwell Guide (NHS, 2022c) • Consume two portions of fish a week, including one oily fish (NHS, 2022a) • Consume approximately eight glasses of water each day (NHS, 2023c)

7.3.4. Step 4: Identify what needs to change

This step was informed by qualitative interviews conducted with young people (*n* = 23), practitioners (*n* = 10) and commissioners (*n* = 7), as presented in Chapters 4, 5, and 6, respectively. All the results from each study can be considered to contribute to this step. For simplicity, the results from each chapter have been triangulated here, with the purpose of identifying areas of change in order for young people to engage in regular PA and HE behaviours, thus creating a behavioural diagnosis.

7.3.4.1. Triangulating data from interviews

The aims of the interviews were to explore influences on young people's PA and HE behaviours, the support required to improve behaviour, and the best way to provide that support. There are some themes that cut across all participant groups, indicating consensus between young people, practitioners, and commissioners. These are knowledge, parents, peers, the environment, and goals.

7.3.4.1.1. Knowledge. All groups expressed similar views on what HE is to young people, namely that it involves eating F&V and limiting intake of unhealthy items such as junk food. In some ways practitioners and commissioners may underestimate young people's knowledge, for example it was expressed that they do not consider balancing food groups as part of HE, yet young people were found to be somewhat aware of this. In other ways, they may have a more accurate perspective of

young people's knowledge, for example practitioners posited that young people are not aware that tinned and frozen F&V contribute to eating well, an aspect not mentioned by young people themselves, which may indicate a gap in their knowledge. In terms of PA, the findings from all groups indicate that young people are not aware of the PA guidelines and how to meet them through various forms of activity at different intensities. Overall, whilst it was felt young people do have some knowledge of both behaviours, and this was evidenced by young people themselves, it is apparent there are also gaps in knowledge which all groups agreed needs to be addressed.

7.3.4.1.2. Role of parents. All groups acknowledged that young people's current behaviour is, in part, a consequence of their experiences throughout their childhood and upbringing, which makes ingrained unhealthy behaviours difficult to change. Further, all groups felt that parents continue to exert a large influence on young people in the adolescent years as seen through the crossover of themes in the young person interviews where they identified being reliant on parents, the practitioner interviews where parents were identified as both role models and gatekeepers, and the commissioner interviews where young people's reliance on parents was highlighted. Thus, with acknowledgement that parents can both hinder and help their young person's engagement with, and development of independent, healthy behaviours, all groups agreed that parents need to be onboard with their children making changes.

To this end, there was consensus that parents need to be involved in behaviour change programmes in order to provide support to their children. However, while all groups stated the need for parental support, only practitioners considered whether parents have the knowledge and skills to do so. As parents may lack knowledge and skills to provide healthy options for their children, yet young people are reliant on them to do this, it reinforces the need for parents themselves to be involved in behaviour change programmes, to improve their ability to support their children with behavioural changes. Despite consensus on the need for parents to be involved in programmes, there was no unified thought on what this involvement should look like.

7.3.4.1.3. Role of peers. There was agreement that, similarly with parents, peers play a large role in young people's lives. The role of peers was discussed by all groups, with accord that it can both positively and negatively influence young people. Young people themselves described being led and influenced by their peers to engage in behaviours they appeared to know are unhealthy. Thus, having the support of their peers would facilitate behaviour change and make it easier to succeed. Collectively from all groups it can be seen that support from peers could take on a plethora of forms, including promoting healthy behaviours through modelling, providing advice and camaraderie, engaging in the behaviours together, and not encouraging unhealthy behaviours.

7.3.4.1.4. The environment. All groups identified the environment as an important influence. Young people mostly noted how the environment provides challenges to PA and HE behaviours while practitioners and commissioners considered additional factors such as awareness of covert environmental influences, how the environment interacts with intentions, the pros of adopting a systems-wide approach to change, and the need for more effective policies. There was agreement that the environment produces challenges through a variety of means including the layout of spaces and infrastructure, and the opportunities and services that are (un)available, for example the proliferation of fast-food outlets compared to rarer healthy food options. In addition, young people spoke about personal influences such as time and financial resources. It is clear from all interviews that the existence of personal and environmental influences is at the very least making it more challenging for young people to regularly engage in PA and HE. Therefore, overcoming these influences is needed in order for young people to regularly engage in PA and HE, and problem solving was presented by practitioners as one way of achieving this.

Practitioners also spoke about environmental influences, notably product placement and deals on purchases of high-fat, -sugar, and -salt items in shops, which attempt to influence food purchasing behaviours. As with knowledge, practitioners may be underestimating young people's awareness of these tactics as some young people expressed having seen these approaches in use. However, young people did not consider the degree to which these tactics influence their choices, nor

did they speak of having strategies to tackle them. Taken together it can be seen that young people would benefit from programmes building on their existing awareness and the inclusion of support for managing and overcoming this influence. Linked to HE, another environmental consideration was that of having opportunities to try new foods, presented by young people and practitioners. It seems that these are currently not afforded to young people which makes it harder to incorporate healthy food into meals. Thus, giving young people the opportunity to discover new healthy foods will increase the changes they are able to make to their HE behaviours.

7.3.4.1.5. Goals. On a personal level, it can be seen how young people can benefit from having goals. Two groups advocated for acknowledging progress suggesting that this is a technique that works well from the perspective of practitioners and is well received by young people. It was perceived that young people have the potential to achieve more when they are focused on achieving something and seeing progress can boost their confidence to continue. The interviews did not reveal whether young people currently set goals for themselves, though they did highlight the potential benefit of doing so. Therefore, in order for young people to change PA and HE behaviours, it may be helpful for them to have goals and to have their progress acknowledged in some way.

7.3.4.2. Behavioural diagnosis

The results of triangulating data from the interview studies which forms the behavioural diagnosis are presented in Table 7.1., below. This identifies what needs to change, linked to the COM-B and TDF, in order for young people to regularly engage in PA and HE behaviours. In summary, young people need to develop their knowledge and skills, they need support from others such as peers and certainly from parents who have a large sphere of influence in their children's lives and the ability to both help and hinder their behaviour, and they need help to overcome influences that stop them engaging in regular PA and HE behaviours. Further, young people need a goal to work towards and to see progress, and they need opportunities specific to HE behaviours.

Table 7.1.

Behavioural diagnosis of young people's engagement with PA and HE behaviours using the COM-B and TDF

What needs to change • **Subtheme from interviews (chapter; subtheme number)**	**Explanation (COM-B components underlined, TDF components in italics)**	**COM**	**TDF**
Young people need their parents on board. • Reliance on parents (4; 3.2) • Need parents and wider family on board (4; 3.3) • Parents as role models (5; 3.2) • Parents as gatekeepers (5; 3.3) • Involve parents (6; 4.2)	Young people need parents to provide <u>physical opportunities</u> for them to engage in PA and HE behaviours by providing practical support to act on the *environmental context* in which they live and provides material *resources*. Young people need parents to provide <u>social opportunities</u> to them by normalising PA and HE behaviours and engaging in these behaviours with them to *socially influence* young people's thoughts and feelings about these behaviours leading to change. Having parents on board will influence young people's <u>reflective motivation</u> as it may impact the *beliefs* they have about the importance, benefits, or *consequences* of being active and eating well and their *capability* to do so. It can also impact their *social identity* for themselves and their family as a whole.	Physical opportunity Social opportunity Reflective motivation	Environmental context and resources Social influences Beliefs about consequences Beliefs about capabilities Social/ professional role and identity

What needs to change • **Subtheme from interviews (chapter; subtheme number)**	**Explanation (COM-B components underlined, TDF components in italics)**	**COM**	**TDF**
Young people will benefit from understanding what influences their behaviour. • Recognition of relationships with food (5; 1.2) • Awareness of environmental influences (5; 1.3)	Young people will benefit from *knowledge* on environmental and emotional influences of their PA and HE behaviours, building their psychological capability. Understanding and having *knowledge* of the full range of influences on their behaviour will allow young people to make more informed *decisions*.	Psychological capability	Knowledge Memory, Attention and Decision processes
Young people will benefit from having something to work towards and to see the changes and progress they are making. • Work towards goals (4; 5.4) • Recognition of achievements and progress (5; 5.9)	Young people need a goal to work towards and to see their progress towards that goal to encourage reflective motivation on why they want to achieve it and what it will mean for them to achieve it. It requires having psychological capability to understand and have *knowledge* of what they are currently doing and what they need to do to reach the goal. *Goals* represent something the young person want to achieve and requires an *intention*, to engage in supportive behaviours by *regulating behaviour*.	Psychological capability Reflective motivation	Knowledge Behavioural regulation Goals Intentions

What needs to change • **Subtheme from interviews (chapter; subtheme number)**	**Explanation (COM-B components underlined, TDF components in italics)**	**COM**	**TDF**
Young people need help to overcome barriers to PA and HE behaviours. • Financial resources and time (4; 4.1) • Strengths-based solution-focused approach (5; 5.7) • Educate and develop skills for lifelong change (6; 5.2)	Young people need physical opportunities to engage in regular PA and HE behaviours, which are limited due to the lack of *resources* available to them, which creates an *environmental context* that inhibits PA and HE behaviours. Young people need *knowledge* of the barriers that prevent them from engaging in PA and HE behaviours and the *cognitive skills* to be able to work out a solution which will allow them to make *decisions* about how best to overcome the barriers. This will give them the psychological capability to identify and resolve barriers independently and help them *regulate* their behaviour in future.	Physical opportunity Psychological capability	Environmental context and resources Knowledge Behavioural regulation Cognitive and interpersonal skills Memory, Attention and Decision processes
Young people need support from peers to make change more likely. • Friends as supporters and influencers (4; 3.4)	Young people need social opportunities to engage in PA and HE behaviours either with peers, or with their support. Engaging in these behaviours with peers can *socially influence* their thoughts and feelings to see that PA and HE are socially acceptable and normal.	Social opportunity	Social influences

What needs to change • **Subtheme from interviews (chapter; subtheme number)**	**Explanation (COM-B components underlined, TDF components in italics)**	**COM**	**TDF**
• Motivation to change behaviour (4; 4.5) • Peer influence (5; 4.3) • Support is needed to change behaviour (6; 1.2) • Peer influence and support (6; 3.5)	Young people need support from peers to influence their beliefs and plans which form their <u>reflective motivation</u> to engage in PA and HE behaviours. Seeing peers engage in PA and HE behaviours or hearing them encourage each other to do so can influence the *beliefs* they have about *consequences* of being active and eating well and their *capability* to do so. It can also impact their *social identity* for themselves and their friendship group.	Reflective motivation	Beliefs about consequences Beliefs about capabilities Social/ professional role and identity
Young people need gaps in knowledge and skills filled. • Pockets of knowledge (4; 1.3) • Support from school via more information (4; 3.2) • Limited knowledge (5; 1.1) • Appropriately tailored education (5; 5.3)	Young people need knowledge of the benefits and how to engage in PA and HE behaviours, building their <u>psychological capability.</u> Young people need to develop *cognitive skills* and have *knowledge* which they can use to make *decisions* on engaging in PA and HE behaviours. Young people need the <u>physical capability</u> to engage in PA and HE behaviours. This requires the development of *skills* through practice.	Psychological capability Physical capability	Cognitive and interpersonal skills Knowledge Memory, Attention and Decision processes Physical skills

What needs to change • **Subtheme from interviews (chapter; subtheme number)**	**Explanation (COM-B components underlined, TDF components in italics)**	**COM**	**TDF**
• Knowledge and misconceptions (6; 3.1) • Educate and develop skills for lifelong change (6; 5.2)			
Young people need opportunities to meet their desire to try new foods. • Interactive, practical activities to develop skills (4; 5.3) • Interactive and engaging delivery (5; 5.6)	Young people need <u>physical opportunities</u> to try new healthy foods to discover if they like them before incorporating into their diet. This means they need *resources* i.e., food, added to their *environment* to enable healthy eating behaviour. Young people will benefit from <u>social opportunities</u> to try new foods with other people to normalise it. Trying new foods with others in *social* situations can *influence* young people's thoughts and feelings about it leading to change.	Physical opportunity Social opportunity	Environmental context and resources Social influences

7.3.5. Steps 5 to 7: Identify intervention types, policy options and behaviour change techniques

Given the linkage between ITs, POs and BCTs, it is logical to present the results of these steps together. Possible ITs were identified from the COM-B and TDF components associated with each finding from step four (behavioural diagnosis which identified what needs to change), considered against APEASE criteria (Appendix U). All POs linked to suitable ITs were then considered against APEASE (Appendix V). Most BCTs were identified through the systematic review, qualitative interviews, and from the frequently used list of BCTs linked to ITs, all assessed using APEASE (Appendix W, Tables W1 and W2). Three BCTs identified from reviewing the lists of 'less frequently' used BCTs that met APEASE criteria were included in the programme, two targeting HE behaviours and one targeting both PA and HE.

'Generalisation of target behaviour' (8.6) and 'body changes' (12.6) were included to target HE behaviour. The former was considered to fit with the ethos of the programme to support young people to develop skills for life, therefore transferring the behaviour of trying new foods within sessions to outside of the programme was important. The latter was considered important to include given potential anxiety of trying new foods could have prevented engagement with this activity, therefore providing relaxation techniques to manage the physiology of anxiety was necessary. 'Vicarious consequences' (16.3) were considered to be highly relevant to young people given the role peers play in influencing behaviour, thus hearing others praised for their effort was considered to be motivational for young people and was used for both PA and HE.

A total of 17 BCTs targeted PA, while 23 were aimed at HE behaviour. In addition to the two mentioned above, other BCTs targeting only HE behaviour were: 'self-monitoring of behaviour' (2.3; not practicable or affordable for PA), 'behavioural experiments' (4.4; on the list of less frequently used BCTs and not considered relevant for PA), 'reduce negative emotions' (11.2; not practicable for PA), and 'adding objects to the environment' (12.5; not affordable for PA). The results of steps five to seven are synthesised in Table 7.2. This shows the strategy adopted for each of the targets identified in the behavioural diagnosis in step four. Included in the table are evidentiary quotes supporting the strategy

alongside the COM-B and TDF domains targeted through the BCTs and how these are operationalised in the programme. Finally, linked ITs and POs show the mapping process.

Table 7.2.

Mapped intervention content for programme components related to both physical activity and healthy eating behaviours

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
Young people need their parents on board. *"Encouraging parents to like stop buying fast food or taking their kids to fast food restaurants and just buying more healthy foods. And having like encouraging parents to do things with their kids like exercising and healthy eating."* (Chloe, 14, young person) *"When families are more involved in something physically they're more likely to get on-board with the changes as well because they'll understand a bit better." (Hayley, 32, practitioner)*	Physical opportunity • Environmental context and resources Social opportunity • Social influences Reflective motivation • Beliefs about capabilities	Environmental restructuring Enablement	Service provision	3.1 Social support (unspecified) 3.2 Social support (practical) 3.3 Social support (emotional) 12.2 Restructuring the social environment	• Parents attend separate sessions that run in parallel to young person sessions. • Facilitators provide information on types of support e.g., motivational, practical, emotional, companionship, and parents asked to consider how they could support their child, recording in handout. • Parents encouraged to support their child practically e.g. provide healthy food at home or trainers for tennis, and provide encouragement and praise.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
"They need their family's support … if they're on their own, the chances of success are slim because they don't yet have full choices over their dietary or activity behaviours." (Heather, 39, commissioner)					• Parents learn techniques and strategies in how to support their child with development of health-related behaviours to promote healthy physical and emotional development. • Information on types of support provided in handout.
Young people will benefit from understanding what influences their behaviour. *"Talking about advertising and how advertising influences us. And so that then when they're coming to make their own decisions about how they are being influenced they've got that background knowledge about it."* (Heidi, 37, practitioner)	Psychological capability • Knowledge	Education	Service provision	4.2 Information about antecedents	• Young people supported to brainstorm influences on their PA and HE behaviours. Facilitator to prompt consideration of environmental, personal, and social factors. • Facilitator introduces Bite Back campaign to young people. • Provide list of possible influences on behaviour in handout.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
"It'd be beneficial to put some content in there about our environment and inform the children of how that actually does have an impact on them, the adverts they see, the radio they listen to, potentially what their friends say, or things that they might see on their journeys to school on billboards or bus boards." (Leonora, 25, practitioner)					
Young people will benefit from having something to work towards and to see the changes and progress they are making. *"Maybe putting like goals at the end I'm not really sure in what way but some kind of goal at the end of it, that's going to keep people interested."* (Edith, 17, young person)	Psychological capability • Knowledge • Behavioural regulation Social opportunity • Social influences	Education Enablement Training	Service provision	1.1 Goal setting (behaviour) 1.4 Action planning 1.5 Review behaviour goal	• Young people supported to set SMART (Specific, Measurable, Achievable, Relevant, Time-limited; Doran, 1981 [measurable element usually includes duration or frequency]) behavioural goals in first session, reviewed in sessions 4 and 8, recorded in handout. • Provide young people with fruit and vegetable trackers to monitor daily intake.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
"And recognised sort of achievements if a kid is starting to eat more healthily and is recognising why, I think make a real thing of it because it would be a big step for some of them to do that." (Jack, 31, practitioner) *"Indicate their progress really. That's a really valuable bit, I believe with teenagers and young people, and pointing that out is so important."* (Steve, 32, practitioner)	Reflective motivation • Goals • Intentions			2.3 Self-monitoring of behaviour 4.1 Instruction on how to perform the behaviour 10.4 Social reward 16.3 Vicarious consequences	• Facilitators to provide praise in front of whole group when young people report effort or progress towards their goals or small steps. • Facilitators to provide information on PA and HE behaviours, including recommendations.
Young people need help to overcome barriers to PA and HE behaviours. *"Another issue is that everyone has around their house, whether it be biscuits or whatever that sort of food and I find that,*	Psychological capability • Knowledge • Cognitive and interpersonal skills	Education Training Environmental restructuring	Service provision	1.2 Problem solving* 4.1 Instruction on how to perform the	• Facilitator leads a problem solving activity where young people identify barriers to PA and HE and explore solutions, encouraging young people to focus on what they can control.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
just the accessibility of those sort of junk foods is just kind of entices people, including me to eat less healthy." (Owen, 16, young person) *"I would do something quite solution focused."* (Heidi, 37, practitioner) *"My sort of approach is find out why the young person isn't active, at the moment, and what barriers exist, so to alleviate them … showing them that it is possible to do, if we can get rid of certain barriers that exist.*" (Steve, 32, practitioner)	• Memory attention and decision processes Physical opportunity • Environmental context and resources			behaviour 12.5 Adding objects to the environment	• Facilitator ensures solutions include small everyday changes to activity levels and free activities that require few or no resources. • Facilitator ensures solutions include small everyday changes to eating behaviours and how to make healthier food choices when options are limited. • Provide a step-by-step guide on how to problem solve in handout. • Young people provided with opportunity to engage in light PA activities and trying new healthy foods during sessions.
Young people need support from peers to make change more likely. *"I feel like if your friends do it as well it's kind of motivation to kind of join in and*	Social opportunity • Social influences	Environmental restructuring Enablement	Service provision	3.1 Social support (unspecified)	• Young people consider the role of engaging with others in PA including emotional, practical, and motivational support. • Facilitators provide information

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy options(s)**	**BCTs**	**How BCTs operationalised in programme**
you can all do it together and that makes it easier." (Chloe, 14, young person) *"100 percent if my friends were eating healthy, I would too."* (Juliet, 19, young person) *"That sort of peer pressure, social situation that seems to be very important in terms of either promoting, but for quite often, not being actually being the barrier."* (Melinda, 49, practitioner)				3.2 Social support (practical) 3.3 Social support (emotional) 12.2 Restructuring the social environment	on how others can support young people e.g., motivational, practical, emotional, and companionship support. • Young people complete a Living Healthy Plan detailing the support they need and want in order to make changes to health-related behaviour. • Young people encouraged to enact plan and seek support from those identified in plan. • Information on types of support provided in handout.
Young people need gaps in PA knowledge and skills filled. *"Give us a few ideas that maybe we hadn't thought of before of ways to exercise that*	Psychological capability • Knowledge • Cognitive and interpersonal skills	Education Training Persuasion Modelling	Service provision	4.1 Instruction on how to perform the behaviour	• Young people brainstorm impact of PA and effect it has on health. Facilitators weave in important points and prompt thought to ensure both physical and mental

Target of change Quotes from the three stakeholder groups	COM-B • TDF	Intervention type(s)	Policy option(s)	BCTs	How BCTs operationalised in programme
we might not realise we could do." (Amelia, 15, young person) *"Whenever I ask what it means to be physically active we often just get running, people say oh yeah running."* (Heidi, 37, practitioner) *"I think there's probably a misunderstanding for young people around if they went to play in the park with their friends and we're running around playing tag they might not see that as physical activity."* (Archie, 41, commissioner)	• Memory, attention and decision processes Physical capability • Physical skills Reflective motivation • Beliefs about consequences			5.1 Information about health consequences 5.6 Information about emotional consequences 6.1 Demonstration of the behaviour 8.1 Behavioural practice/ rehearsal 9.1 Credible source	impacts are considered, including emotions. • Provide information on physical and mental benefits of PA in handout. • Young people brainstorm ways of being active to meet activity recommendations, including small daily changes. Facilitators provide prompts and suggestions. • Use activity breaks to model ways of being active with young people joining in. • Provide ideas and suggestions for ways to be active in handout, including instructions on how to perform move, e.g., lunges.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
Young people need gaps in HE knowledge and skills filled. *"Say how much of everything you should get in a day like protein or vegetables and fruit and stuff. Like just advising because sometimes you don't know how much of something is okay to eat, how much isn't."* (Ruth, 14, young person) *"Kids need to be taught on what is healthy and what is happening, like, just explain a balanced lifestyle, not 'okay and apple is good for you, a chocolate bar isn't'. I think most kids know that. It's more, okay, or 'how do you have a balanced diet.'"* (Joe, 23, practitioner)	Psychological capability • Knowledge • Cognitive and interpersonal skills • Memory, attention and decision processes Physical capability • Physical skills Reflective motivation • Beliefs about consequences	Education Training Persuasion Modelling	Service provision	4.1 Instruction on how to perform the behaviour 5.1 Information about health consequences 5.6 Information about emotional consequences 8.1 Behavioural practice/ rehearsal 9.1 Credible source	• Young people brainstorm impact of HE and effect it has on health. Facilitators weave in important points and prompt thought to ensure both physical and mental impacts are considered including emotions. • Provide information on physical and mental benefits of HE in handout. • Young people provided with example meal, asked to identify food groups present and suggest how to make it more balanced. • Young people to work with facilitators to dish up portion of food from each food group. • Young people brainstorm ideas for healthy swaps for common unhealthy food items.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
"I think there's a, we don't know what you don't know element around portion sizes. Because again if your parents as you've grown up have over portion sized you, you wouldn't know that you're eating more than perhaps you need to." (Heather, 39, commissioner)					• Facilitator leads activity where young people review food labels to decide which of two options is healthier. • Provide information on how to balance meals, make substitutions, measure portions, and read food labels in handout.
Young people want to try new foods. *"Maybe like taste testing foods like healthy foods."* (Sarah, 15, young person) *"They get to try some food, they get to have practice making some food."* (Jack, 31, practitioner)	Psychological capability • Cognitive and interpersonal skills • Behavioural regulation Physical capability • Physical skills	Training Environmental restructuring Modelling Enablement	Service provision	4.4 Behavioural experiments 6.1 Demonstration of the behaviour 8.1 Behavioural practice/ rehearsal	• Facilitators provide healthy food items each week from session two onwards. • Young people and facilitators taste a range of healthy food from across the food groups. Young people consider their thoughts/beliefs about the food beforehand then reflect on their experience of tasting the food.

Target of change **Quotes from the three stakeholder groups**	**COM-B** • **TDF**	**Intervention type(s)**	**Policy option(s)**	**BCTs**	**How BCTs operationalised in programme**
	Physical opportunity • Environmental context and resources Social opportunity • Social influences Reflective motivation • Beliefs about capabilities • Beliefs about consequences			8.6 Generalisation of the target behaviour 11.2 Reduce negative emotions 12.5 Adding objects to the environment 12.6 Body changes	• Young people encouraged to continue trying new foods at home. • Young people encouraged to consider the thoughts, feelings, behaviour link if feeling anxiety about trying new foods and to use relaxation techniques to manage physiological response to anxiety.

Note: * The BCT problem solving is only explicitly linked to the intervention type 'Enablement', however in this context it was felt to better align with 'Training'.

7.3.6. Step 8: Identify mode of delivery

In general, two decisions on mode and method of delivery are required. These are interlinked to some extent as particular modes e.g., computer programmes, are better suited to certain delivery methods e.g., individuals. Similarly, meetings are more suitable for group delivery, while billboards or radio are better suited to population wide delivery. Options for methods of delivery were considered against APEASE criteria (Table 7.3.). Two methods met criteria, Live content and Print media.

Table 7.3.

APEASE analysis of possible delivery methods

Mode of delivery	**Does mode meet APEASE criteria?**						**Decision**
	A	**P**	**E**	**A**	**S**	**E**	
Digital applications *(Interactive websites, computer programs and apps, messaging applications)*	✓				✓		Unsuitable. Impractical and unaffordable to develop digital application given skill base. May not be effective as young people might struggle to maintain concentration without distraction. Not all young people might be able to access digital mediums. Not suitable for delivery to groups.
Pre-recorded dynamic content *(TV, radio, blogs, videos, online adverts)*				✓	✓		Unsuitable. Impractical to deliver large quantities of information via these methods. Likely to be ineffective as no interactive element. Some young people might not have access to digital content. Not acceptable as is not consistent with HENRY programmes.
Live content *(Lectures, seminars, support groups, meetings, interviews, counselling*	✓	✓	✓	✓	✓	✓	Suitable. In person sessions suitable for this programme and can be delivered to groups of young people.

sessions, advice sessions, press conferences)							
Print media *(Newspaper, leaflets, books, letters, manuals)*	✓	✓	✓	✓	✓	✓	Suitable. Live content can be supplemented by sessional handouts.
Signage *(Billboard, poster, signs, markings)*				✓	✓		Unsuitable. Impractical and ineffective to deliver comprehensive information in such as small space. May be missed by some young people.
Object design *(Package inserts, product or package labelling, package design, product design, product size, product shape)*					✓		Unsuitable. Not practical, affordable, or effective for this programme. May be missed by some young people who do not buy or have access to particular products.
Infrastructure *(Construction, destruction, placement)*					✓	✓	Unsuitable. Not practical or affordable for this programme will not deliver knowledge aspects of programme making it unacceptable and ineffective.

Note. APEASE criteria: A = Acceptability, P = Practicability, E = Effectiveness, A = Affordability, S = Spill-over effects, E = Equity

Mode of delivery was also considered in light of the interview studies presented in Chapters 4-6. Overall, young people, practitioners, and commissioners voiced a preference for face-to-face and group modes. These findings were not presented in the thematic analysis, but illustrative quotes are presented in Table 7.4. as evidence to support these modes. The findings supported the APEASE analysis where group delivery met all criteria, while individual delivery was considered to be resource intensive and thus unaffordable. Therefore, when combined with the APEASE analysis, in person meetings to groups of young people were selected as modes of delivery for the new programme.

Table 7.4.

Interview data supporting selected modes of delivery

Mode	Evidence
In person	*"I think face-to-face is quite effective because you can actually see people, and I think that's more engaging."* (Edith, 17, young person) *"I think face-to-face works the best in terms of actually getting the children's attention, getting on-board with them, it's more personable, and you can actually build a relationship with that child … You can read body language better, tone of voice, things like that and get all those kinds of verbal and nonverbal communications, and actually understand the child better so I would always say face-to-face."* (Leonora, 25, practitioner) *"Face-to-face is so much better I would say. Having now been in this space for about a year I think just, from the deliverers point of view I think delivery is much more powerful and much easier to do is face-to-face."* (Archie, 41, commissioner)
In groups	*"I think a group because then you've got other people who are doing the same thing, and if ever you're feeling unmotivated at some point you'll have other people around you that are gonna, hopefully, motivate again, and I think in a group it can just be more fun and engaging."* (Edith, 17, young person) *"If you look at the wider picture around young people yeah it'd need to be group activities purely to be able to put a funding to stretch further."* (Carl, 36, commissioner)

7.3.7. Putting the pieces together

Based on information gathered from the systematic review which identified BCTs, the interview studies which informed step 4 of the BCW, using the BCW, and input from HENRY, the intervention was agreed to be a behaviour change programme delivered face-to-face to groups of young people, supplemented with parallel online sessions for their parents. Appendix X provides an overview of the programme according to TIDieR items (Hoffman et al., 2014) while a logic model is

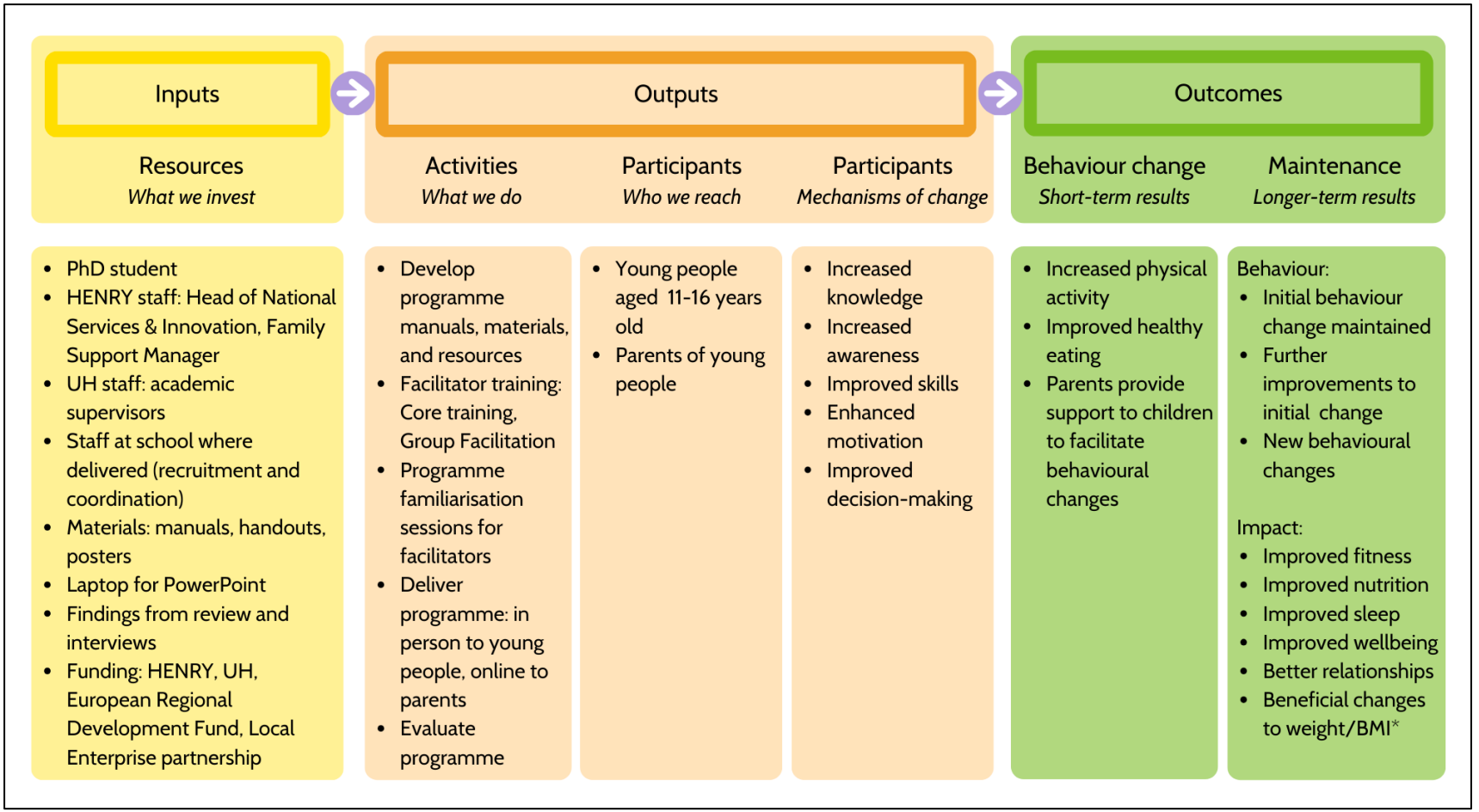
provided below (Figure 7.1.). In line with findings from the commissioner interviews, which aligns with HENRY's ethos that everyone can benefit from programmes, the programme was made universal rather than targeted. This means that any young person aged 11-16 and their parents were able to enrol.

Originally the brief was to develop a programme for 11–19-year-olds. However, as it was acknowledged that those at the lower end of the range are at a different development stage to those at the higher end, there were recommendations from young people and commissioners to split the age range. Through discussions it was agreed that the best way to split the age range was to group together 11–13-year-olds (school years 7 and 8), 14–16-year-olds (school years 9 and 10), and 17–19-year-olds. However, given the pandemic and the decision to deliver the programme during school term-time, it was not feasible for this research to cover all three groups, therefore the two younger groups, which offer continuity in existing HENRY provision, were selected with the programme tailored to each group.

Given opinions that young people would want some element of independence from parents and considering the logistics of delivering joint child and parent sessions, it was agreed that parent sessions would be held separately from those of young people. Further, given the anticipated availability of parents during the working day, evening was considered the best option for sessions. Finally, as it was anticipated that parents would be unable to attend evening sessions in person, online delivery was viewed as the most suitable delivery option. It is important to note that the parent sessions were designed to drive change in young people's behaviour, and do not constitute a standalone intervention for parents. That said, it is acknowledged that the support parents were encouraged to provide their children, e.g., role modelling, could influence a behavioural change on their part. Whilst beneficial, the primary aim of parental involvement was for parents to support change in their children, with personal change supplementary.

Figure 7.1.

Logic model of Zest for Life! programme



Note. *Changes to weight and BMI possible, though not the focus of HENRY programmes

7.3.7.1. Content

Much of the content selected for the programme was driven by BCW step 3 where fine-grained elements of PA and HE behaviours were considered. Content was built around what young people need to know or do in order to improve these behaviours. For example, to limit free sugars found in fruit juices and smoothies, content was included to educate young people on what free sugars are, why they are detrimental to health, which foods contain free sugars, and how to limit intake through portion sizing and making healthy swaps. When writing content, the importance of providing new information, as highlighted by young people and practitioner interviews, was closely considered especially where content, notably nutrition, might overlap with that of formal education. The National Curriculum on nutrition was referred to though this provided little guidance on the specifics of what is taught in various years. Therefore, a range of content from basic to more comprehensive information was included with the hypothesis that something would be new to young people, and the hope that where content was not new, having it delivered in a fun, interactive way would make its inclusion acceptable.

Further content evolved through input from HENRY which in places aligned with findings from the practitioner and commissioner interviews. As seen in Chapters 5 and 6, professionals were keen for the programme to take a holistic approach by focusing on concepts of health and wellbeing, including emotional wellbeing and mental health, using PA and HE as tools. This aligned with HENRY staff's desire to include wellbeing topics they felt were relevant to young people, based on their previous experiences of working with this population. Therefore, wellbeing was threaded through the programme with PA and HE topics presented as means of achieving good health and wellbeing. For example, one session was titled 'Eating well for health and wellbeing'. Several wellbeing and mental health components were also included. Firstly, in all sessions young people were taught and practiced breathing/muscle relaxation techniques as a means to manage anxiety and stress and induce feelings of calm. Secondly, two sessions were dedicated to supporting mental health and flourishing. Specifically, these sessions looked at understanding and managing anxiety from a cognitive-

behavioural perspective, the value of using empathy, gratitude, and self-compassion, the importance of sleep and sleep hygiene, managing friendships, and the five ways to wellbeing. A balanced discussion on the use of screens was also included at HENRY's request given the perceived prominence of phones, tablets, and laptops in young people's lives and the potential impact on wellbeing.

The content of the parent's sessions was written to mirror that of the young peoples, so that they were all being provided with the same information. Some content was delivered differently to parents due to the online format though it was kept as interactive as possible. HENRY were keen to retain particular content from their other programmes aimed at parents of younger children and modify it for delivery to parents of teenagers, an intervention development approach acknowledged by the Medical Research Council (Skivington et al., 2021). Through discussions between HA-W and HENRY around the appropriateness of content and techniques for parents of teenagers, some content was considered universal to all parents e.g., styles of parenting, and some techniques were believed to be modifiable to be relevant to the target audience e.g., guided choices. Additionally, it was felt that parents of teenagers would be better able to support their children with the inclusion of content new to HENRY programmes such as an overview of the teenage brain to explain behaviour and choices. Finally, universal topics for all parents but which are not currently in HENRY programmes were included in order for parents to provide holistic support to their children and encourage flourishing, e.g., fostering a growth mindset. These elements were identified by HENRY and HA-W from previous application and knowledge of their beneficial use.

7.3.7.2. What it looks like and how content is delivered

When writing the programme manual careful consideration was given to themes from the interview studies, in Chapters 4-6, for the insight they provide on what the programme should look like and how content should be presented to make it appealing to young people. Table 7.5. shows these findings which were considered guiding principles for development around which the programme was built. The table also provides examples, rather than an exhaustive list, of how the findings were incorporated into the programme with some examples fitting multiple findings but for

simplicity are reported only once. Following on from the example above of content relating to free sugar, using the principle of employing practical and interactive activities, it was decided to show young people the sugar content of fruit juices using sugar cubes and to show what the daily limit is by measuring water, as a substitute for fruit juice, into a cup. Group discussions and brainstorming activities were used to explore the impact of free sugars on health and alternative beverages.

Table 7.5.

Linking findings from interviews to programme features

Finding (participant group/s)	**How incorporated into programme**
Keep it positive (young people; practitioners; commissioners)	• Opportunities to provide praise written into sessions such as asking how young people got on with their small step from the previous week. • Complete activity where young people identify what they are already doing well to be a healthy person and meet PA recommendations. • Facilitators to use *inclusive language* and adopt a *strength-based approach* when responding to young people.
Make it different to school (young people; practitioners)	• Young people and facilitators to *use first names* when addressing each other. • Desks to be removed from room and *facilitators to sit in a circle with young people*. • Facilitators to encourage young people to be hands-on during activities with no expectation of neatness in writing or drawing. • Facilitators to encourage young people to be creative during activities. • Facilitators to provide the *right to pass* should a young person not want to engage with an activity. • Facilitators to provide opportunities for young people to contribute without raising their hand and to be able to ask questions at any point.

	• Young people guided to use *attention attractors* at appropriate points to refocus the room.
Make it interactive and practical (young people; practitioners)	• Use sugar blocks to illustrate sugar content of common unhealthy food items. • Use real food to illustrate portion sizes of different food groups. • Provide healthy food for young people to try from across the food groups. • Sessions to include *activity breaks* to engage young people in activity. • Facilitators to use *dividers* when splitting young people into groups.
Help develop skills (young people; commissioners)	• Sessions to include guided practice of breathing/muscle relaxation techniques. • Facilitators to lead activity where young people apply knowledge of food labels to make healthy food choices. • Young people use knowledge of food groups to plan a daily menu. • Provide instruction on how to perform physical activities such as lunges and squats. • Young people practice solving problems related to being active and eating well. • Young people practice expressing gratitude.
Make language approachable and do not demonise certain foods (young people; practitioners)	• Programme to use the phrase 'eating well' rather than 'healthy eating'. • Programme to refer to 'healthy' and 'less healthy' foods, avoiding referring to the latter as 'bad'. • Session on eating well to acknowledge that everyone eats less healthy food at times, then encourage this to be in small quantities and infrequently. • Facilitators to use simple language and avoid technical jargon.

Note. Italics denote existing HENRY elements and approaches

The table above provides examples of how findings from the interviews were incorporated into what the programme looks like in practice. It includes techniques and activities used by HENRY in their other face-to-face group programmes. Specifically these are (1) 'attention attractors' (a simple

musical instrument used to signal the end of an activity and to refocus attention e.g., hand bells), (2) 'dividers' (objects placed on a tray from which young people pick and are then spilt into groups based on a characteristic of the chosen object, for example, animal figurines some of which have stripes and some of which have spots), and (3) 'activity breaks' (a short period of time whereby young people and facilitators engage in a form of light PA, for example, reading the alphabet and performing a physical move such as jumping, twisting, or stretching with each letter). The table also includes other features, for example the layout of the room and providing the right to pass. It was important these be incorporated into the new programme as these constitute 'the HENRY approach' and provide consistency across HENRY programmes. All HENRY techniques and features presented here can be considered to meet the various principles set out by young people, practitioners, and commissioners to deliver an appealing programme.

7.3.7.3. Authorship

HA-W wrote the initial programme manuals which were then revised through discussions with HENRY and NH, with alterations and additions made by both HA-W and HENRY. Some content was utilised from existing HENRY programmes which was modified to be relevant to young people and parents of teenagers. To illustrate, the example of parents providing guided choices to a young child when crossing the road was replaced with the example of parents asking their teenage child to end screen time. Additionally, HA-W wrote and produced initial drafts of handouts for young people (Appendix Y) and parents (Appendix Z), in addition to PowerPoint slides and visual resources for use during delivery. These were refined through discussion with HENRY and NH. Initial manuals and materials were written in March-April 2022 and refined in July-August 2022 following a delivery in May-June 2022.

7.3.7.4. Facilitators

The skills of facilitators were mentioned by all participant groups in the qualitative interviews (Chapters 4-6), aligning with NICE guidelines (2007, 2014) which recommend training for deliverers. To ensure selected facilitators were skilled to deliver the Zest for Life! programme, they were required

to have completed HENRY Core training to gain competence in the HENRY approach and Group Facilitation training to obtain skills in delivering face-to-face groups. Additionally, facilitators attended online sessions with HA-W to gain an overview of the programme, talk through the content of each session, and to familiarise themselves with the manual, with the opportunity to ask questions.

7.4. Discussion

This study aimed to develop a HENRY behaviour change programme for young people to support their PA and HE behaviours, and wellbeing using the BCW. This study not only used the BCW to determine content and implementation options that could be used but created an actual programme to be used in a real-world setting. Though originally intended to be a programme for young people only, the evidence obtained during stakeholder engagement necessitated the involvement of parents to offer young people a better chance of success at making changes. This evidence showed that not only is parental involvement needed, but it is valued by young people too. This research did not fully investigate integration of parents into young people focused BCIs and remains an area of future investigation. In the meantime, advice from commissioners was heeded and separate sessions were created for parents. The suitability of this approach can be assessed through programme evaluation.

Unsurprisingly, similar ITs and BCTs were identified in comparison to other interventions targeting PA and HE behaviours. The Zest for Life! programme used the 'Education', 'Training', 'Enablement', 'Persuasion' and 'Modelling' ITs, the same as Murtaugh et al. (2018). Murtaugh et al. (2018) additionally used 'Incentivisation' which was rated as unacceptable according to the APEASE assessment for this programme. Additionally, of the 18 BCTs used by Murtagh et al. (2018), 12 were the same as those used here to target PA including goal setting, problem solving, social support, instruction on how to perform the behaviour, information about health consequences and emotional consequences, credible source, and social reward. It is perhaps to be expected that there is much overlap in ITs and BCTs given the COM-B diagnoses revealed similar findings to each other.

7.4.1. Strengths and limitations

The programme was developed using the BCW, an evidence-informed guide with many strengths. Additionally, step four was informed by a large number of participants providing a range of views which were triangulated across all participant groups. Further, the programme used multiple sources to identify BCTs. The BCTs identified in the systematic review represent those which are potentially effective at changing PA and HE behaviours, while the BCTs identified through the interviews are those which young people, practitioners, and commissioners believe are needed for change. BCTs identified through the BCW are those which are matched to identified ITs and the TDF and are frequently used. While each method has merit, triangulation across these methods strengthens the rationale and evidence for the inclusion of those identified by more than one method.

Given the pandemic where young people and professionals switched to online working/learning, there was opportunity for participants to consider their lived experiences of remote (online) versus face-to-face modes. This provided unique insight from participants who acknowledged and weighed up the pros and cons of different modes. It is likely that opinions would not have been so thorough and balanced had the pandemic not exposed participants to extensive online working/learning. Elements for programme content/delivery jointly identified by practitioners and young people have been considered above other elements that have less combined evidence behind them.

Ultimately it was not possible to adopt a purely evidence-informed approach to developing all the programme contents as it had to be blended with meeting HENRY's requirements and blended with their extensive experience at programme delivery of this kind. To illustrate, the topic of sleep was included due to its perceived role in wellbeing though this part of the programme was not constructed using the BCW to select appropriate BCTs to change sleep behaviours. It is acknowledged that stakeholders may have competing interests when developing interventions and these should be recorded transparently (Skivington et al., 2021). This combination of inputs to developing the programme meant some elements of the programme are not explicitly derived from theory.

Interventions based on theory are expected to be more successful (Taylor et al., 2012) though evidence does not always support this (Prestwich et al., 2014). Further, it means some behavioural changes and the processes leading to change cannot be understood (Cane et al., 2012). Positively, those based on theory should be able to identify components that contribute to effectiveness (Barker et al., 2016), and the techniques used to change the primary behaviours of PA and HE are indeed evidence-informed and developed according to the BCW making these components theory driven.

Seeking information from young people, practitioners, and commissioners has allowed for data triangulation in the behavioural diagnosis. This strengthens the findings that are congruent with each other and increases the credibility of these results (Noble & Heale, 2019). There were no instances where results from either group directly contradicted the other. There were some differences in the results which is to be expected when considering the same phenomena from different perspectives, and only serves to enrich the findings. The inclusion of three distinct participant groups has broadened the combined results and helped to minimise the chance of missing useful information were only one group consulted.

Whilst interactive and practical activities were utilised wherever possible, it was not possible to incorporate development of cooking skills into the programme as per young people's, practitioner's, and commissioner's suggestions. The decision to deliver within schools meant that no facilities would be available to do this, though delivery in community settings may afford different options and could be considered within future iterations. This programme was also limited in terms of policy options it was able to utilise for the purpose of this study.

7.4.2. Implications

This study developed an evidence-informed behaviour change programme for young people targeting two behaviours, PA and HE. It therefore has the potential to confer large health benefits for young people and reduce resources required to tackle problematic PA and HE behaviours in young people. Using the BCT taxonomy v1 (Michie et al., 2013) to define the techniques used in the programme means results from testing the effectiveness of the programme can be used by

researchers to contribute to the evidence-base of potentially effective BCTs through systematic reviews such as that presented in Chapter 3.

Using the BCW proved to be a time-consuming process consistent with others' experience (e.g., Ojo et al., 2019) and future developers should not underestimate the time required to fully utilise this tool. This study additionally identified potential issues using the guidebook, specifically when selecting ITs from tables that do not align with each other. Other difficulties were encountered in applying the BCW to this research. For example, step four of the BCW identified that young people would benefit from gaining insight and understanding, i.e., psychological capability, of their automatic motivation for their eating behaviours. However, the IT 'Education' that could be used to help young people develop this, is not linked to the 'Automatic motivation' COM component.

Of greater note however, is the difficulty this research had in developing a programme targeting multiple behaviours each consisting of multiple elements i.e., there are many different ways to be active. Using the BCW to develop an intervention seeking only to increase F&V consumption or to engage people in running would be more straightforward as these are singular behaviours for which a single behavioural diagnosis would be required. However, it would make the intervention very specific and applicable to fewer people i.e., it would exclude those who are unable to run due to a disability or medical condition. Designing a programme that takes into account the multiple ways in which people can improve PA and HE was more complex. Ideally, the BCW would have you create separate COM-B analyses for each sub-behaviour, i.e., one for F&V consumption, one for restricting salt intake, one for limiting processed food consumption etc. This would require an inordinate amount of resource, which future developers should consider before undertaking the task, and was outside the capacity of this PhD.

Positively, the time and cognitive effort required to fully work through the stages of the BCW also proved beneficial. Each stage of development requires careful in-depth consideration which helps build a thorough understanding of each decision made and the subsequent programme elements. Similar reflections have been noted by other users of the BCW (e.g., Murtagh et al., 2018). As this

research only used one planning tool, the BCW, it is unknown whether using other tools would have resulted in a similar experience and indeed a similar programme.

The programme was informed by extensive stakeholder engagement with young people, practitioners, and commissioners. Therefore, it should be acceptable to young people who receive it, practitioners who deliver it, and commissioners who commission it. The contribution of these three stakeholder groups represents a unique approach to programme development. Traditionally, research has focused on recipients of behaviour-change programmes and never, to the authors knowledge, has research included all the groups encompassed in this research. However, given the benefits of eliciting multiple perspectives in developing behaviour change programmes, this approach should be standard practice and adopted by developers.

7.4.3. Conclusion

This study developed a theoretically driven, user-informed, evidence-informed behaviour change programme to support young people to regularly eat well and be physically active. Adopting a stance of engaging in PA and HE to support both physical health and wellbeing strengthens the messages to be delivered. The addition of programme content related to mental health and emotional wellbeing makes the programme holistic and appealing to commissioners who ultimately have the ability to make the programme widely available to young people.

7.5. Reflections of an embedded researcher

This section is designed to explore my experience of being a researcher embedded within HENRY during the development of the new programme and the impact this had on the process. As will be discussed, it was not just my position within HENRY that impacted development, but my previous role as a mental health practitioner. The nature of my PhD led me to become a HENRY facilitator and trainer, delivering programmes and learning the HENRY approach, as discussed in Chapter 1. This experience was beneficial for developing the new programme as I was familiar with existing materials, the HENRY approach, HENRY's aims and ethos, and I had experience of delivering HENRY programmes from which I could draw inspiration. I was therefore able to incorporate HENRY elements into the

programme manuals and materials requiring fewer edits by HENRY staff, in other words it helped streamline the development process.

Developing the programme in collaboration with HENRY was a unique experience in managing competing interests. Understandably, HENRY were keen to incorporate content and elements from their existing programmes for reasons at both a company level e.g., continuity across programmes, and a personal level, e.g., past experiences of the staff involved in programme development. Of the latter, the staff had experience working with adolescents in schools and mental health settings. They drew on these experiences to identify topics they perceived to be of importance or interest to young people. This led to interesting discussions around the benefits of developing an evidence-informed programme and the rationale for including various topics not previously included in the systematic review and only loosely considered in the interview studies. Through these discussions I drew on my own experience of working with young people as a mental health practitioner and sometimes was even excited to think I could utilise my expertise in this area. Therefore, at times I was in agreement with the inclusion of certain topics, yet simultaneously attempting to maintain an evidence-informed approach, making some discussions challenging.

On occasion, competing interests risked diluting the focus of the programme away from the specific behaviours of PA and HE which were the focus of the PhD, can be targeted through BCTs, and were measured as primary outcomes. Wellbeing and mental health on the other hand are outcomes of behaviours such as PA and HE and cannot be directly targeted through the use of BCTs. Therefore, a balance needed to be found to ensure the programme could do what it set out to do, i.e., change PA and HE behaviours, whilst satisfying HENRY's needs to include wellbeing and mental health topics. Despite the challenges, I feel a positive outcome was achieved for all.

From my perspective it seems likely that some of the challenging discussions during the development process resulted from changes in HENRY staff where the original company supervisor who had helped conceive the project was no longer present and subsequent supervisors may have had different visions for the project. Furthermore, structural changes within HENRY meant that my

company supervisor was no longer the head of the department, meaning decisions were required to be agreed between three people rather than two. At times this felt a little unbalanced, perhaps in part due to lack of clarity on my position within HENRY, though on reflection I can see the combination of perspectives was ultimately useful to the development process and only enhanced the programme with all aspects given deep consideration before being included.

I believe that my skills as a mental health practitioner allowed me to navigate the conflicting interests during conversations and allowed me to understand HENRY's perspective and reasoning on why they wanted certain topics included, especially the mental health ones. The support and guidance of my supervisors allowed me to personally balance my thoughts and opinions on the inclusion of mental health topics, which naturally I supported in principle given my background, with my academic needs and maintaining an approach in the best interests of the research.

Chapter 8: Formative evaluation assessing feasibility of the HENRY behaviour change programme 'Zest for Life!'

8.1. Introduction

Assessing feasibility is an important stage in the development of complex interventions (Skivington et al., 2021). Traditionally, feasibility studies were understood to answer the question 'can this be done?' (Bugge et al., 2013) while the term is now accepted to be an umbrella term for any study assessing whether a future study can be performed (Eldridge et al., 2016). However, conducting a further trial is not always the end goal of studies assessing feasibility. The Centres for Disease Control and Prevention (n.d.-b) propose the term 'formative evaluation' to refer to an evaluation conducted as part of programme development to determine acceptability, feasibility, and inform modifications. This description suits the study at hand which is being conducted to gather feedback from participants about whether the programme can be delivered in a real-world setting and is acceptable to recipients in terms of the programme's content, materials, and evaluation measures. This type of pragmatic evaluation elicits important information which can be used to optimise the programme ahead of roll-out and make it attractive to commissioners.

