NIHR | Public Health Intervention Responsive Studies Teams

University of Hertfordshire UH

# ADAPTATION OF THE WELSH NATIONAL EXERCISE REFERRAL SCHEME (NERS) TO VIRTUAL DELIVERY:

## Evaluation of impact and opportunities

Final Report - January 2023

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

## Background and Research Aim

In March 2020, in response to outbreak of the Covid-19 pandemic, the Welsh National Exercise Referral Scheme (NERS) suspended its standard programme (face-to-face delivery) to protect service users and staff from infection. A remote/hybrid programme (attendance at the consultation, and first exercise session face-to-face, followed by remote delivery between 4–16 weeks, whereby classes were virtual, and/or by pre-written exercise script, with 'check-in' phone calls) was initially phased in to replace standard delivery, and then 12 months later, the remote programme was replaced with a 'modified' programme (classes/consultations delivered face-to-face, virtually, or a mixture of the two; in line with service-user risk/preference).

This research aimed to examine the impact of introducing virtual delivery to the NERS through these two programmes in order to support future decision making about programme implementation.

## Method

**Study One.** Qualitative methods were used to explore stakeholder views and experiences of face-to-face and virtual NERS classes/consultations. Quantitative methods were used to examine the impact of the two different modes of delivery on out-of-pocket costs incurred by service users.

Three groups of stakeholders participated in the qualitative study:
1) Exercise Referral Professionals (ERPs) - exercise specialists who deliver the NERS programme,
2) NERS service users – including those with differing levels of engagement and experiences of face-to-face and virtual delivery, and
3) individuals who declined the NERS – those who did not take up their referral.

For ERPs and service users, recruitment was via the NERS programme. Individuals who declined referral were recruited through an advert distributed via social media, charities, and public health organisations. In total, 19 ERPs, 21 service users, and one individual who declined the NERS took part. Participation was via focus group (ERPs) or a 1-2-1 interview (service users and the one individual who declined referral).

Using a semi-structured schedule, ERPs and service users were asked about their views and experiences of the programme when delivered in the two different formats. The individual who declined NERS was asked about their experience of referral and barriers to scheme uptake. Service users were additionally asked (using a structured schedule) to provide details of any out-of-pockets costs they had incurred as a result of their engagement; data generated were analysed using descriptive statistics.

**Study Two.** Quantitative methods were used to examine the impact of the three different programmes (standard, remote/hybrid and modified) on uptake, adherence, outcomes, and costs. The records of patients referred to the NERS programme between the 1st of January 2019 and the 9th of Dec 2021 were included in the analysis.

Data were cleaned then analysed using specialist statistical software. This tested the independent effect of different variables (programme type and demographic characteristics) on NERS uptake, adherence, and outcomes. Uptake was measured as attendance at the first consultation (uptake 1) and attendance at the first exercise session (uptake 2). Adherence was measured as the mean number of exercise sessions attended per week (adherence 1) and as attendance at the last consultation (at 16 weeks; adherence 2). Cost data were obtained from multiple sources: consultations with four NERS coordinators were used to establish core programme activities across delivery modes, who performed these and how long they took. Hourly costs of employment, derived using data on annual salary costs supplied by the NERS, were applied to these activities. Audit data from the NERS was used to estimate attendance rates for the three different programmes. Income generated by session fees was calculated. Cost by delivery mode was then determined.

## Findings