HENRY programmes are continually evaluated in-house using data collected through routine feedback forms for quality assurances and to feedback outcomes to local area commissioners. Formal evaluation with external researchers is gaining more traction and the first HENRY programme, Healthy Families Right From The Start (HFRFTS) for parents of 0–5-year-olds, has been the subject of in-depth evaluation. A service evaluation of routine data collected over a two-year period was conducted by researchers at Leeds University and HENRY staff (Willis et al., 2016). Results from 624 parents comparing pre and post scores showed improvements in fruit and vegetable (F&V) intake, with an increase of 22% and 19% of children and parents, respectively, meeting guidelines for five portions per day. Similar increases were seen in the proportion of children and parents meeting physical activity (PA) guidelines at post measurement, 5.9% and 11.7%, respectively. Other improvements in watching

TV while eating, consumption of takeaways, and screen time were observed. Parents also reported improved parenting skills including ability to set limits and enhanced personal emotional wellbeing.

The HFRFTS programme was further assessed in collaboration with independent researchers for impact through a mixed-method study prior to a feasibility of trial study (Bryant et al., 2021) and a randomised controlled trial which is currently underway. The quantitative part of the mixed-method study (Willis et al., 2014) included 71 parents and revealed positive changes in many family behaviours including eating with the TV on, consumption of F&V and healthy snacks, and intake of high-sugar foods and unhealthy snacks. No changes were observed for children's screen time, or family PA, though parental self-efficacy increased. Meanwhile the qualitative evaluation with a subset of 39 parents explored the programme's impact through focus groups (Bridge et al., 2019). Parents reported increased confidence as a parent and developing better relationships with their children. Parents also spoke of increases in F&V intake, reductions in high-sugar snacks, and increased PA which support the earlier quantitative findings. Additionally, parents spoke about the benefit of the group format allowing them to share problems and relate to the problems of others, in addition to the skills of facilitators providing empathy and a solution-focused approach.

It is important to note that these evaluations were conducted while the HFRFTS programme was in use i.e., after it had been developed. The formative evaluation of Zest for Life! represents a novel approach for HENRY in that the evaluation was embedded within the development process and intended to optimise the programme prior to being rolled-out and offered to commissioners. Therefore, unlike with other HENRY evaluations, a pragmatic approach was required as findings were to inform ongoing development. As such, rather than inductive thematic analysis used previously (Bridge et al., 2019), the APEASE criteria was used to generate practical findings which could be applied to future development. The current evaluation was also intended to provide HENRY with initial insights into the feasibility of expanding into the 'teenage' market and working with parents of older children. An important distinction between this and prior evaluations is the absence of HENRY staff in the data

collection, analysis, and reporting, with it being conducted independently by HA-W supported by the academic research team.

The evaluation was conducted following development of Zest for Life! using the Behaviour Change Wheel (BCW; Michie et al., 2011c) and subsequent delivery of the programme. It is important to note that this research study was not responsible for recruitment to the programme nor for delivering it to participants, though HA-W was one of the facilitators through her role with HENRY. Therefore, this research is akin to a service evaluation, exploring the views and outcomes of participants already signed up to the HENRY programme, though the term formative evaluation is preferred to better reflect the evaluation being embedded within development. The aim of this formative evaluation, therefore, was to assess the feasibility of the Zest for Life! programme in schools to young people and online to parents, using the APEASE criteria.

8.2. Method

The evaluation presented in this chapter is of the programme as delivered during the Autumn term of 2022. This followed one prior delivery of the programme in the summer term of 2022 after which some minor changes were made based on feedback from deliverers. Of particular note was the removal of the concept of habits (appeared too challenging for young people) and swapping the process for recruitment to the research evaluation element to opt-out rather than opt-in (following very low uptake). The evaluation was granted ethical approval by the Health, Science, Engineering and Technology Ethics Committee with Delegated Authority (ECDA) at the University of Hertfordshire (protocol number LMS/PGR/UH/04942, Appendix AA), with the change to the recruitment procedure covered by an ethics amendment (protocol number LMS/PGR/UH/04942[1], Appendix BB).

8.2.1. Design

This formative evaluation adopted a mixed-methods design involving quantitative and qualitative data. The study opted to use the APEASE criteria (Michie et al., 2014) to structure the evaluation, as reviewed in Chapter 2. The APEASE criteria were created as a development tool within the Behaviour Change Wheel (BCW; Michie et al., 2011c) to assist in the design of appropriate

interventions (Michie et al., 2014) and was used to develop the programme being evaluated in this study. It can also be used for evaluation purposes (West et al., 2020) and provides a systematic method for analysing data and structuring results. It has been used previously in this manner, for example Brierley and colleagues (2022) applied the APEASE criteria to their evaluation of an office intervention to reduce sitting time.

The quantitative element was included to replicate traditional HENRY evaluation measures and to assess the acceptability/practicability of these selected measures. Formally assessing effectiveness at this stage is not recommended (Arain et al., 2010; Lancaster et al., 2004) though future use of the programme may only be deemed feasible if there are signs of effectiveness, especially given cost implications of delivery. Plus, to paraphrase Michie et al. (2014), if an intervention is not effective the other criteria are moot. Therefore, this evaluation will adopt a stance from which quantitative results will be considered an indicator, rather than evidence, of effectiveness.

8.2.2. Participants and eligibility

Anyone who signed up to and attended at least one session of the programme was eligible to take part in this evaluation. To take part in the programme, young people had to be attending the school where it was delivered and aged 11-16. Parents/carers were only able to take part in the programme when their child was taking part, though a young person was able to be on the programme without their parent/carer. Both parents/carers and young people had to be able to understand and converse in English and they had to be able to engage with the material. From this point on, for simplicity, the term parent is used to encapsulate both parents and carers of young people.

8.2.3. Recruitment

An opt-out procedure saw parents and their children enrolled onto the evaluation element when they signed up for the programme through Qualtrics, with opt-out possible through contacting HA-W, though no one did so. Downloadable participant information sheets for the evaluation were available on the first page of the Qualtrics form for young people (Appendix CC), parents of young people taking part (Appendix DD), and parent participants (Appendix EE). HA-W's contact information

was also presented on the first page of the Qualtrics form and one parent made contact to ask questions before signing up. Parental consent for themselves and their child/ren was obtained through the Qualtrics form. Young people were provided with information sheets (Appendix CC) in the first session prior to gaining assent (Appendix FF) before evaluation activities. For simplicity, a single version of the information sheet and assent form for young people were used exclusively for both under and over 16-year-old young people.

8.2.4. Materials

Standard HENRY programmes ask participants to complete pre/post-questionnaires and provide feedback at the end. Therefore, including these in this study was a vital part of assessing feasibility of this aspect. The existing pre/post questionnaires used by HENRY were not considered appropriate for young people, therefore new measures were selected for this programme as presented below. A feedback form was used to gather opinions on the programme and a supplementary interview schedule was used to elicit further consideration of participation. Demographic information on age, sex, and ethnicity was collected also.

8.2.4.1. Interview schedules

A semi-structured interview schedule was created for the purposes of this study. As participants may have chosen not to complete the feedback form but were willing to provide verbal feedback in an interview, or vice versa, there was an inevitable overlap of questions between the two methods. The open-ended questions were based on the APEASE criteria (Michie et al., 2014). Prompts were created to further explore areas and to offer more guided questions for participants who may need more direction. For example, the open-ended question "*What did you think about the questionnaires you were asked to fill in?*" contained prompts such as "*Were you able to accurately report how active/how much fruit and vegetables you eat?" and* "*How do you feel about how long it took to complete the questionnaires?*" Minor differences tailored some of the questions for either young people (Appendix GG) or parents (Appendix HH). For example, young people were asked about opinions on taste testing and, where relevant, how useful it was having their parent on the

programme. Parents were asked how useful the programme was in helping them support their child/ren, and, in addition to their own changes, they were asked to reflect on changes made by their child/ren. The schedules were initially created by HA-W and honed through discussion with NH and AMC.

8.2.4.2. Feedback form

A feedback form was created for two reasons. Firstly, to replicate the type of end-of-programme questionnaires used by HENRY, and secondly, to be used as proxy evaluation should participants not take part in an interview. Therefore, it was created in collaboration with HENRY to ensure it would both meet their needs for future use and provide data for this evaluation. In order to assess the usefulness of the feedback form, potentially to be used in lieu of interviews when the programme rolls out widely, responses were considered alongside interview data to determine whether useful and representative data was provided on the form. A mix of open and closed questions were adopted with a view of seeking maximum information with minimal participant burden.

Two versions for young people and parents (Appendix II and JJ, respectively), were created to elicit views from each group's perspectives including the mode of delivery which differed between groups, i.e., face-to-face versus online. Further, young people were asked, where relevant, how helpful it was having their parent on the programme, while parents were asked how helpful the programme was in helping them to support their child. Other questions were the same for all participants. Namely, open-ended questions probing participants to consider the best parts, the least liked parts, what they would change about the programme, and behavioural changes resulting from the programme. Additionally, three closed questions provided multiple choice answers on the length of sessions and the programme e.g. "*The length of the programme [8 weeks] was (circle as appropriate)*" both answerable with *way too short*, *a bit short, about right, a bit long,* or *way too long,* and whether they would recommend it to a friend e.g., "*Overall, I would recommend this programme to a friend*" with response options of *not at all*, *maybe*, *probably*, or *definitely.*

8.2.4.3. Pre/post-questionnaires

8.2.4.3.1. Fruit and vegetable consumption. The measure of F&V consumption (Appendix KK) was taken from Huang et al (2019) who adapted items used in the European Health Interview Survey (Eurostat, 2020). This measure has been used with UK teenagers (Jacka et al., 2013; Wardle et al., 2003) and previous iterations with adults (Wardle et al., 2000) though information on reliability and validity are lacking. This measure consists of two items, one each measuring daily fruit/vegetable consumption e.g., "*How many portions of fruit do you usually eat in a day? E.g., an apple, a handful of grapes, a glass of fruit juice (note that all fruit juices and smoothies count as a maximum of one portion per day)*". The item concerning vegetable consumption takes the same format, with both items providing information on what constitutes a portion of fruit/vegetables. The response options ranged from: *do not eat* or *eat some days but not every day* (both scored 0) to *5 or more portions per day* (scored 5). Participants are instructed to select one option. In line with the approach adopted by Huang et al (2019), a 'total F&V score' was computed by summing the scores of the two items together (min score 0, max score 10). Total F&V scores were then categorised ordinally with scores of ≥5 portions/day as 'recommended intake', 1-4 portions/day as 'moderately low consumption' and <1 portion/day as 'very low intake'.

8.2.4.3.2. Physical activity. The Youth Physical Activity Questionnaire (Y-PAQ; Corder et al., 2009; Appendix LL), based on the Children's Leisure Activities Study Survey (Telford et al., 2004) was used as a measure of young people's MVPA. The Y-PAQ has been assessed amongst British young people with results showing good reliability and demonstrating more reliability than other PA questionnaires for the same age group (Corder et al., 2009). The Y-PAQ lists 31 activities, or clusters of similar activities, split into sports e.g., "*netball,*" leisure time activities e.g., "*walking the dog*," and school-based activities e.g., "*physical education class*," with the option of adding any others not covered in the list. All items on the questionnaire are considered either moderate (17 items) or vigorous (14 items) intensity according to their metabolic equivalent units as listed in the Compendium

of Physical Activities (Ainsworth et al., 2000) and other questionnaires on which the Y-PAQ is based (Telford et al., 2004).

Initially respondents indicate dichotomously "*yes*" or "*no*" whether they have taken part in that activity within the last week. Where respondents reply "*yes,*" they provide the number of times they performed that activity between Monday to Friday and the total time spent engaged in that activity in hours and minutes. This is then repeated for Saturday to Sunday, with the exception of the section on school-based activities. Responses are assumed to have been provided correctly, i.e., total minutes rather than minutes per instance, even when figures suggest doubt. This avoids interfering with the data by making assumptions which cannot be confirmed with participants. Where a participant's response provides a time range e.g., 30-40 minutes, the lower value is used given that self-report measures tend to be an overestimation of PA level (Luo & Lee, 2022). A total MVPA score is calculated by totalling the time spent in all activities.

Parents provided a measure of PA through the Short Active Lives Survey (SALS: Milton et al., 2017; Appendix MM). Validation of the SALS against other PA measures was found to provide comparable data to both longer and shorter measures and accelerometer data. Additionally, it was found to incur less over-reporting than other tools. The SALS is considered appropriate for participants aged 16 years and older (Sport England, n.d.-b). Three items cover respondents walking, cycling, and sport, fitness classes, or dance over the last seven days, e.g., "*In the past 7 days, have you done a continuous walk lasting at least 10 minutes?*" A "*yes*" then prompts participants to indicate number of days e.g., "*In the past 7 days, on how many days did you do a cycle ride lasting at least ten minutes?",* usual duration e.g., "*How much time did you usually spend cycling on each day that you did the activity?*", and intensity e.g., "*Was the effort you put into doing sport, fitness activities, or dance usually enough to raise your breathing rate?*" Where a response indicates the activity increased breathing rate, the duration of activity is multiplied by the number of days it was undertaken. Where breathing was not increased, this is considered to constitute light PA and is excluded from analysis. Total minutes from all three items are added together to provide minutes per week of MVPA. From

these totals, participants are categorised ordinally as either 'active,' i.e., 150 or more minutes of MVPA per week, 'fairly active,' i.e., 30-149 minutes, or 'inactive,' i.e., less than 30 minutes, consistent with Sport England cut-offs (Milton et al., 2017).

8.2.4.3.3. Wellbeing. Wellbeing was considered through the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS; Stewart-Brown et al., 2009; Appendix NN), provided through a non-commercial license from the University of Warwick. The SWEMWBS is a shorter version of the original WEMWBS (Tennant et al., 2007), developed to measure mental wellbeing and evaluate interventions designed to improve wellbeing (Warwick Medical School, n.d.). The SWEMWBS has been validated for use in British students aged 11-16 years (Melendez-Torres et al., 2019), in addition to adult populations (Ng Fat et al., 2017). The SWEMWBS is a brief, 7-item measure of mental wellbeing, containing positively phrased statements on affect, e.g. "*I've been feeling relaxed,*" and psychological functioning e.g. "*I've been dealing with problems well.*" Respondents consider their experience over the last two weeks and respond on a Likert scale with one option from *none of the time*, *rarely*, *some of the time*, *often*, and *all of the time*. A numerical value is applied to each response category, from 1 to 5, respectively, and a total raw score is calculated by adding the seven values together, out of a total of 35. Raw scores are then transformed into a metric score as per the user guide version 2 (Taggart et al., 2015). A higher score indicates better wellbeing.

8.2.5. Procedure

After providing consent, parents completed demographic information for themselves and their child/ren (Appendix OO), and pre-questionnaires for themselves, as listed above. Young people completed pre-questionnaires in the first session of the programme after providing assent. All participants then completed the programme. In brief, the programme was eight weeks long, participants met once per week, face-to-face for young people during school time and online for parents in the evening, for a duration of 1.5 hours per session. Young people were either placed in a group for those in Years 7 and 8, or for Years 9 and 10, whilst all parents were together in one group. The programme covered many topics, primarily PA, healthy eating (HE), and wellbeing. Several

elements considered to impact wellbeing (see Chapter 7) such as sleeping behaviours were also included as session topics.

In the last session, young people were provided with paper debrief sheets for themselves and their parent (Appendix PP), completed post-questionnaires and the feedback form on paper, while parents completed these online through Qualtrics where they were able to download a debrief sheet (Appendix QQ). Parents who were absent in the last session were emailed a link to the Qualtrics form. No young people were absent from the last session. Interviews were conducted by HA-W in the weeks following the end of the programme. Email invitations for an online Zoom interview were sent to parents with up to two reminder emails sent where no initial response was obtained. Young people's invites to interview were handed out on paper during the last session. They were provided with a slot over the proceeding 2-3 days when they could be interviewed in person during the school day in the same building as programme delivery, should they wish. Where a young person was absent for their allocated slot, an alternative was offered once they returned to school. All interviews were recorded using an Olympus DM-450 digital voice recorder, with recordings deleted after transcripts were finalised.

8.2.6. Analysis

The purpose of the programme was to drive positive change in the behaviour and wellbeing of young people. Any positive changes in parent's behaviour, though helpful, was supplemental and not the primary target of the programme. Therefore, the quantitative analysis considers young people and parent data separately in order to investigate the impact of the programme on its target population. The APEASE criterion was applicable to both young people and parents, e.g., the evaluation wanted to know how acceptable the programme was to any participant, therefore qualitative data was analysed as one group, with differences between young people and parent responses highlighted for future development purposes. The strategy adopted by this evaluation is shown in Table 8.1.

Table 8.1.

Evaluation strategy using APEASE criteria (Michie et al., 2014; West et al., 2020)

APPEASE criteria **Criteria definitions (taken from West et al. 2020)**	**Research question(s)**	**Data sources**	**Materials**	**Data analysis or synthesis**
Acceptability Assesses the extent to which the intervention is acceptable to stakeholders, including participants	How acceptable did participants find the content and mode of delivery of the programme?	Young people and parents	Interviews	• Narrative synthesis of acceptability of: name, topics, resources, activities, parental involvement, delivery methods, questionnaire completion, HENRY elements, and taste testing (young people only). • Satisfaction with the programme by asking whether participants ever considered leaving.
			Feedback forms	• Completion rate reviewed as indicator of its acceptability. • Descriptive statistics used to consider acceptability of length of programme, length of sessions, and satisfaction with programme as indicated through whether they would recommend it. • Narrative synthesis of open-ended questions on what was liked/disliked and what they would change.
			Pre/post measures	• Completion rates reviewed as indicator of their acceptability.
			Dropout rates	• Recorded drop-out rates.

APPEASE criteria Criteria definitions (taken from West et al. 2020)	Research question(s)	Data sources	Materials	Data analysis or synthesis
Practicability Considers whether the intervention can be delivered as intended using available resources	How easy was it for participants to attend the programme?	Young people and parents	Interviews and feedback forms	• Narrative synthesis of difficulties with accessing the programme in school (young people) or online (parents).
Effectiveness Asks how the intervention positively impacted participants as expected	What effect did the programme have on participants PA and HE behaviours, and their wellbeing?	Young people and parents	Interviews	• Narrative synthesis of reported behavioural changes and benefits of parents being on the programme (where relevant).
			Feedback forms	• Narrative synthesis of reported behavioural changes and benefits of parents being on the programme (where relevant).
			Pre/post measures	Young people: • Exploratory statistical analysis of changes in pre and post scores on measures of PA, HE, and wellbeing. Parents: • Descriptives of changes in pre and post scores on measures of PA, HE, and wellbeing.

APPEASE criteria Criteria definitions (taken from West et al. 2020)	Research question(s)	Data sources	Materials	Data analysis or synthesis
Affordability Refers to the cost of the intervention and whether this can be afforded		Young people and parents	Interviews and feedback forms	• As the programme was free to all participants, affordability was not formally addressed through the interview schedule or feedback form. However, any responses that related to this criterion were coded as such.
Spill-over effects Considers any effect of the intervention that were not anticipated whether positive or negative	What unintentional effects did the programme have on participants?	Young people and parents	Interviews and feedback forms	• Narrative synthesis of perceived impact of the programme either negative or positive that had not been anticipated.
Equity Reviews the extent to which the intervention increases or decreases health inequalities	To what extent do participants consider the programme equitable?	Young people and parents	Interviews	• Narrative synthesis of difficulties with accessing the programme and responses on suggestions for ensuring the programme is inclusive of everyone.

8.2.6.1. Interviews and feedback forms

A General Data Protection Regulation (GDPR) compliant transcription service produced verbatim transcripts in Microsoft Word, with the omission of speech characteristics that were not required for analysis. All transcripts were checked by HA-W at time stamps indicated by the transcriber and most missing words were able to be filled in this way. Further, 27% (*n* = 6) of transcripts were checked fully for accuracy by HA-W. Responses from the feedback form were collated in Excel, with each participant having their own row and questions appearing in order in the columns. Parent's data was copied and pasted from Qualtrics with young people's responses being manually entered from paper forms. Qualitative responses were then copied and pasted to the end of each participant's Word transcript before being uploaded to NVivo (version 12 Pro).

Qualitative data from all interviews and feedback forms was deductively coded to APEASE criteria (Michie et al., 2014) using a coding guide created by HA-W (Appendix RR). This provided a definition of the criterion, taken from West et al. (2020), alongside prompts on how to apply the criterion to this evaluation e.g., *Acceptability: Did participants consider dropping out*. Coding was conducted in NVivo where codes were grouped into each criterion: acceptability, practicability, effectiveness, affordability, spill-over effects, equity. Some criteria assessed multiple aspects of the programme and codes were split in this way to further organise the data, for example, acceptability was split into name, topics, delivery methods, activities, the HENRY approach, resources, parent inclusion, duration, questionnaire completion, and retention. For each criterion, transcripts were also coded for suggestions or recommendations on how to improve areas of the programme. This was to both offer context into areas that were not as well received, in addition to providing useful insight into future development of the programme for HENRY. Two transcripts (9%) were double coded by NH with discrepancies discussed with the research team. After coding was completed, the data within each criterion was summarised into a narrative synthesis by HA-W using illustrative quotes. Unless otherwise specified, provided quotes are from interview data.

8.2.6.2. Pre/post-questionnaires

Data collected via Qualtrics (parents only) were downloaded into Excel. Data provided by young people through paper questionnaires were manually entered into a separate Excel spreadsheet. All data was anonymised at this point using pseudonyms. A list of pseudonyms was generated for this purpose by third parties unconnected to the research. Gender-congruent pseudonyms, using self-identified gender from the demographics forms, were assigned to participants from the list in the order the responses were entered into Excel. Where a pseudonym was similar to any participant's actual name, it was removed from the list. The data set for young people was then uploaded to SPSS (Version 28).

Given the small sample size of parent data, no formal statistical analysis was performed, opting instead for presentation of means. Young people's data was initially assessed for normality and outliers. There were no outliers in F&V data, one non-extreme outlier in MVPA data, and three outliers in the SWEMWBS data including one extreme value. Shapiro-Wilk tests revealed that changes in fruit intake (p = .03) and SWEMWBS scores (p = -.02) were not normally distributed, though vegetable intake, total F&V, and MVPA changes were (p = .22, .87 and .95, respectively). Removal of the extreme SWEMWBS outlier returned normality to the data (p = .423). However, given that paired-samples *t*-tests are robust to deviations in normality (Fradette et al., 2003; Rasch & Guiard, 2004) these were considered appropriate for comparing mean differences for all measures. The *t*-test for SWEMWBS data was however run both with and without the outlier to consider its impact on the results.

Paired *t*-tests were used to consider the mean differences between pre/post scores of interval data for daily portions of fruit, vegetables, and total F&V, weekly minutes of MVPA, and wellbeing scores, with Cohen's *d* effect sizes calculated. Categorial data i.e., proportions meeting recommendations, were analysed using an exact McNemar's test. A Bonferroni adjustment was made to allow for multiple comparisons which calculated an alpha level of .01, using 99% confidence intervals (CIs).

8.3. Results

8.3.1. Participants

8.3.1.1. Retention

A total of 23 participants are represented in this evaluation. Nineteen young people and eight parents (total *n* = 27) took part in the programme and consented/assented to the evaluation. Three participants dropped out part way through the programme, one due to the timing of sessions (young person), one due to bereavement (parent), and one for reasons unknown (parent). Further, one parent who completed the programme was unable to complete any evaluation components at the end of the programme due to a family situation. Therefore, 18 young people (95% of those who assented) and five parents (63% of those who consented) are represented in this evaluation. All aspects of the evaluation including pre/post questionnaires, feedback form and interview were completed by all young people. Pre/post questionnaires and the feedback form were completed by five parents, while four also completed the interview.

8.3.1.2. Characteristics

The mean age of young people was 12 years and 8 months (*SD* = 0.9, range 11-15), the majority were female (*n* = 13) and identified as White British (*n* = 14). Three young people identified as White other, and one as Mixed/multiple ethnicity. Three young people were in school Year 7 (aged 11-12), five in Year 8 (aged 12), seven in Year 9 (aged 13), and three in Year 10 (aged 14-15). Parents had a mean age of 44 years and 4 months (*SD* = 1.6, range 42-46), and all were female (*n* = 5). Three identified as White British and two as White Other. Eight young people had a parent attend the programme and 10 did not. Three parents had one child on the programme and two had two children attending.

8.3.2. APEASE analysis of qualitative data

The below narrative is of young people's and parent's feedback which were considered as a single group. Therefore, 'participants' refers to opinions of the group as a whole. Unique contributions or differences between young people's and parent's opinions are highlighted where appropriate. For the purposes of this evaluation, results of anything targeted by the programme content are considered

under effectiveness given change was targeted directly. Meanwhile, any results not targeted by the programme were considered spill-over effects.

8.3.2.1. Acceptability

The following aspects of the programme were assessed for acceptability: name of the programme, topics included, how content was delivered, activities completed, HENRY approach elements, resources, inclusion of parents, and completing questionnaires. Further, retention was also considered as a proxy of acceptability.

8.3.2.1.1. Name. Most participants were happy with the name of the programme, 'Zest for Life!' It was felt to convey positivity and fun as well as being unique and memorable whilst making you intrigued, "*I think Zest for Life! kind of does make people go, ooh, I wonder what that is*" (James, 15). However, some young people were unsure of the word zest having never heard it before or not knowing what it means. Additionally, a few participants felt the name did not express what the programme is, "*I didn't know what it meant by Zest for Life. It's not very, like, descriptive in the name*" (Braylee, 14), with suggestions that it should have "*something with wellbeing in the name, because it's about wellbeing and health. So you would expect it to have at least something like the word, wellbeing or health in the name*" (Miriam, 13).

8.3.2.1.2. Topics. The topics discussed during the programme, which focused on PA, HE, and wellbeing, were seen as both important and helpful to participants. Of particular importance to participants were learning about portion sizes, food labels, and sugar. However, whilst HE was seen as important to include, some participants felt that a disproportionate amount of time was spent on this at the expense of the PA and wellbeing topics. Of the three, wellbeing topics appeared to be most important to participants:

> "*A lot of people of our age just don't really think about it. They think it's - especially mental health, they think physical health is the most important thing, and if it's, if you're physically healthy, then that's all that matters.*" (Jennifer, 13)

The most frequently suggested additional topics for inclusion were centred around wellbeing, such as depression, attention deficit hyperactivity disorder, autism spectrum disorder, and Tourette's syndrome, in addition to emotions such as anger, and skills for managing stress such as meditation. Additionally, participants expressed wanting further information on topics already covered within the programme such as anxiety, sleep, and the 'thought, feeling, behaviour' link. In addition to these wellbeing topics, the following were identified by participants as the most important of all those covered: gratitude, the five ways to wellbeing, breathing exercises to manage anxiety, flourishing, self-care, and friendships. Parents additionally identified parent-specific topics as important elements of the programme. These included, offering guided choices, setting boundaries, using positive language, understanding the brain, managing negotiations, and separating behaviour from the person:

> "*The best thing about the programme wasn't necessarily things about eating healthy, it was how to be healthy as a family, in terms of the choices that you allow your child to make, and how to set boundaries and support them in those kind of positive ways*."
> (Vivian, 42)

Some of the included topics were new to participants, supporting them to acquire new skills or knowledge which young people were keen to learn, "*so wasn't it the Haribo's? It's like 20 sugar cubes for … half bag. I would never have known that, if I didn't go to the course*" (Wilbur, 11). Conversely, some topics were not new to participants such as the Eatwell Guide which is taught in school lessons, and some parents reported knowing about portion sizes and balancing meals. However, parents reflected on the value of going into greater depth and expanding upon existing knowledge "*it was almost like a reminder and going into it in more depth about what I knew already*" (Tamara, 45).

8.3.2.1.3. Delivery methods. Participants felt that the topics were presented in ways that made the information easy to understand and accessible. This was achieved by utilising a range of delivery methods including small group work, whole group discussions, PowerPoint, and videos.

Overall, the use of PowerPoint was viewed positively by participants, "*they were concise and well put together, and they covered the main points that you wanted to talk about*" (Olivia, 43). Some young people would have liked more use of PowerPoint to provide a point of reference or to display definitions for concepts such as empathy.

Participants talked about struggling with silences during conversations, which were more likely to be experienced in the whole group discussions. Therefore, some young people found small groups more acceptable, "*people were more open to discuss when it was only four people, rather than the whole group*" (Jennifer, 13). However, some participants liked the mix of both approaches, "*I liked working in a big group, but then going off into small groups and chatting about them and then bringing it back, I think [that] worked*" (Wilbur, 11).

8.3.2.1.4. Activities. Whilst young people appeared to like most of the activities, there was a clear preference for practical, interactive activities such as the sugar activity, the quiz, breathing exercises, flip-chart paper activities, and taste testing, reasons for which were varied. For example, it was felt that the sugar activity provided opportunity for discussion and teamwork, as well as imparting new and surprising information. However, it appeared to be the combination of receiving information and interactivity that made this activity particularly enjoyable:

> "*I think it was good being visual, as well with the sugar cubes to actually see how much sugar you're eating, if you say drink a Coke. Then it was good to actually see that's actually how much sugar you have, because when you're just thrown all this information about ten spoons or two spoons, it's just hard to take in and it doesn't really go in. Whereas when you actually see it, it's like, whoa, that's a lot of sugar*."
> (Jennifer, 13)

Taste testing appeared to be liked due to exposing young people to foods they had not heard of, or not had the opportunity to try. This allowed young people to taste healthier alternatives to foods which could be incorporated in their diet. Being a self-reported picky eater or holding beliefs that they

wouldn't like a certain food was overcome through support and the relaxed environment, "*I got the opportunity to try it, and you weren't like … I had the opportunity to pass, and it wasn't like, eat this now!"* (Isabella, 12). Indeed, even when the taste was disliked they were glad to have tried it, "*I'd never tried that [passion fruit] before. I didn't like it, but it was still nice that I'd tried it*" (Jennifer, 13).

Some activities involved writing which generally was acceptable to participants, though some young people expressed a preference for listening, doing a quiz/multiple-choice exercise, or talking. It was acknowledged that writing was minimal and there was no expectation for it to be neat. A difficult aspect however was thinking about what to write particularly when there was time pressure or due to personal circumstances that week:

> "*Sometimes it was hard to think of something to write, just because of things that would, if you're having a hard week, and sometimes it was hard for things going on in your personal life, thinking of something that you could achieve.*" (Olivia, 43)

Young people expressed the benefits of having goals to work towards but struggled to think of weekly small steps to help them move towards their goals. Suggested improvements were providing a reminder of session topics or receiving more direct guidance from the deliverers.

8.3.2.1.5. The HENRY approach. Zest for Life! made use of elements used in other HENRY face-to-face group programmes such as dividers (to split into groups based on an item selected from a tray), activity breaks (a short break from content during which participants move around engaged in light PA), and attention attractors (musical instruments used to signal the end of discussions and to recapture attention). Dividers were viewed as novel and a fair method of splitting into groups which meant they could talk to different people, no-one was left out, and it added curiosity and uncertainty. Similarly, young people felt that activity breaks gave them a break from learning, made it feel different to other environments, were fun, allowed them to get to know each other, and it re-energised them and helped them to concentrate. Generally, attention attractors were liked, though there were preferences for individual sounds, "*I liked the wooden knocker. Yeah, but the bells were really*

annoying" (Tilly, 12). Overall, these HENRY elements were well received and new to young people who had not been expecting those things, enhancing their experience:

> "Y*ou don't expect that to just happen in one of the, in something like that, you don't just go there and we go, oh right, we're going to have [an activity] break, we're going to do this and all that. You don't expect it, so I think it was pretty cool that you could do that*." (Miriam, 13)

8.3.2.1.6. Resources. The programme displayed resources during sessions and provided materials for home use. The journals (Appendices Y and Z) were liked by participants for their helpfulness and appearance, "*I think they're colourful. I like the illustrations. It looks approachable. … it's put together really good, really nicely*" (Wilbur, 11). Journal content liked by participants was the breathing exercises, food swap ideas, F&V trackers (Appendix SS), list of activities in the local area, health and wellbeing quiz, and the stretches. Additionally, the content was felt to be informative and comprehensive, "*I felt like I could catch up quite easily, because I had the handout, I was able to still follow on from what I missed*" (Vivian, 42). However, whilst some felt the chapters were too long to look at each week and could be shortened, some suggested expanding it to signpost to trusted sources of further information or where to seek support for difficulties.

Some young people felt it was helpful to have resources on the walls to gain familiarity, and particularly liked that the flip charts they created were displayed in subsequent weeks, though some admitted to not looking at or seeing them. The Eatwell Guide was particularly liked, and Monica (14) reported replicating the bike poster (Appendix TT) to put up at home, "*I liked the bike, because I have one in my room now. … Just so I can remember and see it every morning.*" Another resource, listing key points from each session was also liked due to supporting learning and aiding recall of previous sessions:

> "*That was very useful, because we wrote down everything what we learnt, so we wouldn't forget it. And it was quite bright with different colours, and you could just*

look on there to see what was written down, to know the key points of each lesson."

(Tilly, 12)

8.3.2.1.7. Parent inclusion. Young people on the whole were positive about including their parents, though the separation of parents and children for sessions was appreciated. Young people spoke about shared knowledge they and their parents were learning which could then be put into practice together, "*we were talking about the next time she's stressed, I just tell her 'four, seven, eight,' and she just does breathing exercises*" (Alicia, 13). Young people noticed that parents made changes at home such as providing a new food, reducing sugar or putting limits on screen time, with changes mostly viewed as supportive. Parents felt their involvement was helpful and provided an interesting glimpse of their child's perspective of family life. Some participants, however, found it problematic that the parent and young person sessions did not align due to differing start dates:

"*We'd do one topic, and then in the evening, then she has her one, they're doing something related, but different. So she'll ask me about that, and I'll be like, what, we haven't done that yet!*" (Isabella, 12)

8.3.2.1.8. Duration. Most participants felt the session and programme lengths were about right though this was not unanimous. Some parents felt that the sessions were a bit long, perhaps because "*1h30 at bedtime is tricky*" (Jude, 46, feedback form), and another suggested one-hour sessions to accommodate busy evenings. One parent reported that the sessions were a bit too long on the feedback form, however during the interview they reflected on the length and decided it was about right:

"*[I] thought, ooh, an hour and a half, that seems like a long time, but, actually, because it's broken down into different sections and you need that space within that time to discuss things, to watch a video or whatever, it's just the right amount*." (Vivian, 42)

8.3.2.1.9. Questionnaire completion. Some questionnaires were more acceptable to participants than others. Young people voiced a preference for the tick-box style questions such as those found on the F&V questionnaire and SWEMWBS. The Y-PAQ was seen as more complex requiring extra time and cognitive effort to complete it. Some young people highlighted that the lack of a weekly PA routine made it harder to recall events of the past week, "*the sport ones were a little bit difficult to do, because every single week varies for me, and it's never the same*" (Braylee, 14). Parents were more accepting of the questionnaires:

> "*I don't have anything to say, really. I thought they were easy to understand. Easy to follow. … I think it only took about 10 to 15 minutes to complete, from memory. They're not too long, which is fine.*" (Olivia, 43)

On the whole participants felt the questionnaires captured an accurate picture of their F&V intake, PA, and wellbeing. However, it was pointed out that the SALS questionnaire completed by parents was restrictive in the activities presented with no option for naming other activities which had been done e.g., swimming. Additionally, a couple of participants felt that the response options for the SWEMWBS is open to personal interpretation and answers are influenced by how you are feeling on the day. Some participants found completing the questionnaires helpful to reflect on their behaviour, progress, or changes they had made during the programme, and the Y-PAQ provided ideas of different ways to be active.

The feedback form was the least acceptable to young people, indicated by the completion rate and interview data. All participants completed the multiple-choice questions on the feedback form, though not all young people responded to every open-ended question. Young people found this form somewhat tricky to complete due to not knowing what to write, "*I struggled on that, and I found it a bit difficult. I didn't know what to write, and I got a bit stuck*" (Peter, 13). It was suggested that using tick-box questions or providing reminders of what had been done during the programme would help prompt recall. With the exceptions noted above, overall, the questionnaires were viewed by the

majority as understandable, easy to complete, and did not take too long.

8.3.2.1.10. Retention. While most participants said they never considered leaving the programme, some young people admitted to considering this at some point though ultimately did not. Reasons included missing lessons, evaluation paperwork in the first session, repetitive food topics, anxiety, and following a particularly noisy session. Overall, participants praised the programme, "*I completely saw the absolute fantastic value that young people have gained from this, and not just, and parents too, and I've learned lots of things*" (Mirabel, 46). Participants appeared to particularly like the group format, with young people expressing that it gave them opportunity to meet new people, make new friends, and talk to different people in their year or other years. The group format also meant that participants were able to share their ideas, and hear other people's ideas, opinions, and perspectives on topics, and learn helpful tips, all of which they appeared to value:

> *"It's good to hear if other people are doing what you do, because quite often, as a parent, you think, oh, I'm probably not doing this right, I don't know what I'm doing. Everyone's winging it. And just to hear that other people are in the same boat as well, is quite nice, because you feel less alone."* (Tamara, 45)

8.3.2.2. Practicability

Busy schedules of parents meant the online format worked well for parents and allowed them to attend the programme. They also felt that meeting online made it easier to attend the programme and gave them flexibility to tend to their children during the sessions if required:

> *"I preferred that, to be honest. Just because life is busy, and my husband is often working late, and so I had to be able to put my children to bed halfway through the programme. And just - that just gave me a bit of flexibility.*" (Vivian, 42)

Young people were mixed about the programme taking place during school lessons. Some were okay with missing lessons either because they didn't like the subject, were common lessons they

have timetabled a lot, or would not be taking that subject for GCSE. For others, missing lessons meant that they fell behind with learning, had to do more independent study in their own time to catch up, and had to make-up tests another day, "*I went back to my science lesson and I really struggled, because they'd learnt a load of new equations that I hadn't learn[t]. … And then I had to put extra effort in my own time*" (Braylee, 14). One parent also had concerns about their children missing core subjects. However, on the whole, young people felt the timing was preferable to lunchtime, after school, or in the holidays due to other commitments at those times:

> "*I think a lot of people wouldn't have come, because people just have a lot of clubs and stuff that they have to get to. I probably wouldn't have been able to come if I had have - if it would have been after school, because I've got something every day pretty much after school.*" (Jennifer, 13)

8.3.2.3. Effectiveness

The positive perceptions about the impact on antecedents of behaviour change (e.g., knowledge), behaviours, and wellbeing targeted through the programme are considered as tentative indicators of effectiveness. Some young people stated the programme did not have much of an effect on them, "*everything's pretty much stayed the same*" (Rex, 12), as did one parent. However, when asked about behavioural changes they all reported at least one change such as an increase in F&V, swapping high-sugar foods for fruit, improved sleep, feeling happier, or an increase in knowledge or confidence.

8.3.2.3.1. Eating behaviours. Young people reported a plethora of positive eating behaviour changes following the programme including food swaps, reductions in sugar intake, sweet food consumption, snacking and fizzy drinks, and reducing serving sizes to align with correct portion sizes, "*I used to have lunch bars, and they had 16 grammes of sugar in them. … And I just don't eat them anymore*" (Braylee, 14). Additionally, young people reported measuring portions, purchasing fewer snacks, and using the traffic light system on packaging to make decisions:

"*I've started looking at the traffic light system on my foods, and eat more vegetables and stuff. … I started using that - on one of the handouts, like the [hand] method, for your food portions as well.*" (Peter, 13)

Young people also reported being more open to trying new foods. For some, this was due to a shift in knowledge and confidence in capability, while for others the programme made them more open-minded:

"*I was like, you know what? I'm just going to eat veg now, even if I like it or not, I don't. If I don't like it, I don't like it, and I can just leave it, and if I like it, I like it and all that. So I guess I've definitely been trying a lot more veg.*" (Miriam, 13)

This is corroborated by parental interview data, for young people whose parents were on the programme, who reported their children now eat a wider range of foods:

"*The girls' eating has improved since the course. For instance, they wouldn't eat Chinese food; they now eat that. They wouldn't eat scrambled egg, so we now eat that and they're eating curry. … and we're going to go to Chinatown for the half-term, which we could never have done before. They want to go and try different foods and things like that, so I think it's opened their minds.*" (Olivia, 43)

Along these lines, parents spoke more about their children's changes than they did their own, though positive food swaps were mentioned.

8.3.2.3.2. Physical activity. Young people reported being more physically active following the programme. Examples included more active participation in P.E. classes, doing swimming club at lunch times, running, walking, and going to the gym, "*in PE, running a bit more, and not stopping to walk, like, challenging myself a bit more*" (Isabella, 12). Some young people reported increasing their activity levels with others, such as friends and family, with the latter supported by parent reports. Some young

people experienced a shift in their attitude towards PA, with reports from both them and parents that they are more aware of its importance, with some now enjoying being active:

> "*I think I've been doing it - been more encouraged to do it from the programme, because I think when I was doing it, I didn't really want to do PE with Joe Wicks, but now I do want to do it a bit more. Yeah, and PE is actually more fun sometimes*." (George, 13)

Parents also reported being more active through structured exercise or incorporating more activity into daily life such as parking further away.

8.3.2.3.3. Wellbeing. Wellbeing benefits for young people were related to emotions such as being able to manage anger, feeling calmer, or feeling happier and more positive, in addition to cognitive changes such as challenging negative thoughts, thinking fewer negative things, and worrying less:

> "*I'm not, it's not in my head so much anymore. If I even begin to think that, I'm just like, no, I'm not going to think about that stuff, because it's probably not going to happen.*" (Tilly, 12)

Further, some perceived benefits were linked to attitudes and beliefs, "*I've been thinking a quite a lot more positively about myself recently, which is good. Yeah, I think I can actually do things*" (Monica, 14). Finally, some young people referenced impact from using the breathing techniques, "*They [breathing techniques] definitely have had a massive impact on me, because I believe I calmed myself down in situations where I'm having a bad time*" (Rex, 12). Parents also reported wellbeing benefits for their children, "*and I would say that they do seem calmer and happier, than they did before they did the course*" (Olivia, 43), and increases in confidence for themselves.

8.3.2.3.4. Sleep. Many young people spoke about improvements to their sleeping patterns with common changes to length of nighttime sleep and going to bed earlier in the evenings. As a result,

young people reported feeling less tired, refreshed, having energy for the day, and finding it easier to wake up and get out of bed in the mornings, "*it's more easy to wake up, because usually I struggle to wake up at my alarms. Now, I just wake up straightaway*" (Peter, 13). Some young people noted changes to sleep hygiene behaviours such as not using their phone before bed, turning their phone off at bedtime, and using night mode before bed to reduce the blue light. Further, one young person reported reading before bed instead of using their phone.

8.3.2.3.5. Knowledge. Young people reported an increase in knowledge following the programme, which has contributed to health-related decision making, "*I'm much more mindful about what I might buy from the shop … it's helped in deciding what I might eat*" (Jennifer, 13). However, for some young people it has not yet manifested in change but has spurred intentions to change behaviour, "*and I thought, maybe I can just go, to start going to the gym, so I'm going to start doing that*" (Miriam, 13). Young people elaborated how new knowledge has increased their awareness of particular topics which are now more important to them, "*and being a bit more aware of [healthy eating], and not being like, oh, it doesn't matter. And being a bit more, yes, it does matter, let's focus on it a bit more*" (Rex, 12). This appears to have manifested as an increase in thinking more about these topics. Parents similarly expressed feeling that their children are now more aware of how to look after themselves, have more knowledge, and are conscious of the topics covered:

> "*Now I think they realise the impact of a healthy diet and nutrition, and they realise why I say - apart from Saturdays when they're allowed two [desserts], one at lunch and one in the evening - why those rules are there.*" (Olivia, 43)

Parents also reported improvements in their knowledge and awareness, both as they relate to themselves, but also as they relate to their children:

> "*Oh, the exercising, I think it was an hour a day and I wasn't aware of that. I thought it was half an hour a day, or something like that. That was something I wasn't aware of, and that was interesting because I thought, oh, we weren't doing too badly for*

that. We'd walk into school and a bit of PE here and there, and then I'm thinking, actually, we need to fit more exercise in. So that's made me think about that." (Tamara, 45)

8.3.2.3.6. Relationships. Young people mentioned that they have improved and/or easier relationships with friends, family, and other important people in their lives since the programme. They stated that the programme itself allowed them to meet new people and make new friends, "*then I became friends with them because we'd always spend a lot of time with each other, which is one thing I liked about the course because I got to know them better*" (Maddy, 13). Young people reported being more open to discuss issues with parents. Improved relationships appear to be due to the use of empathy, showing gratitude, feeling more comfortable talking around people, socialising more, and apologising to resolve problems:

"*I think my relationships are more healthy recently, because I've been apologising, like, actually, apologising, and not just apologising for the sake of apologising … And actually fixing what I've done wrong.*" (Monica, 14)

8.3.2.3.7. Impact of parental involvement on family life. Generally, young people and parents believed it beneficial that parents were involved. From young people's perspectives the level of perceived involvement from parents seemed to vary across families, from talking about sessions to providing them with foods they discovered a liking for during the programme in addition to serving up more F&V and active involvement in preparing meals:

"*They were really good, because when we were making dinner, my mum was always asking me, 'oh, is that the right portion size, have I got enough meat? Have I got enough rice?' So they were engaging me in what I'd already learned, to do it, to actually do it*." (Wilbur, 11)

Most young people and parents reported having conversations about the programme or topics, with agreement that these were initiated by both parties. Parents spoke about these conversations leading to gaining insights on perspectives of family life, and discovery of new facts about their children:

> "*So we talked about being more active, and she said, maybe doing hockey, and I said, 'oh, I didn't even know you liked hockey.' So that was something that came out of it, because I know she's not, she doesn't like games or anything. She said, 'oh, I don't mind hockey,' and that really surprised me*." (Tamara, 45)

Parents also spoke about how the course has had an impact on family life. For example, parents spoke about their children being more polite, open-minded, co-operative, understanding of boundaries, and reciprocating kind gestures.

8.3.2.4. Affordability

No participants provided information that could be coded for this criterion. However, the programme was delivered in group format which has cost implications in comparison to one-to-one delivery.

8.3.2.5. Spill-over effects

A couple of unintentional effects of the programme were noted by young people. Firstly, one young person mentioned feeling bad that they were not more active when faced with the long list of physical activities on the Y-PAQ. However, they reported it being okay to complete the questionnaire. Another young person reported feeling anxious during the taste testing and hinted at feeling judged:

> "*I get really anxious when it comes to stuff like that. I think a lot, and then my breathing gets heavy, so I'm more like that kind of person. If they're doing it and I'm not doing it, what are they going to think of me?*" (Miriam, 13)

However, they went on to acknowledge the benefits of this activity, "*I was like, maybe it's actually pretty cool and I can try new food that I haven't tried before, and then go home and be like, to my sisters, I tried new food*" (Miriam, 13). Therefore, it appears they were able to manage their anxiety and take part in the taste testing, possibly due to lack of pressure from facilitators to do so. The problems encountered with young people missing lessons should also be considered a spill-over effect as they reported missing out on acquiring subject matter taught during lessons.

There were also unintentional benefits of the programme. One parent reported that their children are taking part in new activities, though this was provided on the feedback form and not expanded upon further so little else can be gleaned from this. Another parent indicated that the PA of their younger child who was not on the programme had increased. Further, one young person whose parent was not on the programme appeared to take an active role in supporting their child. The young person reported their parent asking how every session had gone and reading their child's handouts.

8.3.2.6. Equity

Participants reflected that the sessions included everyone with no-one left out. Participants explained that everyone had an opportunity to speak and contribute if they wanted to. Young people also mentioned that everyone was able to add their ideas to written activities and the setup of the room, with everybody sitting in a circle, made everyone feel included:

> "*I think that sitting in circle helps, because everyone can see everyone, and also that [the deliverers] weren't apart. Like in a classroom, the teacher would have their own desk and then everyone would sit on their own little tables, and I think being integrated into the circle helped*." (Wilbur, 11)

Parents highlighted that the evening online programme was inclusive for anyone who could not attend in person or during the day.

8.3.3. Feedback form usefulness

Responses from the feedback forms were compared to those obtained from the interviews. Whilst there were variations in individual forms, generally, responses were representative of interview data. Overall, more detailed information was elicited through the interview. For example, on the feedback form many participants reported eating healthier due to the programme, though most did not provide specifics of the changes they had made which came out during interviews. However, whilst depth was obtained through interviews, the feedback forms appeared to elicit more breadth. There were multiple instances where participants wrote feedback on the form that they did not mention during the interview. Responses also indicate that some questions on the feedback form may have been misunderstood by some participants. For example, when asked what they would change about the programme, some participants appear to have responded with what they would change about their personal health behaviours. Further, parents, when asked how helpful the programme was in helping them support their children, responded with effects the programme has had on their child.

8.3.4. Quantitative data

8.3.4.1. Young people's and parent's feedback forms

Three questions on the feedback form elicited quantitative data in relation to timescales and whether they would recommend the programme. Table 8.2. illustrates that most participants felt the session length and programme duration were about right. For those who felt the programme length was not right, the majority, felt it was on the shorter side rather than too long. Most participants, 87% (20 out of 23), would either probably or definitely recommend the programme to a friend. Three young people responded that maybe they would recommend it and no participant indicated they would not.

Table 8.2.

Results from quantitative questions on feedback forms for all participants

Question	Response option	Young people, % (n/18)	Parents, % (n/5)	Total, % (n/23)
"The length of the sessions [1 hour 30 mins] was"	*Way too short*	0% (0)	0% (0)	0% (0)
	A bit short	11% (2)	0% (0)	9% (2)
	About right	78% (14)	40% (2)	69% (16)
	A bit long	11% (2)	60% (3)	22% (5)
	Way too long	0% (0)	0% (0)	0% (0)
"The length of the programme [8 weeks] was"	*Way too short*	6% (1)	0% (0)	4% (1)
	A bit short	38% (7)	0% (0)	30% (7)
	About right	50% (9)	80% (4)	57% (13)
	A bit long	6% (1)	20% (1)	9% (2)
	Way too long	0% (0)	0% (0)	0% (0)
"I would recommend the programme to a friend"	*Not at all*	0% (0)	0% (0)	0% (0)
	Maybe	17% (3)	0% (0)	13% (3)
	Probably	50% (9)	40% (2)	48% (11)
	Definitely	33% (6)	60% (3)	39% (9)

8.3.4.2. Young people's pre/post questionnaires

A within group statistical analysis revealed no significance change in mean F&V consumption, PA participation and mental wellbeing (Table 8.3.). Calculations of Cohen's *d* showed a small to medium effect size for F&V consumption. Before the programme, 44% (eight out of 18) young people met recommendations by consuming at least five portions of F&V per day, with 44% (*n* = 8) classified as having a moderately low intake of 1-4 portions, and 12% (*n* = 2) as very low intake of less than one. After the programme, 13 (72%) met recommendations and five (28%) did not, of which four were classified as moderately low intake and one as very low intake. An exact McNemar's test showed the proportion of those meeting the recommendations increased from 44% to 72%, a statistically non-significant change (p = .125). The proportion of young people meeting the MVPA guideline of 420

minutes per week was the same before and after the programme (72 %, *n* = 13). Removal of the outlier had no impact on the analysis of mental wellbeing.

Table 8.3.

Pre/post fruit and vegetable intake, physical activity, and mental wellbeing scores for young people

Measure (variable)	Pre mean (SD)	Post mean (SD)	Mean change (SD)	Statistical result [99% CIs]*	Effect size**
Fruit intake (portions/day)	2.1 (1.41)	2.8 (1.40)	.67 (1.46)	M = 0.67 portions, [-.33, 1.66], *t*(17) = 1.94, *p* = .07	.46
Vegetable intake (portions/day)	1.9 (1.49)	2.6 (1.50)	.72 (1.49)	M = 0.72 portions, [-.29, 1.74], *t*(17) = 2.06, *p* = .06	.49
Total F&V intake (portions/day)	4.0 (2.61)	5.4 (2.59)	1.39 (2.70)	M = 1.39 portions, [-.46, 3.24], *t*(17) = 2.18, *p* = .04	.51
Y-PAQ (mins MVPA/week)	694.78 (432.25)	726.67 (513.97)	31.89 (297.75)	M = 31.89 mins, [-171.51, 235.29], *t*(17) = .45, *p* = .66	.11
SWEMWBS (wellbeing score)	21.88 (4.77)	21.80 (4.52)	-.07 (3.69)	M = -.07 points, [-2.60, 2.45], *t*(17) = -.08, *p* = .93	-.02

Note. Post measures taken at end of eight week programme.

**p* level set at .01

**Cohens *d* effect size where 0.2 = small, 0.5 = medium, 0.8 = large

8.3.4.3. Parent's pre/post questionnaires

Mean fruit intake remained consistent between pre and post, yet mean vegetable and total F&V increased, as seen in Table 8.4. Both before and after the programme, 60% of parents met F&V recommendations to eat at least five portions per day with 40% in the category of moderately low intake for consuming 1-4 portions. Mean minutes of MVPA per week decreased between pre and post. In terms of MVPA guidelines of 150 minutes per week, 40% of parents met them before the programme, and 60% afterwards. Those parents who did not meet the guidelines were categorised as

fairly active for completing between 30-149 minutes of MVPA per week. Mean wellbeing score as measured with the SWEMWBS decreased marginally between pre and post.

Table 8.4.

Pre/post fruit and vegetable intake, physical activity, and mental wellbeing scores for parents

Measure (variable)	Pre mean (SD)	Post mean (SD)	Mean change (SD)
Fruit intake (portions/day)	2.4 (.55)	2.4 (.55)	0 (.71)
Vegetable intake (portions/day)	2.2 (.84)	2.6 (.55)	.40 (.55)
Total F&V intake (portions/day)	4.6 (.55)	5.0 (1.00)	.40 (.55)
SALS (mins MVPA/week)	287 (353.55)	168 (97.57)	-119 (333.06)
SWEMWBS (mental wellbeing score)	21.81 (3.78)	21.06 (2.70)	-.75 (2.33)

8.4. Discussion

This formative evaluation aimed to assess the feasibility of the newly developed HENRY behaviour change programme, Zest for Life!, using the APEASE criteria. Data was gathered through various methods including interviews, feedback forms, and outcome measures. In general, parental results of this evaluation concur with those of other HENRY programmes. Similarity in findings on the use of a strength-based, solution-focused approach as seen with the HFRFTS programme (Bridge et al., 2019) speaks to the value of these methods. This study also provides new data on the use of the HENRY approach with a different population, which as this is HENRY's first foray into adolescent populations, is vital to considering the feasibility of expanding into the teen market. This evaluation found that HENRY elements e.g., dividers, attention attractors, and activity breaks, were well received by young people and facilitation techniques to include all participants in sessions were viewed positively by all. HENRY staff are specifically trained in the HENRY approach and this evaluation has found it worked well with young people, a participant group new to HENRY.

Further, the Zest for Life! programme included topics previously not included in programmes for parents of younger children, specifically, development of the adolescent brain. Parents were

particularly responsive to this topic, reporting it is as both helpful and important. Collectively, this provides initial evidence of the feasibility for HENRY to work with both adolescents and parents of this age range. This is the first time HENRY have delivered simultaneously to parents and their children. The inclusion of parents was decided following consultations with young people, practitioners, and commissioners (Chapters 4-6) which indicated this approach would be more effective than targeting young people alone. Whether parental inclusion offered any benefits above and beyond only the young person sessions was not explored in this evaluation. However, given the increased resources and costs required to deliver to both groups, this should be considered important for future research.

8.4.1. Acceptability

Many aspects of the programme were acceptable to participants but could be enhanced through further development. For example, it was felt by some that nutrition was covered too much and there were expressions of interest for more coverage of wellbeing. It is not surprising that wellbeing is of importance to young people and their parents given the programme was delivered shortly after the Covid-19 pandemic. The exacerbated mental health difficulties of young people during the pandemic have been well documented in the media (e.g., Campbell, 2021) and studied empirically (e.g., Vizard et al., 2020). Additionally, young people's wellbeing may be continually affected due to reported difficulties with catching up academically following missed schooling during the pandemic (Centre for Longitudinal Studies, 2022). This too may have contributed to reported difficulties with young people missing lessons to attend sessions.

Assessing acceptability of the questionnaires was important to determine their use in future programme delivery. The high completion rate of the pre/post measures could be due to measures being completed within sessions or at the point of sign-up and shows this to be a feasible method of data collection. However, this was off putting to some young people so tapping into mediums such as digital technology preferred by this group for questionnaire completion (Rajmil et al., 2015) may improve acceptability. Difficulties completing the Y-PAQ experienced by young people in this study cannot be confirmed with existing literature, with some researchers suggesting the detail and

structure of the questionnaire are responsible for its reliability (Corder et al., 2009). Despite this, difficulties were evident and the Y-PAQ was not wholly acceptable to young people. Therefore, consideration should be given to use of an alternative measure. The SALS was acceptable to parents and use with young people would provide consistency in measures between participant groups in future delivery, though it would first need to be validated for under 16-year-olds.

Parent's sessions were delivered in the evening which worked well for parents in this study and others (Lotto et al., 2022). However, evenings were considered a busy time with childcare duties resulting in most parents labelling 90-minute sessions too long. Positively most young people were accepting of the session's duration despite missing one and a half lessons which caused challenges for some. The duration of the programme was acceptable, consistent with other programmes of the same length (Lotto et al., 2022). Overall acceptability was high as shown by most participants stating they would recommend the programme to a friend. Further, drop-out rates were low overall with 89% completing the programme. Retention of parents to Zest for Life!, 75%, was lower than other HENRY programmes (e.g., 87% reported in Willis et al., 2014) though it should be noted that the small sample size in this study amplified the drop-out percentage.

8.4.2. Practicability

The evaluation found that the programme can be delivered in the settings selected and in the specified formats. Participants did not report problems with accessing the sessions, with parents reporting the online format making it easy to attend and young people feeling similarly about the school location. However, problems with missing lessons were reported by participants and these are considered within 'Equity' below.

8.4.3. Effectiveness

The fact that the programme benefited family life was not wholly surprising given the content of the parent sessions. While they did not specifically address family functioning, they did cover a range of techniques that are intended to reduce conflict and create a more harmonious home environment. These techniques are already used to good effect in HENRY programmes for parents of

younger children (Bridge et al., 2019) and this evaluation suggests they are likewise beneficial to parents of older children too. Though not the focus of the programme, this evaluation also found the programme to impact parent's outcomes, as with other HENRY programmes. For example, increased F&V consumption and PA (Bridge et al., 2019; Willis et al., 2014).

The qualitative analysis showed participants reported changes in PA, HE, and wellbeing, though this was not supported by the quantitative data. This is not unprecedented (e.g., Bryson et al., 2013; Corr et al., 2020) and can be understood when considering the following. Firstly, whilst acceptable to participants, the F&V measure was limited in its scope and provided a narrow picture of eating behaviours. Secondly, difficulties with completing the Y-PAQ may have provided inaccurate MVPA data. Finally, the programme provided a holistic explanation of wellbeing, encompassing both physical and mental health, incongruous with what is assessed through the SWEMWBS. Therefore, when asked about changes to wellbeing during interviews young people may have been thinking more widely than what is contained on the SWEMWBS. Similarly, better understanding of PA and HE behaviours after the programme may have affected responses on post measures.

The statistical results presented in this evaluation should not be considered as evidentiary. These analyses were exploratory in nature and potential effectiveness can only be formally considered through a randomised controlled trial. At a group level, statistical analysis revealed no change for young people's F&V intake, MVPA, and wellbeing. The small to medium effect sizes for F&V intake indicate that a well powered study may produce a beneficial effect and may be useful in informing sample size calculations for future effectiveness studies. Future studies should also consider use of a different eating behaviour measure. An alternative broader measure, encompassing multiple aspects of HE, could provide a wider picture of changes to behaviours, similar to those discovered through interviews, only in a measurable, quantifiable manner. This may mitigate the need for interviews, reducing burden on participants and resources to conduct them.

8.4.4. Affordability

Participants were not placed to make comments on the affordability of the programme as it was free for them to take part. However, parents needed an electronic device with internet connection to which all households may not have free access. This may impact future recruitment of parents, which was not covered in this evaluation. The acceptable group format has ramifications for future delivery costs. Groups, rather than one-to-ones, require fewer hours of facilitator time to reach the same number of people, preferred by commissioners In Chapter 6 for this reason. Similarly, online parent sessions incur less travel costs and time from facilitators meaning they can maximise their working hours and keep expenses minimal. Additionally, acceptability and feasibility to deliver within schools reduces delivery costs that would be higher in a community setting which may involve rental fees. Further investigation is required to assess the specific costs required for HENRY to deliver the programme, including in community settings, which would shed light on affordability from HENRY's and commissioner's perspectives.

8.4.5. Spill-over effects

Given the expected wide range of potential outcomes considered within 'Effectiveness', there are not many spill-over effects to explore. The positive spill-over effects showed that parents applied programme knowledge to younger children not partaking of the programme. This was not explicitly encouraged though further development of the programme could seek to do so, enhancing benefits for all family members. It is encouraging that negative spill-over effects were few. Further, the fact that young people experiencing anxiety were still able to engage with the sessions speaks to the sensitive manner with which topics were addressed and the skills of the deliverers to provide appropriate support during sessions. This indicates that comprehensive training for practitioners is required to make sure all future participants who undertake the programme receive sufficient support to engage with the programme despite potential barriers such as anxiety. This would be consistent with NICE guidance (National Institute for Health and Care Excellence, 2007, 2014) and could include competencies to deliver behaviour change interventions as per Dixon and Johnston (2010). One area

that warrants further investigation is the impact of young people missing lessons to attend the programme, which led to one young person dropping out of the programme and concern raised by others and parents, further explored below.

8.4.6. Equity

For those struggling with academic attainment missing lessons could potentially drive inequalities in education. Therefore, further research into optimal delivery of the programme through consultation with a range of stakeholders including young people, parents, and schools, is warranted. Further, being delivered in schools may disadvantage young people who do not regularly attend school and exclusive delivery in this setting has the potential to drive health inequalities as those who could most benefit, may be unable to access it. Positively, online, evening delivery of the programme was considered equitable for parents, though consideration should be given as to accommodating those who work a shift pattern. Further, online parent sessions may bias those with higher digital literacy or better access to the internet.

8.4.7. Feedback form usefulness

The feedback form has potential to be a standalone method for obtaining programme feedback though alterations are encouraged. The representativeness of feedback comments to interview data suggest interviews are not necessary to understand participants experiences. However, amendments to phrasing of the qualitative questions is warranted to encourage comprehensive responses and higher completion rates. Obtaining more comprehensive programme feedback through this form would remove the need for interviews which, whilst they uniquely provide space for exploration and reflection, are resource intensive. Additionally, a purely feedback form approach would fit with HENRY's current model for obtaining post-programme feedback making it easier to integrate within the workforce and systems currently in place. Further, the response options on quantitative questions i.e., would you recommend the programme to a friend, were skewed towards the positive and future use of the form should better balance response options. Developments to the

feedback form should be followed by further feasibility testing before being deemed useable as a sole means of gathering programme feedback.

8.4.8. Recommendations for programme development

Recommendations are summarised in Box 8.1. covering areas that need refinement or further development to enhance the programme. It should be noted that while participants were keen for additional mental health topics, their inclusion should be considered in relation to skills of the facilitators who are unlikely to be mental health practitioners. Providing training for facilitators to develop specific skills in using BCTs and delivering a behaviour change programme such as Zest for Life! (e.g., Dixon & Johnston, 2010) in line with NICE guidance (2007, 2014) remains an area of priority for development alongside programme alterations.

Box 8.1.

Recommendations for future programme development based on evaluation findings

- Expand the programme's name and by-line to ensure it is reflective of content and/or desired outcomes.
- Cover wellbeing topics in more depth, including anxiety and sleep.
- Include additional wellbeing topics, such as psychoeducation on mental health conditions, the management of emotions such as anger, and stress management.
- Discern effective methods for facilitating group discussions to ensure participants benefit from them and are encouraged to participate.
- Use PowerPoint slides more frequently to act as a reference point during conversations or to display definitions of terms.
- Provide ideas and guidance to support participants to create next steps at the end of each session and allow sufficient time for this.
- Use a range of attention attractors to accommodate individual preferences for different sounds.
- Reduce the size of the journals or provide a digital copy, as appropriate.
- Add trusted sources of information on the topics covered in the programme to the journal, and signpost to sources of support, particularly for mental health issues.

- Line up delivery of the young person and parent sessions so that each session is delivered to both groups in the same week.
- Use an alternative PA measure for young people, one that is considered briefer and simpler by young people.
- Use a broader measure of HE to encompass a range of HE behaviours beyond F&V intake.
- Use digital questionnaires for young people to sway perspectives on completing 'paperwork' and make the process more interactive.
- Improve responses on the feedback form to ensure comprehensive replies are elicited. This may involve rephrasing open-ended questions, a reduction in open-ended questions, increased use of tick-box style questions, and/or providing prompts and examples to assist recall of the programme and sessions.
- Trial delivery in alternative locations for young person sessions to ensure accessibility for all and to minimise potential impact on educational inequalities.
- Ensure parent sessions are equitable for those who work evenings or shift patterns.
- Encourage parents to actively support their children throughout the programme.

8.4.9. Strengths and limitations

Some elements of APEASE are lacking given this evaluation obtained input from only recipients of the programme. Thus, participants were unable to comment on the affordability and cost-effectiveness of the programme. HENRY managers and deliverers are better suited to commenting on this in addition to whether the programme can be delivered in the ways intended. Additionally, some criteria require agreement from multiple stakeholders for feasibility, such as agreement on acceptability from users, deliverers, and commissioners. Therefore, further feasibility testing gaining the views of other stakeholders is an important next step in the development of the Zest for Life! programme.

However, whilst limited to one stakeholder group, a strength of the evaluation is the high proportion of programme participants that are represented. As most participants, 96%, took part in an interview, a wide range of participant voices and opinions have been heard. This is most useful where opinions were mixed such as with the name of the programme or missing lessons and a smaller

representation may not have picked up on the nuances of such views. The speed with which the interviews occurred following the end of the programme means the sessions were fresh in the minds of interview participants, potentially allowing for more comprehensive feedback.

Whilst participants were not asked to disclose characteristics such as learning difficulties, disabilities, or mental health conditions, some participants chose to share this information with the facilitators. The evaluation did not seek feedback in relation to these characteristics, which remains an area for further investigation. Positively though, participants who made a disclosure did not withdraw from the programme suggesting they found it accessible and suitable. Demographics showed a lack of ethnic diversity within the participants meaning that the evaluation cannot speak to the cultural competence of the programme. Additionally, the socioeconomic status (SES) of participants in this evaluation is unknown, though the school where the programme was delivered sits in a postcode where the majority of households are not considered deprived (Office for National Statistics, 2023). Thus, the acceptability of the programme to those from more deprived backgrounds is unknown.

8.4.10. Implications

Developing the programme with young people, practitioner, and commissioner input has resulted in an acceptable, practicable, and beneficial programme. Many instances could be cited where application of advice from young people, practitioners, and commissioners (Chapters 4-6), have been highlighted in this study as enjoyable, important, or beneficial. For example, the recommendation to use interactive practical activities, such as the sugar one, were particularly liked by young people on the programme and contributed to their enjoyment and engagement. Therefore, the importance of developing future programmes in such a manner cannot be overstated and should be considered best practice.

Whilst this makes the programme robust, supported by the APEASE evaluation, further trialling of the programme is required with deliverers who did not develop the programme. This is firstly so that their unbiased input can be sought for evaluation, but also to test how well the

programme can be delivered by people outside the programme development team. This fits with the HENRY model that trains other professionals to deliver programmes, and further feasibility testing should also assess the suitability of training received by facilitators. Fidelity will also need to be assessed to ensure the programme is delivered per the manuals which contain evidence-informed BCTs considered key to driving behavioural change. Additionally, the Zest for Life! programme has thus far been developed with input from limited SES groups. Future programme development through consultation with those from more deprived areas is a priority. Doing so, alongside feedback from this evaluation, will ensure the programme is suitable for the needs of those from all backgrounds and can thus have a beneficial impact on all recipients.

The APEASE criteria provided a methodological framework with which to systematically and deductively analyse and report data. It provided an overview of the considerations of feasibility which aligns with those put forward in guidance on the development and evaluation of complex interventions (Skivington et al., 2021). It is possible that use of a different evaluation framework would have resulted in differences in the findings, as would an inductive approach to qualitative analysis. The lack of formal guidance on using APEASE as an evaluation tool presented challenges. Firstly, in coding the data, there was often overlap in the criteria and subjective judgements had to be made about which criterion better fitted the response. For example, many of the quotes around missing lessons could fit all three of acceptability, practicability, and spill-over effects.

Secondly, lack of guidance meant it was unclear how to differentiate programme outcomes between effectiveness and spill-over effects. To illustrate, the Zest for Life! programme addressed multiple aspects of health including HE, PA, wellbeing, sleep, anxiety management, friendships, and positive emotions. Therefore, changes in all these areas would be expected. However, only the first three were assessed through outcome measures and it is unclear whether the rest should be considered under effectiveness or as spill-over effects given there was no formal measurement of each. This research adopted to allocate all anticipated effects into effectiveness, meaning there were few recorded spill-over effects. Lack of clarity between criterion is further exacerbated when

considered in light of the Theoretical Framework of Acceptability (TFA; Sekhon et al., 2017) which includes elements of affordability i.e., 'burden', and effectiveness i.e., 'perceived effectiveness' as part of a conceptualisation of acceptability as a construct.

Finally, there are at least two layers to evaluations, the distinction being between the levels at which the assessment is made. The first level is the service level, the second being the individual/sessional level. Some aspects of interventions can be evaluated at both levels, for example, affordability can be considered at an individual level in terms of costs to individuals attending the programme, and also at a service level in terms of resources available to the organisation in order to deliver it. In lieu of guidance to the contrary, and given the available participants, this evaluation has fallen on the sessional/individual level.

Overall, the APEASE criteria shows promise as an evaluation tool though further development and guidance will enhance its usability. Developers should be aware of these challenges in using APEASE as an evaluation tool and further development could be undertaken by researchers. For example, the framework could be developed to provide more detailed definitions of each criterion, perhaps in line with Sekhon et al.'s (2017) work on defining and conceptualising 'acceptability' through the TFA, and how to apply them in evaluations. Further, the distinction between the two levels of evaluation, and the importance of each, could be incorporated into guidance as a first step to encourage evaluations at both levels.

8.4.11. Reflections of a qualitative researcher

This the first time I have performed a deductive qualitative analysis. The creation of a coding guide was certainly helpful but could not overcome all the challenges of using APEASE as an evaluation tool. Despite the challenges, using the tool in this way was a novel approach, and it was nice to have consistency between phases of the research with it having been used to develop the programme also. In this aspect, it was interesting to see how APEASE ratings made for intervention types and BCTs as part of programme development were viewed by participants. As an example, 'education' met APEASE criteria and was included in the programme and this was highly acceptable to participants. Further,

the BCT 'adding objects to the environment' (12.5) was used to provide young people with healthy food in sessions and this was a highly valued aspect of the programme. Use of a different evaluation framework may not have allowed for such direct insights.

In terms of conducting the interviews, it should be noted that there was no specific question on the schedule that asked about the programme's impact. However, this was offered organically by participants and over time I started to specifically ask about it. This is accommodated for through the nature of semi-structured interview schedules which provides a guide but also allows for exploration of anything participants bring up. I was also aware that I adjusted some of the phrasing, for example, instead of "*What topics weren't in the programme that you would like to be included?"* I sometimes asked, '*What didn't we talk about that you would have liked to?*' These sorts of changes were made on the fly to sound conversational rather than rigid question asking, to maintain the flow, to mirror phrasing used by participants, and to tailor to individual's needs based on my experience of conversing with them. This reflects my skills as a researcher and, in my opinion, enhanced participants experience of being interviewed and elicited more meaningful information.

8.4.12. Conclusions

Through an APEASE analysis this formative evaluation has found initial evidence for the feasibility of the HENRY Zest for Life! behaviour change programme for young people. Many elements of the programme were acceptable to participants which can be improved through small amendments. Further consideration should be given to the delivery location of the young person and parent sessions to ensure accessibility and equity for all. The qualitative data found the programme to be beneficial at individual level. Formal effectiveness testing is required to fully assess the impact on participants and at this point consideration should be given to the outcome measures used, especially the Y-PAQ and the F&V measure. Encouragingly, negative spill-over effects were minimal, and the programme appeared to benefit family life in unanticipated ways. Overall, this formative evaluation has found the HENRY approach acceptable and feasible to use with young people.

8.5. Reflections of an embedded researcher

Given the small scale of the PhD and the resources available to HENRY, it was not possible to separate the authors of the programme from the delivery of it. In some ways this was beneficial as we were able to spontaneously adapt delivery, using knowledge of the essence of the session, which parts were key, and which parts had flexibility. This proved useful when anticipated timings had proved erroneous, and some sections needed to be shortened to cover all the material. Delivery could also not be separated from evaluation given the research was carried out for my PhD, therefore I also conducted the feedback interviews with participants. This level of involvement in all aspects of the programme made the evaluation more complex and subject to potential bias. For example, having both delivered the programme and conducted the interviews, I was aware of events to which young people referred, and so I perhaps did not ask follow-up questions to seek clarification or explicit explanation for the transcript. To illustrate, one young person referred to a session where everyone went 'cuckoo', during which young people became very chatty, group dynamics became challenging, and the room became unusually loud. An interviewer who had not delivered the programme may have asked follow-up questions around this, while I did not as it was clear to me the context in which the young person was mentioning this, and I had seen the impact first-hand. Therefore, it is possible that some information was missed during the interviewing process.

Beneficially though, my knowledge of the programme and its materials meant I was able to understand what participants were referring to when they forgot the name of something, and I was able to prompt recall of sessions by listing the activities we had done or the topics we had covered. It is unlikely that an unembedded researcher would have been able to do this. Further, I was able to use my experience gained during the sessions to connect with participants during the interview, potentially putting them at ease and thus drawing out more feedback. It is acknowledged that having built a prior relationship with the participants could have led to response bias through either wanting to please me, or not wanting to offend. On balance, I do not feel this to be any truer than for other research where response bias is possible. This is because participants did voice negative experiences

or dislike of particular aspects, albeit less so than the positive. However, this is congruent with my experience of delivering the programme where I witnessed participants enjoying and liking the programme in greater quantities than when they appeared to not like it.

My involvement in both the delivery and evaluation would also have impacted my analysis of the transcripts. It is acknowledged that qualitative analysis is subjective, impacted by the researcher themselves, and my knowledge of the programme development and delivery may have increased the subjectivity of the analysis. Having been invested in the development of the programme it is natural that I would want to see positive outcomes, and this may have skewed my interpretation of the data. Being a deductive analysis, this may not have been an issue as less interpretation was required and coding and analysis was conducted at the semantic level to make the results transferable to recommendations for further programme development. It is possible that I may have discounted or minimised participants interview responses when they did not seem congruent with what I witnessed during delivery or were critical of the programme. Positively, this was buffered by having transcripts double coded which would have identified whether I was only coding positive feedback and my analysis does report negatives as well as positives demonstrating my appreciation that the programme has flaws to be addressed through further development.

Chapter 9: Wrapping it up

The aim of this PhD was to develop and evaluate an evidence-informed HENRY programme for young people targeting physical activity (PA), healthy eating (HE), and wellbeing. The research journey undertaken to reach this aim is summarised below. Strengths and limitations of the project are then presented before considering implications and future directions for both the programme and research. The chapter concludes with a final reflection on the PhD journey.

9.1. Summary of research

This research started by conducting a systematic review of existing literature on PA and HE interventions for young people (Chapter 3; Allcott-Watson et al., 2023). The review considered both behaviour change and maintenance of PA and HE behaviours in young people, something which had not been done previously and thus makes a novel contribution to the knowledge base. A relatively small number of empirical studies that focused on PA and/or HE behaviours themselves were identified, most of which suffered from risk of bias and failed to be reported fully according to TIDieR guidelines (Hoffman et al., 2014). This presented challenges for coding Behaviour Change Techniques (BCTs) and was highlighted as an area for improvement in future reporting of such studies. Calls were also made for researchers to focus on measuring actual behaviour change as well as outcomes of behaviour e.g., weight or BMI. The BCTs identified in the review as promising were incorporated into the Zest for Life! programme developed in Chapter 7 and as such, contributed to making it evidence-informed. Specifically, these were 'practical social support' and 'information about health consequences' for PA, and 'problem solving,' 'action planning,' 'self-monitoring of behaviour,' 'unspecified social support,' 'instruction on how to perform the behaviour,' 'information about health consequences,' and 'behavioural practice/rehearsal' for HE. The review also sought to explore best practice in training professionals to deliver PA and HE behaviour change interventions (BCIs) to young people, though scant literature meant no conclusions could be drawn.

The research then used empirical studies (Chapters 4-6) to expand existing literature and better understand influences on young people's PA and HE behaviours. This then created the behavioural diagnosis for step four of the BCW (Chapter 7). The interview studies are, to the authors knowledge, the first time that these three specific stakeholder groups sitting at different but interlinked systems levels have been included in the development of a behaviour change programme. Commissioners are an overlooked group in general, and evidence of incorporating their views with other stakeholders is meagre at best. The three studies as a whole advance our understanding of young people's PA and HE behaviours from the perspectives of those most important to developing an appropriate intervention e.g., service-users, deliverers, and commissioners. Whilst all results are important, particular consideration was given to those which overlapped across all groups indicating a shared understanding of the problem. Notably these were: lack of knowledge, parent's roles that can both hinder and help, the positive and negative influence of peers, and environmental factors. These studies also explored the support required by young people to change PA and HE behaviours and how best to provide it. The themes from this part of the analysis were used as a framework to design the sessions (Chapter 7) including 'keep it positive,' 'make it different to school,' 'make it interactive and practical,' 'help develop skills,' and 'make language approachable.'

Armed with an understanding of what needs to change for young people, the research then used the BCW to develop the Zest for Life! programme (Chapter 7). The guidebook (Michie et al., 2014) provided a structure to follow and the steps were applied iteratively. The programme targeted all COM-B factors, except automatic motivation, and 10 of the TDF domains: knowledge, skills, memory, attention and decision processes, behavioural regulation, beliefs about capabilities, beliefs about consequences, intentions, goals, environmental context and resources, and social influences. Using APEASE (Michie et al., 2014), the research identified six appropriate intervention types (ITs), one policy option (PO), and combined with interview data supported a face-to-face group delivery method. Finally, APEASE analysis resulted in the inclusion of 23 BCTS, 17 of which were applied to both PA and HE behaviours, and six unique to HE. Programme content was derived to incorporate BCTs, fill

identified gaps in knowledge including PA and HE recommendations, and to complement existing HENRY programmes. The HENRY approach acted as an overarching structure within which to build the sessions, such as inclusive language, strength-based approach, and solution focused, while HENRY elements such as dividers, attention attractors, and activity breaks were incorporated into the sessions.

The programme was then delivered by HENRY facilitators, including HA-W, and this research concluded by conducting an APEASE-based formative evaluation of that delivery (Chapter 8). Qualitative data from young people (*n* = 18) and parents (*n* = 4) showed high levels of programme acceptability and perceived effectiveness. Supplementary quantitative data showed potentially meaningful effects on F&V consumption, but not PA or wellbeing, though formally assessing effectiveness was not the aim of this analysis. Recommendations were made for the use of alternative measures of PA and HE within the programme to better capture the behavioural changes reported by participants in the interviews. From a service-user perspective, Zest for Life! was considered practicable and equitable given the inclusive nature of the programme. The chapter then summarised small changes that would enhance the programme for future recipients.

9.2. Strengths and limitations

The research benefited from adopting a pragmatic mixed-methods approach. It has been argued that by giving less attention to the philosophical stance to be adopted, research is able to better focus on the problem at hand (Creswell & Creswell, 2023). This research certainly benefited from focusing on the problem and utilising a range of methods most appropriate to address it. The result was a mix of both quantitative and qualitative methods that served the research well at different points. To illustrate, the evaluation used quantitative outcome measures of PA and HE behaviours as well as qualitative interviews to provide richer and more comprehensive data than either one on their own would have achieved.

This research started with no assumptions about the reasons for young people's PA and HE behaviour. Instead, studies were conducted to acquire this knowledge and find out first-hand about

influences and support needs (Chapters 4-6). Therefore, the programme was developed around an understanding of where young people currently are, then use of the BCW guided development of the programme to get them where they ideally need to be and aided understanding of how best this could be achieved. As such, the programme is both strongly user- and evidence-informed.

Given that the programme was originally intended to be solely for young people, the research focused on the three main participant groups namely, those who use programmes, those who deliver them, and those who commission them. This provided a strong methodological approach to exploring influences on young people's behaviour and developing a programme suitable and acceptable to users, deliverers, and 'buyers.' However, as the decision to include parents was made later in the development process, time and Covid-19 limitations prevented consultation with this group. This is recognised as a limitation though as the programme has not yet been disseminated there is potential to use the parental feedback gathered from this evaluation to modify the programme, making the next iteration wholly user-informed.

9.3. Implications and future directions

The systematic review (Allcott-Watson et al., 2023) from Chapter 3 can be used as a template for further developing knowledge on promising BCTs. Updates to the review can be conducted as research in this area continues and new information is contributed. This will further the evidence base for individual BCTs, as long as studies fully report the methods and materials used in the intervention. As before, researchers, authors, and editors are encouraged to report studies according to the TIDieR guidelines to facilitate accurate and complete identification of applied BCTs.

The BCW is a tool to systematically work through options for intervention components. As with other tools it does not include selecting content or ways to deliver it practically. A few BCTs naturally guide content selection such as 'information about health consequences' though most do not. On completion of the BCW steps, one has their ITs, POs and BCTs, and they know which COM-B and TDF components they are targeting but are then on their own to create and implement the content in a practical way. This research found there to be a large gap between finishing with the BCW

and getting to the final programme. To illustrate, the IT 'Education' was identified but there was no guidance on what information to include or how to narrow down all the possible options. It would be helpful for design tools to guide developers systematically through putting the pieces together.

To that end, and using the BCW as an example, a series of questions linked to each IT could serve as a way to scaffold consideration and selection of practical-level components, or in other words, how to operationalise the ITs. For example, when 'Education' is identified as an appropriate IT, questions could include: *what do people need to know about X? What do people need to understand about the importance of doing X? How and who/what is going to convey this information? Have you told them about the consequences of doing or not doing X? How can people do X and which ways are most appropriate in this context? Have technical terms or jargon been kept to a minimum? Does complex information need breaking down into simpler terms? Which BCTs can be used here?* For the IT 'Persuasion' this might look like: *What message/s are you conveying? How can it be phrased? What words could be used to trigger an emotional reaction? Which adjectives could be used? What words or phrases are motivational? Is the message better conveyed in words or pictures?*

In this way, developers would have a systematic 'map' to follow when moving from the BCW to writing/creating/producing intervention content, materials, and procedures. Where appropriate these could also be APEASE analysed. For example, when thinking about 'Environmental restructuring', the guide could pose the question '*what are all possible ways of changing the physical environment for this behaviour?*', it could then prompt creating a list of all possibilities (much like step two of the BCW) which then get considered with APEASE, leading to selection of the most appropriate environmental restructuring. Whether creating such a tool is feasible remains unknown, though it does reflect the process this research used in bridging the gap between using the BCW and writing the Zest for Life! programme suggesting it has potential.

This research used the BCT taxonomy version 1, which at the time offered the most comprehensive categorisation of behaviour change techniques. Recently, a new BCT ontology has been released expanding the listed BCTs from 93 (Michie et al., 2013) to 281 (Marques et al., 2023) in

response to user feedback (Corker et al., 2023). It is positive to see that recommendations made in Chapter 3 for 'goal setting' to differentiate between 'setting' and 'agreeing' have been implemented within the new ontology (Marques et al., 2023). The ontology also includes setting 'measurable' goals which is a step towards making goals SMART (Specific, Measurable, Achievable, Relevant, Time-limited; Doran, 1981). It may prove to be a missed opportunity though that the ontology has not incorporated all SMART elements meaning that participants in BCIs may end up setting and chasing unachievable or unrealistic goals for the timeframe at hand.

Indeed, when goal setting is considered as a behaviour change method (BCM) within the Intervention Mapping framework (IM; Batholomew et al., 1998), there are theoretically derived conditions under which the method will work or 'parameters of effectiveness' (Peters et al., 2015). In this instance, the parameters state that the goal must be difficult yet obtainable through the individual's skill set (Kok et al., 2016) i.e., the 'achievable' SMART condition, yet the 'goal setting' BCTs make no allusion to this condition in either the taxonomy or ontology. This can be understood when considering the origins of the taxonomy was as a coding tool to label active components used by existing interventions (Abraham & Michie, 2008), before being subsequently integrated into the BCW as an intervention development tool (Michie et al., 2014). BCMs on the other hand were developed from the outset as part of an intervention development tool and grounded in theory (Bartholomew et al., 1998; Bartholomew Eldridge et al., 2016). Regardless of the origins of the BCT taxonomy and ontology, it appears further development to encompass conditions under which BCTs can be effective is warranted to ensure they are delivered in such a way as to be effective, add credence to why they are expected to work, and, when they do not, to understand why.

The above reinforces the need for intervention developers and deliverers to have adequate knowledge and skills in using and applying BCTs effectively, which is not always the case (Curtis et al., 2018). This returns to the issues raised from the systematic review (Chapter 3) which found scant literature on the training of deliverers and raises a red flag as to the importance health psychology and public health place on the evaluation of deliverer skills and abilities. Clinical psychology has long

since acknowledged that the 'therapist' is entwined with the outcomes (Norcross & Lambert, 2018) meaning they themselves contribute to the effectiveness of interventions and patient outcomes (e.g., Elliot et al., 2011). The many parallels between clinical and health psychology i.e., professionals building rapport with clients, addressing determinants of behaviour, changing behaviour, and using BCTs, suggest that health psychology practitioners can influence outcomes independent of the intervention. Therefore, health psychology and public health will be well served by marking this as an area of importance for research, intervention development, and evaluations.

From conducting the systematic review, limitations of methods to assess BCT effectiveness were apparent. Specifically, calculating promise ratios does not account for dosage or synergistic effects from groups of simultaneously applied BCTs. Indeed, these limitations, and others, apply to all methods of determining BCT effectiveness. Other such limitations as outlined by Peters et al. (2015) include failing to account for whether behaviour change methods are applied correctly in accordance with their parameters of effectiveness, failing to account for contextual factors that could influence participants ability to engage with the behaviour change methods, and active content received by control groups. It should be noted though that the systematic review contained in this research did control for the latter and BCTs present in both intervention and control groups were excluded from analysis. These limitations make efforts to determine BCT effectiveness a 'best guess,' making consultation with stakeholders on what works from personal and professional experience important. This 'best guess' remains better than random selection but indicates better techniques are required that are capable of considering these issues and producing accurate results which can then be used to develop effective interventions and deliver them in practice. With theoretical understanding of the mechanisms of actions of BCTs continuing to evolve (Connell et al., 2019) it is important to simultaneously develop a robust method for testing the resulting assumptions and hypotheses.

A welcome addition to the new BCT ontology within the goal directed grouping is 'plan inclusion of enjoyment' which directs people to plan performance of the behaviour in pleasurable or satisfying ways (Marques et al., 2023). This technique was included in the Zest for Life! programme

but was not able to be coded using the older taxonomy (Michie et al., 2013). Indeed, the Zest for Life! programme utilised several BCTs from the ontology that are not present in the taxonomy e.g., 'goal strategizing,' 'advise to seek support,' and 'increase awareness of behaviour.' In light of this, the new programme could be coded using the ontology to understand the active components in line with advances of our understanding in this area. Certainly, any amendments made to the programme should be considered with regards to the new ontology to ensure it stays up to date with advances in the field and makes it comparable to other programmes if appropriate. This however rests on the assumption that the ontology becomes widely adopted. While the new ontology represents advances in behavioural science, our understanding of behaviour change, and our ability to categorise and label techniques, it is more complex and will require time and effort in order for users to start using it and fully understand it, possibly limiting its use to only experts in behavioural science. Indeed, knowledge of the original taxonomy was found to be lacking amongst behaviour change practitioners for several years following its release (Curtis et al., 2018). Combined with the fact that the ontology will continue to evolve and grow through input from behaviour change professionals, it may be many years or decades before the new ontology gains traction.

This research identified knowledge as a contributing factor to lack of regular engagement in PA and HE behaviours by young people. Essentially, young people lack a comprehensive understanding of what these behaviours are, what they should be doing, and how to engage in them. It is therefore imperative that young people's gaps in knowledge are filled so they have the ability to make conscious, informed decisions about their PA and HE behaviours and the consequences. However, this raises the question of whose responsibility it is to provide this knowledge to young people. Positioned within health-based services, programmes such as HENRY can go some way to providing this on an individual level, though these types of programmes are dependent on being commissioned in local authorities and not all young people will have access. An alternative option would be to provide knowledge through Education services e.g., schools.

At a population level the National Curriculum seems well placed to do this and currently attempts to through inclusion of elements on PA and HE within the core curriculum (Design and Technology, Physical Education, Science). Similarly, national campaigns from the NHS such as Change for Life attempt to impart knowledge. However, findings from this research showing persisting lack of knowledge suggest these attempts are not working as intended. Therefore, the current approach needs to be evaluated to understand why it is not working i.e., is the National Curriculum comprehensive enough and is sufficient time within the curriculum allocated to health topics, which can inform the design of a suitable solution. This is likely to require changes at all systems levels from national to local and organisational policy and upskilling of a large workforce. Whilst this will require substantial resource, it has the potential to impact hugely on the lives of young people and reduce downstream costs making it a valuable enterprise.

However, education, whether at individual or population level, should only be seen as one piece of a larger puzzle, as education alone is not always sufficient to enact change (Thakur & Mathur, 2022). This may be due to barriers presented to young people by the environment whereby they struggle to change behaviour even if they have the capability and motivation to do so. This fits with findings from this research whereby the environment was identified as exerting a large influence on young people's PA and HE behaviours through limiting opportunities. It is acknowledged that until the environment is conducive to health behaviours young people may continually struggle to engage with health-based behaviours. This does not however preclude the delivery of programmes such as those offered by HENRY, rather they should be seen as two parts of the same puzzle. Regardless of the environment, individual level programmes provide young people with the necessary capability to act in healthful ways when opportunities allow. Without such capability, opportunities may be missed, making healthy behaviour change less likely. However, it is through the combination of providing both individual level programmes to equip people with capability through e.g., knowledge and skills, and a conducive environment which presents opportunities, that large scale change can be achieved.

To that end, changing the environment sufficiently needs to be driven by a systems-wide approach to best address the challenges faced by young people at a population level. For example, making green spaces and active transport options readily available to young people, and this can only come through national and local policy that prioritises health. Similarly, reductions in the proliferation of fast-food establishments and availability of affordable healthy meals at schools and the community are necessary changes to help re-shape the food environment into one where healthy eating is both the 'norm' and socially accepted.

9.4. Next steps for Zest for Life!

The programme was acceptable to young people and parents though small modifications in line with feedback reported in Chapter 8 will enhance it. This is especially important for the parental sessions given that they were developed without service-user input. Following this, the next iteration of the programme should be subject to feasibility testing. This will move beyond the formative evaluation conducted in this PhD and assess other important elements of programme delivery, specifically recruitment. Although sign-up to the programme evaluated by this PhD was voluntary, delivery within a school setting provided somewhat of a captive audience. Therefore, assessing recruitment methods was not part of the formative evaluation. Young people are traditionally challenging to enrol and engage on programmes such as this, as reported in the Practitioner interviews (Chapter 5). Young people themselves reported time and priorities as barriers to engagement with such programmes. One solution would be to embed the programme within the school curriculum. However, this would require either an overhaul to the education system (see section 9.3.) or for schools to 'buy in' HENRY, which may not be financially viable. Therefore, investigating recruitment methods and how best to engage young people to attend the programme is an important step for HENRY before rolling out the programme to health commissioners across the UK.

The next round of programme delivery, whether conducted as part of a feasibility study or not, should be accompanied by a rigorous evaluation, including fidelity, extending beyond feedback from participants to include deliverer involvement. As deliverers were involved in programme

development, there was a potential conflict of interest and consequently they could not be included in the present evaluation. Thus, it will be beneficial for the programme to be delivered by non-authors who can contribute to the evaluation and provide feedback on practicability. Doing so will also allow the evaluation to assess delivering the programme in line with HENRY's partnership model which trains non-HENRY staff to deliver programmes. At this point consideration should be given to the training provided to professionals which will likely need to involve specific skills in working with young people which currently are not included in existing HENRY trainings.

9.5. Final reflections

Reflections based on being a qualitative researcher and embedded within HENRY have been provided in related chapters, and here I want to consider some big picture reflections on the project. Whilst the programme remit originally did not include parents, looking back it seems a shame not to have included them as a participant group for interviews from the start given their role in young people's lives. It seems that they are well placed to provide another unique perspective on influences on their children's behaviour, perhaps from a more objective viewpoint. For example, young people stated lack of time as an influence to being active and parents could have provided information to either support this or give an alternative explanation such as lack of motivation or insufficient time-management skills which would have reworked the behavioural diagnosis. Alternatively, framing the interview schedule around the COM-B or TDF could have helped make this distinction. Even if parents had not ended up being included in the programme, the information they could have provided would have given a more comprehensive picture of the situation for young people on which the programme was based, in other words it was a missed opportunity to further enhance the already strong methods. The time limited nature of the PhD meant it would have been challenging to interview parents after it became clear that the programme would need to include them. Under 'normal' circumstances a workaround may have been possible but given Covid-19 made recruitment difficult and lengthy, it simply was not pragmatic in this instance.

I would have liked the programme to have been more co-developed, rather than user-informed, with stakeholders, especially young people. The hope was to produce initial programme content and materials then to refine these through workshops where stakeholder representatives reviewed and provided feedback. Again, this turned out to be infeasible due to Covid-19 and shifting timescales in order to deliver the programme during school term time. Positively, the programme was extensively user-informed, and it can be further enhanced using data from the evaluation.

Despite utilising mixed-methods, the project is heavily qualitative with a combined 62 participants represented in over 35 hours of analysed recordings. I appreciate that this was needed to fully, and best, complete the project yet I still would have liked a larger quantitative component to flex my statistics skills. This is in part due to being more familiar with quantitative methods, up to this point. However, one purpose of a PhD is to develop skills and by doing all three analyses of young people, practitioner, and commissioner interviews in succession I was able to further develop and enhance my qualitative analysis skills. In other situations, a researcher may wait years between qualitative studies meaning there is little opportunity to quickly build on learning after one study. Here, my first attempt at theme/subtheme generation for the young people interviews was, for want of a better phrase, a swing and a miss. I fell into many pitfalls such as inadvertently aligning themes with the interview questions or to the COM-B/TDF. Whilst my description of my first attempt is perhaps an over exaggeration, there was much that needed changing and it took a lot of work to progress the analysis to the point of finessing smaller details. This meant there was much that I learnt from the process and positively I did not fall into the same pitfalls with analyses of the other participant groups. It has surely been of benefit to have the opportunity to learn from and immediately adapt subsequent work to avoid these mistakes and this has provided ample chance to further develop and refine my qualitative analysis skills, thereby balancing my research skills for which I am grateful.

With hindsight I would have liked more BCTs to have been incorporated though this is based on perceived suitability, their relationship to BCTs that were used, and my personal experience rather than evidence of effectiveness. For example, ‘Information about social and environmental

consequences' (5.3) fits nicely alongside 'Information about health consequences' (5.1) and could have been included through a few brief sentences, requiring little extra time and effort. However, delivery in this manner was kept to a minimum as the HENRY approach is to prompt discussion and exploration through posing questions and this would have required more time than was available. Additionally, 'Action planning' (1.4) was only tentatively included through setting SMART goals despite the systematic review finding it promising for HE behaviour change. It could be argued that a truly SMART goal will specify a duration or frequency to make it measurable and thus it aligns with action planning. However, this misses context and intensity which also contribute to action planning. In retrospect action planning could have been more explicit through the goals worksheet specifically listing the inclusion of duration, intensity, frequency, or context. As the phrase goes, hindsight is a wondering thing!

From personal experience the use of outcome goals (1.3 and 1.7) and graded tasks (8.7) can be highly effective when working with young people. However, HENRY were keen to ensure the programme was not related in any way to young people's weight and asking them to set outcome goals would have opened the door to this. While considered effective from my experience, copious facilitator support is required to collaboratively conceive well thought out graded tasks that break down the ultimate goal into a sufficient number of steps that progress with increasing yet achievable difficulty. Thus, for both parties this technique is time consuming, which was a limited commodity, and the one-to-one attention required would have left some young people in the group temporarily without facilitator attention. Further, whilst myself and another developer had prior professional experience of this technique, not all facilitators did, meaning they would have had to be trained in their use. Whilst some 'training' was provided to facilitators who had not developed the programme, this was informal and focused more on familiarising them with content and sessional activities.

Ultimately, practicability, lack of familiarity, and time, both within sessions and in developing the programme, prevented inclusion of some BCTs. Several were considered to be impractical to deliver to a group of young people, though this was based on perception rather than previous

experience. Additionally, unfamiliarity at the time with all candidate BCTs meant we could not always see how to deliver them in the programme or apply them to the behaviours at hand. For example, it was easier to apply 'body changes' (12.6) to HE as anxiety leading to a physiological response such as feeling nauseous can directly inhibit trying new foods. However, applying this BCT to PA is less straightforward as it was perceived that the body's natural response to PA i.e., increased heart rate and breathing, would not directly impede behaviour, although with hindsight it is possible to see how breathing techniques can be usefully applied to assist with PA performance. With the programme set at eight weeks to ensure it could be delivered during school term time the programme was limited in how much could be fit in. Therefore, some BCTs were considered impractical from a time perspective. Shifting timelines meant time was also against us in developing the programme itself, thus we did not have the resources to fully consider how to overcome perceived practicability issues. In an ideal scenario we would have spent longer developing the programme to ensure we fully considered all options for BCTs inclusion.

From experience of delivering the programme, I realise now the potential benefits of writing the manuals to highlight BCT use. As discussed in Chapter 8, delivery did not always run smoothly or to time requiring adaptation to fit everything into the session. For this delivery it was not particularly problematic as having constructed the programme and written the session manual I was able to do so while retaining the essence and important features. However, I am aware that as the programme is used by other facilitators, they will not have the same level of understanding or insight and thus key deviations from the manual may result in loss of crucial BCT use. This speaks to the need for robust fidelity monitoring but could also be assisted through changes to the manuals. Specifically, the manuals could indicate where BCTs are used and how activities support their delivery. This would help facilitators gain an appreciation of the most important elements of each session and activity. It follows that facilitators would also benefit from training to understand BCTs and their use, which could be incorporated into programme specific training, alongside skill development for working with adolescents, before delivering the Zest for Life! programme.

Perhaps the biggest reflection I can make is that at the start of this PhD I was new to the field of Health Psychology having come from a mental health background. I knew it would be a learning curve to get to grips with a different field of psychology and that imposter syndrome would be something to overcome. I did however relish the opportunity and jumped in with a passion for working with young people and feeling that my approach to the early years harmonised with that of HENRY making this PhD the right one for me. As the project progressed, I found many parallels between health and clinical psychology and quite enjoyed reviewing the BCT taxonomy and identifying all the techniques I used with clients as a mental health practitioner. I cannot say the imposter syndrome ever fully went away but I am proud of the great advances I have made in my knowledge and in my confidence as a health psychology researcher. Working in a new discipline fed my appetite for continued learning and on balance I am glad to have ventured away from my psychology-discipline comfort zone.

Having attended multiple British Psychological Society Division of Health Psychology conferences I have found the Health Psychology community to be welcoming, friendly, and supportive. I am pleased to have found a field in which I can envisage a future career, surrounded by creative, inspiring, and nurturing people. In terms of next steps, I am keen to maintain my newfound knowledge and skills in my future roles and to continue honing my research skills. Ultimately, I would like to work on integrating health psychology and clinical psychology practice to provide a streamlined service for people who would benefit from behavioural changes for both physical and mental health. I would like to finish this thesis by bringing it full circle back to my application for the position, *"[I] have found working with [young people] to facilitate positive outcomes to be a unique and worthwhile endeavour."* As my experience of working with young people has grown during this PhD and I have witnessed the benefit of the programme developed, I can assert that this PhD has truly been a worthwhile endeavour.

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Appendices

Appendix A: Systematic review – PRISMA Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pages 3-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 5 and supp. Table 2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supp. table 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pages 5-6
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Supp. table 3
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Supp. table 3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 7

Section and Topic	Item #	Checklist item	Location where item is reported
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Page 7-8
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 7
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pages 7-8
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 7
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Pages 7-8
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	n/a
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	n/a
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	n/a
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	n/a
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 6, Fig 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	n/a
Study characteristics	17	Cite each included study and present its characteristics.	Tables 1 and 5
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 15, Fig 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 3
	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	n/a

Section and Topic	Item #	Checklist item	Location where item is reported
Results of syntheses	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pages 17-18, table 4
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	n/a
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	n/a
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	n/a
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 21-22
	23b	Discuss any limitations of the evidence included in the review.	Page 24-25
	23c	Discuss any limitations of the review processes used.	Page 24-25
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 22-24
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 5
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 5
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 25
Competing interests	26	Declare any competing interests of review authors.	Page 25
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 25

Note. Page numbers refer to systematic review as published in Allcott-Watson et al. (2023)

Appendix B: Systematic review – Data extracted from included studies

Heading	Information extracted
General	Author, year, title, related articles, type of publication, year study conducted, country, sources of funding, declarations of interest
Study characteristics	Design, groups, primary aim, target behaviour/s, inclusion criteria, exclusion criteria, recruitment method, method of randomisation, unit of allocation
Participants	Number in each group at baseline, number in each group at post intervention, number in each group at follow up, % female in each group, age in each group, ethnicity, population type
Intervention features	Deliverer, setting, format, content, materials, procedures, tailoring, modifications, method of delivery, number of sessions, length of sessions, duration of intervention, follow up duration, measurement schedule, theoretical basis, fidelity, control group activities
Outcomes	Primary outcome, measure used, objective/subjective, secondary outcomes
Results	Baseline results for each group, post intervention results for each group, change between baseline and post intervention for each group, follow up results for each group, change between post intervention and follow up for each group, change between baseline and follow up for each group, effect size, direction of effect

Appendix C: Systematic review – TIDieR characteristics of included intervention studies

Author (year) Brief title Rationale	What: materials and procedures	Who provided How	Where When and how much	Tailoring Modifications	Planned adherence/ fidelity Actual adherence/ fidelity
Ardic (2016) **Brief title** Effectiveness of the COPE healthy lifestyles TEEN program **Rationale** Cognitive behavioural theory	**Materials** Educational information on healthy lifestyles and cognitive behavioural skill building **Procedures** Each session included a review of previous session, 10-15 minutes of physical activity, were provided with education information on creating a healthy lifestyle, strategies to build self-esteem, stress management, goal setting, effective communication, nutrition, and physical activity; homework was given at each session; pedometers were worn daily.	**Who provided** Not reported **How** Face to face during class	**Where** Middle schools in Istanbul **When and how much** Once a week for 15 weeks, 40 minute sessions	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** Not reported
Corder (2020) **Brief title** Effectiveness of the GoActive intervention **Rationale** Self-determination Theory	**Materials** Website for logging points (URL not provided); teachers and mentors were given resources for intervention delivery, (content not provided); Axivity AX3 accelerometer; rewards such as sports bag, t-shirt or hoodie for accumulating points; GoActive branded headphones and pens given as incentives to wear and return accelerometer **Procedures** At each session in class older adolescent mentors and peer leaders from year 9 encouraged students to try 2 activities each week from a selection provided, mentors remained with the same class each week,	**Who provided** Class teachers and mentors trained by intervention facilitators; peer leaders; intervention facilitators working as 'health trainers' in local councils **How** Face to face in class, students	**Where** Secondary schools in England **When and how much** For teachers, 1 hour once a week for 12 weeks was encouraged; interaction with mentors/ leaders could occur at any time	**Tailoring** None reported **Modifications** None reported	**Planned** Process evaluation questionnaires administered at T2 and T3 for students, mentors, intervention facilitators, teachers; control students completed process evaluation questionnaire; intervention facilitators and mentors completed logbook; some classroom observation. **Actual**

	peer leaders rotated each week, sessions were supported by the class teacher and for the first 6 weeks an intervention facilitator provided support in school, during the next 6 weeks support was provided remotely. Students could log activity points on a website. Engagement with activities was encouraged to continue outside the classroom and school. Teachers and mentors received training from intervention facilitator (details not provided).	also had access to a website			37.9% students reported attending a GoActive session in last fortnight; 46.5% students entered activity points on website; quantitative data showed 7/8 schools had mentors and all schools had peer-leaders; observation and qualitative data contradicted presence of mentors and peer-leaders and showed intervention not consistently implemented within and across schools.
Cui (2012) **Brief title** Effect of a peer education intervention on physical activity and sedentary behaviour **Rationale** Social Cognitive Theory	**Materials** Manual for peer leaders detailing activities (content not provided); pamphlet to support each session given students and parents, (content not provided) **Procedures** Peer leaders received training; peer leaders delivered sessions to classmates which were integrated into existing health education courses or class meetings; sessions delivered through presentation, video watching, group discussion, games, experiments, lifestyle practice, skit playing and quiz show	**Who provided** 4-8 peer leaders per class, different pair each week, trained by research staff in 3 90 min workshops; class teacher was present **How** Face to face in classes of 29-42, either as one large group or multiple smaller groups	**Where** Classrooms of 4 junior-high schools in Beijing **When and how much** Once a week for 4 consecutive weeks, 40 minute sessions	**Tailoring** None reported **Modifications** None reported	**Planned** Process evaluation through direct observation and focus groups in intervention schools; research staff and officer from Dongcheng District Institute for Student Healthcare observed sessions in 2 schools. **Actual** According to research staff and officer observations, four

					sessions followed the manual.
Isensee (2018) **Brief title** Effects of läuft, a Pedometer Intervention **Rationale** Used strategies which have been shown effective at increasing or promoting physical activity	**Materials** Omron Walking Style One 2.1 pedometer; website (www.laeuft.info); information provided to headmaster, teachers and parents (content not provided). **Procedures** Students provided with pedometers to wear daily and log their steps on project website. Classes competed with each other in weeks 1, 5 and 11 when class mean steps were calculated, highest scores and classes with largest increase received cash prizes. Classes collated ideas on increasing PA during school day, classes with most creative ideas were awarded (award not specified). Classes received 4 educational lessons on competitions, giving, creating ideas for PA integration, strategies to reflect on PA levels.	**Who provided** Teachers, offered one introductory seminar **How** Face to face	**Where** Classrooms of 29 secondary schools in Germany **When and how much** 4 lessons of 45 minutes each, additional lessons available; pedometers worn daily for 12 weeks; one parent teacher conference; between class competitions measured steps taken over whole week	**Tailoring** None reported **Modifications** None reported	**Planned** Teachers completed questionnaires regarding each intervention component **Actual** Not reported
Jago (2006) **Brief title** Fit for Life **Rationale** Not reported	**Materials** Behaviour change website used to log goals, report on goal achievement, animated role-modelling comic demonstrating overcoming barriers, problem solving component (no access provided). "Drills booklet" (not provided). **Procedures** Participants completed 20 minute PA session during troop meetings. Encouraged to continue activities outside sessions using	**Who provided** Trained study staff; training and qualifications not reported. Website. **How** Face to face in groups, individually on website	**Where** Troop meetings in Houston, online **When and how much** 8 weekly 20 minute PA sessions, website twice a week, award ceremony in week 9	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** 75% of the intervention group, and 78% of the control group, logged onto the website at least once per week.

	drills booklet. Twice a week logged onto website to set goals and report goal achievement.				
Jemmott (2011) **Brief title** Cognitive-Behavioral Health-Promotion Intervention **Rationale** Social Cognitive Theory, Theory of Planned Behaviour	**Materials** Six specially designed comic workbooks (not provided); intervention manuals (not provided). **Procedures** Facilitators recruited and trained to deliver interventions. Session topics included PA, HE, smoking, drugs, cancer and alcohol. Sessions included interactive exercises, games, brainstorming, role-playing, and group discussions. Gender specific sessions covering topics such as puberty, dental health, breast/testicular cancer self-examination, pedestrian safety and first aid were delivered separately for boys and girls by a facilitator of the same gender.	**Who provided** 43 bilingual adults aged 27-56 years old from the community, delivered in mixed gender pairs, received 8 days of training **How** Face to face in groups of 16	**Where** Rural and urban schools in South Africa **When and how much** 12 one hour modules, 2 modules delivered in each of 6 sessions over 6 consecutive school days	**Tailoring** Specific activities for males and females delivered separately **Modifications** None reported	**Planned** Not reported **Actual** Not reported
Kuroko (2020) **Brief title** Create Our Own Kai: a cooking intervention **Rationale** Combined education with practical experience to provide adolescents with knowledge and	**Materials** Recipes and ingredients (not provided); cooking equipment (not listed). **Procedures** Phase 1: Participants were paired for the week taking into consideration dietary preferences where possible. Sessions contained presentations and discussions on kitchen and food safety, clear communication, nutrition, food waste, seasonal and local produce, budgeting, writing recipes and shopping lists and selecting foods at the supermarket. Instructors demonstrated each recipe	**Who provided** Cooking sessions delivered by dietician and chef with support from research assistant; during support phase research assistant provided support via Facebook **How**	**Where** Teaching kitchens at educational facilities in New Zealand; private Facebook groups **When and how much** Phase one: 5 consecutive days from 9-3.15pm during school holidays. Phase two: six weeks,	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** Not formally assessed, though Facebook posts indicated good adherence

self-efficacy to cook healthy meals	before participants prepared their own meals. On the penultimate day no demonstration was given. On the last day participants planned and prepared a two course lunch to which a family member was invited. Phase 2: Participants received ingredients and recipe cards each week to make at home. Participants were encouraged to post pictures of any meals they cooked for the rest of the study. Whoever posted the most each week received a prize (prize unspecified). There were spot prizes in some of the ingredient parcels (prizes unspecified).	Face to face in pairs, 20-23 per class; Facebook	weekly delivery of resources, Facebook support available		
Lin (2017) **Brief title** Using the Health Action Process Approach to increase fruit and vegetable consumption **Rationale** Health Action Process Approach	**Materials** For students: Brochure; planning sheet; one-month calendar (none provided). For mothers: brochure (not provided). **Procedures** Both groups: Adolescents invited to a group discussion on the importance of fruit and vegetable consumption. Subsequently they were provided with a brochure containing written activities including goal setting. They were then asked to create two meal plans on the planning sheet and to use the calendar to record fruit and vegetable consumption for one month. Adolescent + mothers group: same as other group plus mothers were invited to a discussion on the importance of fruit and	**Who provided** Not reported **How** Face to face	**Where** Not reported **When and how much** Students: 20-minute discussion, 1 month food log Mothers: 30-minute discussion	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** Not reported

	vegetables and provided with a brochure afterwards.				
Meydanlioglu (2019) **Brief title** The Effect of Diet and Physical Activity Program for Health **Rationale** Social Cognitive Theory	**Materials** Stickers; certificate of completion for individuals; family participation certificate (none provided). **Procedures** Sessions were delivered by a researcher at a time considered appropriate by the class teacher. Topics included the importance of being healthy, healthy diet and physical activity, unrestricted–limited–very limited food groups, healthy and unhealthy fats, staying away from sugar, natural and processed foods, right food choices, tricks in commercials, and healthy snacks. Sessions were delivered via group work, discussions, role play and educational games. Stickers and applause were provided as reinforcement. Family events are mentioned but no further information is provided.	**Who provided** Researcher **How** Face to face	**Where** Classrooms of 2 public primary schools in Turkey **When and how much** 12 lessons of 40 minutes each over 6 weeks	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** Not reported
Prado (2020) **Brief title** Results of Familias Unidas for Health and Wellness **Rationale** Ecodevelopmental framework, Family systems theory	**Materials** PA equipment, cooking equipment (details not provided). **Procedures** During group sessions parents and children were split for first 1.5 hours, children engaged in outdoor PA while parents had group discussions. During last hour children and parents engaged in PA or HE activity together. During family sessions, each family met privately with facilitators to practice skills.	**Who provided** Certified PA instructors, park coaches, fitness instructors, staff from local non-profit organisation, facilitators trained in problem-posing participatory learning	**Where** Outside PA spaces in America. Location of inside activities not reported. **When and how much** Weekly for 12 weeks. 8 sessions of 2.5 hours each (group sessions), 4	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** 71% of families attended all 12 sessions, 5% of families attended no sessions.

		How Face to face	sessions of 1 hour each (family sessions).		
Prins (2012) **Brief title** Effectiveness of YouRAction intervention **Rationale** Theory of Planned Behaviour, Social Cognitive Theory, Precaution Adaptation Process Model	**Materials** Website (URL not provided); Teacher manual, (not provided). **Procedures** Whole classes logged onto the project website during class, they worked through the website independently, supported by the class teacher. The first session focused on improving knowledge of MVPA. Sessions 2 and 3 motivated students to change a PA behaviour depending on their current PA level. Sessions provided opportunities to set goals and problem solve. Online content was delivered through written feedback, cartoons, quizzes and web-movies. Homework was set after the 2nd and 3rd sessions. The YouRAction+e group received the same intervention as the YouRAction group, additionally they received feedback on available PA opportunities in the area through Google Maps.	**Who provided** Teachers, instructed by research staff. Website. **How** Online	**Where** Classrooms in The Netherlands **When and how much** 3 sessions of 35 minutes each, duration of intervention not reported	**Tailoring** Tailored to individuals according to their responses to website activities **Modifications** None reported	**Planned** Exposure to intervention assessed through self-report; usage assessed through website data logs **Actual** Self-report showed no significant difference in exposure to intervention; website logs showed intervention groups signed into website more frequently than control group; second lesson was accessed by 91.3% of YourAction group, 78.7% of YourAction+e group and 71.9% of control group; third lesson accessed by 24% of YourAction group, 21.7% of YourAction+e group and 54.4% of control group.
Ridgers (2021) **Brief title** Effect of commercial wearables on PA	**Materials** Fitbit Flex and app, Facebook group containing resources (not provided). **Procedures** Provided and set up Fitbit device. Weekly missions were posted on private Facebook	**Who provided** Research staff **How** Online	**Where** Australia; private Facebook group **When and how much**	**Tailoring** None reported **Modifications** None reported	**Planned** Number of texts, emails and Facebook posts from research staff; completion of missions, Facebook posts, like or

of children in disadvantaged areas **Rationale** Behavioural Choice Theory, Social Cognitive Theory	group. Resources posted on Facebook group with alerts to new content sent 2-3 times a week.		12 weeks; weekly missions; resources available on demand within Facebook group; alerts to new content sent 2-3 times per week.		comments by students; use of the Fitbit **Actual** Number of texts, emails and Facebook posts not reported. 36.1% reported completing the missions. Viewing and liking Facebook posts reduced over time, posts were viewed more than liked. In the last week of the programme 18.6% reported wearing the Fitbit daily while 35.5% reported not wearing it at all.
Taymoori (2008) **Brief title** A school-based trial to improve physical activity **Rationale** Health Promotion Model, the Transtheoretical Model	**Materials** Written educational material (content not provided); Log books (not provided). **Procedures** Both THP and HP groups received group educational sessions at baseline and weeks 4, 10 and 18. Participants were grouped according to their current stage of changed which was assessed at each of these time points. The sessions focused on benefits and barriers to PA delivered through lecture, role playing, slides, reminder cards, PA planning and pamphlets. The THP group also received education on the two processes of change: counter conditioning and stimulus control. Participants in	**Who provided** First author delivered program supported by a female health behaviour and education expert who received five hours of training from first author; teachers who had attended education sessions provided social support and modelling.	**Where** 3 female only public secondary schools in Iran **When and how much** 45-60 minute group sessions plus 20-25 minute individual sessions delivered at baseline and weeks 4, 10, 18; mothers attended 60 minute sessions in weeks	**Tailoring** All participants received same first session, at subsequent sessions the information provided was tailored to each students current stage of change **Modifications** None reported	**Planned** Not reported **Actual** Not reported

	maintenance and action stages also received information on how to identify risk factors for future relapse. Participants in the preparation stage were given tips on how to start to be active. Participants in the contemplation stage had benefits and barriers identified. Teachers in intervention schools attended a session at baseline to learn about modelling and social support for students. Participants were phoned by the researcher in week 22 to provide support in reaching goals. In the last week students, teachers and parents went mountaineering.	**How** Face to face in groups of 5-12	10 and 18; telephone call at week 22; mountaineering with mothers and teachers at end of intervention; teachers attended baseline session.		
Viggiano (2015) **Brief title** Kaledo, a board game for nutrition education **Rationale** Used a play-based learning approach to deliver nutrition education and influence food choices	**Materials** Board game containing all necessary pieces and rules (not provided). **Procedures** The game was played by groups of 4 students at a time.	**Who provided** Teachers were trained how to play the game **How** Face to face in groups of 4, group members changed each session	**Where** In classrooms in middle and high schools in Italy **When and how much** Once a week for 20 weeks, 15-30 minute sessions	**Tailoring** None reported **Modifications** None reported	**Planned** Not reported **Actual** Not reported

Appendix D: Systematic review – BCTs used in included intervention studies

	1.1 Goal setting (behaviour)	1.2 Problem solving	1.3 Goal setting (outcome)	1.4 Action planning	1.5 Review behaviour goal/s	1.7 Review outcome goal/s	1.8 Behavioural contract	1.9 Commitment	2.2 Feedback on behaviour	2.3 Self-monitoring of behaviour	2.6 Biofeedback	3.1 Social support (unspecified)	3.2 Social support (practical)	3.3 Social support (emotional)	4.1 Instruction on how to perform the behaviour	4.2 Information about antecedents	5.1 Information about health consequences	6.1 Demonstration of the behaviour	6.2 Social comparison	7.1 Prompts/cues	8.1 Behavioural practice/rehearsal	8.2 Behaviour substitution	8.4 Habit reversal	8.6 Generalisation of the target behaviour	8.7 Graded tasks	9.1 Credible source	9.2 Pros and cons	9.3 Comparative imagining of future outcomes	10.1 Material incentive (behaviour)	10.2 Material reward (behaviour)	10.3 Non-specific reward	10.4 Social reward	10.5 Social incentive	10.7 Self-incentive	10.9 Self-reward	11.2 Reduce negative emotions	12.2 Restructuring the social environment	12.3 Avoidance/reducing exposure to cues for the behaviour	12.5 Adding objects to the environment	13.1 Identification of self as role model	14.9 Reduce reward frequency	15.1 Verbal persuasion about capability
Physical activity studies																																									
Ardic (2017)		■	■							■							■				■																					
Ardic (control group)										■																																
Corder (2020)	■									■		■			■			■	■											■	■		■	■			■	■			■	■	■
Cui (2012)			■									■																														
Isensee (2018)	■	■							■	■		■							■											■												
Jago (2006)	■	■			■							■			■						■				■					■												
Jemmott (2011)	■			■				■			■		■				■				■																					
Meydanlioglu (2019)	■											■					■																									
Prado (2020)															■			■			■					■																
Prins (2012)	■	■		■	■		■	■	■	■							■		■								■							■				■				
Ridgers (2021)	■	■		■	■	■		■		■		■	■	■	■				■	■			■		■							■						■			
Taymoori (2008)	■	■		■	■			■				■	■				■	■		■		■			■						■				■	■		■			■
Healthy eating studies																																									
Ardic (2017)		■	■													■	■																								
Jemmott (2011)		■						■					■		■		■																								
Kuroko (2020)												■			■			■			■			■		■				■									■			
Lin (2017)		■		■						■							■										■	■													
Meydanlioglu (2019)	■			■						■		■			■		■				■	■																			
Prado (2020)															■			■			■																				
Viggiano (2015)																																									

Appendix E: Qualitative study – Ethics approval notification

University of Hertfordshire UH

HEALTH, SCIENCE, ENGINEERING AND TECHNOLOGY ECDA

ETHICS APPROVAL NOTIFICATION

TO Hannah Allcott-Watson

CC Dr Neil Howlett

FROM Dr Simon Trainis, Health, Science, Engineering & Technology ECDA Chair.

DATE 29/06/2020

Protocol number: **LMS/PGR/UH/04197**

Title of study: Exploring needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents

Your application for ethics approval has been accepted and approved with the following conditions by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Dr Nick Troop

General conditions of approval:

Ethics approval has been granted subject to the standard conditions below:

Permissions: Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

External communications: Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.

Invasive procedures: If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and copies of your completed consent paperwork to this ECDA once your study is complete.

Submission: Students must include this Approval Notification with their submission.

Validity:

This approval is valid:

From: 29/06/2020

To: 31/12/2023

Please note:

Failure to comply with the conditions of approval will be considered a breach of protocol and may result in disciplinary action which could include academic penalties.
Additional documentation requested as a condition of this approval protocol may be submitted via your supervisor to the Ethics Clerks as it becomes available. All documentation relating to this study, including the information/documents noted in the conditions above, must be available for your supervisor at the time of submitting your work so that they are able to confirm that you have complied with this protocol.

Should you amend any aspect of your research or wish to apply for an extension to your study you will need your supervisor's approval (if you are a student) and must complete and submit form EC2.
Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1A. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1A may need to be completed prior to the study being undertaken.

Failure to report adverse circumstance/s may be considered misconduct.
Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately.

Appendix F: Qualitative study – Semi-structured interview schedule for young people

Interview Schedule – young people

Introduction

This interview is for a project designed to help us understand young people's thoughts and opinions on physical activity and eating behaviours. Additionally we are interested to hear your thoughts on a new programme which aims to support young people to make changes to their physical activity and eating behaviours. We are interviewing lots of young people so we can hear a range of thoughts on this topic.

The interview will last about 30 minutes. We can take a break at any point if you want to. You can stop the interview at any time. Do you have any questions before we begin?

Questions

Physical activity

- **What does it mean to you to be physically active?**
- **How much physical activity do you think would count as being 'active'?**
- **If you wanted to do more physical activity, what would make it easier and what would make it harder?**
  - ↘ **Follow up: Do you think this would be the same for young people in general? If not, what would be different?**
- **What support do you think you would need to be able to change your physical activity patterns?**
  - ↳ Prompt: who could support you? What could they say or do?

Eating behaviours

- **What does healthy eating mean to you?**
- **If you wanted to eat more healthily, what would make it easier and what would make it harder?**
  - ↘ **Follow up: Do you think this would be the same for young people in general? If not, what would be different?**
- **What support do you think you would need to be able to change your eating patterns?**
  - ↳ Prompt: who could support you? What could they say or do?

- **What do you think are the benefits of physical activity and healthy eating?**
  - ↳ Prompt: what is the impact on physical health?
  - ↳ Prompt: how do they relate to wellbeing?

New Programme

We are hoping to develop a new programme to support young people who want to make changes to their physical activity and eating behaviours:

- **If you were designing a new programme to support young people with physical activity, healthy eating and wellbeing, what would it look like?**
  - ↳ Prompt: in what format would you like it to be delivered? E.g. 1:1 or group.
  - ↳ Prompt: where would you like the programme to be delivered? E.g. online face to face, telephone or a combination of these, at school, not at school?
  - ↳ Prompt: what time of the day and week do you think would be the best time for sessions?
  - ↳ Prompt: how often do you think sessions should be held? I.e. how many times per week/month?
  - ↳ Prompt: what would you like to be included? For example, information and statistics, practical advice, success stories from young people.
  - ↳ Prompt: how would you like the information to be presented? E.g. videos, worksheets, role plays.
  - ↳ Prompt: what would make you go back each week?
  - ↳ Prompt: what might stop you attending?
  - ↘ **Follow up: do you think this would be the same for young people in general? If not, what would be different?**

<u>Ending</u>

- **Is there anything I haven't asked about that you think would be useful for me to know?**
- **Is there anything that you would like to add?**

Appendix G: Qualitative study – Demographic form for all participants

Participant demographics sheet

Prior to the interview please could you complete the questions below. It should take no more than five minutes to complete.

Name:

Phone number/email address:

1. Participant group:

   Young person
   Professional
   Commissioner

2. Age:

3. Sex:

   Male
   Female
   Prefer not to say

4. Ethnicity:

   White - English/Welsh/Scottish/Northern Irish/British
   White – Irish
   White - Gypsy or Irish Traveller
   White - Any other white background
   Mixed/Multiple ethnic groups - White and Black African
   Mixed/Multiple ethnic groups - White and Black Caribbean
   Mixed/Multiple ethnic groups - White and Asian
   Mixed/Multiple ethnic groups - Any other Mixed/Multiple ethnic groups
   Asian/Asian British – Indian
   Asian/Asian British – Pakistani
   Asian/Asian British – Bangladeshi#
   Asian/Asian British – Chinese
   Asian/Asian British - Any other Asian background
   Black/African/Caribbean/Black British – African
   Black/African/Caribbean/Black British – Caribbean
   Black/African/Caribbean/Black British - Any other Black/African/ Caribbean background
   Other ethic group – Arab
   Other ethic group - Any other ethnic group
   Prefer not to say

5. In the past week, on how many days have you done a total of 30 min or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise, and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that maybe part of your job.

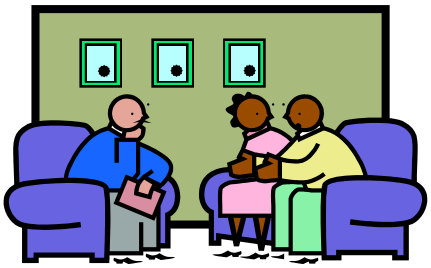
   Choose an item:
   0
   1
   2
   3
   4
   5
   6
   7

6. In general, how healthy is your overall diet? Would you say:

   Choose an item:
   Excellent
   Very good
   Good
   Fair
   Poor

University of Hertfordshire UH Ethics Committee

Information about the study for participants under 16 years old



Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

We work at the University of Hertfordshire. We are asking if you would like to take part in a study. Before you decide it is important you understand what taking part would involve. To help you make your choice you can read about the study on this sheet and discuss it with your parent/guardian. Please ask us if you have any questions. Take your time deciding whether to take part.

Why is this study being done?
We know that it can be difficult for young people to lead healthy lives. We want to find out why this is and how we could help them to be physically active and eat healthily.

Why am I being asked to take part?
We are asking anyone between the ages of 11 and 19 years old to take part in this study.

Do I have to take part?
No, it is up to you whether you choose to take part. If you agree to take part you can stop the interview at any point. If you finish the interview and then change your mind, you can ask to have your answers deleted up to one month after the interview. You do not have to tell us why you want to leave the study.

What will happen to me if I take part?
If you want to take part you and your parent/guardian will be asked to sign a consent form telling us your choice in writing. We will then arrange a time and place to meet either in person, online or over the phone. On the day I will interview you by asking you some questions about physical activity, eating and your thoughts on making changes in these areas. This will take about 30 minutes. Our conversation will be voice recorded if you and your parent/guardian agree to this. If you want you can have your parent/guardian with you during the interview.

Is there anything to worry about if I take part?
We do not believe there is anything to worry about by taking part.

What good things might happen if I take part?
By taking part you will help the study team to understand young peoples' thoughts about physical activity and eating. We hope to use this information to design a new programme to support young people to lead healthy lives.

Who will know I am taking part in the study?
No-one other than your parent/guardian and the study team will know you are taking part.

Who has approved the research?
Before any research goes ahead it is checked by a Research Ethics Committee to make sure it is fair. This study has been checked by The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority (number LMS/PGR/UH/04197).

Who can I speak to if I have questions?

Your parent/guardian has information about the study, so you can speak to them. You can also speak to the study team if you have any other questions.

Contact: Hannah Allcott-Watson
Email: h.allcott-watson@herts.ac.uk

Thank you very much for reading this information and thinking about taking part in this study.

Appendix I: Qualitative study – Information sheet for young people over 16 years old

University of Hertfordshire UH Ethics Committee

Participant Information Sheet for young people over 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

Approved by: The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority
UH protocol number LMS/PGR/UH/04197

Introduction
You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the study that is being undertaken and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part.

What is the purpose of this study?
This study is designed to find out the opinions of young people on making changes to physical activity and eating behaviour, specifically with regard to what might make it easier or harder to change.

Do I have to take part?
It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You can stop the interview at any point. If you complete the interview and then change your mind you can ask to have your data deleted up to one month after the interview. You can withdraw without giving a reason. A decision to withdraw, or a decision not to take part at all, will not affect you in any way.

Are there any age or other restrictions that may prevent me from participating?
Anyone between the ages of 11 and 19 years old can take part in this study.

How long will my part in the study take?
If you decide to take part in this study, your involvement will last approximately 30 minutes.

What will happen to me if I take part?
If you decide to take part, you will be asked to sign a consent form confirming your decision in writing. You will also be asked whether you consent to the interview being audio recorded. We will then arrange a date, time and location where the interview will take place, this might be in person, online or over the phone. During the interview you will be asked questions relating to physical activity, eating behaviour and your opinions on making changes in these areas.

What are the possible disadvantages, risks or side effects of taking part?
It is not anticipated that taking part will have any disadvantages for you.

What are the possible benefits of taking part?
By taking part in this study you will have the opportunity to present your thoughts and opinions on the challenges faced by young people in making changes to physical activity levels and eating behaviour. This information will be used to help design a new intervention to support young people like yourself to lead healthy lives.

How will my taking part in this study be kept confidential?
If you choose to take part your involvement will not be disclosed to anyone outside the research team. Your name and contact details will be stored securely at the University of Hertfordshire until the study is completed after which time they will be destroyed under secure conditions.

Audio-visual material
With your permission the interview will be audio recorded.

What will happen to the data collected within this study?
The audio recordings collected in this study will be stored electronically, on an encrypted hard drive until they have been transcribed, after which time they will be destroyed under secure conditions.

Consent forms collected in this study will be stored in hard copy in a locked cupboard for up to five years, after which time they will be destroyed under secure conditions.

With the exception of consent forms the data will be anonymised prior to storage.

Will the data be required for use in further studies?
The data will not be used in any further studies.

Who can I contact if I have any questions?
If you would like further information or would like to discuss any details personally, contact me by email:
Hannah Allcott-Watson (Principal Investigator)
h.allcott-watson@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix J: Qualitative study – Information sheet for parents of young people participants

University of Hertfordshire UH Ethics Committee

Participant Information Sheet for parents/guardians of participants under 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

Approved by: The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority
UH protocol number LMS/PGR/UH/04197

Introduction
Your child is being invited to take part in a study. As they are under 16 years old you will need to agree to them taking part. Before you decide whether your child can take part, it is important that you understand the study that is being undertaken and what their involvement will include. Please take the time to read the following information carefully and discuss it with your child. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish for your child to take part.

What is the purpose of this study?
This study is designed to find out the opinions of young people on making changes to physical activity and eating behaviour, specifically with regard to what might get in the way (barriers) or help (facilitators) to change.

Does my child have to take part?
It is completely up to you and your child whether or not they take part in this study. If you agree for your child to take part, and your child agrees, you will be asked to provide written *consent* for this. Additionally we will ask your child to provide written *assent*. Agreeing to join the study does not mean that your child has to complete it. Your child can stop the interview at any point. If they complete the interview and then either they or you change your minds, you can ask for your child's data to be deleted up to one month after the interview. They can withdraw without giving a reason. A decision to withdraw, or a decision not to take part at all, will not affect your child in any way.

Are there any age or other restrictions that may prevent my child from participating?
Anyone between the ages of 11 and 19 years old can take part in this study.

How long will my child's part in the study take?
If your child takes part in this study their involvement will last approximately 30 minutes.

What will happen to my child if they take part?
If your child takes part, you will be asked to sign a consent form confirming your decision in writing. We will then arrange a date, time and location where the interview will take place, this could be in person, online or over the phone. During the interview I will ask your child questions relating to physical activity and eating behaviour and their opinions on making changes in these areas. With your permission the interview will be audio recorded. If your child would like you to be with them during the interview this will be arranged.

What are the possible disadvantages, risks or side effects of taking part?
It is not anticipated that taking part will have any disadvantages for your child.

What are the possible benefits of taking part?
By taking part in this study your child will have the opportunity to present their thoughts and opinions on the challenges faced by young people in making changes to physical activity and eating behaviour. This information will be used to help design a new intervention to support young people to lead healthy lives.

How will my child's participation in this study be kept confidential?
If your child takes part in this study their involvement will not be disclosed to anyone outside the research team. Their name, your name and contact details will be stored securely at the University of Hertfordshire until the study is completed after which time they will be destroyed under secure conditions.

Audio-visual material
With your permission the interview will be audio recorded.

What will happen to the data collected within this study?
The audio recordings collected in this study will be stored electronically, on an encrypted hard drive until they have been transcribed, after which time they will be destroyed under secure conditions.

Consent forms collected in this study will be stored in hard copy in a locked cupboard for up to five years, after which time they will be destroyed under secure conditions.

With the exception of consent forms the data will be anonymised prior to storage.

Will the data be required for use in further studies?
The data will not be used in any further studies.

Who can I contact if I have any questions?
If you would like further information or would like to discuss any details personally, please contact me by email:
Hannah Allcott-Watson (Principal Investigator)
h.allcott-watson@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you very much for reading this information and giving consideration to your child taking part in this study.

Appendix K: Qualitative study – Parental consent form for young people under 16 years old

University of Hertfordshire UH Ethics Committee

Consent form for parent/guardian on behalf of a participant under 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents (UH Protocol number: LMS/PGR/UH/04197)

1. I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aims, details of my child's involvement, the names and contact details of key people and, as appropriate, the risks and potential benefits, how the information collected will be stored and for how long. I have also been informed of how my and my child's personal information on this form will be stored and for how long.

2. I have been assured that my child may withdraw from the study up to one month after the interview, without disadvantage or having to give a reason.

3. In giving my consent for my child to participate in this study, I understand that voice recording will take place and I have been informed this recording will be kept confidential within the research team.

4. I have been told how information relating to me and my child (data obtained in the course of the study, and data provided by my child) will be handled: how it will be kept secure, who will have access to it, and how it will be used.

☐ I have read the above information and consent to my child taking part in this study.

☐ I have read the above information and decline my child taking part in this study.

Name of parent/guardian (CAPITALS)…….…….

Name of child……... Relationship to child……

Signature of parent/guardian……..……. Date……

Name of principal investigator (CAPITALS)…….……...

Signature of principal investigator…….…… Date…….……

Appendix L: Qualitative study – Assent form for young people under 16 years old

University of Hertfordshire UH Ethics Committee

Assent form for participants under 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents (UH Protocol number: LMS/PGR/UH/04197)

1. I have been given a Participant Information Sheet (a copy is attached to this sheet) which tells me:
   - What the study is about
   - What I will do as part of the study
   - What information will be collected and how it will be stored safely
   - Who to contact if I have any questions

2. I know that I may leave the study up to one month after the interview and that I do not have to give a reason.

3. I agree to my voice being recorded and I understand that the recording will only be heard by the research team.

4. I understand that information about me, for example my name and age, will only be seen by the research team and will only be used for this study.

☐ I have read the above information and agree to take part in this study.

☐ I have read the above information and do not want to take part in this study.

Name (in CAPITALS) ……

Signature…… Date……

Name of principal investigator (CAPITALS)……....

Signature of principal investigator…… Date……

Appendix M: Qualitative study – Consent form for participants over 16 years old

University of Hertfordshire UH Ethics Committee

Consent form for participants over 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents (UH Protocol number: LMS/PGR/UH/04197)

1. I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aims, details of my involvement, the names and contact details of key people and, as appropriate, the risks and potential benefits, how the information collected will be stored and for how long. I have also been informed of how my personal information on this form will be stored and for how long.

2. I have been assured that I may withdraw from the study up to one month after the interview, without disadvantage or having to give a reason.

3. In giving my consent to participate in this study, I understand that voice recording will take place and I have been informed this recording will be kept confidential within the research team.

4. I have been told how information relating to me (data obtained in the course of the study, and data provided by me about myself) will be handled: how it will be kept secure, who will have access to it, and how it will be used.

☐ I have read the above information and consent to take part in this study.

☐ I have read the above information and decline to take part in this study.

Name of participant (CAPITALS)…….

Signature of participant…….…….. Date……

Name of principal investigator (CAPITALS)…….……...

Signature of principal investigator…….… Date……..…

Appendix N: Qualitative study – Debrief sheet for young people under 16 years old

University of Hertfordshire UH Ethics Committee

Debrief Sheet for participants under 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

Thank you for taking part in this study. The study aimed to find out the thoughts and opinions of different people on young people's physical activity and eating. To do this we spoke to young people, adults who work with, or have previously worked with young people, and those who provide services for young people in the community. When we spoke with you, you told us your thoughts on physical activity and healthy eating. You also answered questions about a new programme we are aiming to develop. We will use all the information we have been given to design a new programme to support young people to be physically active and eat healthily.

The information you gave us is helpful. However, if you change your mind and would like to have your information deleted from the study you can speak to your parent/guardian.

If you are worried about anything related to physical activity or eating you can speak to your parent/guardian or with your GP. If you would like to find out more about physical activity and healthy eating you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any questions you can talk to your parent/carer or contact the study team:

Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

Thank you again for taking part in this study.

Appendix O: Qualitative study – Debrief sheet for participants over 16 years old

University of Hertfordshire UH Ethics Committee

Debrief Sheet for participants over 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

This study aimed to identify the needs of young people in relation in physical activity and eating behaviours. It also sought to identify the barriers that might stop, and the facilitators that might help, young people to be physically active and eat healthily. To gather this information the study involved interviewing young people and professionals who work with/used to work with young people and those who commission service provision in local areas. As such this study will help us understand different people's perspectives on young people's behaviour in relation to physical activity and healthy eating. The information obtained from the interviews will be considered along with results from a systematic literature review. It is anticipated that the combined knowledge will enable the development of a new programme to support young people with physical activity and healthy eating.

Your input into this study is valuable. However if you change your mind and would like your interview to be removed from the study you can do this up until one month after the interview date. After this point the information you provided will be analysed and withdrawing it will not be possible. If you wish to withdraw please contact the principle investigator via the contact details provided below.

If you are concerned about anything related to physical activity or eating, speak with your GP. If you would like to find out more about physical activity recommendations and information about healthy eating you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any further questions or you wish to be informed of the outcome of the study please contact the principal investigator:
Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB
Thank you for participating in this study.

Appendix P: Qualitative study – Debrief sheet for parents of young people under 16 years old

University of Hertfordshire UH Ethics Committee

Debrief Sheet for parents/guardians of participants under 16 years old

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

This study aimed to identify the needs of young people in relation in physical activity and eating behaviours. It also sought to identify the barriers that might stop, and the facilitators that might help, young people to be physically active and eat healthily. To gather this information the study involved interviewing young people and professionals who work with/used to work with young people and those who commission service provision in local areas. As such this study will help us understand different people's perspectives on young people's behaviour in relation to physical activity and healthy eating. The information obtained from the interviews will be considered along with results from a systematic literature review. It is anticipated that the combined knowledge will enable the development of a new programme to support young people with physical activity and healthy eating.

Your child's input into this study is valuable. However if you or your child change your mind and would like your child's interview to be removed from the study you can do this up until one month after the interview date. After this point the information your child provided will be analysed and withdrawing it will not be possible. If you wish to withdraw your child please contact the principle investigator via the contact details provided below.

If you are concerned about anything related to physical activity or eating, speak with your GP. If you would like to find out more about physical activity recommendations and information about healthy eating you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any further questions or you wish to be informed of the outcome of the study, please contact the principal investigator:
Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you for your child's participation in this study.

Appendix Q: Qualitative study – Themes and subthemes linked to codes for young people interviews

Theme	Subtheme	Codes
1. Knowledge of physical and mental health impact	1.1. Physical and functional benefits	Body appearance and health Clears your head Concentration and learning Disease prevention Energy and sleep Fitness and weight Fuelling the body Strength and stamina to do more Stress management
	1.2. Impact on emotions and wellbeing	Endorphin release Enjoy the day more Feel accomplished Feel bad when unhealthy Feel good about yourself Makes you happy Mood and mental health PA and HE are needed for wellbeing PA helped cope with lockdown Positive mindset Relax and calm Self-esteem and confidence
	1.3. Pockets of knowledge	5 a day Avoiding bad foods Can socialise while being active Doesn't include PA during work Eating the right amount Frequency estimations for PA Getting vitamins minerals and energy Getting your heart rate up Having a balance Includes activity at work Includes sports and structured activities Intensity is important It's a break from the day Misconceptions about HE Moving around in everyday life Not sitting around Not skilling meals PA is about challenge or competition Staying hydrated Using your body, walking or running
2. School and the wider environment	2.1. Unsupportive environment	Easier if more healthy options when out Fast food is convenient, fast, accessible and cheap Infrastructure Unhealthy food at front of shop
	2.2. Support from school via	Easier if timetabled at school Provide for after school clubs to be active

		more opportunities	School meals are healthy School meals are not healthy School provides access to cheap, unhealthy food Schools to provide healthier food Spend a lot of time in school
		2.3. Support from school via more information	Educate on benefits and consequences Food tech class provides information More could be done in lessons Need school support Provide a basic understanding Provide ideas School can encourage you
3.	The role of social systems	3.1. Upbringing shapes adolescent behaviour	Active because parents are active Current behaviour is result of childhood experiences Eating habits imprinted by parents when young Grown up eating well because of parents Influenced by family around you Parents can inspire children from a young age Parents influence what their children eat based on knowledge
		3.2. Reliance on parents	Not being in control Parents do the cooking Parents do the shopping Parents in charge Reliance on parents to drive
		3.3. Need parents and wider family on board	Being active with parents Discussing meals as a family Easier if whole family on board Family can provide encouragement Include parents Need parental support to be active Need parental support to eat well Need parents to model physical activity Parents can provide reminders Parents could impart knowledge Parents could provide healthy food
		3.4. Friends as supporters and influences	Friends can derail you Friends make it less boring Friends provide encouragement Good to do things with friends Group mentality Make changes together Role modelling from friends Want to join in with friends I'd go with friends
4.	Drives and constraints within adolescent life	4.1. Financial resources and time	Don't make it time consuming Expense of leisure facilities Having time to be active HE is more expensive Lack of own money Lack of space

		Lack of time might stop attendance Need less stuff to do can be active Need to plan time Not enough time to be active Some activities require special facilities or equipment
	4.2. Availability influences food decisions	Easier when don't have unhealthy food around Easier when have healthy food around Food choices influenced by what doing or seeing Harder if going to parties Having junk food around makes it hard Temptation
	4.3. Being active is not always a priority	Distractions Having other commitments Have to prioritise school work It's important but not a priority School work and exams Screen time can be addictive Want to do other things Won't go if don't see it as important
	4.4. The challenges of change	Change can be difficult and lengthy Change takes time Giving up bad things is hard Need support when making changes Sticking to change can be hard
	4.5. Motivation to change behaviour	Accomplishments motivate you Committing to a club provides motivation Competition is motivating Facts can be motivating Goals provide motivation Hard to motivate yourself Motivation as a barrier Motivation as a facilitator Motivation from other people Motivation is important Reward yourself to motivate yourself Think about the positives to motivate yourself Young people struggle with motivation
5. Best practice in programme design and delivery	5.1. Create a positive, safe space	A safe environment Balance between serious and laid back Friendly and non-judgemental Manage group dynamics Need to feel comfortable Not pressurised Supportive not critical
	5.2. Make it fun, engaging and enjoyable	Don't make it boring Enjoyment Include games Make it fun More likely to return if feeling positive emotions Videos are engaging Won't go if it feel like a chore

		Won't go if not engaging or is boring Won't go it not enjoying it Would return if enjoying it
	5.3. Interactive, practical activities to develop skills	Base activities on information Cook recipes to try new foods Demonstrate exercise techniques Include a PA element Interactivity is important Plan a healthy diet Practice planning a meal Provide practical advice Taste testing of healthy food Use activities rather than instructions
	5.4. Work towards goals	Feel bad if not progressing Provide feedback on how well doing Seeing progress helps engagement Use goals to keep going Want to see progress Will return if rewarded for effort or achievement
	5.5. New and varied options	Allow for sweet tooth Always have options Don't do same thing over and over Have options for activities Options for different abilities Provide new information Provide options beyond salad Provide options for HE Provide options on how to be active Won't go if not learning Would go back if learning new information Would return to find out more
	5.6. Tailor for different age ranges	Attitude and behaviour Challenging to include large age range Conceptual understanding changes as age Developmental stage Different activities Different topics or focus Getting the most out of it Language needs change

Appendix R: Qualitative study – Semi-structured interview schedule for practitioners

Interview Schedule – practitioners

Introduction

This interview is for a project designed to help us understand various people's thoughts and opinions on physical activity and eating behaviours in young people. Additionally we are interested to hear your thoughts on a new programme which aims to support young people to make changes to their physical activity and eating behaviours. We are interviewing lots of practitioners so we can hear a range of thoughts on this topic.

The interview will last about 30 minutes. We can take a break at any point if you want to. You can stop the interview at any time. Do you have any questions before we begin?

Questions

Physical activity

- **What do you think it means to young people to be physically active?**
- **For young people who want to do more physical activity, what would make it harder for them and what would make it easier?**
- **What support do you think young people need to be able to change their physical activity patterns?**
  - ↳ Prompt: who could support them? What could people say or do?

Eating behaviours

- **What do you think the phrase healthy eating means to young people?**
- **For young people who want to eat more healthily, what do you think would make it easier and what would make it harder?**
- **What support do you think young people need to be able to change their eating patterns?**
  - ↳ Prompt: who could support them? What could people say or do?

New Programme

We are hoping to develop a new programme for practitioners to support young people who want to make changes to their physical activity and eating behaviours:

- **What is your experience of working with young people and/or delivering health based programmes to young people?**
  - ↳ Prompt: how many programmes have you delivered and to who?
- **What barriers do you think are faced by practitioners when trying to support young people to make changes in their lives and how can these be overcome?**
  - ↳ Prompt: think about your professional experience to date.
  - ↳ Prompt: have you used any techniques/strategies in the past which have been beneficial?

- **If you were designing a new programme to support young people with physical activity, healthy eating and wellbeing, what would it look like?**
    - ↳ Prompt: in what format would it best be delivered? E.g. 1:1 or group.
    - ↳ Prompt: where would be the best venue for the programme to be delivered? E.g. online, face to face, telephone or a combination these, at school, not at school?
    - ↳ Prompt: what time of the day and week do you think would be the best time for sessions?
    - ↳ Prompt: how often do you think sessions should be held? i.e. how many times per week/month?
    - ↳ Prompt: what content would be included? E.g. information and statistics, practical advice, success stories from young people.
    - ↳ Prompt: how do you think young people would like the information to be presented? E.g. videos, worksheets, role plays.
    - ↳ Prompt: what would make young people go back each week?
    - ↳ Prompt: what might stop young people attending?

<u>Ending</u>

- **Is there anything I haven't asked about that you think would be useful for me to know?**
- **Is there anything that you would like to add?**

Appendix S: Qualitative study – Information sheet for professionals

University of Hertfordshire UH Ethics Committee

Participant Information Sheet for professionals

Study title: Exploring the needs, barriers and facilitators to changing physical activity and eating behaviours in adolescents.

Approved by: The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority
UH protocol number LMS/PGR/UH/04197

Introduction
You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the study that is being undertaken and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part.

What is the purpose of this study?
This study is designed to find out the opinions of young people, practitioners and commissioners on helping make changes to the physical activity and eating behaviours of adolescents, specifically with regard to barriers and facilitators to change. This will inform the development of a new programme for adolescents.

Do I have to take part?
It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You can stop the interview at any point. If you complete the interview and then change your mind you can ask for your data to be deleted up to one month after the interview. You can withdraw without giving a reason. A decision to withdraw, or a decision not to take part at all, will not affect you in any way.

Are there any age or other restrictions that may prevent me from participating?
Any health care professional or practitioner who delivers interventions to young people, or any commissioner of local service provision is eligible to take part.

How long will my part in the study take?
If you decide to take part in this study, your involvement will last approximately 30 minutes.

What will happen to me if I take part?
If you decide to take part you will be asked to sign a consent form confirming your decision in writing. You will also be asked whether you consent to the interview being audio recorded. We will then arrange a date, time and location where the interview will take place, this might be in person, online or over the phone. During the interview you will be asked questions relating to physical activity, eating behaviour and your opinions on adolescents making changes in these areas.

What are the possible disadvantages, risks or side effects of taking part?
It is not anticipated that taking part will have any disadvantages for you.

What are the possible benefits of taking part?
By taking part in this study you will have the opportunity to present your thoughts and opinions on the challenges faced by young people in making changes to physical activity levels and eating behaviour. You will also be able provide your thoughts and opinions on a new programme to support young people to lead healthy lives. This information will help guide the development of a new programme to support young people to lead healthy lives.

How will my taking part in this study be kept confidential?
If you choose to take part, your involvement will not be disclosed to anyone outside the research team. Your name and contact details will be stored securely at the University of Hertfordshire until the study is completed after which time they will be destroyed under secure conditions.

Audio-visual material
With your permission the interview will be audio recorded.

What will happen to the data collected within this study?
The audio recordings collected in this study will be stored electronically, on an encrypted hard drive until they have been transcribed, after which time they will be destroyed under secure conditions.

Consent forms collected in this study will be stored in hard copy in a locked cupboard for up to five years, after which time they will be destroyed under secure conditions.

With the exception of consent forms the data will be anonymised prior to storage.

Will the data be required for use in further studies?
The data will not be used in any further studies.

Who can I contact if I have any questions?
If you would like further information or would like to discuss any details personally, please contact me by email:
Hannah Allcott-Watson (Principal Investigator)
h.allcott-watson@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix T: Qualitative study – Semi-structured interview schedule for commissioners

Interview Schedule – commissioners

Introduction

This interview is for a project designed to help us understand various people's thoughts and opinions on physical activity and eating behaviours in young people. Additionally we are interested to hear your thoughts on a new programme which aims to support young people to make changes to their physical activity and eating behaviours. We are interviewing several commissioners so we can hear a range of thoughts on this topic

The interview will last about 30 minutes. We can take a break at any point if you want to. You can stop the interview at any time. Do you have any questions before we begin?

Questions

Physical activity

- **What do you think it means to young people to be physically active?**
- **For young people who want to do more physical activity what would make it harder for them and what would make it easier?**
- **What support do you think young people need to be able to change their physical activity patterns?**
    - ↳ Prompt: who could support them? What could people say or do?

Eating behaviours

- **What do you think the phrase healthy eating means to young people?**
- **For young people who want to eat more healthily what do you think would make it easier and what would make it harder?**
- **What support do you think young people need to be able to change their eating patterns?**
    - ↳ Prompt: who could support them? What could people say or do?

New Programme

We are hoping to develop a new programme for practitioners to support young people who want to make changes to their physical activity and eating behaviours:

- **What is your experience of commissioning these types of programmes in this population?**
    - ↳ Prompt: how many programmes have you previously commissioned?
- **What do you consider to be important elements of the programmes you commission?**
    - ↘ **Follow up: How often do you consider Patient and Public Involvement insight in the commissioning of services?**
- **What barriers do you think there are to implementing programmes to support young people to make changes in their lives and how can these be overcome?**

↳ Prompt: think about your professional experience to date.

- **If you were designing a new programme to support young people with physical activity, healthy eating and wellbeing what would it look like?**
  - ↳ Prompt: in what format would it best be delivered? E.g. 1:1 or group.
  - ↳ Prompt: where would be the best venue for the programme to be delivered? E.g. online, face to face, telephone or a combination these, at school, not at school?
  - ↳ Prompt: what time of the day and week do you think would be the best time for sessions?
  - ↳ Prompt: how often do you think sessions should be held? I.e. how many times per week/month?
  - ↳ Prompt: what content would be included? E.g. information and statistics, practical advice, success stories from young people.
  - ↳ Prompt: how do you think young people would like the information to be presented? E.g. videos, worksheets, role plays.
  - ↳ Prompt: what would make young people go back each week?
  - ↳ Prompt: what might stop young people attending?

<u>Ending</u>

- **Is there anything I haven't asked about that you think would be useful for me to know?**
- **Is there anything that you would like to add?**

Appendix U: Programme development – APEASE analysis of candidate intervention types

Intervention type	APEASE criteria						Decision
	A	P	E	A	S	E	
Physical activity behaviour							
Education	✓	✓	✓	✓	✓	✓	Suitable. Information on how to be active, its importance and consequences of not being active is available and can be incorporated into sessions and handouts.
Training	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can show young people how to engage in PA and encourage their involvement to practice skills. Instruction on PA exercises can be provided in handouts.
Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can support young people to set goals and problem-solving skills can be taught in sessions and provided in handouts.
Modelling	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can model PA through activity breaks in each session.
Environmental restructuring	✓		✓		✓	✓	Unsuitable. Not practical or affordable to alter the PA environment in this programme.
Restriction				✓		✓	Unsuitable. Not considered appropriate for young people who are transitioning to independence and may not follow rules meaning it might not be effective. Not practical to restrict PA. Potential spill-over effects of rebelling against rules.
Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators knowledge can make them be seen as a credible source. Information about health consequences is available and can be delivered in sessions.
Incentivisation		✓	✓			✓	Unsuitable. Not considered acceptable to 'bribe' young people into behaviour, not affordable and could lead to adverse side-effects such as injury or exhaustion trying to gain rewards.
Coercion				✓		✓	Unsuitable. Not considered acceptable to coerce young people into behaviour, not practical in this programme, may not be effective and applying costs or punishments may negatively impact young people leading to side-effects.
Healthy eating behaviour							
Education	✓	✓	✓	✓	✓	✓	Suitable. Information on how to eat well, its importance and consequences of unhealthy eating is available and can be incorporated into sessions and handouts.
Training	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can show young people how to engage in taste testing of healthy food and encourage their involvement to practice skills. Young people can self-monitor their fruit and vegetable intake through handouts.
Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can support young people to set goals and problem-solving skills can be taught in sessions and provided in handouts.

Modelling	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can model HE through tase testing in sessions.
Environmental restructuring	✓	✓	✓	✓	✓	✓	Suitable. Healthy food can be provided to young people in sessions.
Restriction				✓		✓	Unsuitable. Not considered acceptable for young people who are transitioning to independence and may not follow rules meaning it might not be effective. Not practical to control food provision. Potential spill-over effects of rebelling against rules.
Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators knowledge can make them be seen as a credible source. Information about health consequences is available and can be delivered in sessions.
Incentivisation		✓	✓		✓	✓	Unsuitable. Not considered acceptable to 'bribe' young people into behaviour and not affordable.
Coercion				✓		✓	Unsuitable. Not considered acceptable to coerce young people into behaviour, not practical in this programme, may not be effective and applying costs or punishments may negatively impact young people leading to side-effects.

Note. APEASE criteria: A = Acceptability, P = Practicability, E = Effectiveness, A = Affordability, S = Spill-over effects, E = Equity

Appendix V: Programme development – APEASE analysis of candidate policy options

Policy option	APEASE criteria						Decision
	A	P	E	A	S	E	
Physical activity behaviour							
Service provision	✓	✓	✓	✓	✓	✓	Suitable. A new programme which can be adopted by commissioners and provided as a service has been developed.
Guidelines	✓	✓		✓	✓	✓	Unsuitable. These fail to meet APEASE criteria and programme not able to influence these policy options.
Regulation					✓	✓	
Legislation					✓	✓	
Communication/ marketing					✓	✓	
Fiscal measures					✓	✓	
Environmental/ social planning					✓	✓	
Healthy eating behaviour							
Service provision	✓	✓	✓	✓	✓	✓	Suitable. A new programme which can be adopted by commissioners and provided as a service has been developed.
Guidelines	✓	✓		✓	✓	✓	Unsuitable. These fail to meet APEASE criteria and programme not able to influence these policy options.
Regulation					✓	✓	
Legislation					✓	✓	
Communication/ marketing					✓	✓	
Fiscal measures					✓	✓	
Environmental/ social planning					✓	✓	

Note. APEASE criteria: A = Acceptability, P = Practicability, E = Effectiveness, A = Affordability, S = Spill-over effects, E = Equity

Appendix W: Programme development – APEASE analysis of candidate BCTs for physical activity and healthy eating behaviours

Table W1

APEASE analysis of candidate BCTs for physical activity

BCT code and description	Source	APEASE criteria						Decision
		A	P	E	A	S	E	
1.1 Goals setting (behaviour)	Interviews TDF: Intentions TDF: Goals IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be supported to set and rate goals in first session.
1.2 Problem solving	Interviews TDF: Beliefs about capabilities TDF: Behavioural regulation IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead activity on problem solving, instruction can be provided in handouts.
1.3 Goal setting (outcome)	TDF: Goals TDF: Intentions IF: Enablement		✓	✓	✓	✓	✓	Unsuitable. Not acceptable to focus on outcomes such as weight. Focus to remain on behaviour for its own sake.
1.4 Action planning	IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be supported to set SMART goals in relation to physical activity.
1.5 Review behaviour goals	Interviews TDF: Goals IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Goals can be re-rated in subsequent sessions.
1.6 Discrepancy between current behaviour and goal	TDF: Goals		✓		✓		✓	Unsuitable. Is inconsistent with a strengths-based approach used by HENRY programmes therefore considered unacceptable. Young people may feel upset considering how far they are from their goals (spill-over effect), this could reduce effectiveness.
1.7 Review outcome goals	TDF: Goals IF: Enablement							Unsuitable. Not setting outcome goals so no goal to review.
1.8 Behavioural contract	TDF: Intentions			✓	✓	✓	✓	Unsuitable. Considered impractical from a time and group perspective and an attempt to keep writing to a minimum. Considered not acceptable to create 'contracts' with minors.

1.9 Commitment	TDF: Intentions			✓	✓	✓	✓	Unsuitable. Not considered acceptable to ask young people to state commitments in front of a whole group and it would conflict with HENRY's 'right to pass'. Impractical from a time perspective given group format.
2.2 Feedback on behaviour	IF: Education IF: Persuasion IF: Training			✓	✓		✓	Unsuitable. Not considered acceptable to provide personalised feedback in a group setting. Not practical from a time perspective to feedback to everyone in the group. Risk of emotional response (spill-over effect) depending on feedback. Not possible to provide feedback without monitoring behaviour which is not happening.
2.3 Self-monitoring of behaviour	IF: Education IF: Training IF: Enablement			✓	✓	✓	✓	Unsuitable. Considered to create additional work for young people to complete outside of sessions with no simple method to capture activity, frequency and duration of all PA behaviour making it unacceptable and impractical.
2.7 Feedback on outcome(s) of behaviour	IF: Education IF: Persuasion IF: Training			✓	✓		✓	Unsuitable. Not considered acceptable to focus on outcomes such as weight or provide personalised feedback in a group setting. Not practical from a time perspective to feedback to everyone in the group. Risk of emotional response (spill-over effect) depending on feedback.
3.1 Social support (unspecified)	Interviews TDF: Social influences IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead discussion on types of support and benefits of seeking support from others. Parents can attend separate sessions where facilitators encourage them to support their child/ren to be active.
3.2 Social support (practical)	Systematic review Interviews TDF: Social influences TDF: Environmental context and resources IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on types of support and young people can identify appropriate people to provide this. Parents can attend separate sessions where facilitators can explore with them how to provide practical support to their child/ren and encourage follow through.
3.3 Social support (emotional)	Interviews TDF: Emotion IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on types of support and young people can identify appropriate people to provide this. Parents can attend separate sessions where facilitators can explore with them how to provide emotional support to their child/ren and encourage follow through.

4.1 Instruction on how to perform the behaviour	Systematic review Interviews TDF: Skills IF: Training	✓	✓	✓	✓	✓	✓	Suitable. Instruction on how perform various physical activity exercises can be provided in handouts.
4.2 Information about antecedents	Interviews TDF: Knowledge IF: Education	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead an activity supporting young people to identify antecedents to physical activity behaviours.
5.1 Information about health consequences	Systematic review Interviews TDF: Knowledge TDF: Beliefs about consequences IF: Education IF: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Information about health consequences of physical activity is available and can be incorporated into sessions and handouts.
5.2 Salience of consequences	TDF: Beliefs about consequences		✓	✓	✓		✓	Unsuitable. Risk of emotional reaction such as finding it upsetting makes in not acceptable.
5.3 Information about social and environmental consequences	TDF: Beliefs about consequences IF: Education IF: Persuasion	✓			✓	✓	✓	Unsuitable. Considered impractical from a time perspective to include this one, as well as 5.1 and 5.6, and this is considered likely to be less effective than the other two.
5.4 Monitoring of emotional consequences	TDF: Emotion		✓	✓	✓	✓	✓	Unsuitable. Considered to create additional work for young people to complete outside of sessions making it unacceptable.
5.5 Anticipated regret	TDF: Beliefs about consequences				✓		✓	Unsuitable. Considered not acceptable to 'emotionally blackmail' young people in performing certain behaviours. May not have desired outcome thus being ineffective and may have emotional spill-over effects such as feelings of hopelessness.
5.6 Information about emotional consequences	Interviews TDF: Emotion IF: Education IF: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on link between physical activity and emotions/mental health.
6.1 Demonstration of the behaviour	IF: Training IF: Modelling	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead activity breaks in sessions, demonstrating light physical activity exercises.

6.2 Social comparison	TDF: Social influences		✓	✓	✓		✓	Unsuitable. Not considered acceptable to make comparisons between young people and others given potential for spill-over effects on self-esteem, confidence or emotional responses
6.3 Information about others approval	TDF: Social influences	✓	✓		✓	✓	✓	Unsuitable. Considered that as peers are a main influence on young people's behaviour it is unlikely to be effective to tell them about whether other people approve of PA or not.
7.1 Prompts/cues	TDF: Environmental context and resources IF: Education IF: Environmental restructuring	✓			✓	✓	✓	Unsuitable. Considered impractical from a time perspective to discuss and agree prompts/cues for everyone in a group format. Might not be effective as young people lack control of home environments and may not be able to introduce prompts/cues in this setting.
7.5 Remove aversive stimulus	TDF: Environmental context and resources	✓			✓	✓	✓	Unsuitable. Not practical to arrange this for young people. Might not be effective.
8.1 Behavioural practice/rehearsal	Interviews TDF: Skills TDF: Beliefs about capabilities IF: Training	✓	✓	✓	✓	✓	✓	Suitable. Young people can join in with activity breaks, engaging in light physical activity.
8.4 Habit reversal	TDF: Skills			✓	✓	✓	✓	Unsuitable. Considered too complex for this population based on previous experience making it not acceptable or practical.
8.7 Graded tasks	TDF: Skills TDF: Beliefs about capabilities	✓		✓	✓	✓	✓	Unsuitable. Considered unpractical to set individualised graded tasks in group format which from experience requires considerable time.
9.1 Credible source	IF: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators to be knowledgeable on physical activity so as to be viewed as credible.
9.2 Pros and cons	TDF: Beliefs about consequences				✓		✓	Unsuitable. Considered impractical in group format where reasons for changing behaviour may be very sensitive and private. May not be effective and could trigger an emotional response.
9.3 Comparative imagining of future outcomes	TDF: Beliefs about consequences TDF: Intentions				✓		✓	Unsuitable. Impractical in a group setting. May not be effective as young people focus on the present rather than the future. Could be upsetting for young people to imagine future versions of themselves and could lead to feeling pressured to engage in more PA (spill-over effects), therefore not acceptable.

10.1 Material incentive (behaviour)	TDF: Reinforcement	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.4 Social reward	Interviews TDF: Social influences	✓	✓	✓	✓	✓	✓	Suitable. Young people can be congratulated and praised for effort and progress towards physical activity.
10.8 Incentive (outcome)	TDF: Beliefs about consequences TDF: Reinforcement TDF: Intentions	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.10 Reward (outcome)	TDF: Beliefs about consequences TDF: Reinforcement	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.11 Future punishment	TDF: Belief about consequences		✓		✓		✓	Unsuitable. Not acceptable to 'threaten' young people which may impact rapport or to draw attention to unwanted behaviour. Could make young people upset or angry (spill-over effect).
11.2 Reduce negative emotions	TDF: Emotion TDF: Behavioural regulation IT: Enablement			✓	✓	✓	✓	Unsuitable. Considered that negative emotions likely to be related to previous experiences with PA which the programme is unable to address making it not acceptable or practical.
11.3 Conserving mental resources	TDF: Memory, attention and decision processes		✓		✓	✓	✓	Unsuitable. Considered unlikely to be effective as behaviours to reduce mental resources would increase demand on other behaviours which may be unacceptable to young people.
12.1 Restructuring the physical environment	TDF: Environmental context and resources IF: Environmental restructuring IF: Enablement	✓	✓		✓	✓	✓	Unsuitable. Considered unlikely to be effective given the limited control young people have on their home environment.
12.2 Restructuring the social environment	Interviews TDF: Environmental context and resources IF: Environmental restructuring IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on the benefits of being active with others.
12.3 Avoidance/reducing exposure to cues for the behaviour	TDF: Environmental context and resources		✓		✓		✓	Unsuitable. Considered likely to be ineffective given the limited control young people have on exposure to cues, and the importance they place on socialising with peers. Could evoke

								emotional responses if advised to limit contact with peers or social situations and impact rapport with facilitators.
12.5 Adding objects to the environment	Interviews TDF: Environmental context and resources IF: Environmental restructuring IF: Enablement	✓	✓	✓		✓	✓	Unsuitable. Not affordable for this programme.
15.3 Focus on past success	TDF: Beliefs about capabilities				✓			Unsuitable. May not be effective as some young people may not have past successes (not equitable) or may feel they have limited successes compared to someone else in the group leading to an emotional response (spill-over effect) making it impractical for a group setting and not acceptable.
16.1 Imaginary punishment	TDF: Beliefs about consequences				✓		✓	Unsuitable. Not considered appropriate to draw attention to unwanted wanted behaviour or for young people to imagine something unpleasant happening to themselves. May be impractical in a group setting and may not be effective as young people may view it as disconnected from their real lives. Could cause emotional reaction (spill-over effect) and therefore not acceptable.
16.2 Imaginary reward	TDF: Beliefs about consequences				✓		✓	Unsuitable. May be impractical in a group setting asking young people to venture off into their imagination, they may feel uncomfortable with this (spill-over effect) meaning it might not be effective and it therefore not acceptable.
16.3 Vicarious consequences	IF: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can provide praise to young people in front of the whole group for effort and progress.

Note. TDF = Theoretical Domains Framework, IF = Intervention Function, A = Acceptability, P = Practicability, E = Effectiveness, A = Affordability, S = Spill-over effects, E = Equity.
Suitable BCTs used in the programme highlighted in blue.

Table W2
APEASE analysis of candidate BCTs for healthy eating

BCT code and description	Source	APEASE criteria						Decision
		A	P	E	A	S	E	
1.1 Goals setting (behaviour)	Interviews TDF: Goals TDF: Intentions IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be supported to set and rate goals in first session.
1.2 Problem solving	Systematic review Interviews TDF: Beliefs about capabilities TDF: Behavioural regulation IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead activity on problem solving, instruction can be provided in handouts.
1.3 Goal setting (outcome)	TDF: Goals TDF: Intentions IT: Enablement		✓	✓	✓	✓	✓	Unsuitable. Not considered acceptable to focus on outcomes such as weight. Focus to remain on behaviour for its own sake.
1.4 Action planning	Systematic review IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be supported to set SMART goals in relation to healthy eating.
1.5 Review behaviour goals	Interviews TDF: Goals IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Goals can be re-rated in subsequent sessions.
1.6 Discrepancy between current behaviour and goal	TDF: Goals		✓		✓		✓	Unsuitable. Is inconsistent with a strengths-based approach used by HENRY programmes therefore considered unacceptable. Young people may feel upset considering how far they are from their goals (spill-over effect), this could reduce effectiveness.
1.7 Review outcome goals	TDF: Goals IT: Enablement							Unsuitable. Not setting outcome goals so no goal to review.
1.8 Behavioural contract	TDF: Intentions			✓	✓	✓	✓	Unsuitable. Considered impractical from a time and group perspective and an attempt to keep writing to a minimum. Considered not acceptable to create 'contracts' with minors.
1.9 Commitment	TDF: Intentions			✓	✓	✓	✓	Unsuitable. Not considered acceptable to ask young people to state commitments in front of a whole group and it would conflict

								with HENRY's 'right to pass'. Impractical from a time perspective given group format.
2.2 Feedback on behaviour	IT: Education IT: Persuasion IT: Training	✓		✓	✓		✓	Unsuitable. Not considered acceptable to provide personalised feedback in a group setting. Not practical from a time perspective to feedback to everyone in the group. Risk of emotional response (spill-over effect) depending on feedback.
2.3 Self-monitoring of behaviour	Systematic review IT: Education IT: Training IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be provided with paper trackers to monitor fruit and vegetable consumption.
2.7 Feedback on outcome(s) of behaviour	IT: Education IT: Persuasion IT: Training			✓	✓	✓	✓	Unsuitable. Not considered acceptable to focus on outcomes such as weight or provide personalised feedback in a group setting. Not practical from a time perspective to feedback to everyone in the group. Risk of emotional response (spill-over effect) depending on feedback.
3.1 Social support (unspecified)	Systematic review Interviews TDF: Social influences IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead discussion on types of support and benefits of seeking support from others. Parents can attend separate sessions where facilitators encourage them to support their child/ren to be eat healthily.
3.2 Social support (practical)	Interviews TDF: Social influences TDF: Environmental context and resources IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on types of support and young people can identify appropriate people to provide this. Parents can attend separate sessions where facilitators can explore with them how to provide practical support to their child/ren and encourage follow through.
3.3 Social support (emotional)	Interviews TDF: Emotion IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on types of support and young people can identify appropriate people to provide this. Parents can attend separate sessions where facilitators can explore with them how to provide emotional support to their child/ren and encourage follow through.
4.1 Instruction on how to perform the behaviour	Systematic review Interviews TDF: Skills IT: Training	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead discussions/activities on how to make healthy food swaps, balance meals, increase fruit and vegetable consumption, reduce salt intake, reduce consumption of processed foods.

4.2 Information about antecedents	Interviews TDF: Knowledge IT: Education	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead an activity supporting young people to identify antecedents to healthy and unhealthy eating behaviours.
4.4 Behavioural experiments	Interviews IT: Training IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can sample healthy foods in sessions, supported by facilitators to consider thoughts and emotions beforehand and reflecting on outcomes.
5.1 Information about health consequences	Systematic review Interviews TDF: Knowledge TDF: Beliefs about consequences IT: Education IT: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Information about health consequences of eating healthily is available and can be incorporated into sessions and handouts.
5.2 Salience of consequences	TDF: Beliefs about consequences		✓	✓	✓		✓	Unsuitable. Risk of emotional reaction such as finding it upsetting makes in not acceptable.
5.3 Information about social and environmental consequences	TDF: Beliefs about consequences IT: Education IT: Persuasion	✓			✓	✓	✓	Unsuitable. Considered impractical from a time perspective to include both 5.1 and 5.3. and this is considered likely to be less effective than 5.1.
5.4 Monitoring of emotional consequences	TDF: Emotion			✓	✓		✓	Unsuitable. Considered impractical and not acceptable to monitor emotional responses to eating in this population. Potential for adverse emotional spill-over effects.
5.5 Anticipated regret	TDF: Beliefs about consequences				✓		✓	Unsuitable. Considered not acceptable to 'emotionally blackmail' young people in performing certain behaviours. May not have desired outcome thus being ineffective and may have emotional spill-over effects such as feelings of hopelessness.
5.6 Information about emotional consequences	Interviews TDF: Emotion IT: Education IT: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on link between healthy eating and emotions.
6.1 Demonstration of the behaviour	IT: Training IT: Modelling	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can join in with taste testing healthy foods, demonstrating this for young people.

6.2 Social comparison	TDF: Social influences		✓	✓	✓		✓	Unsuitable. Not considered acceptable to make comparisons between young people and others given potential for spill-over effects on self-esteem, confidence or emotional responses.
6.3 Information about others approval	TDF: Social influences	✓	✓		✓	✓	✓	Unsuitable. Considered that as peers are a main influence on young people's behaviour it is unlikely to be effective to tell them about whether other people approve of HE or not.
7.1 Prompts/cues	TDF: Environmental context and resources IT: Education IT: Environmental restructuring	✓			✓	✓	✓	Unsuitable. Considered impractical from a time perspective to discuss and agree prompts/cues for everyone in a group format. Might not be effective as young people lack control of home environments and may not be able to introduce prompts/cues in this setting.
7.5 Remove aversive stimulus	TDF: Environmental context and resources	✓			✓	✓	✓	Unsuitable. Not practical to arrange this for young people. Might not be effective.
8.1 Behavioural practice/rehearsal	Systematic review Interviews TDF: Skills TDF: Beliefs about capabilities IT: Training	✓	✓	✓	✓	✓	✓	Suitable. Young people can be offered healthy food to eat during sessions.
8.4 Habit reversal	TDF: Skills			✓	✓	✓	✓	Unsuitable. Considered too complex for this population making it unacceptable and impractical to deliver.
8.6 Generalisation of target behaviour	IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can encourage young people to continue trying healthy food outside sessions.
8.7 Graded tasks	TDF: Skills TDF: Beliefs about capabilities	✓		✓	✓	✓	✓	Unsuitable. Considered unpractical to set individualised graded tasks in group format which from experience requires considerable time.
9.1 Credible source	IT: Persuasion	✓	✓	✓	✓	✓	✓	Suitable. Facilitators to be knowledgeable on healthy eating so as to be viewed as credible.
9.2 Pros and cons	TDF: Beliefs about consequences				✓		✓	Unsuitable. Considered impractical in group format where reasons for changing behaviour may be very sensitive and private. May not be effective and could trigger an emotional response.
9.3 Comparative imagining of future outcomes	TDF: Beliefs about consequences TDF: Intentions				✓		✓	Unsuitable. Impractical in a group setting. May not be effective as young people focus on the present rather than the future. Could be upsetting for young people to imagine future versions of

								themselves and could lead to feeling pressured to engage in more PA (spill-over effects), therefore not acceptable.
10.1 Material incentive (behaviour)	TDF: Reinforcement	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.4 Social reward	Interviews TDF: Social influences	✓	✓	✓	✓	✓	✓	Suitable. Young people can be congratulated and praised for effort and progress towards eating well.
10.8 Incentive (outcome)	TDF: Beliefs about consequences TDF: Reinforcement TDF: Intentions	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.10 Reward (outcome)	TDF: Beliefs about consequences TDF: Reinforcement	✓	✓	✓			✓	Unsuitable. Not affordable to provide rewards within this programme. May lead to spill-over effects (upset, resentful) where some young people are not rewarded.
10.11 Future punishment	TDF: Beliefs about consequences		✓		✓		✓	Unsuitable. Not acceptable to 'threaten' young people which may impact rapport or to draw attention to unwanted behaviour. Could make young people upset or angry (spill-over effect).
11.2 Reduce negative emotions	TDF: Emotion TDF: Behavioural regulation IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can be taught how to manage symptoms of anxiety that may impede eating new healthy foods.
11.3 Conserving mental resources	TDF: Memory, attention and decision processes		✓		✓	✓	✓	Unsuitable. Considered unlikely to be effective as behaviours to reduce mental resources would increase demand on other behaviours which may be unacceptable to young people.
12.1 Restructuring the physical environment	TDF: Environmental context and resources IT: Environmental restructuring IT: Enablement	✓	✓		✓	✓	✓	Unsuitable. Considered unlikely to be effective given the limited control young people have on their home environment.
12.2 Restructuring the social environment	Interviews TDF: Environmental context and resources IT: Environmental restructuring IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can lead a discussion on the benefits of eating healthily with others.
12.3 Avoidance/reducing	TDF: Environmental context and resources		✓		✓		✓	Unsuitable. Considered likely to be ineffective given the limited control young people have on exposure to cues, and the

exposure to cues for the behaviour								importance they place on socialising with peers. Could evoke emotional responses if advised to limit contact with peers or social situations and impact rapport with facilitators.
12.5 Adding objects to the environment	Interviews TDF: Environmental context and resources IT: Environmental restructuring IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Can provide healthy food to young people in sessions.
12.6 Body changes	IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Young people can learn relaxation techniques to manage anxiety when trying new healthy foods.
15.3 Focus on past success	TDF: Beliefs about capabilities				✓			Unsuitable. May not be effective as some young people may not have past successes (not equitable) or may feel they have limited successes compared to someone else in the group leading to an emotional response (spill-over effect) making it impractical for a group setting and not acceptable.
16.1 Imaginary punishment	TDF: Beliefs about consequences				✓		✓	Unsuitable. Not considered appropriate to draw attention to unwanted wanted behaviour or for young people to imagine something unpleasant happening to themselves. May be impractical in a group setting and may not be effective as young people may view it as disconnected from their real lives. Could cause emotional reaction (spill-over effect) and therefore not acceptable.
16.2 Imaginary reward	TDF: Beliefs about consequences				✓		✓	Unsuitable. May be impractical in a group setting asking young people to venture off into their imagination, they may feel uncomfortable with this (spill-over effect) meaning it might not be effective and it therefore not acceptable.
16.3 Vicarious consequences	IT: Enablement	✓	✓	✓	✓	✓	✓	Suitable. Facilitators can provide praise to young people in front of the whole group for effort and progress.

Note. TDF = Theoretical Domains Framework, IT = Intervention Type, A = Acceptability, P = Practicability, E = Effectiveness, A = Affordability, S = Spill-over effects, E = Equity.
Suitable BCTs used in the programme highlighted in green.

Appendix X: Programme development – TIDieR checklist for Zest for Life! programme

TIDieR item	
Brief name	Zest for Life!
Why	Physical activity and healthy eating during adolescence confers health benefits yet many young people fail to meet guidelines on moderate-to-vigorous physical activity and fruit and vegetable consumption. The Behaviour Change Wheel (BCW; Michie et al., 2011c) was used to develop a programme to support young people improve these behaviours. The BCW contains a model of behaviour, the COM-B (Michie et al., 2011c), which identifies three sources of behaviour, split into six components. Influences on PA and HE behaviours, identified through interviews with young people, practitioners, and commissioners, formed a behavioural diagnosis. This was mapped to the COM-B model of behaviour and the Theoretical Domains Framework (TDF; Cane et al., 2012). The TDF incorporates 33 theories of behaviour and behaviour change into 84 constructs split into 14 domains. Identified TDF determinants of PA and HE behaviours were targeted through application of linked behaviour change techniques (Michie et al., 2013).
Materials	Young people: • Weekly handouts covering session's topics and suggestions for a PA exercise, food swap, and relaxation technique. • Folder in which to store handouts. • Weekly F&V trackers provided from week three onwards. • Handout on local PA opportunities provided in week four. • Certificate of completion provided in final week. • Online quiz accessed via mobile phones in final session. • PowerPoint slides used to present material. • Flipchart templates used to present material. • Flipchart paper, white-board pens, and post-it notes to record discussions and activities. • Food provided from session two onwards. • Card and envelope provided in session seven. • Manual for facilitators to deliver sessions. • Range of dividers to split group into pairs/small groups. • Materials for activity breaks: soft balls/beanbags, alphabet action sheet. • Laminated resources for activities such as photos of meals, myth buster paddles, pictures of food items, example traffic light system on food packaging, life-size plate pictures. • Laminated resources for display in room such as Eatwell Guide, 5 ways to wellbeing, PA guidelines infographic, wellbeing bike, the 3 S's. Parents: • Provided with 'journal' prior to first session covering programme topics. • PowerPoint slides used to present material. • Manual for facilitators to deliver sessions.
Procedures	Young people: • Attend weekly sessions in same location at school, at same time. • Set goals in first session, review in sessions four and eight.

	• Engage with activities each week which utilise a mix of whole group and small group discussions, practical activities, poster making, activity breaks, taste testing. • Each week set small steps to be accomplished over coming week. • Presented with certificate in session eight. Parents: • Attend weekly sessions online at same time through Zoom. • Engage with activities including whole group discussions, break out room discussions, interactive activities using PowerPoint slides. • Set goals in first session, review in session eight.
Who provided	Five HENRY staff members who had: • Completed HENRY induction involving completion of Core and Group Facilitation trainings • Experience of delivering other HENRY programmes to parents • Experience of working with adolescents outside HENRY employment (schools, mental health settings, youth clubs)
How	Young person sessions: • In person • In groups of up to 12 Parent sessions: • Online via Zoom • In groups of up to 12
Where	Young person sessions: • At one secondary school in Oxfordshire • Located in the learning centre in the same room each session Parent sessions: • Online
When and how much	Young person sessions: • Once a week for eight weeks (break for half-term) • Each session lasts 1.5 hours • During the school day, either morning or afternoon Parent sessions: • Once a week for eight weeks (break for half-term) • Each session lasts 1.5 hours • In the evening from 7-8.30pm
Tailoring	Young person programme split into two age ranges, 11–13-year-olds and 14–16-year-olds. Differences between programmes: • Food group matching activity simplified for younger group with addition of pictures to label cards. • Portion number cards colour coded to food groups for younger group. • Discussions on 'why we need to eat well and be active' kept to shorter list of reasons so as not to overwhelm younger group with information
Modifications	Not applicable at this point as programme not yet delivered.
Planned adherence/ fidelity	• Adherence – attendance and completion rates to be recorded for young people and parents to contribute to evaluation of feasibility. • Fidelity – not included within formative evaluation.
Actual adherence/ fidelity	Not applicable at this point as programme not yet delivered.

Appendix Y: Programme development – Zest for Life! programme handouts for young people

The 'Zest for Life! Programme' has been developed by HENRY in collaboration with the University of Hertfordshire.

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HERNY registered company no. 6952404

Welcome to Zest for Life! the Young Person Health and Wellbeing Programme

Being a young person can be challenging and in today's world where technology and fast food are an everyday part of life. This programme is an opportunity to share ideas with other young people and to think about how to develop healthy habits and attitudes that will stay with you for the rest of your lives. We hope that the sessions will help you to better understand your environment, to build on your strengths, identify what you would like to change and to gain some useful tips, tools and know-how to make it happen. We also hope that you will have fun and enjoy yourself along the way!

The eight sessions of the programme are below. We look forward to accompanying you on a journey to becoming a healthier young person, sharing valuable tools and strategies along the way.

Session 1
What does it mean to be healthy?

In this session we will be exploring:

- What does it mean to be healthy?
- Goals
- Developing healthy habits

What does it mean to be healthy?

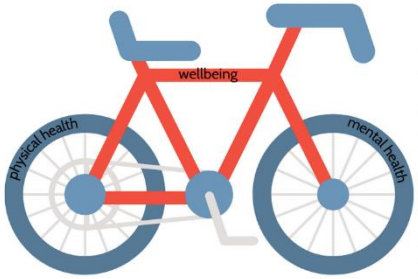
Being healthy is different for everyone and there are lots of different ways to be healthy. We will be exploring many of these throughout the programme.

Being healthy is important because it:

Being healthy includes two main areas of our lives: our physical health and our mental health. It includes:

As we have discovered, our physical health and our mental health are both as important as each other. We can think of this as a bike: one tyre is physical health, the other is mental health. We need both tyres for the bike to work.

We need to notice when the tyres start to go down so we can do some work on them. Taking care of one tyre and not the other leads to a bumpy ride on the bike. In the same way, we need to notice when our physical and mental health need some work doing to them. If we only looked after one of these we wouldn't be at our best.



Health and Wellbeing Quiz

The Health and Wellbeing Quiz is an opportunity for you to think about many of the behaviours that contribute to healthy living, both those that you are already doing well and those that you might chose to work on. When completing the quiz, think about your own behaviours for the 'I' statements and those of your family as a whole for the others.

	Never/Rarely	Sometimes	Often
I eat in front of the TV			
I eat breakfast			
I stop eating when I feel full			
I think about portion sizes			
I eat healthy food			
I eat takeaways and ready prepared meals			
I eat when I am bored, upset, lonely or tired			
I eat fruit and vegetables			
I snack between meals			
I try to limit how much sugar I eat			
I build being active into daily life			
I use stairs instead of lifts/escalators			
I enjoy being active			
I feel good after being active			
I do 60 minutes of activity a day			

	Never/Rarely	Sometimes	Often
Where possible I walk instead of using cars/buses			
I have energy			
I struggle with my feelings			
I take time to look after myself			
I am able to calm myself down when I feel wound up			
I use my phone in bed			
I have regular routine time for bed			
I get a healthy amount of sleep			
Food is used as a treat or reward			
There are limits on scrolling time and social media use			
We cook meals from scratch			
We try new foods together			
We sit together as a family to eat meals			
We are active as a family			
We talk about feelings and emotions as a family			
As a family we share when something is not going well			
We celebrate achievements together			

Goals

Let's think about where you are at the moment, and where you would like to be in the future. Think about everything you are doing to be a healthy person already. Often, we focus on what's not going so well and don't pay attention to the things we are already doing and what is going well for us. Taking notice of what we are already doing to live healthy lives can help us feel good about ourselves and give us motivation to keep going with these things. You may find it helpful to think about your responses to the Health and Wellbeing Quiz.

To be a healthy person I already:

Thinking about how healthy I am now; I think I am at...

1 2 3 4 5 6 7 8 9 10

Not very healthy Very healthy

It can be really helpful to set goals for ourselves to give us something to work towards. You can use the following boxes to set goals for what you would like to work on and achieve throughout this programme. Use your responses to the Health and Wellbeing Quiz to help identify these areas.

Goal 1 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Goal 2 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Goal 3 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Developing healthy behaviours

The brains of young people are going through an intense period of development. The brain cells (neurons) are growing rapidly making lots of connections (synapses).

Remember when you were learning something for the first time, maybe riding a bike, it was difficult at the beginning. After practising for a while, it probably became a lot easier. This is because the more we do something the stronger the connections in our brains become making the activity much easier.

During the teenage years the young person's brain also starts to prune away connections that aren't being used. The brain does this to become more efficient. You might have heard the phrase 'use it or lose it', this is where that comes from: if you don't use the connections they are lost.

At first, making a change seems hard but by practising it repeatedly we know that it becomes easier. It also becomes easier when we reward ourselves for doing the new behaviour. The reward can be anything that makes you feel good, it could be telling yourself 'well done for remembering to eat fruit with breakfast', giving someone else or yourself a high five, hugging someone or texting a friend. This reward releases a chemical in the brain making us feel good, and we will want to do the new behaviour again in order to feel that way again.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- Being healthy includes physical health and mental health
- Being healthy protects us from disease, ensures our body works properly, supports our mental health
- Looking after both mental and physical health is important if we want to enjoy wellbeing
- The teenage years are a great time to develop healthy behaviours
- Rewards make us want to do the new behaviour again

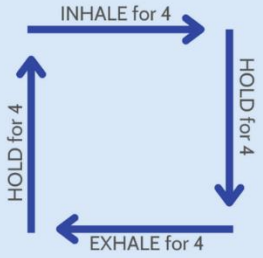
This week, why not try...

squats!

- Stand straight with feet wider than hips
- Drive hips back and down
- Keep knees directly over toes
- Stand up straight and repeat

swapping fizzy drinks for squash!

square breathing for a calm mind!



- Imaging drawing each side of a square with each stage.
- Breathe in while counting to 4 slowly. Feel the air enter your lungs.
- Hold your breath for 4 seconds.
- Exhale slowly for 4 seconds.
- Wait for 4 seconds before inhaling in again for a count of 4.

Session 2
Why is it important to be healthy?

In this session we will be exploring:

- Why we need to be active and eat well
- What influences us to be active and eat well
- The thoughts, feelings and behaviour link

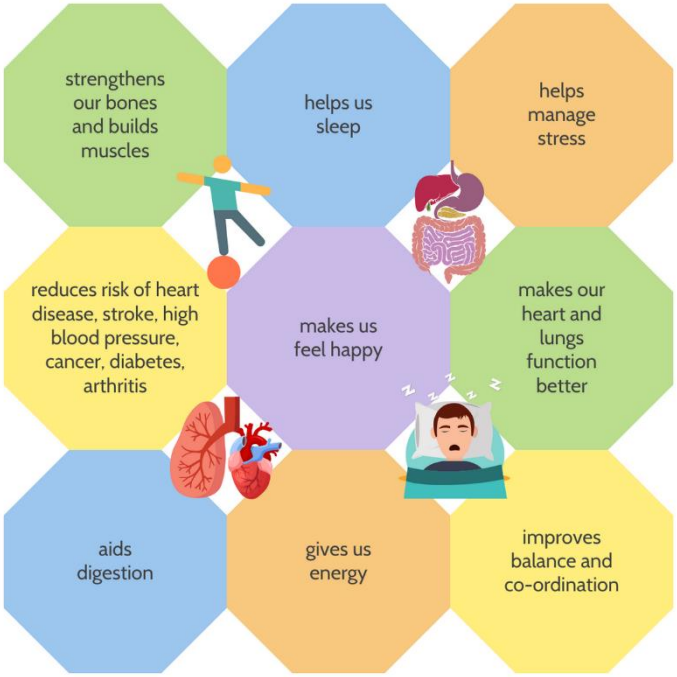
Why is it important to be active and eat well?

Being active and eating well impacts our bodies and our minds.

When we eat well it:

- builds our teeth, bones and muscles
- aids digestion
- helps our body heal itself
- helps us sleep
- makes us feel happier
- helps us fight off illness
- gives the body and brain energy
- lowers our risk of heart disease, diabetes, high cholesterol, cancer

When we are active it:



We can see that there are similarities between the benefits of being active and eating well. They both support our growth and development, how the inside of our bodies work, protect us from diseases and improve our wellbeing.

What influences us to be active and eat well?

Last week we found out that being active and eating well are an important part of being healthy. This week we have discussed the benefits of being active and eating well as part of a healthy life. Sometimes though, it can be challenging to be as active as is good for us or to eat as well as we might want to. This is because there are lots of things that influence our decisions. Some things make it easier for us to be active and eat well, some things make it harder.

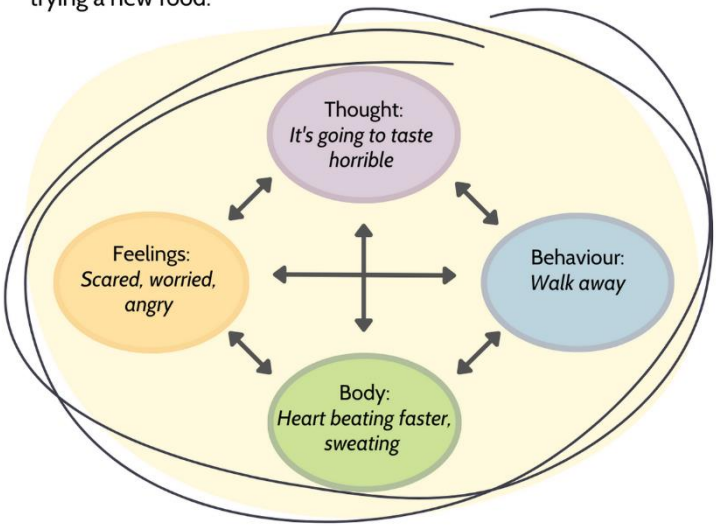
The environment that we live in has a big influence on how we eat. It can be difficult to make healthy choices when we are bombarded with adverts for 'junk food' that is made to look attractive and appealing, or when supermarkets offer low prices and deals on foods high in saturated-fat and sugar, or when canteens do not offer a healthy option. What do you think about that? Is it fair?

There are campaigns that aim to give young people like you a voice in these issues. For more information visit www.biteback2030.com

It is important that we focus on the ones that are within our control. Being aware of these influences and how they impact us can help us think about how to overcome the challenges, and start being more active and eating better.

Thoughts, feelings and behaviour link

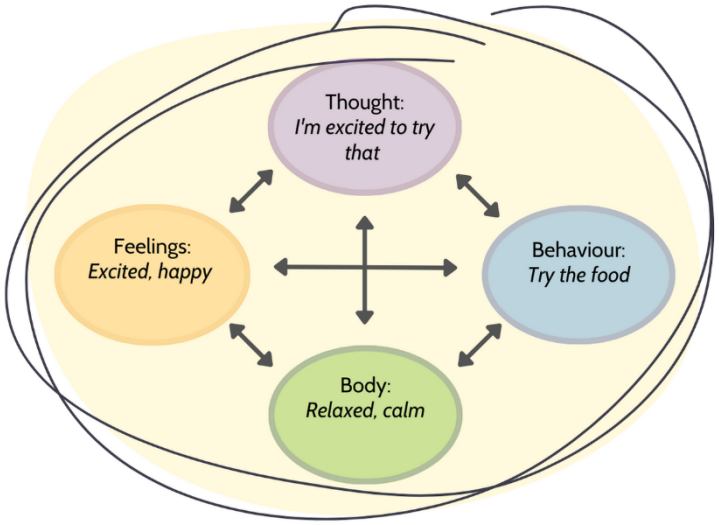
Sometimes our thoughts can get in the way of us trying new things. It can be really helpful to understand how this happens. To do this, we will explore the link between our thoughts, feelings, body and behaviour. Let's look at this link using the example of trying a new food.



When we think that the food will taste horrible, it is natural that we would feel worried about eating it. Our body responds to us feeling worried and our heart starts beating faster. This reinforces our feelings and our thoughts, and we decide the best option is to walk away and not try the food.

This shows how our thoughts influence our feelings, our body and our behaviour, and that they are all linked.

So what if we changed our thought? What if, instead of thinking the food will taste horrible, we think 'I'm really excited to try that' or 'I've always wondered what that tastes like'. How would we feel then? What would we notice in our body? Would we try the food?



By changing the thought we changed how we felt, how our body reacted and what we did. This process is called thought challenging and can be really helpful to build resilience and self-esteem.

As these areas are all linked to each other, we can also change what is happening in our body in order to change our feelings, thoughts and behaviour. The best way of doing this is to use a breathing technique, just like the ones we have been practicing in sessions! We will talk more about this in a future session.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

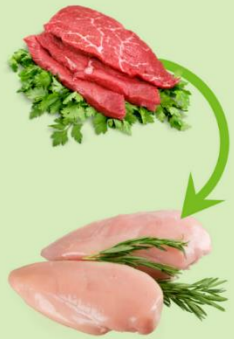
- ✓ Some influences are out of our control, some are not
- ✓ Being active and eating well are important for our growth, internal functions of our body, wellbeing and preventing diseases
- ✓ Activity that strengthens our bones/muscles and heart/lungs are equally important
- ✓ Our thoughts, feelings, body and behaviour are all linked - changing one changes the others

This week, why not try...

bicycle crunches!

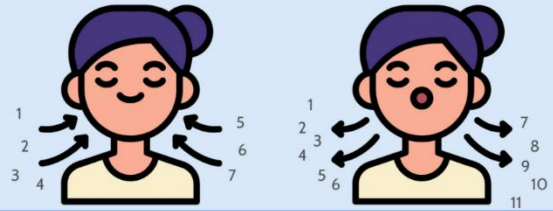
- Lay on back, raise legs, head and shoulders off the ground
- Twist to reach right elbow to left knee
- Twist to reach left elbow to right knee

swapping red meat for white meat!



7/11 breathing for a calm mind!

- Breathe in for a count of 7
- Hold for a couple of seconds
- Breathe out for a count of 11
- Repeat



Session 3
Eating well for health and wellbeing

In this session we will be exploring:

- What foods do for us
- Balancing meals
- Portion sizes
- Healthy mealtime habits

What foods do for us

Eating well is an important part of health and wellbeing. With all the influences on us, it can be tricky to know what eating well looks like. Let's explore what eating well looks like.

There are 5 main food groups.
- Fruit & vegetables
- Carbohydrates (bread, rice, potatoes and pasta)
- Proteins (beans, pulses, fish, eggs, meat)
- Diary (and alternatives)
- Fats (oils and spreads)

The next pages show what each of these groups provide to our body and brain.

Fruit and vegetables

- Vitamins and minerals for a strong immune system
- Fibre for good digestion and to prevent constipation
- Contain some carbohydrates for energy

Bread, rice, potatoes and pasta

- Carbohydrates for energy
- For everyone over the age of 5 years, wholemeal and unrefined carbohydrates are healthier as they take longer to digest (helping to keep blood sugar level stable) and contain more nutrients

Dairy and alternatives

- Protein for building and maintaining muscle
- Calcium for strong bones
- Some dairy foods are high in saturated fat so it is best to choose lower fat options for adults and older children

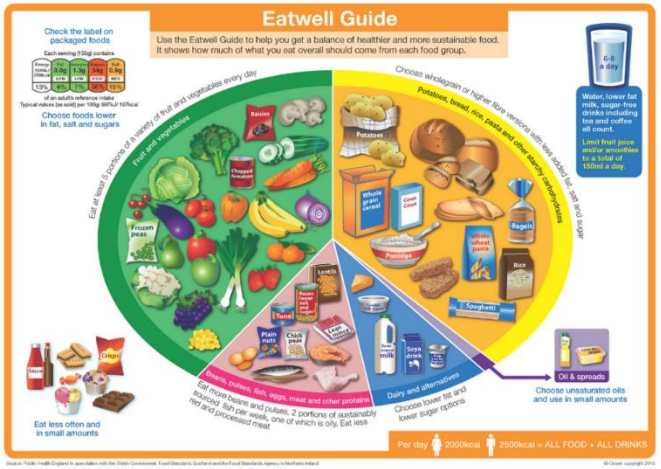
Beans, pulses, fish, eggs and meat

- Provides protein which builds and repairs our bones and muscles
- High in iron and zinc which are essential for growth and development
- Oil-rich fish provide Omega 3 and other essential fatty acids important for brain development
- Some meats contain a lot of saturated fat so it is best to eat less meat and more of the other protein foods

Oils and spreads

- Contain vitamins for growth, a healthy immune system and healthy bones and teeth
- Provide fatty acids which are needed for development of brain and other tissues
- Fats are high in calories so consume in small amounts and choose unsaturated kinds

To eat well we need to eat foods from all of these groups. Some groups should be eaten in larger proportions than others, as shown in the Eatwell Guide below.

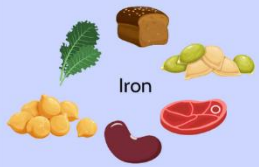


As shown on the Eatwell Guide, foods high in sugar, salt and saturated fat are best eaten only occasionally and in small amounts. This is because these foods (e.g. crisps, chocolate, cakes, sweets, ice cream, sauces) do not have any nutritional value.

As for fruit and vegetables, it is important to eat a range of different ones each day. This is called eating the rainbow.

This makes sure we get all the vitamins and minerals that our bodies and brains need to grow and develop fully.

For young people it is crucial to eat well because the body and brain are still growing. There are certain vitamins and minerals that are really important for young people, but which can be tricky to get enough of. Below are some ideas of foods to eat which offer high levels of these much needed nutrients.

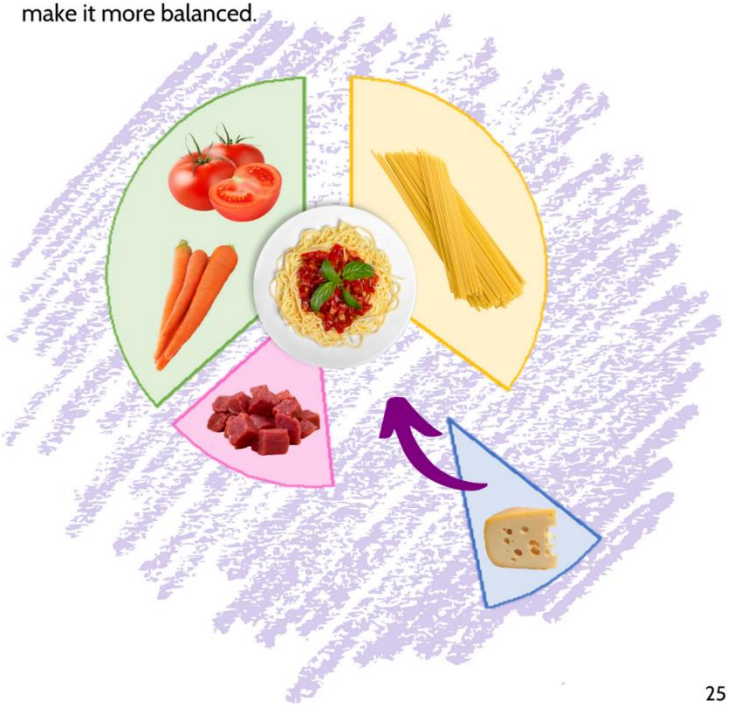
Nutrient	Food sources
 Iron	• red meat • wholegrains (such as wholemeal bread) • iron-fortified breakfast cereals • dark green vegetables (such as kale, watercress) • beans (such as red kidney beans, chickpeas) • seeds (such as sesame seeds, pumpkin seeds)
 Calcium	• cheese, milk, yoghurt • calcium-fortified dairy alternatives, such as those made from soya • calcium-fortified breakfast cereals • dark green vegetables (such as kale, rocket and watercress) • fish that is eaten with the bones (canned sardines or canned salmon)
 Vitamin D	• oily fish – such as salmon and mackerel, • red meat • egg yolks • fortified cereals • soya produce
 Zinc	• red meat • nuts • seeds
 Magnesium	• almonds • spinach • soya beans

Balancing meals

To eat well our meals should be balanced with all the food groups. However, every meal does not have to be perfectly balanced. We want to aim for a balance across a couple of days.

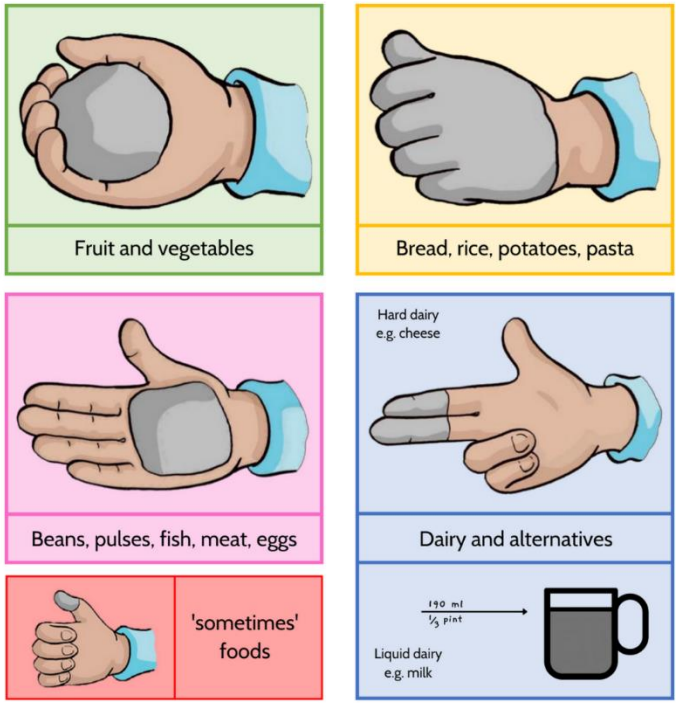
There are small things we can do to balance our meals, such as eating less of one group or adding a food from another group.

For example, if we have spaghetti bolognaise made with pasta, tomatoes, carrots and beef, we can grate some cheese on it to make it more balanced.



Portion sizes

It can be challenging to know what a suitable portion looks like. Advertising and special offers in restaurants and supermarkets encourage us to eat more than we need. One thing we can do to support eating well is to be mindful of the portion sizes we are eating. To work out the right size for a portion we can use our own hands.

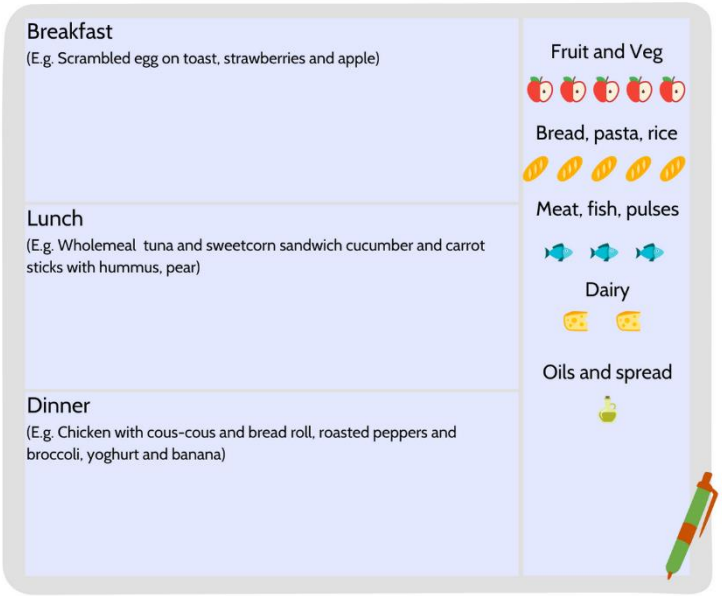


Now we know what a portion size looks like, we need to consider how many of these portions we should be eating each day. This is shown on the table below.

Fruit and vegetables 5 is the minimum; Eating a wide variety is ideal. Eat the rainbow!	**5+ portions**
Bread, rice, potatoes, pasta Unrefined carbohydrates are healthier for young people and adults	**5 portions**
Beans, pulses, fish, eggs, meat Meat and alternatives including plant proteins such as soya	**2-3 portions**
Dairy and alternatives	**2 portions**

Meal planning

Now we know about the Eatwell guide and portion sizes, we can use this information to plan healthy meals each day. Use the space on the next page to plan a daily menu, cross off each portion as you plan each meal.

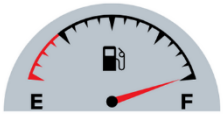


Mealtime healthy eating habits

We have looked at balancing meals and portion sizes which help us to eat well. There are also other things we can do that help us to eat well, such as the three S's.

One of the best things we can do to support eating well is to listen to our body's hunger and fullness cues. When we are young our bodies are really good at knowing when we are hungry and when we are full. We can think of our body as having a fuel gauge, like on a car.

The same way a car knows when it needs more petrol and when it is full, our stomach knows when it needs food and when it is full. Our stomach sends messages to our brain telling us we are hungry. As we eat, our stomach sends signals to our brain telling us we are getting full. If we continue to eat after we feel full, we over-ride these signals and start to notice them less and less. Over time, this can lead to us eating more than we need.



To help us pay attention to our fuel gauge, it helps when we:

- ☑ avoid grazing (eating constantly throughout the day)
- ☑ leave food on the plate once we are full
- ☑ eat slowly (so we have time to notice the fullness cues)
- ☑ avoid distractions such as TVs and phones (so we pay attention to the fullness cues)

Water

Water is incredibly important for the body and brain to function well. When we don't drink enough we can become constipated, get headaches and find it difficult to concentrate. We should be drinking about 8 glasses of water every day.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- ✓ We should aim to eat a balance of food groups over a couple of days
- ✓ Eating the rainbow helps us get the vitamins and minerals we need for healthy growth
- ✓ We should eat 5+ portions of fruit and veg each day
- ✓ We can use our own hands to measure portions
- ✓ Listening to our hunger and fullness cues prevents us eating more than we need

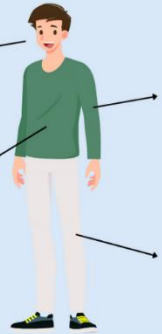
This week, why not try...

mountain climbers!

- start with feet and hands on floor
- pull one knee towards chest, then return foot to floor
- repeat with the other knee

swapping biscuits for rice cakes!

relaxing your muscles for a calm mind!



Scrunch up your face for 10 seconds, then relax

Tense your arms and hands for 10 seconds, then relax

Tense your stomach for 10 seconds, then relax

Tense your feet and legs for 10 seconds, then relax

Session 4
Being active for health and wellbeing

In this session we will be exploring:

- How we are progressing towards our goals
- What is being active?
- How to be more active
- What gets in the way of being active and eating well

Goal review

We are half way through the programme, and now is a great time to check on your goals and see what progress you are making. Think about the goals you set yourself in the first session and re-rate your progress towards them.

Goal 1 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

Goal 2 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

Goal 3 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

Remember that change takes time. If you think you have not made much progress ask yourself if you are really noticing all the things you are doing to work towards your goals.

If you have met any of your goals already you might want to set a new one to work towards during the rest of the programme. Use the box below for this.

Goal 4 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

What is being active?

Being active means moving around so that our breathing gets faster and we feel warmer. Anything that makes that happen counts as being active, including walking, dancing and yoga. Even handstands and cartwheels are active!

Being active has three main effects on the body. It:

makes our heart and lungs stronger so they can work more efficiently

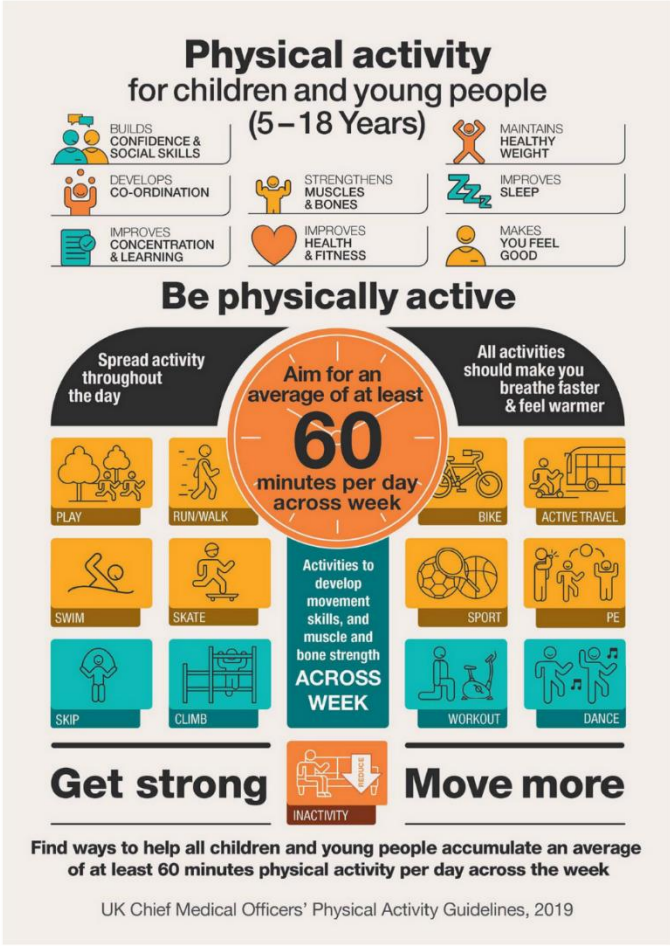
makes our muscles stronger to reduce the risk of falling and hurting ourselves

makes our bones stronger to protect the organs in our body and gives our muscles something to hold on to

During the teenage years it is really important to be active in ways that support the development of your bones and muscles that are still growing.

Some activities are particularly good at improving muscle and bone strength. This includes anything that involves resistance such as:

This picture shows how much activity young people should aim to do.



How can we be more active?

Sometimes it can be hard to be as active as is good for us. However, there are small things we can do to increase how active we are, helping us achieve the guideline of 60 minutes per day. Here are some ideas.

Being active with other people can make it easier to be active. When we are active with other people it can be more fun and enjoyable. The other person can give us motivation and encouragement and can provide reminders. Here are some ideas for activities which can be done as part of a team or on your own.

What gets in the way of being active and eating well?

There are lots of things that can make it seem harder to be active and eat well. Some of these things can be outside our control e.g. availability of a healthy option when eating out. If you are interested in helping change some of the issues that make it harder for young people to eat well, take a look at the Bite Back movement www.biteback2030.com to explore how you could help shape the future of the food world.

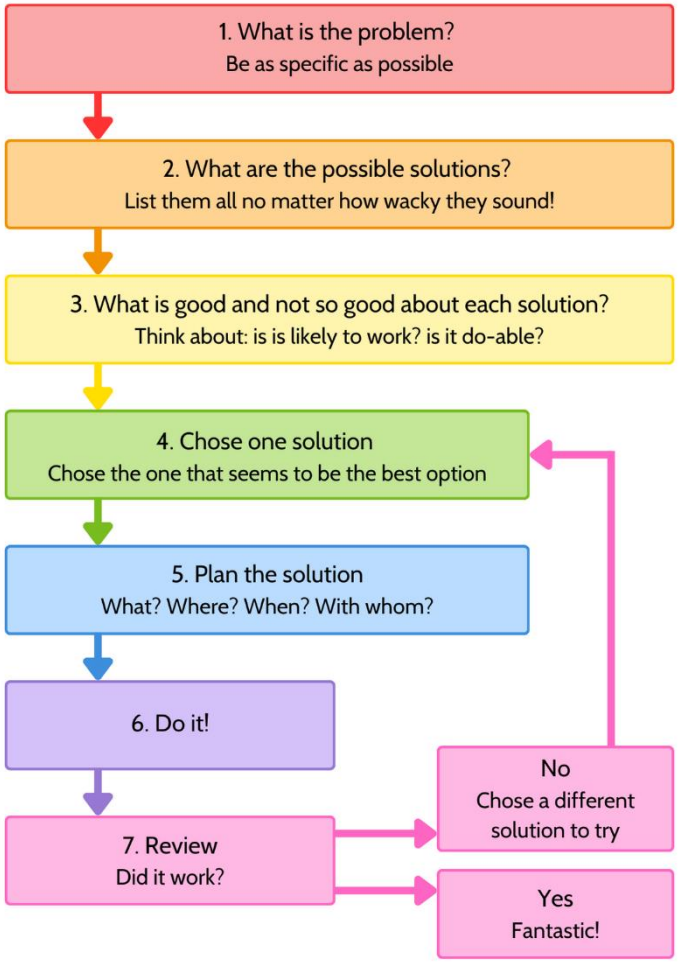
> *Obstacles don't have to stop you. If you run into a wall, don't turn around and give up. Figure out how to climb it, go through it, or work around it.*
> Michael Jordan

Sometimes it can seem that there is no way around something that is making it harder to be active or eat well. Often, we just have to be creative in thinking of a solution!

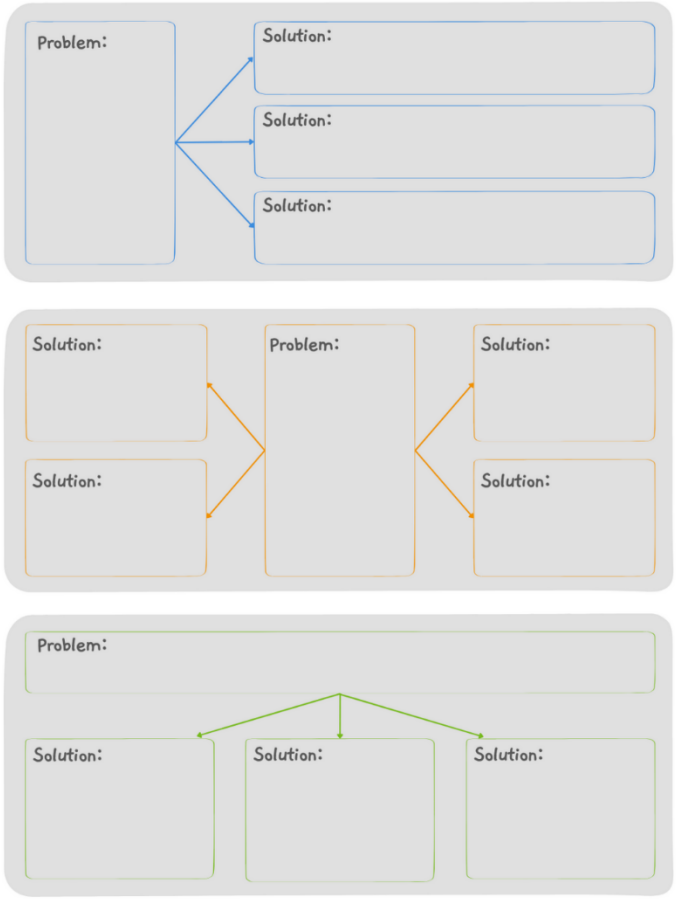
Here are some ideas for ways to come up with solutions:

- Trial and error
- Ask for support
- Brainstorm ideas
- Sleep on it
- Ask: What, When, Where, Who, Why, How
- Use a solution that worked before
- Use the problem solving rainbow on the next page...

The 7-step problem solving rainbow!



Use the space below to think about the things that make it harder for you to be active and eat well, and the possible solutions.



Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- We should be active for 60 minutes each day, this can be done in smaller chunks
- Being active strengthens our heart and lungs as well as our bones and muscles
- Small daily changes can make us more active e.g. stairs instead of lifts/escalators
- Being active with others makes it easier and more fun
- Things that make it harder to be healthy can be overcome

This week, why not try...

side leg lifts!

- start lying on side with hand on floor in front of chest for balance
- raise and lower leg 7 times
- raise leg and hold for a count of 7, then lower
- raise and lower leg 7 times
- swap sides and repeat with the other leg

swapping ice cream for natural yoghurt with fruit!

shoulder roll breathing for a calm mind!

- Inhale deeply for a count of 3 as you pull your shoulders up to your ears.
- Breathe out through your mouth and roll your shoulders down and back (as far away from your ears as you can get) as you exhale for a count of 4.
- Repeat slowly in a continuous movement of shoulder rolls while breathing in and out.

Session 5
Mental health and wellbeing

In this session we will be exploring:

- What is mental health and wellbeing?
- How we can improve our wellbeing
- Managing anxiety

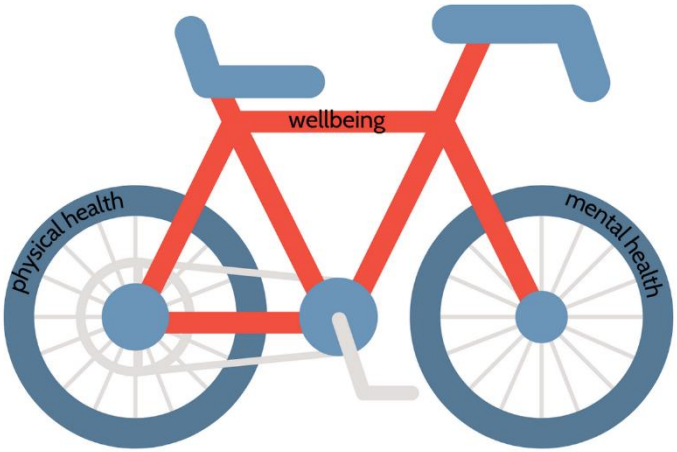
Mental health and wellbeing

Mental health affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

We all have mental health, sometimes it is good, sometimes not so good, just like our physical health. When we have good mental health we feel good about ourselves and the world around us, we think clearly and feel like we can cope with ups and downs. When our mental health is not so good we can find things difficult to deal with, and can often find it hard to manage our emotions and behaviour. Understanding our feelings and being able to manage them is an important part of our mental health and wellbeing. Knowing when to ask for help when the feelings get too big to manage on their own is also important.

Wellbeing is all about feeling good about yourself and your life, and includes having both good mental and physical health. Working on developing our physical and mental health can help us enjoy overall wellbeing.

We can think of wellbeing as a bike: one tyre is physical health, the other is mental health.



We need both tyres for the bike to work, we need to keep both inflated. We need to notice when the tyres are starting to deflate, they need constant maintenance just like our mental and physical health; we need to work on them so we stay inflated! Taking care of one tyre and not the other doesn't lead to the bike functioning well. In the same way just looking after our physical health and not our mental health would mean we weren't at our best.

How we can improve our wellbeing

Given that our wellbeing is so important and linked to our health, it is important we are aware of how we can improve our wellbeing. There may be things you are already doing to support your wellbeing which is fantastic. The information on the next couple of pages will hopefully give you some ideas of other ways you can improve your wellbeing.

There are 5 main ways that we can improve our wellbeing. These are below along with examples of things that fall into each category.

Give

Helping others helps us to feel happy.

- smile and say thank you
- make a homemade present or card for no reason
- give someone you love a hug
- hold a door open for someone
- send your old toys to a charity shop
- listen to someone else and how they are feeling
- help around the house - wash the dishes or do some dusting
- share with others

Take notice

This helps us appreciate what matters to us.

- paint or draw a picture of what you've seen today
- think about how you are feeling today
- listen to the sounds of nature like the wind and rain
- play I spy
- notice how your friends or family are feeling today
- look out your window and see how it changes

Be active

Exercise makes us feel good. Discover a physical activity you enjoy.

- dance to your favourite song
- hula hoop
- walk or cycle to school
- play a game in the playground
- walk a dog
- run a race with friends
- help in the garden
- make up your own sport
- join a sports team

Connect

Feeling close to other people is a basic human need and helps us function well in the world.

- talk to your friends and family
- say hello
- help a friend or neighbour
- eat a meal with your family
- give someone a hug
- bake some cakes and share them
- make a new friend

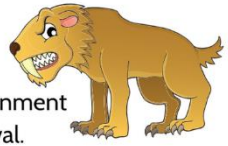
Keep learning

Learning new things helps our confidence and is fun!

- learn a new word each day
- visit a museum or art gallery
- write a story or song
- try a new food
- visit a new place
- do a word search
- try out a musical instrument
- learn to cook a new recipe
- study an animal or bug

Managing anxiety

It is perfectly normal for us to experience anxiety at times. Some level of anxiety can even be helpful as it can motivate us to revise for a test or practise a new skill. Anxiety also helps keep us safe through the fight/flight response. For example, if you are crossing the road and car comes speeding along, chances are you will automatically move out the way without thinking about the options or best course of action. This is because of the fight/flight response which developed a long time ago.



When we were cave people, the fight/flight response kept us alive and out of danger.
Our brains would constantly scan the environment for things that could be a threat to our survival.
When our brain sensed danger, for example because there was a sabre tooth tiger outside the cave, it would activate the fight/flight response so we could either fight off the tiger or run away from it.

Nowadays the fight/flight response also includes the 'freeze' option to recognise that sometimes our brain cannot decide whether to fight or run away so we end up frozen in place, like a deer caught in headlights.

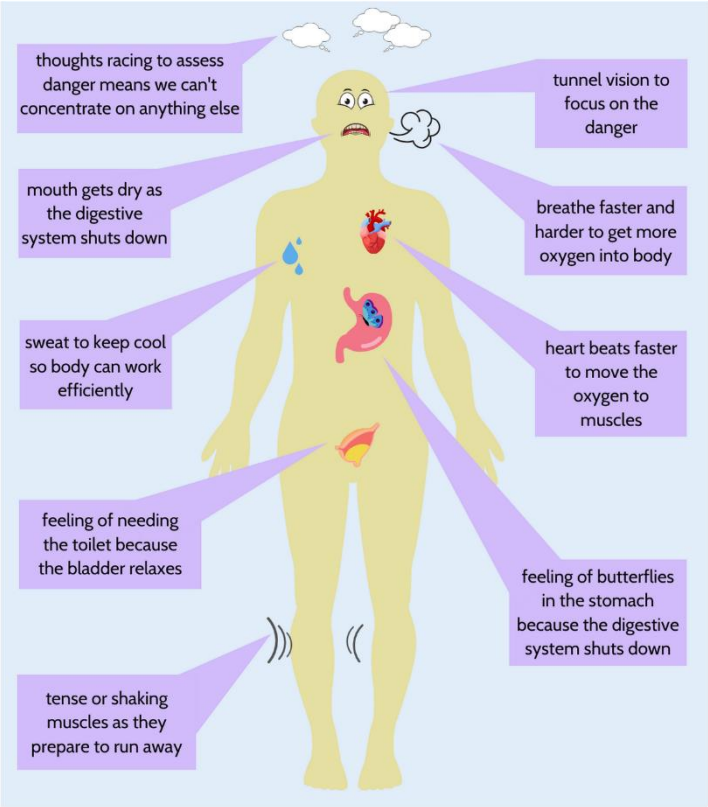
These days, we are not faced with the same dangers, but our brain is still on the look out for threats to our safety. Sometimes, it tells us something is dangerous when it is not. We can think of it as a bit like a faulty alarm system.

Sometimes the alarm will go off when we burn the toast; there is no fire but the alarm is telling us there is danger. It is the same with life events, even though talking in public does not pose a threat to our safety, our brain can interpret this as dangerous and activates the fight/flight response. In these examples, the fight/flight response is not helpful as we don't need to fight or run away from talking in public, what we need is to be calm so we can talk confidently.

In these situations when we experience anxiety it is because we tend to over-estimate the danger (we think it will be really bad) and we under-estimate our ability to cope (we think we won't be able to handle it).

We will think about how to cope to anxiety in a moment. Fist let's think about what happens to us when we experience anxiety.

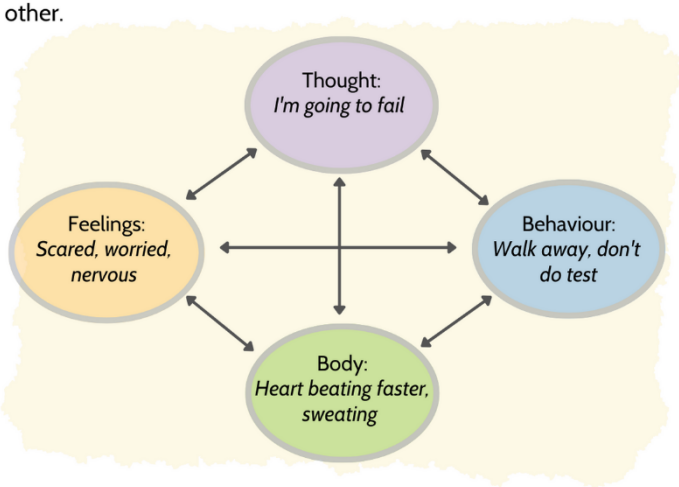
When the fight/flight/freeze response is activated, a range of things happen in our body. These are designed to prepare us for fighting or running away. This picture explains the things we might experience in our body and why these things happen.



These changes can feel unpleasant. and it is natural that we want them to go away. There are several things we can do to manage anxiety.

To understand how to manage anxiety we need to look at the link between our thoughts, feelings, body and behaviour. Let's explore this with the example of taking a test.

When we have a test to take, we might think to ourselves "I won't know any of the answers" or "I will fail". It is understandable that when we think this we would feel scared, worried or nervous. We may experience butterflies in the stomach, feel hotter and a bit sweaty, our heart may beat a bit faster. Experiencing that in our body is unpleasant and we may decide not to take the test. This is shown in the diagram below and shows how our thoughts, feelings, body and behaviour are all linked and all impact on each other.



However, if we changed our thought to "I'm going to try my hardest", we would probably feel confident and proud of the effort we were putting in. Our body would stay calm and we would decide to take the test. This is called 'thought challenging'

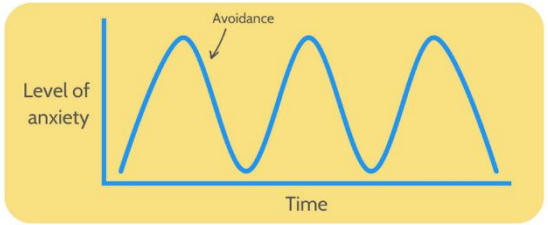
and is a powerful way to manage anxiety, as well as other thoughts which can be unhelpful and impact on our emotions and behaviour.

Another way we can manage anxiety is to address the changes that occur in our body when we are anxious. We will never feel ok or confident about taking the test while our body is really worked up and preparing to fight or run away. However, if we can make our body calm it will be easier to focus on our thoughts and have a calm mind. The best ways to do this is by using a breathing technique or a grounding technique that refocuses our attention on our surroundings. We have been practicing these in the sessions each week.

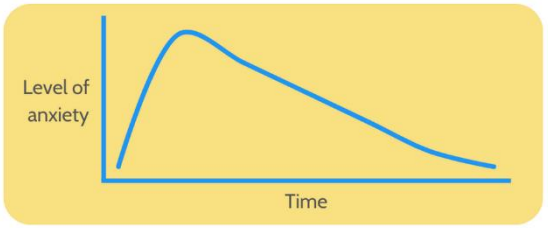
Body:
Heart beating faster, sweating

Finally, we can manage anxiety by looking at our behaviour. When we get anxious about doing something, we may be tempted to avoid it in order to make the anxiety go away. The next time the situation comes up we experience the same level of anxiety and will likely avoid it again to make the anxiety go away, as shown in the diagram below.

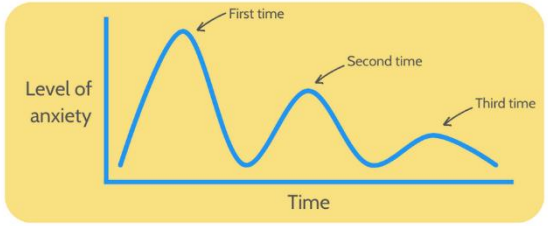
Behaviour:
Walk away, don't do test



We can see that avoidance makes our anxiety go away quickly and it is understandable we want that to happen. However, when we avoid things repeatedly we can start to believe that is the only way of coping with that situation. What we actually need to do, is do the thing that makes us anxious so that we learn that we are able to cope. We know that the body cannot maintain a high level of anxiety for a long time, so even when we are doing something that scares us our anxiety will go down, as shown in this diagram.



Although it is unpleasant to experience anxiety, by doing so we learn that it is not dangerous for us and that it will go away on its own. When we keep doing the thing that makes us anxious, our anxiety will be less than the last time we were in that situation, as shown in the diagram below.



All the above strategies are skills that take time to learn and to remember to use them. The more we practice the breathing techniques when we are not anxious, the easier it will be to use them when we are anxious.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- ✓ We all have mental health, sometimes is to good sometimes it is not so good
- ✓ There are 5 ways to wellbeing
- ✓ Anxiety is normal and keeps us safe in dangerous situations
- ✓ Changing our thoughts helps manage anxiety
- ✓ Breathing exercises help calm our bodies when we are anxious

This week, why not try...

Idea

arm dips!

- start with hands on the edge of a stool, chair or bench. Feet out in front, knees over ankles.
- bend elbows so that body lowers towards the ground
- straighten arms so that body lifts
- repeat 15 times

swapping crisps for unsalted nuts!

4-7-8 breathing for a calm mind!

- start by exhaling all the air from your lungs
- breathe in through your nose for a count of 4
- hold your breath for a count of 7
- breathe out through your mouth for a count of 8

Session 6
Continuing to eat well

In this session we will be exploring:

- Food labels
- Sugar
- Healthy swaps

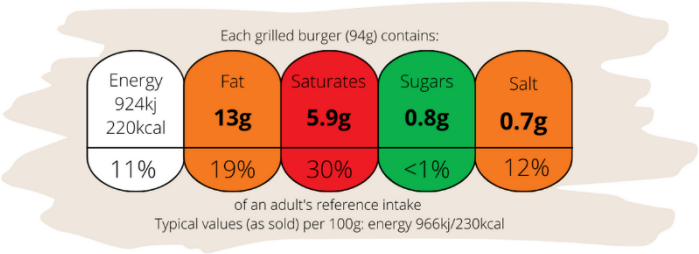
Food labels

It can be challenging to eat well when we don't know what is in the food we are buying and eating. To help with this we can look at the packaging.

There are two types of food labels: front of pack and back of pack. Information on the back of packaging is more detailed. We will focus on the labelling on the front of packaging as this is a quick way to make a decision about how good a food is for us.

The information on the front of packaging tells us whether the food is low, medium or high in fat, saturated fat, sugar and salt. It may also show the percentage of how much the food provides of our recommended intake. The information always represents one serving, though remember that one serving is not necessarily the same as a portion size (we can always use our own hands to work out the size of a portion).

The front of pack labels are referred to as the 'traffic light system' because the information can be colour coded, as in the example below. This makes it really easy to judge how healthy the food is.



Red means the food is high in fat, saturated fat, salt or sugars, and these are the foods we should cut down on – eating them less often and in small amounts.

Amber means medium - we can eat foods with all or mostly amber on the label most of the time.

Green means low – the more green there is on the label, the healthier the choice.

Whilst helpful, the front of pack labels are voluntary so may not always be there. The NHS food scanner app can help in these situations. You can use the QR codes below to download it.

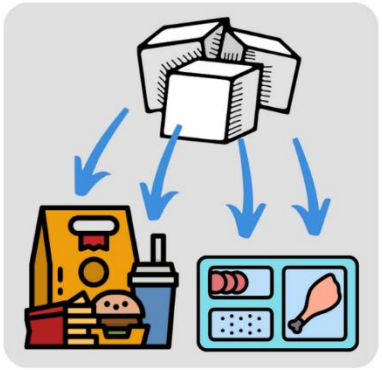
Android

iPhone

Sugar

In session three we looked at the Eatwell Guide and saw how some foods sit outside the main food groups. We discussed how we can think of these as 'sometimes foods' and eat them occasionally in small portions. We spoke about how these foods are high in saturated fat, sugar and salt. We will explore sugar in more detail now.

Sugar is naturally present in some foods such as lactose in milk or fructose in fruit. When fruits are juiced to make smoothies, the sugar is separated from the fibre and becomes a free sugar.

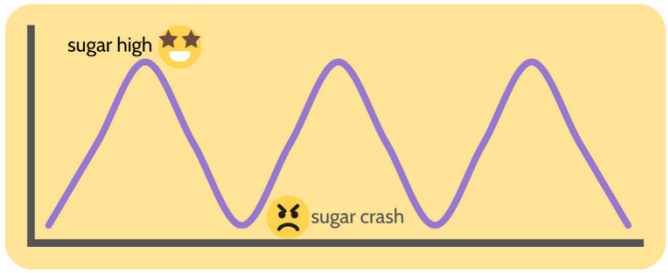


Free sugars have little nutritional value (they do not provide vitamins and minerals that benefit the body) and our intake of them should be limited. When sugar is added to processed and ready-prepared foods (to make them taste nicer) they also become a free sugar.

Sugar should be limited because it is linked to:

tooth decay | diabetes | acne | cancer

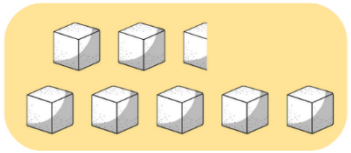
Sugar also effects on our mental health and wellbeing as it impacts our moods through sugar 'highs' and 'crashes' which make us irritable and less able to concentrate.



Additionally, sugar is addictive because it activates the pleasure part of our brain. This makes us feel good and makes us want to repeat the experience again.

Sometimes sugar is swapped for artificial sweeteners. These only trick our taste buds and not our brains, meaning we can end up craving sugar.

Given that too much sugar is not good for our physical or mental health, the maximum recommended amount of sugar we should eat each day is 30 grams. This equates to 7.5 teaspoons or cubes of sugar.



You can compare this to the amount of sugar in 'sometimes' foods as shown below.

Small bar of milk chocolate (36g)

5 cubes of sugar

Can of cola (330ml)

9 cubes of sugar

Tomato ketchup (1 tablespoon, 15g)

1 cube of sugar

Jam doughnut (70g)

6 cubes of sugar

Blueberry muffin (75g)

5 cubes of sugar

Sweet popcorn (30g)

2.5 cubes of sugar

Chocolate digestive biscuit (17g - one biscuit)

1 cube of sugar

Glass of orange juice (300ml)

6.5 cubes of sugar

Due to the amount of free sugars in fruit juice and smoothies, these should be limited to 150ml per day.

150ml →

Fruit juices and smoothies only count as 1 portion of fruit no matter how many fruits are in it (because of the high levels of free sugar).

→

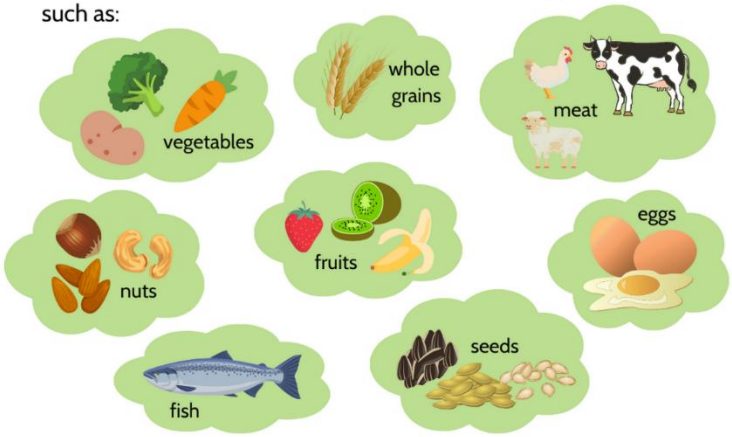
= 1 portion of fruit

Having looked at sugar in detail, what changes might you make to limit your intake of sugar?

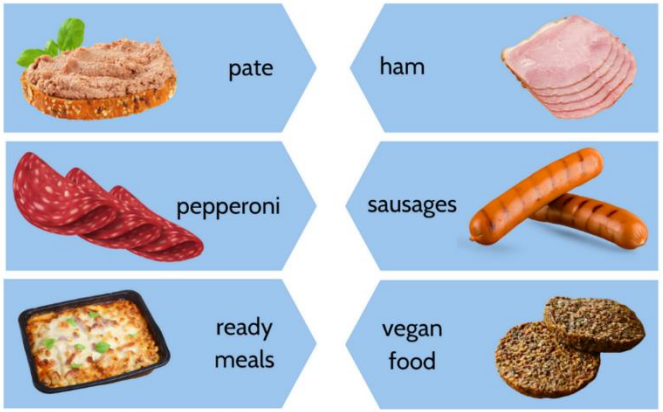
Jot down some ideas.

Healthy swaps

Eating natural foods and limited processed foods is a useful approach to eating well. Natural foods, also known as whole foods, have not been processed, refined or had anything added to them. We can think of whole foods as those that appear in nature, such as:



Processed foods have undergone a substantial changing them from their original form to a new one. The process of doing this often removes nutrients as well as adding chemicals and additives which make the food look, feel and taste different. Processed foods include:



Vegan/vegetarian food can be highly processed.
It can contain lots of preservatives and emulsifiers which hold it together in it's form. Clever advertising can make it appear to be a healthy choice but this is not always the case. Always best to check the labels as we discussed earlier!

Eating a lot of processed foods gives us excessive calories, sugar, salt and saturated fat. They are also low in fibre and nutrients. Processed fats can contribute to heart disease, diabetes and cancer.

We do not need to change everything we are eating in order to eat well. There are lots of small things that will help. Below are some ideas for healthy swaps.

sweets, chocolate or dried fruit	vegetable sticks or fresh fruit
sugar sweetened drinks	sparkling water with a wedge of lemon
sugary/chocolate breakfast cereal	porridge or wholegrain cereal
cakes and biscuits	rice cakes, toast or bagel
flavoured, sweetened yoghurts	unsweetened yoghurt with fruit
red meat	white meat
jar of ready-made pasta sauce	homemade sauce with tinned tomatoes and veg
ready made pizza	homemade pizza with fajita wraps and tomato puree
sweetening foods with sugar	add chopped or dried fruit

Making small healthy swaps will help limit the amount of saturated fat, salt and sugar in the foods we eat. We have looked at sugar in detail and seen why too much can be unhealthy for us. We will now think about why it is important to limit saturated fat, and salt.

We need to eat some fats because they help the body absorb vitamin A, D and E. There are two types of fats: saturated and unsaturated. Eating too many saturated fats can lead to a rise in harmful cholesterol which over time can block the arteries in our body. Too many saturated fats can cause heart disease, diabetes and cancer so it is best to switch to unsaturated fats.

Salt should also be limited to 6 grams per day as it is linked to high blood pressure. We need a small amount of salt for the nerves and muscles in our body to work properly and generally, we can get all the salt we need from it being naturally present in many foods. Therefore we do not need to add any extra when cooking or to our meals.

What healthy swaps will you make?

Jot down some ideas.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- ✓ Information on packaging can help us decide how healthy a food is
- ✓ Fruit juices and smoothies should be limited to 150ml per day, and only count as 1 portion of fruit and vegetables
- ✓ To eat well we need to limit our intake of sugar, saturated fat and salt
- ✓ Whole foods are better than processed foods
- ✓ Small changes help us to eat well

This week, why not try... Idea

donkey kicks!

- start on hands and knees
- lift one leg upwards keeping knee bent
- lower leg and repeat with the other one
- repeat 15 times with each leg

swapping chocolate bars for sugar free jelly

5-4-3-2-1 grounding for a calm mind!

This uses all the senses to ground you back in your body rather than focusing on your thoughts. List:

5	4	3	2	1
things you can see	things you can feel/touch	things you can hear	things you can smell	thing you can taste

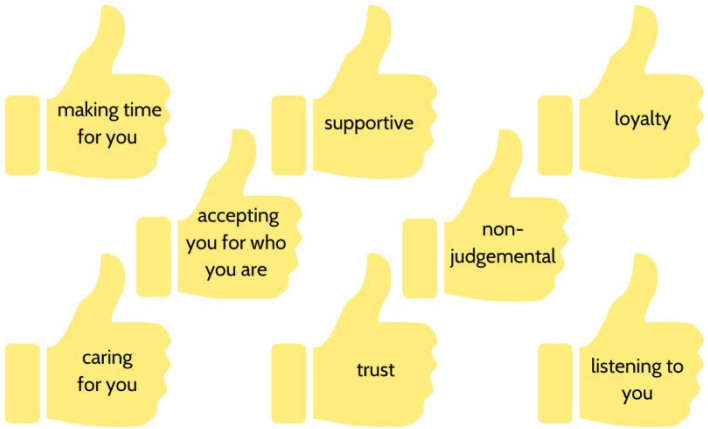
Session 7
Health and wellbeing for flourishing

In this session we will be exploring:

- Friendships
- Empathy and self-compassion
- Sleep
- Gratitude

Friendships

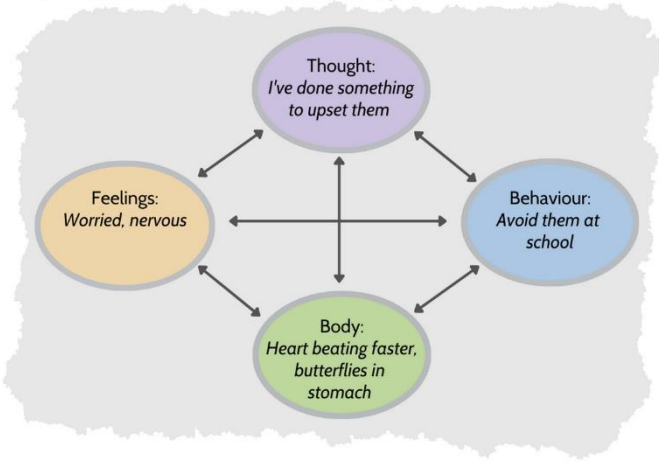
There are lots of ways we can improve our wellbeing. We have spoken about the importance of making connections with others and friendships is a part of this. There are many things we may look for in a friend, these qualities may include:



What qualities are important to you in a friend?
What qualities do you want to work on to be a good friend?

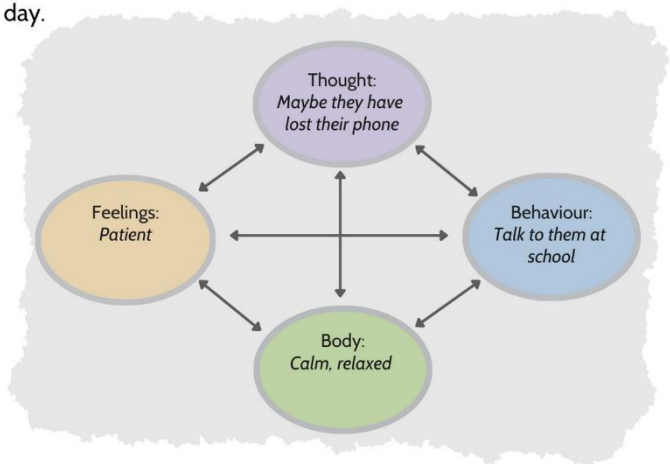
Jot down some ideas.

Throughout the programme we have looked at how our thoughts impact our feelings, body and behaviour. We looked at this when trying new foods and managing anxiety. Friendships is another area of life where being aware of our thoughts can be helpful. Let's think about a situation in which we message a friend but they do not reply. Our first thought might be 'I've done something to upset them' and we may feel worried about this. We may experience our heart beating faster and butterflies in our stomach. This may lead us to avoid them at school the next day.



It is natural to have unhelpful thoughts such as in the situation above. Our brains naturally look to find the negative rather the positive. Over time though this can have an impact on our wellbeing. Therefore it is important to be aware of when we are having unhelpful thoughts and to challenge them trying to reframe the situation in more positive ways. Let's do that with the situation above and see how it can change things for us.

If we challenge that initial thought (I've done something to upset them) and change it to 'maybe they have lost their phone' then we may feel we can be patient in waiting for a reply. Our body will remain calm and we will go and talk to them at school the next day.



Learning to challenge our thoughts takes time and can feel a bit unnatural. The more we practice it though, the easier it becomes. Thought challenging can help our self-esteem and support our wellbeing to flourish as we may find we stop blaming ourselves, or beating ourselves up, in every situation.

Empathy

Empathy is about tuning in to how someone else is feeling. It is the ability to understand someone else's feelings, to see things from their point of view and imagine yourself in their position. If a friend came you upset because they had failed a test, you may say "that sucks" or "I'm sorry that happened". This is using empathy. This shows your friend that you have heard what they are saying and that you can imagine what it must feel like to be in their position.

Using empathy helps us feel close to people as they feel understood. It also means we can share other people's joy and provide support when things are challenging.

Self-compassion

We have seen how you may respond to a friend if they failed a test. But what would you say to yourself if it was you that had failed the test? In this situation you may think "I should have studied harder" or "I'm stupid". This shows how sometimes we don't treat ourselves with the same kindness we show others and this impacts our wellbeing.

Being kind to ourselves and taking time to do nice things for ourselves is an important part of maintaining our wellbeing, and even flourishing! We have seen how thoughts impact our feelings, so instead of finding fault with ourselves, we could reframe that thought to "It was a hard test and I tried hard" or "I'll do better next time". This will have a positive impact on our feelings and wellbeing.

Sleep

Sleep is an important way to improve our wellbeing. Not only can we not survive without it, it has many benefits including:

The amount of sleep we need varies from person to person. As a rough guide, young people aged 12-18 years old need around 9 hours sleep each night.

Sometimes it can be hard to get enough sleep, and sometimes we may sleep for longer than we need. Below are some tips which can help us to sleep well.

things to avoid	things to do
heavy meal before going to bed	have a pre-bedtime routine each night
caffeine in the evening (includes tea, coke and chocolate!)	dim the lights before bed (reduced light tells our brain it is time for sleep)
napping during the day	keep room tidy and clean
using bed for eating, watching TV, doing homework (we want our brains to associate the bed with only sleep)	keep room at a cool temperature (it is easier to fall asleep when we are not hot)
screens before bed (they emit a wavelength of light that tricks our brains into thinking it is daylight and keeps our brain active and alert)	if you haven't fallen asleep after 20 minutes get out of bed and read or do a calm activity before trying to sleep again
being too active before bed (yoga or stretching are ok and can even be helpful for sleep)	wake up and go to bed at the same time each morning/evening

Gratitude

Gratitude is feeling thankful for something or someone. We know that people who experience gratitude have better wellbeing. Therefore one way we can improve our wellbeing is to practice gratitude. This means taking notice of the things we are grateful for or expressing our gratitude to others. What are you grateful for today?

Some people keep gratitude journals to remind themselves to take notice and record the things they are grateful for. Another way can be to remind ourselves to say thank you to anyone who does something nice for us, or develop a habit of telling ourselves what we are grateful for when putting on our pyjamas at night.

Sometimes it can be challenging to think of something that we are grateful for (remember that the brain naturally looks for the negatives rather than the positives). However, there is always something to be grateful for, no matter how small, for example having food to eat, having someone love us, a warm shower, having a pet.

Making progress towards goals

Thinking about the session today, what small thing could you do that will help you work towards your goals?

SMALL STEPS

To help me work towards my goals, this week I will:

At a glance

This week we found out that:

- There is more than one way to interpret situations, helpful ways allow us to feel better about them
- Empathy helps us feel close to people
- Self-compassions is an important part of maintaining our wellbeing
- We should be getting around 9 hours sleep each night
- Showing and feeling gratitude improves our wellbeing and there is always something to be grateful for!

This week, why not try...

side lunges!

- start standing
- take a big step to the right, bending right knee and keeping left leg straight
- keep right knee over ankle
- return to standing position
- repeat to the left side

Lunges can also be done forwards

swapping chocolate cereal for wholegrain cereal!

belly breathing for a calm mind!

- start by placing one hand on your chest and the other on your stomach
- breathe in through your nose, try to keep your chest still and let your stomach expand to pull air deep into your lungs
- exhale through your mouth, contracting your stomach to push the air up and out of your lungs, the hand on your chest should remain fairly still

Session 8
Celebrating progress!

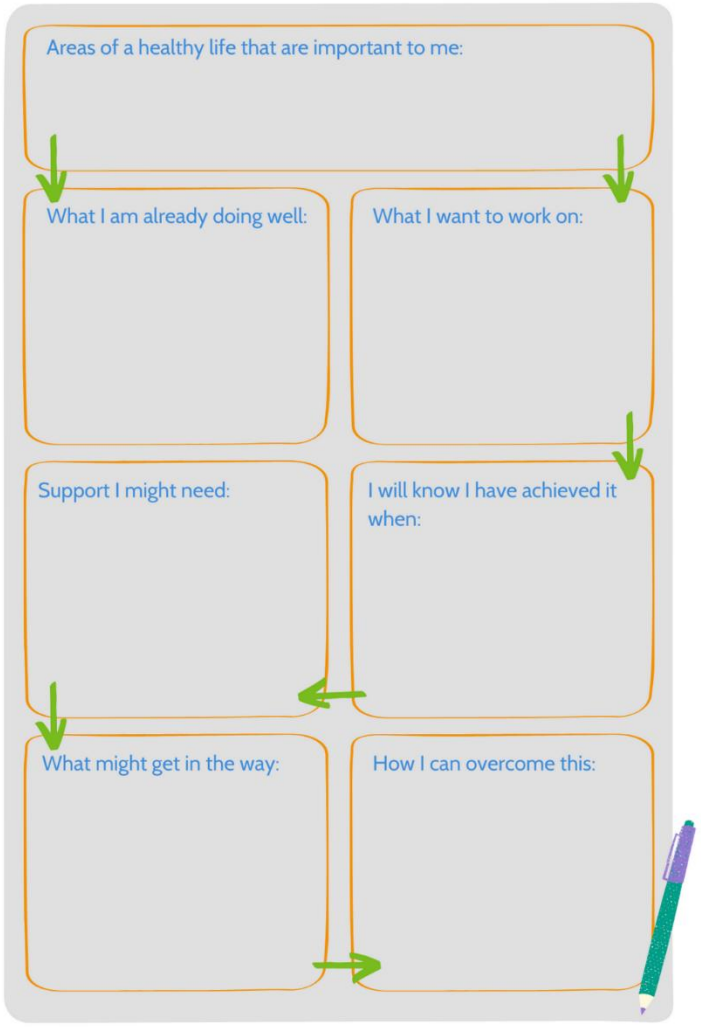
In this session we will be exploring:

- Living healthy plan
- Noticing and celebrating progress

Living healthy plan

Throughout the programme, we have explored lots of topics to do with health and wellbeing. As the programme finishes, it is important to think about how all that information can be used going forward so that you can continue eating well, staying active and looking after your wellbeing. The healthy living plan on the next page will help you think about this and plan how to achieve it. Support from other people can play a large part in helping us succeed, so the plan also considers how others can help you. There are different ways people can support you:

Think about this as you create your plan.



Celebrating progress

Let's re-do the Health and Wellbeing Quiz that you did in the first session. This will allow you to notice any changes you have made. Remember to think about yourself for the 'I' statements and your family as a whole for the 'we' statements.

	Never/Rarely	Sometimes	Often
I eat in front of the TV			
I eat breakfast			
I stop eating when I feel full			
I think about portion sizes			
I eat healthy food			
I eat takeaways and ready prepared meals			
I eat when I am bored, upset, lonely or tired			
I eat fruit and vegetables			
I snack between meals			
I try to limit how much sugar I eat			
I build being active into daily life			
I use stairs instead of lifts/escalators			
I enjoy being active			
I feel good after being active			
I do 60 minutes of activity a day			
Where possible I walk instead of using cars/buses			
I have energy			

	Never/Rarely	Sometimes	Often
I struggle with my feelings			
I take time to look after myself			
I am able to calm myself down when I feel wound up			
I use my phone in bed			
I have regular routine time for bed			
I get a healthy amount of sleep			
Food is used as a treat or reward			
There are limits on scrolling time and social media use			
We cook meals from scratch			
We try new foods together			
We sit together as a family to eat meals			
We are active as a family			
We talk about feelings and emotions as a family			
As a family we share when something is not going well			
We celebrate achievements together			

What is the biggest or most important change you have made?

Let's think about the progress you have made towards being healthy. Think about where you are now on the scale below.

Thinking about how healthy I am now; I think I am at...

1 2 3 4 5 6 7 8 9 10

Not very healthy — Very healthy

Now let's think about your progress towards the goals you set yourself at the start of the programme. Use the boxes below for this.

My first goal was: _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

My second goal was: _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

My third goal was: _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it — About halfway — Reached the goal

Hopefully, you have made some progress towards one or more of your goals. If you haven't, or if progress has been slower than you had hoped, this is ok. Making changes takes time and it is important to be kind to ourselves as we try to make these changes. Remember we spoke about self-compassion last week!

Additionally, ask yourself whether you are truly noticing all the changes you have made. It is possible that some changes have become a habit by now, and you may feel you have been doing things that way forever!

Finally, remember that our brains naturally focus on things we have not done rather than what we have done, so think hard about the effort you put in.

As you make progress remember to congratulate yourself! This will motivate you to keep going and make further progress. Also, if you have reached your goal, why not set yourself a new goal to work towards!

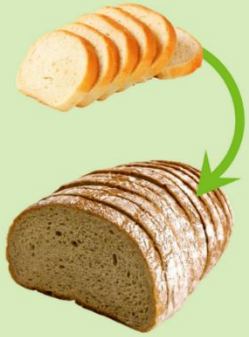
This week, why not try...

Idea

leg waggles!

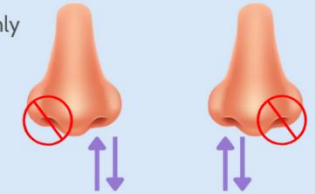
- start lying on back with hands by sides and head lifted off ground
- raise both legs just off the floor
- raise one leg up in the air
- lower that leg as you raise the other leg up
- repeat 20 times

swapping white bread for wholegrain bread!



nostril breathing for a calm mind!

- start by closing off your right nostril
- breathe in deeply using only your left nostril
- breathe out through only your left nostril
- close off your left nostril
- breathe in deeply using only your right nostril
- breathe out through only your right nostril
- repeat



Some other ideas for being active...

v-sit ups

- start lying on your back with arms stretched over head
- keep arms and legs straight the whole time
- raise arms and legs at the same time trying to come into a V position
- lower back to the ground and repeat

reverse crunch

- start lying on your back with arms by side and legs raised straight
- pull your legs towards your head, lifting your hips upwards
- lower your hips to the ground keeping your legs raised in the air, repeat

bridge

- start lying on your back with arms by side and knees bent
- push hips upwards
- hold for a few seconds before lowering back to the ground

Once you have mastered this, why not try the more challenging version: Single leg bridge

- start lying on your back with arms by side and knees bent
- extend one leg with foot towards ceiling
- push hips upwards
- hold for a few seconds before lowering back to the ground
- repeat with the other leg

Thank you for taking part in the Health and Wellbeing programme. We hope you have enjoyed the programme and found it useful.

We hope that you will continue to work towards your goals and towards living an even healthier life. As usual, we have provided some ideas of ways to support your health and wellbeing on the following pages. We hope this journal has been helpful and is a source of information should you want a reminder of any of the topics in the future.

We wish you the best for the future!

Appendix Z: Programme development – Zest for Life! handouts for parents

Zest for Life!

Supporting Young People through a new Health and Wellbeing Programme

The 'Zest for Life! Programme' has been developed by HENRY in collaboration with the University of Hertfordshire.

HENRY registered charity no. 1132581
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Welcome to Zest for Life! the Parent and Young Person Health and Wellbeing Programme

Being a parent/carer can be challenging and in today's world where technology and fast food are an everyday part of family life, helping young people grow up into healthy, happy adults has perhaps never been more challenging. As parents/carers we want the very best for our young people, even though sometimes it isn't always obvious what is best or how to achieve it.

This programme is an opportunity to share ideas with other parents/carers and to think about the kind of family lifestyle that will help young people develop healthy habits and attitudes that will stay with them for the rest of their lives. We hope that the sessions will help you decide what's best for you and your young people – and give you some useful tips, tools and know-how to make it happen. We also hope that you will have fun and enjoy yourself along the way!

The eight sessions of the programme are below. We look forward to accompanying you on a journey to becoming a healthier family, sharing valuable tools and strategies along the way.

Session 1
What is a Healthy Family?

In this session we will be exploring:

- What does it mean to be a healthy family and a healthy parent?
- Family goals
- Supporting young people to develop healthy behaviours
- The brain, breathing and responding versus reacting

What is a healthy family?

Being a healthy family is different for every family: one size does not fit all. There are many different ways to be healthy. We will be exploring many of these throughout the programme.

Write down some ideas from your discussion.

The Health and Wellbeing Quiz on the following page is an opportunity for you to think about many of the behaviours that contribute to healthy living, both those that you are already doing well and those that you might choose to work on. When completing the quiz, think about your own behaviours for the 'I' statements and those of your family as a whole for the others.

Health and Wellbeing Quiz

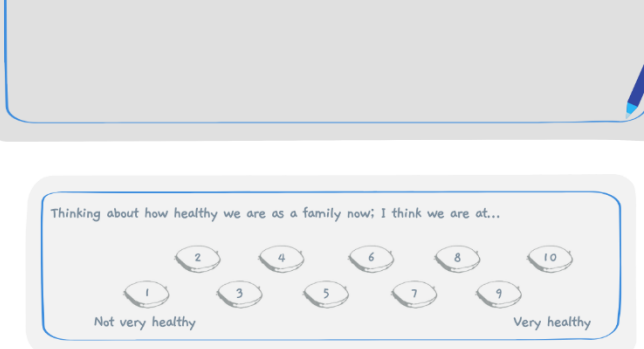
	Never/Rarely	Sometimes	Often
We eat in front of the TV			
We sit together as a family to eat meals			
We cook meals from scratch			
We think about portion sizes			
We eat healthy food			
We eat takeaways and ready prepared meals			
We try new foods together			
We build being active into daily life			
We use stairs instead of lifts/escalators			
We enjoy being active			
We feel good after being active			
Where possible we walk instead of using cars/buses			
We are active as a family			
We talk about feelings and emotions as a family			
As a family we share when something is not going well			
We celebrate achievements together			
We all have regular routine times for bed			
We all get a healthy amount of sleep for our age			
There are limits on screen and social media use			
Food is used as a treat or reward			
The kids use their phones or watch TV in bed			
I eat when I am bored, upset, lonely or tired			
I eat fruit and vegetables			
I snack between meals			
I stop eating when I feel full			
I try to limit how much sugar I eat			
I have energy			
I struggle with my feelings			
I take time to look after myself			
I am able to calm myself down when I feel wound up			

Family Goals

Let's think about where you are at the moment, and where you would like to be in the future. Think about everything you are doing to be a healthy family and a healthy parent/carer already. Often, we focus on what's not going so well and don't pay attention to the things we are already doing and what is going well for us. Taking notice of what we are already doing to live healthy lives and to support our young people can help us feel good about ourselves and give us motivation to keep going with these things. You may find it helpful to think about your responses to the Health and Wellbeing quiz.

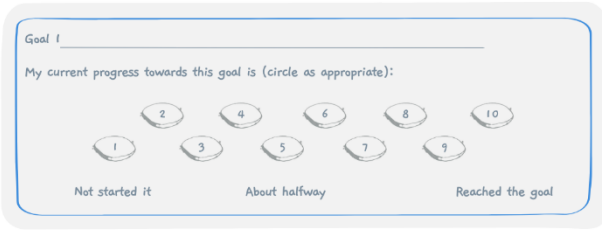
To be a healthy family we already:

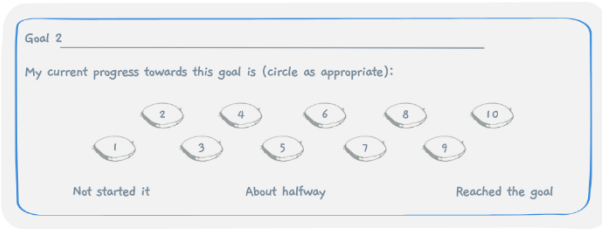
To support my young person to be healthy I already:

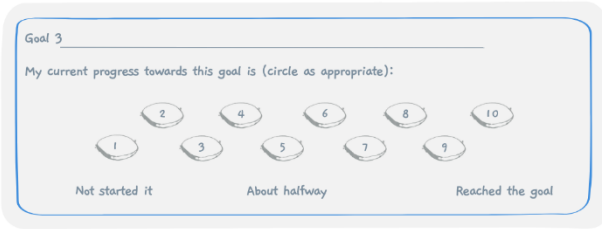


It can be really helpful to set goals for ourselves to give us something to work towards. You can use the following boxes to set goals for what you would like to work on and achieve throughout this programme. Use your responses to the Health and Wellbeing quiz to help identify these areas. Think about the following:

- What will you do for yourself?
- What will you do as a family?
- What will you do to support your young person to be healthy?







Supporting young people to develop healthy behaviours

The brains of young people are going through an intense period of development. The brain cells (neurons) are growing rapidly making lots of connections (synapses).

Remember when you were learning something for the first time, maybe riding a bike or driving a car, it was difficult at the beginning. After practising for a while, it probably became a lot easier. This is because the more we do something the stronger the connections in our brains become; we develop neural pathways making the activity much easier.

During the teenage years a young person's brain also starts to prune away connections that aren't being used. The brain does this to become more efficient, a bit like pruning a bush, pruning away the weaker branches so that the ones that remain can grow stronger. You might have heard the phrase 'use it or lose it', this is where that comes from: if you don't use the connections they are lost.

Helping young people to develop healthy behaviours now is really useful as there is a window of opportunity to develop their brain structure when the brain is rapidly growing. Encouraging them to explore a range of healthy activities and practise them is important so that they don't disappear in the pruning stage!

Behaviours and experiences literally shape the structure of their brains. Let's help them make connections that are healthy. We will explore many areas that will help support you with this as we travel through the programme.

Thankfully we can make new connections as adults too. It was once thought that the brain didn't make any new connections after childhood, but now we know that it can. Our brains change as we do things differently, think in different ways and feel differently about things. The brain is adaptable like plastic and scientists use the term 'neuroplasticity' to describe this. The more we do those 'different ways' the stronger the pathways become, forming new habits. As parents and carers we are role models for our young people and we have a big influence on the development of their health.

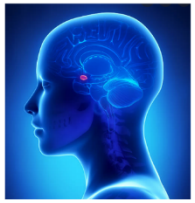
This short video explains the wonderful neuroplasticity of the brain. (scan the QR code or go to www.youtube.com/watch?v=ELpfYCZa87g)

The developing brain is also working to gain more control over emotions and behaviour but that process takes a long time. The part of the brain that is responsible for thinking, planning and making good decisions, the prefrontal cortex, is not fully formed until the end of adolescence (mid-twenties) so our young people don't have the same ability to think, plan and manage their emotions as we do as adults. Understanding this can help us understand their behaviour which can sometimes seem rather difficult!

The brain is also going through a period of greater sensitivity to social relationships so friendships can sometimes be a challenge. Friends also become increasingly important to young people as they move away from their parents/carers. Supporting them to make healthy choices and develop healthy habits as they grow in independence is really important.

The brain, breathing and responding versus reacting

As we've already mentioned the teenage years are a time of rapid brain development.



Location of amygdala

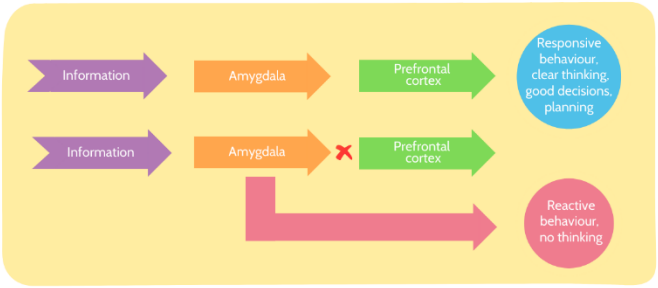
Understanding two areas of the brain can really help us to understand the behaviour not only of our young people but also our own.

The amygdala is part of the limbic system where emotions and motivations are controlled. It is a very old part of the brain that hasn't evolved as quickly as our environment. Back in the days when we were cave people this part of the brain was crucial for our survival. We needed to be on constant alert for danger, scanning the environment for sabre tooth tigers etc.

Fortunately, we are not faced with the same dangers as we were back then. However, the brain still scans the environment in the same way. Unfortunately, the amygdala isn't always able to work out the difference between perceived threats and actual threats, so the same reaction can be triggered for both a dangerous situation and a simple challenge e.g. taking a test, standing up and talking in front of people.

When the amygdala detects a perceived threat, information cannot be passed through to the prefrontal cortex where rational thinking and decision making takes place. An emotional reaction takes place without us thinking: we don't have the opportunity to think and respond to the situation. We might say or do something we wish we hadn't. Fear, anxiety, anger and stress, all shut down our thinking.

Location of prefrontal cortex



However, we can learn to manage these immediate reactions by breathing slowly, just like in the practice that we have been doing. This calms the amygdala allowing information to flow to the prefrontal cortex where we can think and respond calmly with good decisions and plans.

The prefrontal cortex is still developing in our young people: it doesn't fully mature until the mid-twenties. This means our young people do not have the same ability as us to think, plan, make good decisions or consider other's perspectives. Does knowing this information about the brain help you to understand their behaviour better?

Taking small steps to change

Identifying changes that you would like to make to adopt a healthier lifestyle is a great first step. Then, breaking the change down into smaller steps makes it more manageable. It also becomes easier when we take notice of the small steps we are making and reward ourselves, which makes us want to do it again. Rewarding ourselves is important as it gets the feel-good chemical dopamine flowing in the brain which motivates us to repeat the feeling. To be most effective the reward needs to follow the behaviour immediately. Rewards can be anything that makes you feel good e.g. smile and tell myself 'I did it!', high five someone or high five yourself in the mirror, hug someone, text a friend.

Think about the goals you have set for yourself and your family. Think about the small steps you could take to move towards your goals. For example, if your goal is to be more physically active, one step could be to start taking the stairs instead of the lift or escalator. Another could be park further away from the school, or get off the bus a stop early. Another step could be doing a form of structured activity once a week, maybe a YouTube workout video or going for a walk on your lunch break. Over time, these small steps add up to increasing your level of physical activity.

Types of support

When supporting our young people to lead healthy lives, there are different ways we can do this.

Motivational support

Providing encouragement to work towards goals

Emotional support

Knowing what is going on for them and providing an open ear to listen to them

Companionship

Someone to recharge your batteries with and do something fun together.

Practical support

Can include: reminders to do something, driving them somewhere, giving them a bus fare, buying equipment, enabling them to take part in activities.

Take some time to think about the types of support your young person might need throughout this programme.

What my young person might need from me:

What I can do to support my young person:

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

Session 2
Parenting for Health & Wellbeing

In this session we will be exploring:

- Why we need to eat well and be active
- The influences on ourselves and young people
- The link between thoughts, feelings, body and behaviour
- Styles of parenting
- Setting and maintaining boundaries
- Letting go for independence

Why do we need to eat well and be active?

Eating well and being active are important for our health and wellbeing. Both eating well and being active aid digestion of food through the body, helps us sleep and makes us feel better. It also sets a good example for your young people, friends, and other family members. What are some other benefits? Think about how eating well and being active makes you feel or what you notice about yourself.

Write down some ideas from your discussions

Below are some other benefits of being active and eating well.

Benefits of eating well	Benefits of being active
helps our body heal itself	gives us energy
gives our brain and body energy	improves balance and co-ordination
lowers risk of heart disease, diabetes, high cholesterol, cancer	reduces risk of heart disease, stoke, high blood pressure, cancer, diabetes, arthritis
makes us feel happier	makes heart and lungs function better
helps our immune system fight off illness	helps manage stress
builds our teeth, bones and muscles	strengthens bones and builds muscles

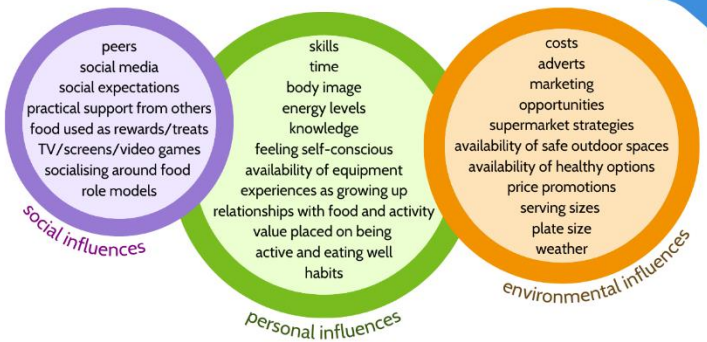
The influences on ourselves and young people

We have seen that eating well and being active contributes to living healthily. It is helpful for us as parents/carers to understand the things that influence those aspects of our young people's lives so that we can support them with these. It is worth noting that the things that influence our young people to be active and eat well also influence us as adults. However, as adults we are better equipped to deal with these influences as our brains are fully developed.

What influences your young person to be active?

What influences your young person to eat well?

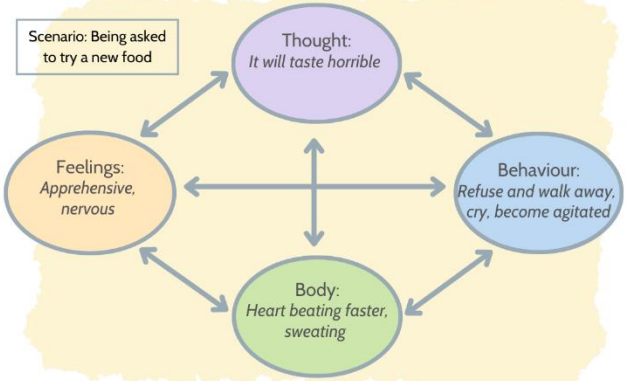
Take a look on the next page for some extra ideas.



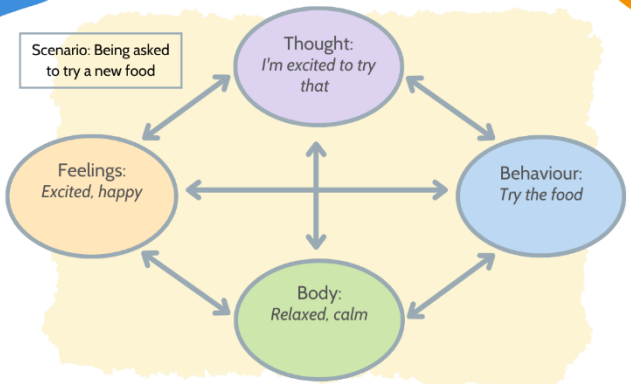
Throughout the programme we will explore some of these influences and how to support our young people to overcome them.

The link between thoughts, feelings, body and behaviour

The way that we think also has a big influence on our behaviour. The diagram below shows how our thoughts, feelings, body and behaviour are all linked. Understanding this link and changing our thoughts is called thought challenging and can be really helpful to build resilience and self-esteem! The example below shows how this works when asked to try a new food.



Given that our thoughts impact our feelings, body and behaviour, when we are able to change our thoughts we are able to change the other areas, as shown below.

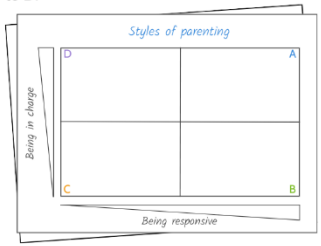


By changing the thought we have changed how we feel in our mind and our body and how we behave. Although the example above is for trying a new food, the link can be used in any situation. Throughout the programme we come back to this link for other situations, including how to manage anxiety. We will also look at how we can make changes in our body to help make changes to our thoughts, feelings and behaviour. Breathing is a good example of using our body to calm our mind.

Styles of parenting

There are two key aspects of parenting: how in charge we are as adults, and how responsive we are towards a young person. Most of us vary in how well we balance these, as it's easier to be both warm and firm when life is going well for us, and much harder when we're feeling tired, angry or worried.

The diagram shows the four different ways we can combine these two aspects, marked from A to D.



A The adult is clearly in charge and also sensitive to the young person's needs and feelings.

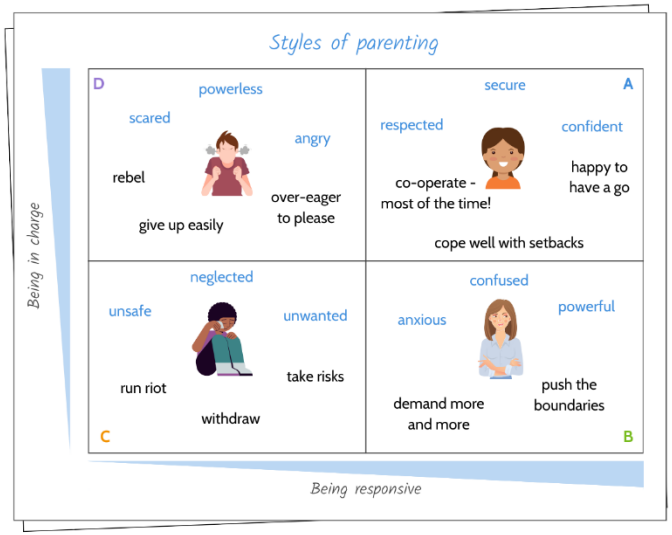
B The adult is sensitive to the young person, but not managing to stay in charge.

C The adult is not in charge, and not managing to be sensitive either.

D The adult is very much in charge, and not very sensitive towards the young person.

Young people, like adults, often express their feelings through their behaviour. Use the four boxes to think about how a young person might behave as a result of the way they feel. It can be helpful to write down all your ideas for the young person's feelings first, and then think again about how they might behave.

Here are some examples of young people's reactions to the four situations described above. How do these compare with your own ideas? We have shown the feelings in blue and the behaviour in black to make it easier to tell them apart.



It is best for our young people when we are able to stay in charge and respond sensitively to them (box A). If we have lots of strict rules and regulations, this can lead to power struggles. Or, if we're tempted to give young people everything they want, perhaps because we think they will love us more or because we want to make them happy, they may become more and more demanding and we may end up feeling we have lost all control.

Young people feel safer and happier when there are clear boundaries, as long as these are fair and realistic both for their age and for the stage of development they have reached.

Setting and maintaining boundaries

An important part of growing up is learning to balance our own needs, desires and feelings with those of others. This is a gradual process, requiring us to adjust our approach as our young people grow.

All families are different and we will all have different ideas about the routines and values that we want to encourage in our families. Routines and values also reflect our lifestyle and cultural and religious beliefs, for instance, how active we are as a family, how we spend our leisure time, the importance we place on education, or whether we regularly attend a place of worship.

Thinking about what is important to us, alongside what is important for our young people, helps us to decide on the boundaries we want to put in place to support them as they become more independent. We know that having boundaries in place helps young people feel secure.

Boundaries work well for us and our young people when they are:

Meaningful
It is much easier to uphold boundaries when we believe in them

Modelled by us as parents/carers
It is unfair to expect a young person not to be on their phone at mealtimes if we are

Fair and reasonable
Young people are much less likely to respect boundaries if there are too many arbitrary rules or we habitually react with a knee-jerk, "don't do that"

Consistent
If boundaries are constantly changing, young people become confused, insecure and are more likely to constantly push to test them out

What boundaries would be useful for you to have to support healthy family life?

Letting go for independence

As young people get older they need more space and greater independence. The poem below uses a kite to describe the feelings of letting go. Our young people need space to grow and develop with us there in the background as a safety net. They need to know that they can rely on us, that we are always there for them. If we let out too much string allowing them to do what they want, when they want without any boundaries, they feel lost and confused, possibly making poor choices and decisions.

Children are like kites

by Erma Bombeck

I see
children as kites.
You spend a lifetime trying
to get them off the ground. You run
with them until you're both breathless ...
they crash ... you add a longer tail ... they hit the
rooftop ... you pluck them out of the spout. You patch
and comfort, adjust and teach. You watch them lifted by the wind
and assure them that someday they'll fly. Finally they are airborne,
but they need more string so you keep letting it out. With
each twist of the ball of twine, there is sadness that
goes with the joy, because the kite becomes
more distant, and somehow you know it
won't be long before that beautiful
creature will snap the lifeline
that bound you together and
soar as it was meant to
soar – free and alone.
Only then do you
know that you
did your
job.

> *There are only two lasting bequests we can hope to give our children. One of these is roots; the other, wings.*
>
> Hodding Carter

If we don't let out enough string we run the risk of stifling our young person, not allowing them to explore their environment. They could feel awkward, resentful, frustrated and might as a consequence rebel. Having boundaries helps stay in charge while remaining responsive to a young person's growing need for growing independence. Remember it is natural for them to start spreading their wings and to want to do more with their peers.

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

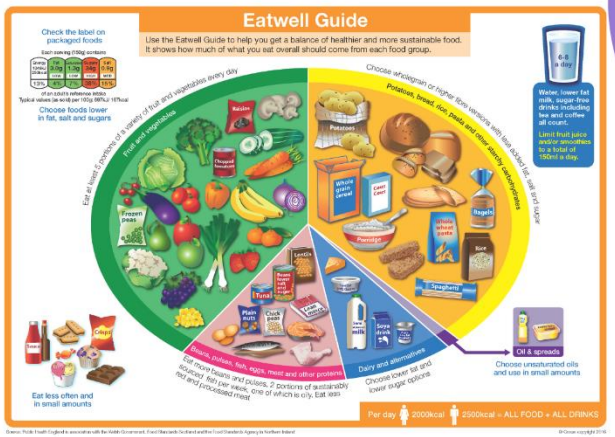
Session 3
Eating Well for Health and Wellbeing

In this session we will be exploring:

- What we eat and what foods do for us
- Balancing healthy family meals
- Portion sizes
- Meal planning
- Ultra-processed foods
- Family mealtimes

What we eat

The Eatwell Guide shows the main five food groups. It shows the proportion of each food group which contributes to healthy, balanced meals.



What foods do for us

Fruit and vegetables

- Vitamins and minerals for a strong immune system
- Fibre for good digestion and to prevent constipation
- Contain some carbohydrates for energy

Bread, rice, potatoes and pasta

- Carbohydrates for energy
- For everyone over the age of 5 years, wholemeal and unrefined carbohydrates (see Session 6) are healthier as they take longer to digest (helping to keep blood sugar level stable) and contain more nutrients

Dairy and alternatives

- Protein for building and maintaining muscle
- Calcium for strong bones
- Some dairy foods are high in fat so choose lower fat options for adults and older children

Beans, pulses, fish, eggs and meat

- Protein foods: these build and repair our bones and muscles
- High in iron and zinc which are essential for growth and development
- Oil-rich fish provide Omega 3 and other essential fatty acids important for brain development
- Some meats contain a lot of saturated fat so it is best to eat less meat and more of the other protein foods

Oils and spreads

- Contain vitamins for growth, a healthy immune system and healthy bones and teeth
- Provide fatty acids which are needed for development of brain and other tissues
- Fats are high in calories so consume in small amounts and choose unsaturated kinds

The following vitamins and minerals are particularly important so including the food below is useful as part of a healthy diet.

Nutrient	Why teenagers need it	Food sources
Iron 	For both boys and girls but especially important for girls who lose iron during menstruation Vitamin C helps absorption of iron	• red meat • wholegrains (such as wholemeal bread) • iron-fortified breakfast cereals • dark green vegetables (such as kale, watercress) • beans (such as red kidney beans, chickpeas) • seeds (such as sesame seeds, pumpkin seeds)
Calcium 	Calcium is important for growing bones and density in teenage years	• calcium-fortified dairy alternatives, such as those made from soya (particularly important if you are vegan or do not eat dairy products) • calcium-fortified breakfast cereals • dark green vegetables (such as kale, rocket and watercress) • fish that is eaten with the bones (canned sardines or canned salmon)
Vitamin D 	Helps with absorption of calcium 10mg a day needed in the winter months by the entire population (October to March). Those with dark skin need it all year round.	• oily fish – such as salmon and mackerel, • red meat, egg yolks • fortified cereals • soya produce
Zinc 	Key for healthy immune system	• red meat • nuts • seeds
Magnesium 	Stimulates brain growth, helps control blood sugar	• almonds • spinach • soya beans

Balancing healthy family meals

We don't need to get a perfect balance in every meal, but it's good to aim for a healthy balance in our meals and drinks across the day or over a few days.

If we want to improve the balance of a meal, we can adjust the proportion of the food groups or simply add food from another group. Making simple changes often means we can go on enjoying our favourite foods and eat more healthily too.

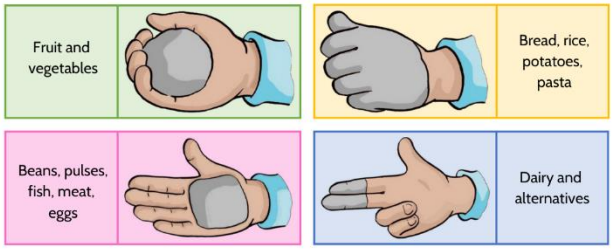
Think about some meals that you and your family enjoy. What ideas have you got for making the meal healthier and balancing the food groups? Pizza has been added as an example below.

Favourite family meals	Ideas for making the meal healthier
Pizza	*Add more vegetables e.g. mushrooms, pepper, sweetcorn, and serve with a salad*

Portion sizes

It can be often be confusing to know what a suitable portion size is. The amount of food required varies by weight and energy levels which fluctuate over time. Listening to their body's fullness and huger cues are the best guide to whether or not young people are eating a healthy amount. However, as the amount of food we put on their plates will influence how much they eat, it's helpful to know what a suitable portion is.

Using our own hands is an easy way to think about the size of a portion for ourselves and our families. The smaller the hand, the smaller the portion.



How many portions?

The table below shows the daily recommended number of portions for each of the food groups. You will notice that there are no recommended amounts for high fat/high sugar foods such as cakes, biscuits, ice cream, chips etc. These foods do not nourish the body so they are not needed. However, it is recognised that they are part of many diets and many people enjoy eating them. Eating these foods in small amounts occasionally helps ensure we eat enough nutrients form the valuable food groups.

Food group	Number of portions a day for over 5s
Fruit and vegetables Eating a wide variety is ideal. Eat the rainbow! (5 is the minimum)	5+
Bread, rice, potatoes, pasta Unrefined carbohydrates are healthier for young people and adults	5
Beans, pulses, fish, eggs, meat Meat and alternatives including plant proteins such as soya	2-3
Dairy and alternatives	2

Meal planning

Use the portion amounts and the Eatwell guide to write down some ideas from the discussion on meal planning.

Breakfast
(E.g. Scrambled egg on toast, strawberries and apple)

Lunch
(E.g. Wholemeal tuna and sweetcorn sandwich, cucumber and carrot sticks with hummus, pear)

Dinner
(E.g. Chicken with cous-cous and bread roll, roasted peppers and broccoli, yoghurt and banana)

Fruit and Veg

Bread, pasta, rice

Meat, fish, pulses

Dairy

Oils and spread

Ultra-processed foods

Ultra-processed foods typically have 5 or more ingredients and contain industrial substances such as preservatives, sweeteners, emulsifiers and artificial colours and flavours. These foods tend to taste good and are often inexpensive, they usually contain ingredients that could be harmful if consumed in excess, such as saturated fats, added sugar and salt. These foods also contain less dietary fibre and fewer vitamins than unprocessed food. Limiting processed foods helps our diet to be more healthy. Fast food, takeaways and ready meals are often ultra-processed and, as a result, often have high levels of sugar and salt.

Family mealtimes

Sitting together as a family and sharing a meal can be challenging as life is busy. However, it is worth making an effort to get together at mealtimes, even if it is only a couple of times a week.

Eating together as a family is a social experience offering the opportunity to appreciate the food we're eating as a family together. It gives us a chance to connect, to discuss the day, to find out what's been going on for our young person and to share our day too.

It's a great opportunity to model the enjoyment of healthy foods and be aware of what we are eating without the distractions of television or mobile phones. Focusing on what we're eating, allowing ourselves to taste the food without distractions allows us to be aware of fullness cues which can help prevent overeating.

The 'three Ss' to remind us that food is best eaten:

From the discussion, make a note of other habits that contribute to eating well

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

Session 4
Being Active for Health and Wellbeing

In this session we will be exploring:

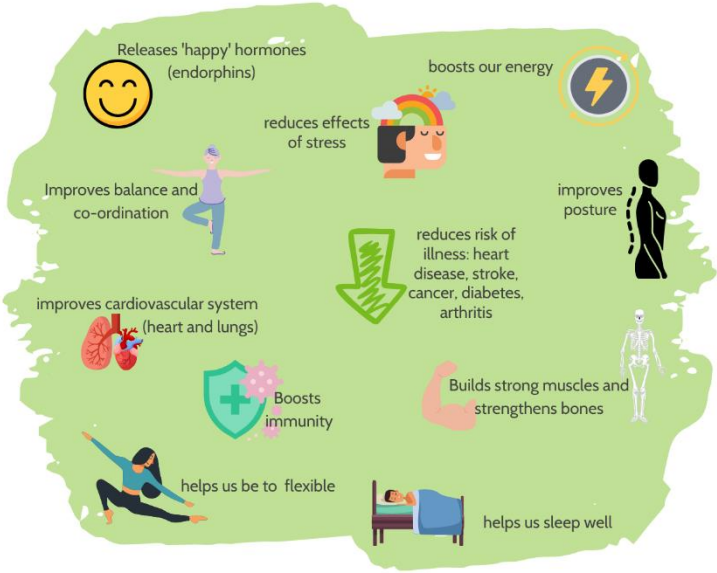
- Benefits of being active
- Activity recommendations for young people
- Supporting young people to be more active
- Problem solving
- Understanding behaviour – looking beneath the surface
- Empathy
- Guided choices

Benefits of being active

Our bodies are designed to move, although we no longer have the same need to move to survive like our ancestors did. Most of us don't grow or hunt what we eat, we just go to the supermarket. We don't have to walk for miles to get anywhere, buses and cars take care of that. A lot of our entertainment now doesn't require movement either! Being active brings real benefits, to young people and to ourselves. Being active together is also a way of building closeness and having fun as a family. Reminding ourselves of the benefits can really help our motivation to be active ourselves and as a family, however challenging it may be for us.

There can be barriers to being physically active both for ourselves and as a family. We will explore ways of overcoming these barriers.

The many benefits of being physically active include:



In addition to all these benefits there are additional benefits for young people being active.

Activity recommendations for young people

This infographic from the UK Chief Medical Officer shows the recommended physical activity levels for young people up to 18 years old.

Supporting young people to be more active

There are two main ways we can support our young people to be more active:

1. Increase the amount of activity together as a family
2. Provide emotional or practical support to our young people so they can be active independently

Write down some ideas of how to be more active as a family

What can you do to support your young person to be more active independently?

Making use of the local area

Exploring what is available locally can be a useful activity, checking out leisure centres, parks, clubs etc.

A great way to be active is to do it with other people, this makes it more fun and enjoyable. This could be with your friends and family, or it could be through events such as Parkrun which offer weekly non-competitive events for the whole community. See parkrun.org.uk for more details and to find your local event.

If you don't feel ready to jump straight into this, a good place to start could be through the use of a structured activity programme that gradually increases the amount of time spent being active each week. On example is the Couch to 5K programme. This is a 9 week programme which can be downloaded free from Google Play and the App Store.

Problem solving

Sometimes, despite our best efforts, there are challenges that make it harder to eat well or be active. When these situations arise it is useful to know how to overcome challenges, both for ourselves and for us to guide our young people through the process.

On the notepad are some ideas of how to approach problems and look for a solution.

- Trial and error
- Brainstorm ideas
- Use a solution that worked before
- Ask for support
- Sleep on it
- Ask: What, When, Where, Who, Why, How
- Use the problem solving rainbow

1. What is the problem?
   Be as specific as possible
2. What are the possible solutions?
   List them all no matter how strange they sound!
3. What is good and not so good about each solution?
   Think about: is is likely to work? is it do-able?
4. Choose one solution
   Choose the one that seems to be the best option
5. Plan the solution (How)
   What? Where? When? With whom?
6. Do it!
7. Review
   Did it work?

No
Choose a different solution to try

Yes
Fantastic!

> *Obstacles don't have to stop you. If you run into a wall, don't turn around and give up. Figure out how to climb it, go through it, or work around it.*
>
> Michael Jordan

Understanding behaviour - looking beneath the surface

Trying to understand a situation from a young person's point of view is one of the most important skills of parenting. Showing a young person that they are heard and their opinions matter helps them develop a good sense of self-worth, believing they are loved and accepted for who they are.

All of us, throughout our lives, have various emotional needs that influence the way we feel and drive the way we behave. These three things – needs, feelings and behaviour – are closely connected. We will focus here on emotional needs, though we all have other needs as well (for food, shelter etc).

Examples of our emotional needs are shown below in the orange box. When these needs are met, at least most of the time, young people are more likely to grow up with a secure sense of self and flourish in their lives.

When our needs are not met, life can be much harder to manage – for all of us. We are more likely to be overwhelmed by our feelings, and to behave in ways that are problematic.

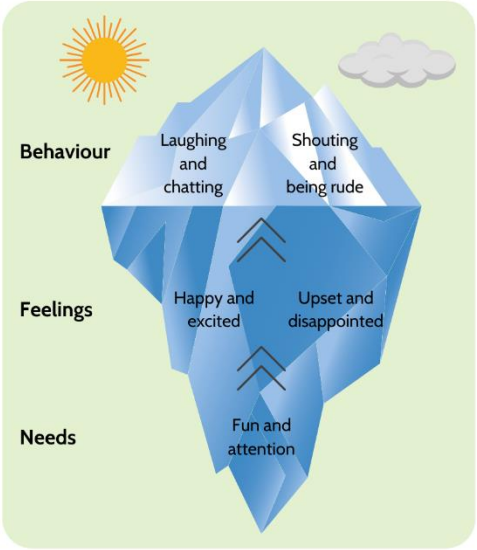
This behaviour can be difficult to manage especially if we are not feeling at our best. Looking beneath the surface of the behaviour can help us. Thinking about an iceberg, the behaviour is represented as the tip, just the part that we can see, but there is a lot more beneath the surface - their feelings and their needs (see next page). Think about a recent problematic behaviour displayed by your young person, how did they feel and were their needs being met?

Emotional needs

safety
security
hope
understanding
love
belonging
attention
acceptance
enjoyment
independence
being heard
affection
trust
autonomy (having a say and some control over what happens to us)

In the example on the right, imagine your young person has been showing you how their new gadget works; you can tell they're enjoying it, as the sunny side of the iceberg shows. Two of their underlying needs – for attention, and for fun – are being met.

If they want to carry on showing you how it works when you need to leave to start dinner, their mood may change, like a change in the weather. Have a look at the stormy side to see what can happen. As these same needs are no longer being met, they show their frustration in the way they behave.



Understanding what is going on, realising that a young person is not just trying to wind us up on purpose, and understanding the feelings and needs that are driving the behaviour, helps us to take a more objective view and stay calm and responsive. Remember, their prefrontal cortex is not fully formed so they don't have the same ability to think things through as we do as adults.

Responding to needs

As seen, young people and adults have needs. However, not every need can be met all the time. Understanding this and that other people have needs too is an important life lesson for young people to learn. It is difficult for young people to learn to tolerate frustration and consider others' needs if they grow up with all their wishes being met - so balancing responsiveness with boundaries is another important balancing act.

As parents/carers we also need to stay in charge and stop the behaviour if it is causing problems. But thinking about what is going on for the young person will help us to do so more easily – and that is good for them and our relationship.

Empathy

> *Empathy works so well because it does not require a solution. It requires only understanding.*
> John Medina

What is empathy?
The word empathy is used in different ways; some people suggest we should "walk a mile" in someone else's shoes before we judge their reaction to something. The problem with this idea is that it will tell you how you might feel in their situation – but you are none the wiser about how they may feel about what is happening to them, as your focus is on yourself and not the other person. Some say that you can't feel empathy towards someone who is going through an experience you have not also been through. But empathy is about trying to sense someone else's feelings, rather than identifying with events in their lives. If we know what it is to feel loss, disappointment, joy, rage, hurt, hope, guilt, excitement, and all the other many emotions available to us, then we can learn to recognise these feelings in someone else regardless of what event provokes them.

So, how can we best describe empathy? It's about tuning in to how someone else feels. Noticing and thinking about how someone is feeling usually cuts through any blame or judgement we might be feeling about their behaviour. We can often sense how others feel if we pay careful attention, and are not distracted by our own feelings. We can't assume that someone else feels as we do about a similar situation: we need to listen to them with an open mind and an open heart, and try to understand their point of view.

What helps us be empathetic?
There are three things that help us to respond with empathy:

- being aware of our own feelings and accepting them
- having the words to identify how we feel and how others may be feeling
- being genuinely interested in and sensitive towards others

Empathy is a magic ingredient in relationships. It helps us to feel close, to understand and feel understood, and to share in other people's joys as well as supporting them when they are troubled. It helps us meet young people's emotional needs, encouraging them to recognise and express how they feel and building their emotional vocabulary. When we tune in to a young person by naming and responding to how they feel we meet an important need: to be understood. This helps them to cope with their feelings, and we may be amazed at how their behaviour calms down too.

Naming and empathising with young people's feelings

Being in the grip of powerful angry feelings can be a frightening experience for young people, who may feel out of control and at the mercy of destructive urges. Without help to understand their emotions and know that experiencing a whole range of emotions is normal, young people can grow up without understanding, accepting and learning to manage them, sometimes hiding their emotions away or pretending they do not exist. How we respond to young people's emotions affects how young people feel about themselves. Young people (and adults) often express their feelings through their behaviour, so empathising with the underlying feelings rather than reacting to the behaviour can make all the difference.

Let's think about what the young person is likely to feel and learn about themselves in the following interaction during an argument:

Young person [to brother]: I hate you!
Parent: Don't be so horrible to your brother, of course you don't hate him.

It's easy to see how the young person could end up believing both that they are not a very nice person and, confusingly, their feelings are not acknowledged.

Now, let's think about the impact on the young person if the parent responds with empathy instead.

Young person [to brother]: I hate you!
Parent: You sound really angry and upset. What's going on?

This time, the parent's response shows the young person that they acknowledge their feelings and gives them an opportunity to talk about it.

Naming and talking about feelings is a powerful way in which we can help young people make sense of their inner world. When a young person receives the message that all of their feelings are valid, this helps them to feel at ease with who they are. Additionally they learn how to manage their own behaviour and consider others too.

Putting it into practice - Diving under the behaviour

Write down a typical example of your young person's behaviour that tends to wind you up

What is your young person doing?

How might they be feeling?

What do you think they might need when they are feeling this way?

Responding with empathy – What could you say that would let them know you have noticed how they are feeling and what they might need?

Guided choices

How do you feel when you are not given any choice? Possibly angry, frustrated or upset. How about when there is too much choice? Here, we can feel anxious and stuck. Young people feel the same way. When we ask young people to do things without giving them a choice they can dig their heels in which can lead to conflict and stress within family life. Giving too much choice can mean they struggle to make the decision or make decisions that are not in their best interest.

A great middle ground is to provide guided choices. This is when we present two options, both of which we are happy with. For example, if you would like your young person to eat some fruit, you could offer them the choice of an apple or some grapes. In this scenario, you would be happy if they ate either the apple or the grapes, and by providing them the choice they have some autonomy which is meeting one of their basic needs.

Guided choices fits with the style of parenting where the adult is both in charge and being sensitive to the young person's needs. We have already seen the benefits of this style of parenting in a previous session. When we provide guided choices to young people, they focus on making the choice rather than resisting which can lead to co-operation and a more harmonious family life. It also helps them learn how to make decisions which is a skill they will need in life.

Have a look at the scenarios below and think about what the choices might be.

Scenario	No choice	Guided choice	Too much choice
You want to go for a walk with your young person	*Put your shoes on we are going for a walk now*	*Shall we walk to the park or to the woods?*	*What would you like to do?*
You want your young person to eat some vegetables with dinner			
You want your young person to finish their screen time			
You want your young person to help you prepare dinner			

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

Session 5
Mental Health and Wellbeing

In this session we will be exploring:

- Mental health and wellbeing
- Five ways to wellbeing
- Communication
- Descriptive guidance and praise
- Helping a young person grow up with a sense of self-worth
- Understanding anxiety
- Link between thoughts, feelings and behaviour to manage anxiety

Mental health and wellbeing

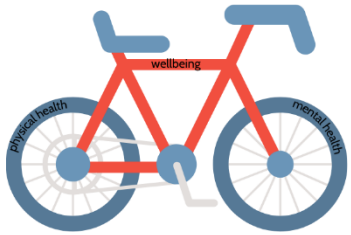
Mental health affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

We all have mental health, sometimes it is good, sometimes not so good, just like our physical health. When we have good mental health we feel good about ourselves and the world around us, we think clearly and feel like we can cope with ups and downs. When our mental health is not so good we can find things difficult to deal with, and can often find it hard to manage our emotions and behaviour.

> *We all have mental health in the same way we all have physical health. It's time we ended the shame around mental health – the fear of judgment that stops people talking*
>
> Prince Harry

Wellbeing is all about feeling good about yourself and your life, and includes having both good mental and physical health. Working on developing our physical and mental health can help us enjoy overall wellbeing.

We can think of wellbeing as a bike: one tyre is physical health, the other is mental health. We need both tyres for the bike to work, we need to keep both inflated. We need to notice when the tyres are starting to deflate, they need constant maintenance just like our mental and physical health; we need to work on them so we stay inflated! Taking care of one tyre and not the other doesn't lead to the bike functioning well. In the same way just looking after our physical health and not our mental health would mean we weren't at our best.



Write down some ideas from your discussions

Five ways to wellbeing

Coping with the demands of family life can be challenging. Parents/carers often say they find it difficult to find time for their own wellbeing. However, spending time developing our own wellbeing is good for us and the people we care for as we are more able to juggle everything better when we do make time for ourselves.

Research carried out by the New Economics Foundation found that there are five ways that can develop our wellbeing.

Communication

Chatting for connection

How we talk, as well as how we listen, has a big impact on how likely our young people are to chat to us. The language we use can also encourage our young people to chat to us – or not, especially as they grow older. We may find our questions being answered with grunts or replies such as 'fine'. When this happens a moment of reflection for us can be useful to consider what is going on for our young person- what's underneath the tip of the iceberg? Respecting a young person's need for space and noticing when they are and aren't in the mood to talk is always helpful – bombarding them with questions at these moments is not helpful!

Encouraging young people to recognise and talk about different feelings can help them develop an increased awareness and help them to feel more comfortable with the inevitable ups and downs of life. There are some useful ways that will help to get our young people talking to us more about things that matter to them.

Opening the door

Certain phrases are really useful in starting a conversation – they show we are interested and encourage a young person to talk (on their own terms). These are often called inviting statements and examples include:

"I'm really interested to hear more about ..."
"Sounds as if there might be something bothering you ... "
"I'd love to know your thoughts on ..."
"Let's talk more about how you felt when..."
"That sounds interesting – tell me more"

Open questions

Some questions close down a conversation because they demand a one-word answer – usually yes or no – or a statement of fact. We tend to use these closed questions to find out information for ourselves– rather than because we're really interested in what the other person has to say. Examples:

"Did you find it hard?"
"What did you eat for breakfast?"

Open questions communicate that we are interested, ready to listen and invite a longer response. Examples include:

"What happened next?"
"How did you feel about that?"
"What are your ideas?"
"What was hard about ...?"
"What happened to make you feel upset/angry/proud/annoyed?"

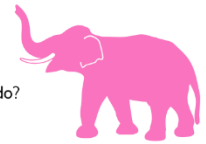
When we're thinking about open questions, it's also worth being aware of the 'why' question (which in theory is an open question) for example "Why did you do that?" However, a 'why' question can easily sound like an accusation and when we, or our young people, are asked why we have done something, we may react defensively. A more neutral "What was going on for you when ...?" question is more likely to produce an open response.

Putting it into practice

Closed question	Open question or inviting statement
Was tennis hard today?	*How did you find tennis today?*
Are you feeling better today?	
Who did you talk to at the party?	
Did you feel annoyed?	

Descriptive Guidance and Praise

Don't think of a pink elephant.
What did you automatically think of?



How often do we tell young people what we don't want them to do?
'You always leave your homework to the last minute'
'Don't use your phone after you've gone to bed'
'You need to stop that'

'You' statements often suggest blame and can make the young person feel that they are the problem. A more helpful approach is to ask them what we want to see them doing in a way that helps them understand why we are asking. Starting requests with 'I' helps us communicate what we want, for example "I need..." or "I would like...". When we also include a rationale for the request, for example "...because..." or "....so that...", it makes it more likely that they will cooperate rather than resist. To illustrate, "You always leave your homework until last minute" is better phrased as "I would like you to do your homework before dinner so that we have time to go for a walk later." The latter is an example of descriptive guidance.

When young people do comply with our requests, how often do we say thank you? In order to motivate young people to continue listening to our requests, it is important to praise them and tell them why we have appreciated what they have done. An example of descriptive praise would be: "Thank you for doing your homework so that we can go for a walk after dinner."

As shown in the example above, it is important that the praise is specific. Often when we do provide praise it is easy for it to be general, e.g. "Amazing!" or "That's great!". The problem with this is that the young person doesn't necessarily know what they have done to receive the praise. Praising and thanking young people by describing what they have done – as well as why we appreciated it or how it helped builds their self-esteem and reinforces the behaviour we want making it more meaningful.

When young people are learning new skills, managing challenges and having a go at things, it is particularly beneficial to praise their effort rather than the outcome. This helps them develop a 'growth mindset' and they are more likely to persevere and try more things. Conversely, if we expect more of young people than they can manage or put pressure on them to do things perfectly, they are likely to feel discouraged and may give up rather than risk failure.

Have a go at re-wording the statements below in a way that clearly outlines what you want using descriptive guidance. Then think about how you could praise your young person using descriptive praise.

Saying what we don't want	Descriptive Guidance	Descriptive Praise
Don't leave your bedroom in such a mess	I would like you to tidy your bedroom please so that you can find your things more easily	Thank you for tidying your room. It's so much nicer to see everything organised
You're always on your phone. Don't you ever stop looking at it?		
Stop messing about		
I don't want you spending any more time watching tv		

Helping a young person grow up with a sense of self-worth

> *It is an absolute human certainty that no one can know his own beauty or perceive a sense of his own worth until it has been reflected back to him in the mirror of another loving, caring human being*
>
> John Joseph Powell

A young person's view of themselves is shaped by their experiences and interactions – especially with their parents and other important adults. When young people have self-worth, they carry with them a basic belief that making mistakes does not make them a bad person and that they are able to cope with the ups and downs that life will present. When we actively communicate unconditional love to our young person as a natural part of daily family life, they feel both secure and valued for who they are.

Understanding anxiety

It is perfectly normal for us to experience anxiety at times. In fact, anxiety keeps us safe in dangerous situations through the activation of the fight/flight response. Let's now think about other situations in which we feel anxiety. As mentioned previously, the dangers to our survival have decreased as we have evolved from our ancestors. However, the amygdala is a very primitive part of the brain and has remained just as active throughout our evolution. This means that sometimes our brain will interpret some situations as dangerous even when they are not.

We can think of this as a bit like a faulty fire alarm system. Sometimes the alarm will go off when we burn the toast; there is no fire but the alarm is telling us there is danger.

It is the same with life events, even though talking in public does not propose a threat to our safety, our brain interprets this as danger and activates the fight/flight response. The result is that we feel anxious. Generally speaking, in these situations, anxiety is the result of us over-estimating the danger and under-estimating our ability to cope.

Anxiety in the body

When we experience anxiety and enter fight/flight mode our body prepares to take action or run away. This results in changes within the body as shown below.

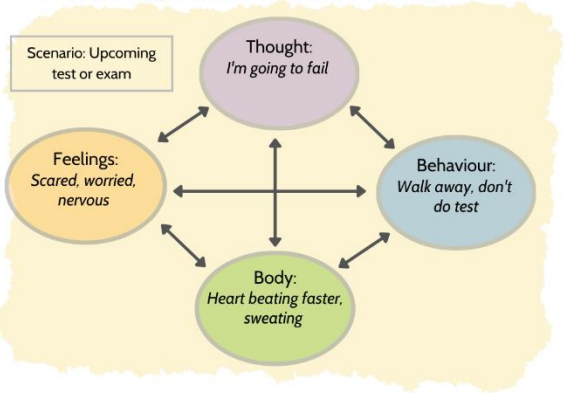
What happens in the body	Why this happens
Our thoughts race making it hard to concentrate	Our brain is assessing the danger
Tunnel vision	So we can focus on the danger
Mouth gets dry	The digestive system shuts down and saliva is not produced
Sweating	The body sweats to cool itself down so it can work more efficiently
Breathe faster	To get more oxygen into the body
Heart beats faster	To move the oxygen to the muscles so we can run or fight
Feel that we need the toilet	The bladder relaxes so the body can focus on other areas
Butterflies in the stomach or aching	The digestive system shuts down leaving food undigested
Tense or shaking hands/arms/legs	The muscles are preparing to run or fight

As we can see there is a reason why each of these things happens in our bodies. Without these changes we would not be able to take action when the fight/flight response is activated in dangerous situations.

However, we know that the fight/flight response is activated even when there is not danger and it is not necessary to fight or run. In these situations the changes in our bodies can feel very uncomfortable but it is important to know that these sensations are not dangerous to us and they will pass over time as our anxiety reduces. It is natural to want these sensations to go away quickly, so let's look at how we can do that.

Link between thoughts, feelings and behaviour to manage anxiety

To manage anxiety we need to come back to the link between thoughts, feelings and behaviour. Let's look at the diagram below that illustrates exam anxiety.



The diagram shows a typical situation for a young person about to take a test. A common thought could be 'I'm going to fail' or 'I'm not prepared'. From this thought, a young person might feel scared, worried or nervous, they may be experiencing butterflies in their stomach, feel nauseous or sweaty. In this situation they decide to leave to avoid the test saying they feel too unwell to take it. To change this, there are three approaches that can be useful:

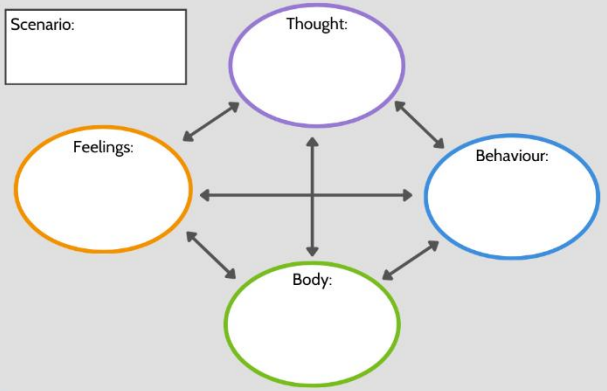
1. We can challenge and change the thought.
If we change the thought to 'this is my opportunity to show what I have learnt', it is reasonable that the feelings would change to confidence and pride, the body would remain calm and they would take the test.

2. We can calm ourselves by activating the para-sympathetic nervous system.
This will override the faster heart beat etc. and help us to feel calm which will help clear our thoughts and improve our feelings. Using the breathing techniques we have been learning on the programme is a useful way to achieve this.

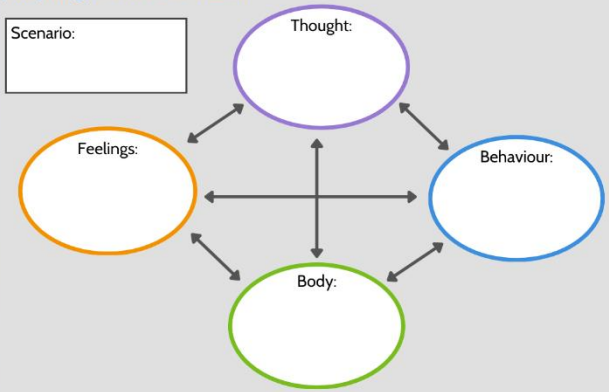
3. We can change the behaviour.
We often avoid things when we think we can't cope and then it becomes harder to do the task next time. However, by doing things that we try to avoid we learn that we can in fact cope in those situations. That gives us confidence to face them again, and we therefore stop avoiding them.

It is important to note that the three approaches above are skills that when practised can help manage anxiety.

Have a go at using the diagram below for a current situation that **you** are worried about.



Have a go at using the thoughts, feelings, behaviour link below for a current situation that **your young person** is worried about.



Using this as a tool to help reduce anxiety can reduce the emotional reaction to thoughts allowing for calmer thinking, which in turn can change behaviour.

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Jot down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

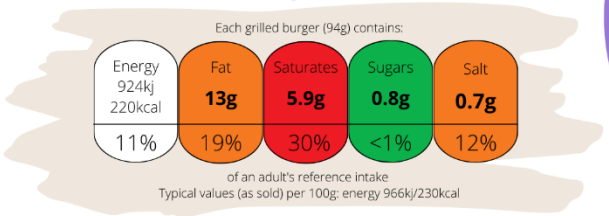
Session 6
Continuing to Eat Well for Health and Wellbeing

In this session we will be exploring:

- Understanding food labels
- Food facts: Fats, Carbohydrates, Sugar surprises
- Healthy sugar swaps

Understanding food labels

Over recent years, the government has encouraged food manufacturers to include a front-of-pack traffic light system to tell shoppers at a glance if the food has high, medium or low amounts of fat, saturated fat, sugars and salt. This is voluntary but many manufacturers and large supermarkets now use these more user-friendly labels, such as this label on a box of burgers:



Red means the food is high in fat, saturated fat, salt or sugars, and these are the foods we should cut down on – eating them less often and in small amounts.

Amber means medium - we can eat foods with all or mostly amber on the label most of the time. It is worth noting that amber foods can contain very different amounts of sugar – from 5 to 22.5g per 100g – so it is still important to read the ingredient list carefully. Foods which have an amber sugar label are also high in sugar for young people – a product with an amber label may contain up to 5.5 teaspoons of sugar per 100g.

Green means low – the more green there is on the label, the healthier the choice.

Some manufacturers do not use the traffic light colours on their food packaging, so it can be helpful to understand how the different levels of fat, sugar and salt per 100g for adults are calculated:

Low, medium and high levels of fat, sugar and salt

	Low	Medium	High
Fat	3g or less	3-17.5g	More than 17.5g
Saturated fat	1.5g or less	1.5-5g	More than 5g
Sugar	5g or less	5-22.5g	More than 22.5g
Salt	0.3g or less	0.3-1.5g	More than 1.5g

Source: NHS Live Well

Food Facts 1: Fats

Fats are high energy foods. They have 9 calories per gram, whereas protein and carbohydrates have only 4 calories per gram. This does not mean that fats are bad for us; they provide energy, essential fatty acids and important vitamins such as A and D. However, while young people under 5 years need more energy from fat to help them grow and develop, adults and young people over 5 years should limit saturated fat intake for both for their health and their weight.

Current UK guidelines recommend that no more than 11% of total calories should come from saturated fat for adults and young people over 5 years.

As well as limiting total fat intake, choosing healthier types of fat is also important. There are two types of fats:

- Unsaturated fats, come mainly from plants and fish – including vegetable oils such as sunflower or olive, and oily fish.
- Saturated fats, come mainly from animal sources – including meat and meat products, cakes, biscuits, pastries, and dairy foods (not only butter, ghee and lard but also cream, yoghurt and cheese).

A diet high in saturated fats can, over time, cause high levels of the harmful kind of cholesterol (often referred to as LDL) and increase the risk of coronary heart disease, diabetes and some cancers. It is, therefore, best to limit the amount of saturated fat in our diet and replace it with unsaturated fats instead. There is good evidence that replacing saturated with unsaturated fats can help to lower levels of harmful cholesterol.

Food Facts 2: Carbohydrates

Carbohydrates are an important source of energy that fuel our bodies, particularly muscles and the brain. There are two types of carbohydrates: simple and complex.

- Simple carbohydrates include sugars that are naturally present in plant foods such as fruit (fructose), sugar beet or cane (sucrose) and milk and milk products (lactose).
- Complex carbohydrates are starches found in foods such as potatoes and cereals (including oats, rice, bread, pasta and breakfast cereals). Whole grains, such as brown bread, and many vegetables also contain fibre, which keeps our digestive systems healthy.

Complex carbohydrates take longer to digest than simple carbohydrates, keeping blood sugar relatively stable, meaning we feel satisfied for longer. Any sugar that the cells do not need immediately is converted to glycogen and stored to be used later. When we have more than we need, it is converted into body fat – so we need to balance the amount of carbohydrates we eat with our need for energy, which will depend on how active we are.

Fibre slows down the body's absorption of sugar. When sugar is contained within food such as fruit and vegetables, because they also contain fibre, the sugar is released more slowly. The problem comes when simple sugars are separated from the plant fibres, for instance through juicing or refining, and become free sugars.

Free sugars

Free sugars is the term used for all sugars added to foods by manufacturers, cooks and consumers, as well as sugar released through juicing. Sugars are referred to by different names in manufactured foods but any ingredient ending in –ose is usually a sugar. There can be several types of free sugar in one manufactured food item.

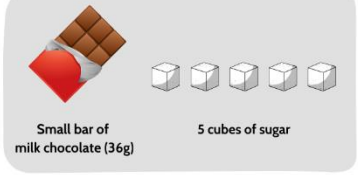
Foods and drinks high in free sugar have little nutritional value but contain lots of calories, as well as causing tooth decay. The following chart illustrates the daily recommended maximum for 11 years and above (a teaspoon or cube of sugar weighs about 4g).

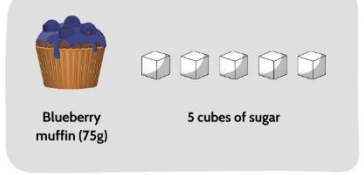
Age	Approximate daily maximum	Approximate equivalent in cubes of sugar
11 years and above	30g	

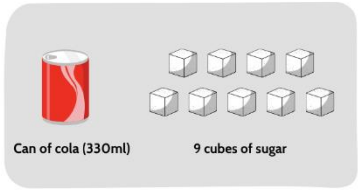
Food Facts 3: Sugar suprises

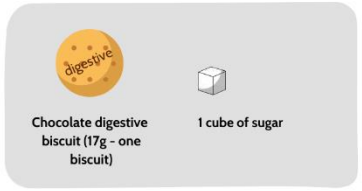
Sugars are used to flavour most pre-prepared foods – not just sweet ones, but savoury too. These 'hidden' sugars mean that we can easily end up eating more sugar than we think, and more than is good for us. Many everyday foods and drinks contain close to or more than the recommended maximum. Many young people will have almost reached their maximum daily 'allowance' of sugar by the time they have finished a bowl of breakfast cereal at the start of the day.

The following pictures show the amount of sugar is in some everyday foods and drinks – and how this compares to the maximum amounts we and our young people should be having.







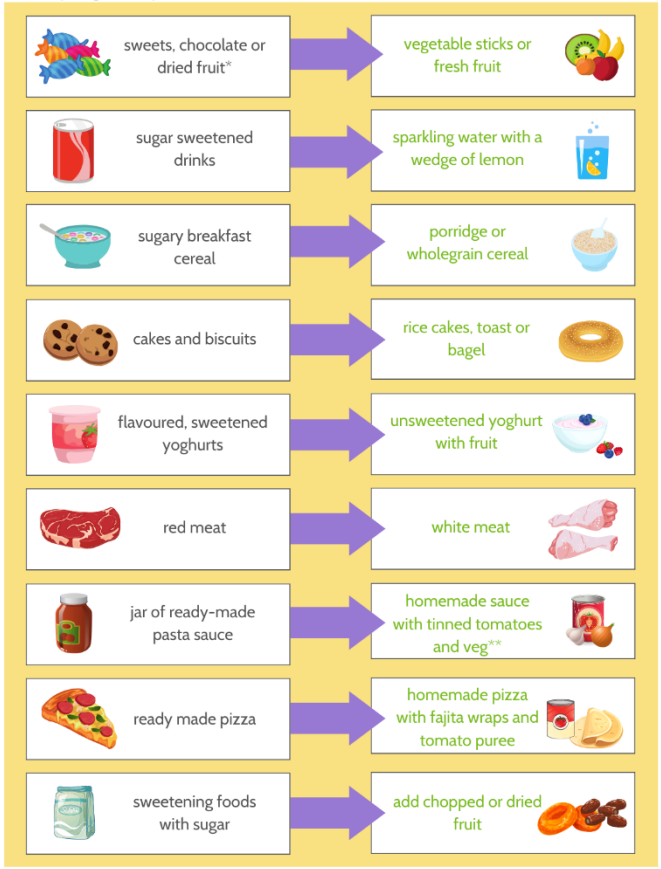


Eating less sugar

When it comes to our daily eating habits, reducing the amount of high-sugar foods and drinks we consume helps us to avoid the risks to our health, and means that we are healthy role models for young people.

We can do this both by cutting back the amount of sugar we consume and replacing high-sugar foods and drinks with healthier alternatives.

Healthy sugar swap ideas



*It is best not to eat dried fruit on it's own. The sugar is concentrated and sticky and more likely to cause tooth decay. Dried fruit is ok when eaten as part of a meal.

** There are several simple recipes for homemade sauces on the HENRY website. www.henry.org.uk/recipes

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

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Session 7
Health and Wellbeing for Flourishing

In this session we will be exploring:

- Family wellbeing
- Self-compassion
- Sleep
- Negotiation
- Gratitude

Family wellbeing

Family wellbeing is interconnected and goes deeper than moment-to-moment happiness. How everyone interacts with each other and how each individual feels within themselves will impact the overall wellbeing of the family.

Emotions are contagious so if individual family members are stressed or struggling then this can have a negative effect on the wellbeing of the family as a whole. When everyone is feeling good within themselves the family wellbeing is improved.

Wellbeing in a family requires everyone to work together, supporting each other in the good times and through challenges, listening to each other, spending time together, sharing experiences and emotions. These factors are all important to create an environment where everyone can flourish.

Write down some ideas to improve your family wellbeing

Self-compassion

Self-compassion means that we are understand and give ourselves the same kindness that we would give others. Having self-compassion is an important part of being the best parent/carer that we can be. Parenting can be tough and it is easy to be critical of ourselves or to think that taking time for ourselves is selfish. Actually, taking care of ourselves is a necessity. Anyone who has ever travelled on a plane might remember the part of the flight attendant's safety briefing outlining that in the event of an emergency adults need to secure their own oxygen mask before assisting others to put theirs on. When we are feeling good and are taking care of ourselves we are in a better place to take care of others.

Sleep

Balancing young people's physical activity with regular and adequate sleep is not just essential for their growth and development – it also makes a big difference to the quality of daily family life and helps you get the rest you need as a parent/carer. Although biological factors do affect sleeping patterns, the amount and quality of sleep that young people get is influenced by family lifestyle and routines – so there's lots we can do as parents/carers to help our young people get the sleep they need.

The importance of sleep for young people

Whilst we sleep our body and brain perform many tasks they are not able to do whilst we are awake. This results in many benefits for us as shown below.

The impact of sleep disruption

Sleep disruption affects behaviour, learning, and family life. When young people do not get enough sleep they cope less well with daily life and moments of stress.

Family life demands a great deal of energy, patience and resilience from us as parents/carers too, and sleep deprivation makes it harder to cope well.

Parents/carers sometimes describe how their young person's lack of sleep (and therefore their own too) causes problems, often resulting in exhaustion, stress, relationship conflict and a reduced ability to enjoy life.

How much sleep do we and our young people need?

Age	Optimum sleep	Changing sleep patterns
5-11	9-11 hours	Children of this age may get less sleep than they need and/or have difficulty getting to sleep because of: • demands of school work and social/leisure activities • worries • TV, computers and social media • food and drinks that contain stimulants such as caffeine.
12-18	9 hours	• Changes to the body clock mean that many teenagers find it difficult to get up in the morning but are able to stay up late.
Adults	7-8 hours	• Sleep difficulties can increase as people age.

Each young person is unique and the amount they sleep will vary from one to another, as well as from day to day. Noticing when you're your person is tired, usually evident in their behaviour and reactions to what is happening around them, will help you to establish age-appropriate bedtimes and be sure that they get the amount of sleep they need.

The link between sleep and weight gain

Sleep deprivation affects our metabolism and can lead to higher levels of stress hormones and the hormones that drive appetite. You may have noticed that if you've had a bad night's sleep or are feeling particularly tired, you sometimes feel like eating more carbohydrates and energy-dense foods.

Many parents/carers who are concerned about their young person's weight gain think about what their young person is eating and how active they are – but making sure they get enough sleep is important to maintain a healthy weight too.

Negotiation

As our young people get older they naturally want to feel more independent and this can often result in boundaries being pushed and some discontent. Having a strategy to use to help agree on important things can be very useful. We can use CAR to get to where we want by talking to our young people in a way that will help us both.

Child – asking the young person how they feel shows you care and are willing to listen and acknowledge their feelings.

Adult – what's going on for you? Explaining your perspective helps your young person to learn the importance of listening and considering your situation.

Request – a clear statement of what you'd like to happen next. This a balance of their needs and yours.

We can expand on this when we there is not an initial agreement, negotiating so that we can agree on something that everyone is happy with.

4 stages of negotiation

Start by saying what you'd like to talk about and why it's important to you

Parent/carer: I've noticed your bedtime is getting later and later and I'm worried you're not getting enough sleep. I'd like to agree on a time we're both happy with that you can stick to so that you're not too tired to get up for school.

Show that you care about the other person – ask for their thoughts and listen

Parent/carer: Now you're a bit older I know you like to have some time to yourself after we've eaten and you've done your homework. What time do you think would be good so you can do some of the things you enjoy and still not be too tired for school the next day?
Young person: I'm not too tired from school! I don't want to go to bed any earlier ...

Respond using CAR – swapping between listening and saying what's important to you

C: It sounds like having enough time before you go to bed is really important to you.
A: I don't want us to end up having an argument every night so I'd like to agree a time that works for us both.
R: How about we say you'll stop what you're doing at 9.30pm and be in bed ready to sleep at 10pm?

Negotiate until you reach an agreement both of you are happy with

- Carry on using CAR to swap between acknowledging your young person's feelings and needs and stating your own.
- Explore solutions that will work for both of you.
- Be prepared to compromise as long as the outcome is still acceptable to you – for instance, you might shift your position and agree to a bedtime that's later at the weekend
- If you notice your young person isn't hearing what you are saying, swap to listening mode rather than just repeating yourself. Empathy will lower the emotional temperature and make it possible to carry on.
- Suggest you take a break and both come back with some new suggestions in a little while if you need to.
- Check that both of you have the same understanding of what has been agreed.

Gratitude

Gratitude is feeling thankful for something or someone. Gratitude is often described as the superpower of wellbeing as it not only makes us feel good but it can also make another person feel good when we express our gratitude. When we are grateful we are paying attention to the good things that are happening in our lives.

Write down three things you are grateful for

How did it feel thinking of what you are grateful for? How would it feel to be told by someone that they are grateful for something you have said or done?

Could you take time each day to take notice of the things for which you are grateful? How might this benefit you?

> *Every day may not be good but there is something good in every day*
> Alice Morse Earle

Taking small steps and providing support

Thinking about the session today, what support might your young person need this week?

Write down some ideas

What small step could you do this week to help you move towards your goals?

FOR ME

Small step:

Afterwards I will reward myself by

What small step could you and your young person take together?

WORKING TOGETHER

Small step:

Afterwards we will reward ourselves by

Session 8
Celebrating Progress!

In this session we will be exploring:

- Young people's self-esteem
- Fostering a growth mindset
- Noticing strengths
- Family goals
- Planning for the future

Young people's self-esteem

Helping young people develop self-esteem is one of the most important jobs we have as parents/carers. How young people feel about themselves, their sense of personal worth, will influence almost every aspect of their life in childhood and beyond.

> *Self-esteem is as important to our wellbeing as legs are to a table*
> Louise Hart

Self-esteem affects their ability to concentrate and learn at school, their ability to make and keep friends, how they deal with problems and how easily they give up rather than persevere. It also affects choices they make and the risks they take as teenagers.

When they feel good about themselves they are more likely to make healthy choices which will continue to serve them well as adults. The link between low self-esteem and eating problems means that nurturing our young people's emotional wellbeing is important to preventing obesity and eating disorders.

The effects of criticism and blame

Persistent criticism, blame and unrealistic expectations can all do lasting damage to a young person's sense of self. They may come to see themselves as fundamentally unacceptable, growing up with a sense of guilt and shame about who they are that affects their feelings and beliefs about themselves – and the way they relate to other people.

Despite the harm it does, criticism is often well-intentioned. We may believe that the way to help young people improve is to point out their mistakes – or that by comparing them unfavourably to others, they will be motivated to change by their competitive instincts. Repeated messages stick, however, resulting in negative self-beliefs that are difficult to change.

What we say to our young people matters a great deal. When we are asked as adults whether we can remember particular words that were used to describe us as young people, we often recall negative labels such as selfish, lazy, bossy, stupid, clumsy.

Describing the behaviour rather than labelling the young person

Labels can be damaging. Young people often grow up believing that they 'are' the label and struggle to develop a more positive image of themselves. Their lack of confidence and self-doubt can hold them back from taking on new challenges and forming positive relationships.

Labels not only make young people feel bad about themselves, but once they believe the label, they are more likely to start to behave in that way. To avoid this happening, it is helpful to simply describe the behaviour rather than labelling the young person. For instance:

Labelling the young person	Describing the behaviour
Scenario: young person says something to you that you find disrespectful	
You're disrespectful →	*The way you spoke to me was disrespectful.*
Scenario: young person won't let sibling join in a game of football	
You're so selfish →	
Scenario: young person makes fun of someone	
You're so mean →	
Scenario: young person is telling sibling what to do	
You're really bossy →	

Fostering a growth mindset

Another way to build self-esteem is to support young people to develop a growth mindset. A person with a growth mindset believes that intelligence and talents can be improved and that making mistakes are a fully acceptable part of learning.

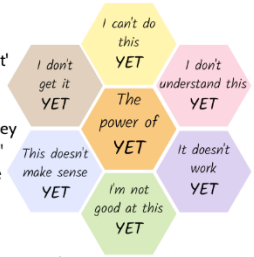
People with a growth mindset approach challenges with curiosity and a willingness to put in effort to overcome them. They are open to feedback and look at problems as opportunities to learn.

The way we provide praise can support the development of a growth mindset. This is achieved through praising the process, for example the time they take, the effort they put in, support they seek, different strategies they try or difficulties they overcome. For example, "Well done for organising your time so you could revise and prepare for the test."

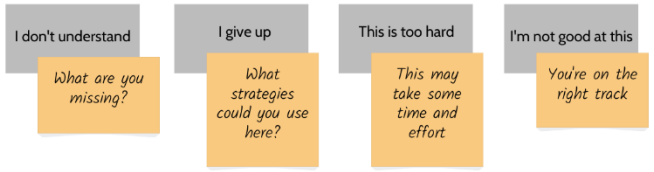
The opposite is a fixed mindset where people believe their intelligence and talents are fixed and cannot be changed, which often results in low perseverance and a tendency to give up when things get tough. Providing praise that suggests their ability is innate encourages a fixed mindset, e.g. "You're so clever."

Using language

When it comes to fostering a growth mindset, the word 'yet' is a powerful tool. The word 'yet' indicates that something which has not happened, will. We can use it to help young people see that learning is a process. For example, when they say "I can't do it", we can respond with "you can't do it yet." This enables a young person to develop greater confidence as they believe that struggles are part of life and that with effort and support progress can be made.



Below are some more examples of using language to foster a growth mindset.



A growth mindset helps young people see that even in the face of set backs they will achieve their goals. This strengthens their belief in themselves and increases their self-esteem.

Noticing strengths

Noticing strengths is another way of building self-esteem. Often we are less good at acknowledging the good things about our young people. Why is this?

Well, we can explain this by looking back to our evolutionary past: we have a negativity bias. This bias served us well back in the Stone Age times when it was essential for us to scan the horizon for threats. Identifying what could go wrong meant a greater chance of survival. We don't need this so much today but it is still an inherent part of us. Being aware of this bias can help us to think about looking for good things in our young people.

We can think of strengths in two ways: strengths of character and strengths of talent. Character strengths are positive aspects of our personality. Research has found a group of character strengths that exist across the world in all populations, that we all have in different amounts, that's what makes us unique! Can you spot some of your young person's character strength from the list? Highlighting these strengths to our young people, praising them when we see them and also giving them opportunities to use them makes them feel good. Using our own strengths enables us to feel good and be more productive too.

Character strengths include:

honesty	creativity
bravery	leadership
forgiveness	curiosity
fairness	teamwork
love	perspective
gratitude	hope
perseverance	kindness
self-regulation	humour

Example talents

sport	painting
music	coding
art	rhythm
dancing	blogging
comedy	languages
acting	logical thinking
singing	organisation

Talents are skills and abilities that we have or can learn. Sometimes they occur naturally or we may work hard to develop them.

Young people may struggle to identify their own character strengths and talents. As parents/carers we can help them by noticing their strengths and telling them when we see them using them.

What strengths does your young person have?

Character strengths:

Talents:

Family goals

A good place to end the programme is to think about the progress you have made over the last eight weeks. Let's start by thinking about what you are now doing that contributes towards a healthy life for yourself and your family.

To be a healthy family we are now:

To support my young person to be healthy I now:

Thinking about how healthy we are as a family now; I think we are at...

1 2 3 4 5 6 7 8 9 10

Not very healthy Very healthy

Thinking about how healthy I am now; I think I am at...

1 2 3 4 5 6 7 8 9 10

Not very healthy Very healthy

Think about the goals you set at the start of the programme, how much progress have you made towards them? Use the boxes below to review each of your goals.

Goal 1 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Goal 2 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Goal 3 _____

My current progress towards this goal is (circle as appropriate):

1 2 3 4 5 6 7 8 9 10

Not started it About halfway Reached the goal

Remember that it takes time to change our behaviour to reach our goals and it is okay if you are still working towards them. Take notice of the positive progress you have made, and ask yourself whether you are really noticing everything you have been doing to live more healthily.

> *I was taught that the way of progress was neither swift nor easy*
>
> Marie Curie

Taking small steps into the future

Use the space below to think about planning for the future. Think about the support your young person might need moving forward, what small steps you want to keep going with, and what new small steps you might like to try.

First, here is a reminder of the different types of support we can provide.

Motivational support

Providing encouragement to work towards goals

Emotional support

Knowing what is going on for them and providing an open ear to listen to them

Companionship

Someone to recharge your batteries with and do something fun together.

Practical support

Can include: reminders to do something, driving them somewhere, giving them a bus fare, buying equipment, enabling them to take part in activities.

What support does your find person find helpful that you can continue to provide?
What new support might they need or want as they continue their health and wellbeing journey?

Support I will continue with:

New support that might be helpful:

Now, let's think about the small steps you and your young person can continue to take on your health and wellbeing journeys.

What small steps will you continue with?
What small steps would you like to try next?

FOR ME

Small steps I will continue with:

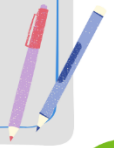
Small steps I want to try:

What small step could you and your young person continue take together?
What else might you like to try?

WORKING TOGETHER

Small steps we will continue with:

New small steps we will try:



Thank you for attending the programme.
We hope you have found it useful and enjoyable.
We wish you and your family a healthy future.

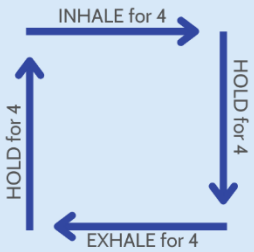
Breathing and calming techniques

Below are the techniques we have been practicing each week to help relax and calm our mind and bodies.

We have spoken about the many benefits to using these techniques which include: reducing stress and anxiety, better concentration and helping us to sleep better.

By practicing these techniques regularly when we are calm, we are better able to use them when we feel stressed or anxious.

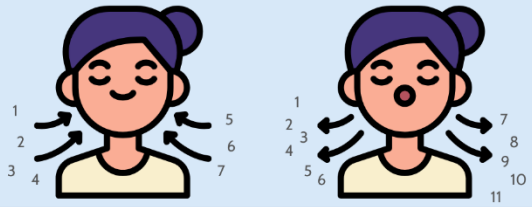
Square breathing



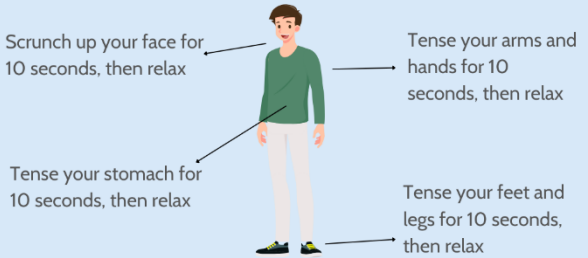
- Imagine drawing each side of a square with each stage.
- Breathe in while counting to 4 slowly. Feel the air enter your lungs.
- Hold your breath for 4 seconds.
- Exhale slowly for 4 seconds.
- Wait for 4 seconds before inhaling in again for a count of 4.

7/11 breathing

- Breathe in for a count of 7
- Hold for a couple of seconds
- Breathe out for a count of 11
- Repeat

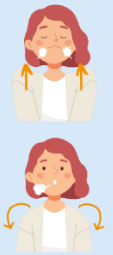


Progressive muscle relaxation



Shoulder roll breathing

- Inhale deeply for a count of 3 as you pull your shoulders up to your ears.
- Breathe out through your mouth and roll your shoulders down and back (as far away from your ears as you can get) as you exhale for a count of 4.
- Repeat slowly in a continuous movement of shoulder rolls while breathing in and out.



4-7-8 breathing

- start by exhaling all the air from your lungs
- breathe in through your nose for a count of 4
- hold your breath for a count of 7
- breathe out through your mouth for a count of 8

5-4-3-2-1 grounding

This uses all the senses to ground you back in your body rather than focusing on your thoughts. Name to yourself:

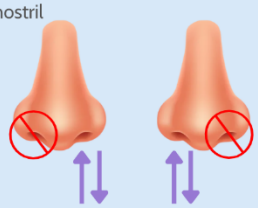
5	4	3	2	1
things you can see	things you can feel/touch	things you can hear	things you can smell	thing you can taste

Belly breathing

- start by placing one hand on your chest and the other on your stomach
- breathe in through your nose, try to keep your chest still and let your stomach expand to pull air deep into your lungs
- exhale through your mouth, contracting your stomach to push the air up and out of your lungs, the hand on your chest should remain fairly still

Nostril breathing

- start by closing off your right nostril
- breathe in deeply using only your left nostril
- breathe out through only your left nostril
- close off your left nostril
- breathe in deeply using only your right nostril
- breathe out through only your right nostril
- repeat



Appendix AA: Evaluation study – Ethics approval notification

University of Hertfordshire UH

HEALTH, SCIENCE, ENGINEERING AND TECHNOLOGY ECDA

ETHICS APPROVAL NOTIFICATION

TO	Hannah Allcott-Watson
CC	Dr Neil Howlett
FROM	Dr Rosemary Godbold, Health, Science, Engineering & Technology ECDA Vice Chair
DATE	05/05/2022

Protocol number:	**LMS/PGR/UH/04942**
Title of study:	Service evaluation of a new health and wellbeing programme for young people and parents

Your application for ethics approval has been accepted and approved with the following conditions by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

no additional workers named

General conditions of approval:

Ethics approval has been granted subject to the standard conditions below:

Permissions: Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

External communications: Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.

Invasive procedures: If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and copies of your completed consent paperwork to this ECDA once your study is complete.

Submission: Students must include this Approval Notification with their submission.

Validity:

This approval is valid:

From: 05/05/2022

To: 30/11/2023

Please note:

Failure to comply with the conditions of approval will be considered a breach of protocol and may result in disciplinary action which could include academic penalties.
Additional documentation requested as a condition of this approval protocol may be submitted via your supervisor to the Ethics Clerks as it becomes available. All documentation relating to this study, including the information/documents noted in the conditions above, must be available for your supervisor at the time of submitting your work so that they are able to confirm that you have complied with this protocol.

Should you amend any aspect of your research or wish to apply for an extension to your study you will need your supervisor's approval (if you are a student) and must complete and submit form EC2.
Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1A. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1A may need to be completed prior to the study being undertaken.

Failure to report adverse circumstance/s may be considered misconduct.
Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately.

Appendix BB: Evaluation study – Ethics amendment approval notification

University of Hertfordshire UH

HEALTH, SCIENCE, ENGINEERING AND TECHNOLOGY ECDA

ETHICS APPROVAL NOTIFICATION

TO Hannah Allcott-Watson

CC Dr Neil Howlett

FROM Dr Rosemary Godbold, Health, Science, Engineering & Technology ECDA Vice Chair

DATE 03/08/2022

Protocol number: aLMS/PGR/UH/04942(1)

Title of study: Service evaluation of a new health and wellbeing programme for young people and parents

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

No additional workers named

Modification: detailed in EC2

General conditions of approval:

Ethics approval has been granted subject to the standard conditions below:

Original protocol: Any conditions relating to the original protocol approval remain and must be complied with.

Permissions: Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

External communications: Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.

Invasive procedures: If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and copies of your completed consent paperwork to this ECDA once your study is complete.

Submission: Students must include this Approval Notification with their submiss

Validity:

This approval is valid:

From: 03/08/2022

To: 30/11/2023

Please note:

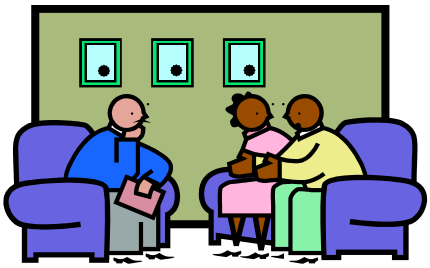
Failure to comply with the conditions of approval will be considered a breach of protocol and may result in disciplinary action which could include academic penalties.
Additional documentation requested as a condition of this approval protocol may be submitted via your supervisor to the Ethics Clerks as it becomes available. All documentation relating to this study, including the information/documents noted in the conditions above, must be available for your supervisor at the time of submitting your work so that they are able to confirm that you have complied with this protocol.

Should you amend any aspect of your research or wish to apply for an extension to your study you will need your supervisor's approval (if you are a student) and must complete and submit a further EC2 request.
Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1A or as detailed in the EC2 request. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1A may need to be completed prior to the study being undertaken.

Failure to report adverse circumstance/s may be considered misconduct.
Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately.

University of Hertfordshire UH Ethics Committee

Information about the study for young people under 16 years old



Study title: Service evaluation of a new health and wellbeing programme for young people and parents

We are asking you to take part in a study. Before you decide it is important you understand what taking part would involve. To help you make your choice you can read about the study on this sheet and discuss it with your parent/guardian. Please ask us if you have any questions. Take your time deciding whether to take part.

Why is this study being done?
We know that it can be difficult for young people to lead healthy lives. We want to know whether a new programme to support young people is suitable. We want to know whether young people like the new programme and if any changes should be made.

Why am I being asked to take part?
We are asking anyone between the ages of 11 and 16 years old who are on the programme to take part in this study.

Do I have to take part?
By signing up for the programme your parent has said you can take part in the study. During the first session we will ask you whether you want to take part. It is up to you whether you choose to take part. If you agree to take part then change your mind you can leave at any point. You do not have to tell us why you want to leave the study. You can choose not to take part in this study, or to leave this study, and you can still continue with the new programme.

What will happen to me if I take part?
If you agree to take part you will be asked to sign an assent form telling us your choice in writing during the first session. We will also ask you to fill in some brief questionnaires in that session. At the end of the programme we will ask you to fill in those questionnaires again. We will also ask you to complete a form telling us what you thought of the programme and how it could be made better. We will also invite you to take part in an interview to tell us more about your thoughts and opinions on the sessions.

Is there anything to worry about if I take part?
We do not believe there is anything to worry about by taking part.

What good things might happen if I take part?
By taking part you will help us to learn what young people like about the programme and what could be changed to make it better. The programme can then be used to help more young people to lead healthy lives.

Who will know I am taking part in the study?
No one other than your parent/guardian and the study team will know you are taking part. However, if we hear something that makes us worry for your safety then we do have to tell your parent/guardian or GP so that we can keep you safe.

Who has organised the research?
This research is being done by the University of Hertfordshire and a charity called HENRY who are working together on this project. Before any research goes ahead it is checked by a Research Ethics Committee to make sure it is fair. This study has been checked by The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority.

Who can I speak to if I have questions?

Your parent/guardian has information about the study, so you can speak to them. You can also speak to the study team if you have any other questions.

Contact: Hannah Allcott-Watson
Email: H.allcott-watson@herts.ac.uk

You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Thank you very much for reading this information and thinking about taking part in this study.

Appendix DD: Evaluation study – Participant information sheet for parents of young people

University of Hertfordshire UH Ethics Committee

Participant Information Sheet for parents/guardians of young people under 16 years old

Study title: Service evaluation of a new health and wellbeing programme for young people and parents

Approved by: The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority (UH protocol number LMS/PGR/UH/04942)

Introduction
Your child is being invited to take part in a study. As they are under 16 years old you will need to agree to them taking part. Before you decide whether your child can take part, it is important that you understand the study that is being undertaken and what their involvement will include. Please take the time to read the following information carefully and discuss it with your child. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish for your child to take part.

What is the purpose of this study?
This is a collaborative study between the University of Hertfordshire and HENRY. It is designed to evaluate the acceptability of a new programme designed to support young people and their parents to lead healthy lives. We want to find out whether the new programme is acceptable to young people and parents/carers and whether any changes should be made.

Does my child have to take part?
By signing up to the programme you are consenting for your child to take part and they will be enrolled in the study. However, your child does not have to take part and you can unenroll them by contacting us to let us know you do not consent for them to take part. Agreeing to join the study does not mean that your child has to complete it. They are free to withdraw at any point. They can withdraw without giving a reason. Your child can choose not to participate or to withdraw from the study, and this will not affect their participation in the programme in any way.

Are there any age or other restrictions that may prevent my child from participating?
Anyone between the ages of 11 and 16 years old, who is participating in the programme can take part in this study.

How long will my child's part in the study take?
Your child's involvement outside the programme will last no more than 60 minutes.

What will happen to my child if they take part?
By signing up to the programme you are consenting for your child to take part in this study. During the first session of the programme, we will ask your child to provide written assent to take part. We will ask your child to complete some brief questionnaires during the first session and we will then ask your child to complete these questionnaires again during the last session. This will allow us to see how helpful the sessions have been to your child. During the last session we will also ask your child to provide some feedback on their thoughts and opinions of the programme, to help us understand what changes could be made to make it even better. We will invite your child to take part in a 1:1 interview or a focus group with other young people from the programme to explore their experience of the programme in more detail. This will take place after the programme has finished at a convenient time and will last no more than 60 minutes.

What are the possible disadvantages, risks or side effects of taking part?
It is not anticipated that taking part will have any disadvantages for your child.

What are the possible benefits of taking part?
By taking part in this study your child will help us understand what is liked about the programme and what can be changed to make it better. The programme can then be used by HENRY to support more young people to lead healthy lives.

How will my child's participation in this study be kept confidential?

- If your child takes part in this study their involvement will not be disclosed to anyone outside the research team. However, if during the course of the programme there are any concerns raised about your child's safety, we have a duty of care to share information with you as their parent/guardian or with their GP.
- Their name, your name and contact details will be stored securely at the University of Hertfordshire until the study is completed after which time they will be destroyed under secure conditions.
- The findings from this study, including direct quotes, may be published in a research journal or promotional material produced by HENRY. In these instances, data will be anonymised before use and no participant will be identifiable.

Audio-visual material
With your permission the feedback interview/focus group will be audio and/or video recorded.

What will happen to the data collected within this study?

- Audio/video recordings will be seen/heard only by the research team and a professional transcription service. The recordings will be stored electronically in a password-protected environment, until they have been transcribed, after which time they will be destroyed under secure conditions.
- Consent forms collected in this study will be stored in hard copy in a locked drawer for up to five years, after which time they will be destroyed under secure conditions.
- Any other electronic data collected in this study will be stored electronically, on OneDrive, for up to five years, after which time they will be destroyed under secure conditions.
- With the exception of consent forms the data will be anonymised prior to storage.

Will the data be required for use in further studies?
It is possible the data collected in this study may be used by HENRY in the future to compare to other programmes. In this instance the data will be anonymised, and no participant will be identifiable.

Who can I contact if I have any questions?
If you would like further information or would like to discuss any details personally, please contact me by email:
Hannah Allcott-Watson (Principal Investigator) h.allcott-watson@herts.ac.uk
You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you very much for reading this information and giving consideration to your child taking part in this study.

Appendix EE: Evaluation study – Participant information sheet for parent participants

University of Hertfordshire UH Ethics Committee

Participant Information Sheet for parent participants

Study title: Service evaluation of a new health and wellbeing programme for young people and parents

Approved by: The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority (UH protocol number LMS/PGR/UH/04942)

Introduction
You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the study that is being undertaken and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part.

What is the purpose of this study?
This is a collaborative study between the University of Hertfordshire and HENRY. It is designed to evaluate the acceptability of a new programme designed to help parents to support their children as they make positive health and wellbeing changes. We want to find out whether the new programme is acceptable to parents and whether any changes should be made.

Do I have to take part?
By signing up to the programme you are consenting to take part and you will be enrolled in the study. However, you do not have to take part and you can unenroll by contacting us to let us know you do not consent to take part. Agreeing to join the study does not mean that you have to complete it. You are free to withdraw at any point. You can withdraw without giving a reason. You can choose not to participate or to withdraw from the study, and this will not affect your participation in the programme in any way.

Are there any age or other restrictions that may prevent me from participating?
Any parent taking part in the programme is able to take part in this study.

How long will my part in the study take?
If you decide to take part in this study your involvement outside the programme will last no more than 90 minutes.

What will happen to me if I take part?
By signing up to the programme you are consenting to take part in this study. Before the first session of the programme we will ask you to complete some brief questionnaires. We will then ask you to complete these questionnaires again after the last session. This will allow us to see how helpful the sessions have been to you. After the last session we will also ask you to provide some feedback on your thoughts and opinions of the programme, to help us understand what changes could be made to make it even better. We will invite you to take part in a 1:1 interview or a focus group with other parents from the programme to explore your experience of the programme in more detail. This will take place after the programme has finished at a convenient time and will last no more than 60 minutes.

What are the possible disadvantages, risks or side effects of taking part?
It is not anticipated that taking part will have any disadvantages for you.

What are the possible benefits of taking part?
By taking part in this study you will help us understand what is liked about the programme and what can be changed to make it better. The programme can then be used by HENRY to help more parents to support their children to lead healthy lives.

How will my taking part in this study be kept confidential?

- If you choose to take part your involvement will not be disclosed to anyone outside the research team. However, if during the course of the research there are any concerns raised about your safety, we have a duty of care to share information with others such as a GP.
- Your name and contact details will be stored securely at the University of Hertfordshire until the study is completed after which time they will be destroyed under secure conditions.
- The findings from this study, including direct quotes, may be published in a research journal or promotional material produced by HENRY. In these instances, data will be anonymised before use and no participant will be identifiable.

Audio-visual material

With your permission the feedback interview/focus group will be audio and/or video recorded.

What will happen to the data collected within this study?

- Audio/video recordings will be seen/heard only by the research team and a professional transcription service. The recordings will be stored electronically in a password-protected environment, until they have been transcribed, after which time they will be destroyed under secure conditions.
- Consent forms collected in this study will be stored in hard copy in a locked drawer for up to five years, after which time they will be destroyed under secure conditions.
- Any other electronic data collected in this study will be stored electronically, on OneDrive, for up to five years, after which time they will be destroyed under secure conditions.
- With the exception of consent forms the data will be anonymised prior to storage.

Will the data be required for use in further studies?

It is possible the data collected in this study may be used by HENRY in the future to compare to other programmes. In this instance the data will be anonymised, and no participant will be identifiable.

Who can I contact if I have any questions?

If you would like further information or would like to discuss any details personally, contact me by email:
Hannah Allcott-Watson (Principal Investigator) h.allcott-watson@herts.ac.uk

You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix FF: Evaluation study – Assent form for young people

University of Hertfordshire UH Ethics Committee

Assent form for participants under 16 years old

Study title: Service evaluation of a new health and wellbeing programme for young people and parents (UH Protocol number: LMS/PGR/UH04942)

1. I have been given a Participant Information Sheet (a copy is attached to this sheet) which tells me:
   - What the study is about
   - What I will do as part of the study
   - What information will be collected and how it will be stored safely
   - Who to contact if I have any questions

2. I know that I may leave the study at any point and that I do not have to give a reason.

3. I agree to my voice/face being recorded and I understand that the recording will only be heard/seen by the research team and a professional transcription service.

4. I understand that information about me, for example my name and age, will only be seen by the research team and will only be used for this study.

☐ I have read the above information and **agree** to take part in this study.

OR

☐ I have read the above information and **do not want** to take part in this study.

Name (in CAPITALS) ……

Signature…….. Date……

Name of principal investigator (CAPITALS)……....

Signature of principal investigator…… Date……

Appendix GG: Evaluation study – Semi-structured interview schedule for young people

Focus group and verbal feedback questions – Young people

Introduction

This focus group/interview is for a project designed to help us evaluate a new wellbeing programme for young people and their parents. We would like to hear about your experiences of the programme and your thoughts on how we could make it better.

The discussion will last about 60 minutes. You can take a break at any point if you want to. You can leave the discussion at any time. Do you have any questions before we begin?

Questions

- **What did you think about the name, slogan and logo for the programme?**
  ↳ Prompt: how could it be improved?
  ↳ Prompt: what would you call it?

- **What did you like about the sessions?**
  ↳ Prompt: how important are the included topics to you?
  ↳ Prompt: how helpful did you find each topic?

- **What topics weren't in the programme that you like to be included?**
  ↳ Prompt: what topics did you expect to be included but weren't?

- **What did you think about the printed resources/handouts?**
  ↳ Prompt: which resource did you like the most and why?
  ↳ Prompt: how could the resources be improved?
  ↳ Prompt: what other resources would you use?
  ↳ Prompt: what did you think of the PowerPoint slides?

- **What did you think about the activities/games?**
  ↳ Prompt: how could the activities be improved?
  ↳ Prompt: how else would you like to be given the information?
  ↳ Prompt: which activities did you not like? Why was that?
  ↳ Prompt: How was it working in small groups/pairs?

- **How easy was it to understand the information presented?**
  ↳ Prompt: what was difficult to understand?
  ↳ Prompt: what would you change?

- **What did you think about the way the programme was delivered?**

↳ Prompt: where there any difficulties in accessing the programme?
↳ Prompt: was there too much writing involved?
↳ Prompt: did you like the use of attention attractors?

- **What did you think about the food tasting?**
  ↳ Prompt: what foods would you include each week?

- **How can we make sure the programme is inclusive for everyone?**
  ↳ Prompt: what language should be used/avoided?

- **What did you think of the questionnaires you were asked to fill in?**
  ↳ Prompt: were you able to accurately report how active you are/how much fruit and vegetables you eat?
  ↳ Prompt: did the questionnaire capture an accurate picture of your wellbeing?
  ↳ Prompt: were they too long?
  ↳ Prompt: did they take too much time?
  ↳ Prompt: were they easy to understand?

- **Did you ever think about dropping out of the programme?**
  ↳ Prompt: why do you think about this?
  ↳ Prompt: why did you decide to stay?

- **How useful was it having your parent do their programme alongside you doing yours?**
  ↳ Prompt: how active were your parents in supporting you?
  ↳ Prompt: were your parents onboard with changes you wanted to make?
  ↳ Prompt: did the sessions prompt conversations between yourself and your parent/carer?

- **Overall, what do you think of the programme?**
  ↳ Prompt: would you recommend it to a friend?
  ↳ Prompt: did you enjoy the programme?

<u>Ending</u>

- **What haven't I asked you about that would be useful for me to know?**

Appendix HH: Evaluation study – Semi-structured interview schedule for parents

Focus group and verbal feedback questions – Parents/carers

Introduction

This focus group/interview is for a project designed to help us evaluate a new wellbeing programme for young people and their parents. We would like to hear about your experiences of the programme and your thoughts on how we could make it better.

The discussion will last about 60 minutes. You can take a break at any point if you want to. You can leave the discussion at any time. Do you have any questions before we begin?

Questions

- **What did you think about the name, slogan and logo for the programme?**
  ↳ Prompt: how could it be improved?
  ↳ Prompt: what would you call it?

- **What did you like about the sessions?**
  ↳ Prompt: how important to you are the included topics?
  ↳ Prompt: how helpful did you find each topic?

- **What topics weren't in the programme that you would like to be included?**
  ↳ Prompt: what topics did you expect to be included but weren't?

- **What did you think about the resources/handouts?**
  ↳ Prompt: which resource did you like the most and why?
  ↳ Prompt: how could the resources be improved?
  ↳ Prompt: what other resources would you use?
  ↳ Prompt: what did you think of the PowerPoint slides?

- **What did you think about the discussions?**
  ↳ Prompt: how could the discussions be improved?
  ↳ Prompt: how else would you like to be given the information?

- **How easy was it to understand the information presented?**
  ↳ Prompt: what was difficult to understand?
  ↳ Prompt: what would you change?

- **What did you think about the way the programme was delivered?**
  ↳ Prompt: where there any difficulties in accessing the programme online?
  ↳ Prompt: was there too much writing involved?

↳ Prompt: how was it using breakout rooms to split into smaller groups?

- **How can we make sure the programme is inclusive for everyone?**
  ↳ Prompt: what language should be used/avoided?

- **What did you think of the questionnaires you were asked to fill in?**
  ↳ Prompt: were you able to accurately report how active you are/how much fruit and vegetables you eat?
  ↳ Prompt: did the questionnaire capture an accurate picture of your wellbeing?
  ↳ Prompt: were they too long?
  ↳ Prompt: did they take too much time?
  ↳ Prompt: were they easy to understand?

- **Did you ever think about dropping out of the programme?**
  ↳ Prompt: why do you think about this?
  ↳ Prompt: why did you decide to stay?

- **How useful was the programme in helping you to support your child as they worked through the programme?**
  ↳ Prompt: how active were you in supporting your child?
  ↳ Prompt: did the sessions prompt conversations between yourself and your child?

- **Overall, what do you think of the programme?**
  ↳ Prompt: would you recommend it to a friend?
  ↳ Prompt: did you enjoy the programme?

<u>Ending</u>

- **What haven't I asked you about that would be useful for me to know?**

Appendix II: Evaluation study – Programme feedback form for young people

Programme feedback form for young people

This form is designed to help us understand what you liked and did not like about the programme.

This form is anonymous so do not put your name on it unless you want to.

Please answer the questions as honestly as you can, the more information you give us the better the programme can become for other young people.

Please let us know if you would like support filling in this form.

1. **What were the best bits of the programme?**

2. **Which bits of the programme did you not like? Why was this?**

3. **The length of the sessions [1hour 30mins] was (circle as appropriate):**

   Way too short A bit short About right A bit long Way too long

4. **The length of the programme [8 weeks] was (circle as appropriate):**

   Way too short A bit short About right A bit long Way too long

5. **What would you change, add or remove? For example, you might think about the topics, the activities, the resources or how the sessions were delivered.**

6. **How was it taking part in the programme during school time/summer holidays (delete as appropriate)?**

7. **What have you changed in relation to health and wellbeing as a result of the programme?**

8. **How helpful was it having your parents/carers on the programme? For example, you might think about how the programme provided opportunities for shared discussions, changes or support.**

9. **Overall, I would recommend this programme to a friend (circle as appropriate):**

Not at all Maybe Probably Definitely

Thank you for filling out this form. The responses you have given will be really helpful in shaping the development of the programme. If you think of anything else you would like to tell us, you can email us using the contact details you already have. We will also invite you to take part in a focus group or 1:1 interview to explore your experience of the programme further.

Appendix JJ: Evaluation study – Programme feedback form for parents

Programme feedback form for parents/carers

This form is designed to help us understand what you liked and did not like about the programme overall.

This form is anonymous. Please answer the questions as honestly as you can, the more information you give us the better the programme can become for other parents/carers.

Please let us know if you would like support filling in this form.

1. **What were the best bits of the programme?**

2. **Which bits of the programme did you not like? Why was this?**

3. **The length of the sessions [1hour 30mins] was (circle as appropriate):**

Way too short A bit short About right A bit long Way too long

4. **The length of the programme [8 weeks] was (circle as appropriate):**

Way too short A bit short About right A bit long Way too long

5. **What would you change, add or remove? For example, you might think about the topics, the activities, the resources or how the sessions were delivered.**

6. **How did you find having the programme delivered online?**

7. **What have you and/or your young person changed in relation to health and wellbeing as a result of the programme?**

8. **How helpful was the programme in helping you to support your young person?**

9. **Overall, I would recommend this programme to a friend (circle as appropriate):**

Not at all Maybe Probably Definitely

Thank you for filling out this form. The responses you have given will be really helpful in shaping the development of the programme. If you think of anything else you would like to tell us, you can email us using the contact details you already have. We will also invite you to take part in a focus group to explore your experience of the programme further.

Appendix KK: Evaluation study – Fruit and vegetable measure for all participants

Fruit and vegetable consumption

1. How many portions of fruit do you usually eat in a day? E.g. an apple, a handful of grapes, a glass of fruit juice (note that all fruit juices and smoothies count as a maximum of one portion per day)

   ☐ Do not eat
   ☐ Eat some days but not every day
   ☐ 1 portion per day
   ☐ 2 portions per day
   ☐ 3 portions per day
   ☐ 4 portions per day
   ☐ 5 or more portions per day

2. How many portions of vegetables do you usually eat in a day? E.g. handful of chopped carrots, 3 heaped tablespoons of peas

   ☐ Do not eat
   ☐ Eat some days but not every day
   ☐ 1 portion per day
   ☐ 2 portions per day
   ☐ 3 portions per day
   ☐ 4 portions per day
   ☐ 5 or more portions per day

Appendix LL: Evaluation study – Physical activity measure for young people

YOUTH PHYSICAL ACTIVITY QUESTIONNAIRE (Y-PAQ)

Your name: .....

Your date of birth (dd/mm/yy): ..... / ..... / .....

Important: - we are interested in what activities **you** did during the past week
- there are no right and wrong answers – **this is not a test**
- please answer all questions as honestly and accurately as you can
- please **complete every line** in the questionnaire

For further information, please contact:

Which of the following PHYSICAL activities did you do in the PAST 7 DAYS?

Please complete this questionnaire for the following days: ..... to .....

Did you do the following activities in the **past 7 days?**		MONDAY – FRIDAY		SATURDAY – SUNDAY	
		How many times **Mon–Fri?**	**Total** hours/minutes **Mon-Fri?**	How many times **Sat-Sun?**	**Total** hours/minutes **Sat-Sun?**
EXAMPLE: **Bike riding**	**No** **(Yes)**	**2**	**40 mins**	**1**	**15 mins**
SPORTS ACTIVITIES Aerobics	No Yes				
Baseball/softball	No Yes				
Basketball/volleyball	No Yes				
Cricket	No Yes				
Dancing	No Yes				
Football	No Yes				
Gymnastics	No Yes				
Hockey (field or ice)	No Yes				
Martial arts	No Yes				
Netball	No Yes				
Rugby	No Yes				

Did you do the following activities in the **past 7 days?**		MONDAY – FRIDAY		SATURDAY – SUNDAY	
		How many times **Mon–Fri**?	**Total** hours/minutes **Mon-Fri**?	How many times **Sat-Sun**?	**Total** hours/minutes **Sat-Sun**?
Running or jogging	No Yes				
Swimming lessons	No Yes				
Swimming for fun	No Yes				
Tennis/badminton/squash/ other racquet sport	No Yes				
LEISURE TIME ACTIVITIES Bike riding (not school travel)	No Yes				
Trampolining	No Yes				
Bowling	No Yes				
Household chores	No Yes				
Play on playground equipment	No Yes				
Play with pets / horse riding	No Yes				
Rollerblading/roller-skating	No Yes				
Scooter	No Yes				
Skateboarding	No Yes				

Did you do the following activities in the **past 7 days?**		MONDAY – FRIDAY		SATURDAY – SUNDAY	
		How many times **Mon–Fri**?	**Total** hours/minutes **Mon-Fri**?	How many times **Sat-Sun**?	**Total** hours/minutes **Sat-Sun**?
Skiing, snowboarding, sledging	No Yes				
Skipping rope	No Yes				
Walk the dog	No Yes				
Walk for exercise/hiking	No Yes				
ACTIVITIES AT SCHOOL Physical education class	No Yes				
Travel by walking to school (to and from school = 2 times)	No Yes				
Travel by cycling to school (to and from school = 2 times)	No Yes				
OTHER please state:	No Yes				

Appendix MM: Evaluation study – Physical activity measure for parents

Short active lives questionnaire

1) In the past 7 days, have you done a continuous walk lasting at least 10 minutes? Yes/ No

If yes:

a) In the past 7 days, on how many days did you do a walk lasting at least ten minutes? *Please circle*

0 1 2 3 4 5 6 7

b) How much time did you usually spend walking on each day that you did the activity?

_____ hours and _____ minutes per day

c) Was the effort you put into walking usually enough to raise your breathing rate? *Please circle*

Yes No

2) In the past 7 days, have you done a cycle ride? Yes/ No

If yes:

a) In the past 7 days, on how many days did you do a cycle ride? *Please circle*

0 1 2 3 4 5 6 7

b) How much time did you usually spend cycling on each day that you did the activity?

_____ hours and _____ minutes per day

c) Was the effort you put into cycling usually enough to raise your breathing rate? *Please circle*

Yes No

3) In the past 7 days, have you done sport, fitness activity (such as gym or fitness classes), or dance? Yes/ No

If yes:

a) In the past 7 days, on how many days did you do a sport, fitness activity (such as gym or fitness classes), or dance? *Please circle*

0 1 2 3 4 5 6 7

b) How much time did you usually spend doing sport, fitness activities, or dance on each day that you did the activity?

_____ hours and _____ minutes per day

c) Was the effort you put into doing sport, fitness activities, or dance usually enough to raise your breathing rate? *Please circle*

Yes No

Appendix NN: Evaluation study – Wellbeing measure for all participants

Short Warwick Edinburgh Mental Wellbeing Scale

Below are some statements about feelings and thoughts.
Please select the answer that best describes your experience of each over the last 2 weeks.

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	☐	☐	☐	☐	☐
I've been feeling useful	☐	☐	☐	☐	☐
I've been feeling relaxed	☐	☐	☐	☐	☐
I've been dealing with problems well	☐	☐	☐	☐	☐
I've been thinking clearly	☐	☐	☐	☐	☐
I've been feeling close to other people	☐	☐	☐	☐	☐
I've been able to make up my own mind about things	☐	☐	☐	☐	☐

Appendix OO: Evaluation study – Demographic form for all participants

Demographics

Name: _____

Age: _____

Gender:

- ☐ Male
- ☐ Female
- ☐ Transgender and I identify as_____
- ☐ Non-binary
- ☐ Prefer not to say

Ethnicity:

- ☐ White - English/Welsh/Scottish/Northern Irish/British
- ☐ White – Irish
- ☐ White - Gypsy or Irish Traveller
- ☐ White - Any other white background
- ☐ Mixed/Multiple ethnic groups - White and Black African
- ☐ Mixed/Multiple ethnic groups - White and Black Caribbean
- ☐ Mixed/Multiple ethnic groups - White and Asian
- ☐ Mixed/Multiple ethnic groups - Any other Mixed/Multiple ethnic groups
- ☐ Asian/Asian British – Indian
- ☐ Asian/Asian British – Pakistani
- ☐ Asian/Asian British – Bangladeshi
- ☐ Asian/Asian British – Chinese
- ☐ Asian/Asian British - Any other Asian background
- ☐ Black/African/Caribbean/Black British – African
- ☐ Black/African/Caribbean/Black British – Caribbean
- ☐ Black/African/Caribbean/Black British - Any other Black/African/ Caribbean background
- ☐ Other ethnic group – Arab
- ☐ Other ethnic group - Any other ethnic group
- ☐ Prefer not to say

Appendix PP: Evaluation study – Debrief sheets for young people and their parent

University of Hertfordshire UH Ethics Committee

Debrief Sheet for participants under 16 years old

Study title: Service evaluation of a new health and wellbeing programme for young people and parents

This study aimed to find out whether a new programme designed to support young people and their parents to lead a healthy lifestyle was liked by young people and their parents. To do this we asked a group of young people and parents who had been on the programme for feedback on how they found it. The feedback will be reviewed by the research team to guide further development of the programme to support more young people and parents.

Your input into this study is valuable. However, if you change your mind and would like your data to be removed from the study you can speak to your parent/guardian.

If you are worried about anything related to physical activity, healthy eating or wellbeing, you can speak to your parent/guardian or with your GP. If you would like to find out more about physical activity and healthy eating, you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any questions you can talk to your parent/carer or contact the study team:

Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Thank you again for taking part in this study.

University of Hertfordshire UH Ethics Committee

Debrief Sheet for parent/guardians of participants under 16 years old

Study title: Service evaluation of a new health and wellbeing programme for young and parents

This study aimed to find out whether a new programme designed to support young people and their parents to lead a healthy lifestyle was acceptable. To do this we asked a group of young people and parents who had been on the programme for feedback on how they found it. The feedback will be reviewed by the research team to guide further development of the programme to support more young people and parents.

Your child's input into this study is valuable. However, if you or your child change your mind and would like your child's data to be removed from the study you can do this up until two weeks after the date the data was provided. After this point the information your child provided will be analysed and withdrawing it will not be possible. If you wish to withdraw your child, please contact the principal investigator via the contact details provided below.

If you are concerned about anything related to physical activity, healthy eating or wellbeing, speak with your GP. If you would like to find out more about physical activity recommendations and information about healthy eating, you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any further questions or you wish to be informed of the outcome of the study, please contact the principal investigator:
Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you for participating in this study.

Appendix QQ: Evaluation study – Debrief sheet for parent participants

University of Hertfordshire UH Ethics Committee

Debrief Sheet for participants over 16 years old

Study title: Service evaluation of a new health and wellbeing programme for young people and parents

This study aimed to find out whether a new programme designed to support young people and their parents to lead a healthy lifestyle was acceptable. To do this we asked a group of young people and parents who had been on the programme for feedback on how they found it. The feedback will be reviewed by the research team to guide further development of the programme to support more young people and parents.

Your input into this study is valuable. However, if you change your mind and would like your data to be removed from the study you can do this up until two weeks after the date you provided the data. After this point the information you provided will be analysed and withdrawing it will not be possible. If you wish to withdraw, please contact the principal investigator via the contact details provided below.

If you are concerned about anything related to physical activity, healthy eating or wellbeing, speak with your GP. If you would like to find out more about physical activity recommendations and information about healthy eating, you can use the links below.

Physical activity:
http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx
Healthy eating:
https://www.nhs.uk/live-well/eat-well/

If you have any further questions or you wish to be informed of the outcome of the study, please contact the principal investigator:
Hannah Allcott-Watson
h.allcott-watson@herts.ac.uk

You can also contact my supervisor, Dr Neil Howlett via email n.howlett@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:

Secretary and Registrar
University of Hertfordshire
College Lane
Hatfield
Hertfordshire
AL10 9AB

Thank you for participating in this study.

Appendix RR: Evaluation study – APEASE coding guide

APEASE coding guide

Acceptability

Definition: How far is it acceptable to key stakeholders? This includes the target group, potential funders, practitioners delivering the interventions and relevant community and commercial groups.

In practice:

- Anything that references how much they liked/disliked the programme, sessions or activities
- References to liking/not liking specific aspects e.g. use of dividers, attention attractors, writing
- Whether the topics covered were ok
- Whether they considered dropping out
- References to parents' involvement in the course (not applicable to all participants)
- How they found completing the questionnaires
- How enjoyable they found the programme
- Whether they would recommend the programme
- (Suggestions for improvement)

Practicability

Definition: Can it be implemented at scale in the intended context, with available material and human resources? What would need to be done to ensure that the resources and personnel were in place, and is the intervention sustainable?

In practice:

- Any difficulties attending
- Any difficulties taking part during the session
- Pros/cons of taking place during school time (for young people)
- Pros/cons of online delivery (for parents)
- Pros/cons of group format
- Duration of programme and sessions
- (Suggestions for improvement)

Effectiveness

Definition: How effective is it (likely to be) in achieving the policy objective(s)? How far will it reach the intended target group and how large an effect will it have on those who are reached?

In practice:

- How well participants perceive it worked/benefited them
- Any behavioural changes made because of the programme, either during or after
- Any other changes/benefits they attribute to the programme
- Increased knowledge, awareness, or intentions
- Whether parents were supportive and on board with change (for those whose parents took part only)

Affordability

Definition: How far can it be afforded when delivered at the scale intended? Can the necessary budget be found for it? Will it provide a good return on investment?

In practice:

- Any reference to group format or group size
- (Suggestions for improvement)

Spill-over effects

Definition: What extraneous adverse (or beneficial) outcomes might it lead to? How important are they and what is the likelihood that they will occur?

In practice:

- Any detrimental effects due to the programme
- Anything that was triggering/upsetting
- Any changes they have made that weren't targeted by the programme

Equity

Definition: How far will it, or is it likely to, increase or decrease differences between advantaged and disadvantaged sectors of society?

In practice:

- Anything related to inclusion
- Ability to attend in school, or out of school
- Ability to attend online, or in person
- (Suggestions for improvement)

Appendix SS: Evaluation study – Example fruit and vegetable tracker for young people

Fruit and vegetable tracker

Use the tracker below to take note of the fruit and vegetables you eat this week. Tick off each portion as you go.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Appendix TT: Evaluation study – Bike poster hung in the room during delivery to young people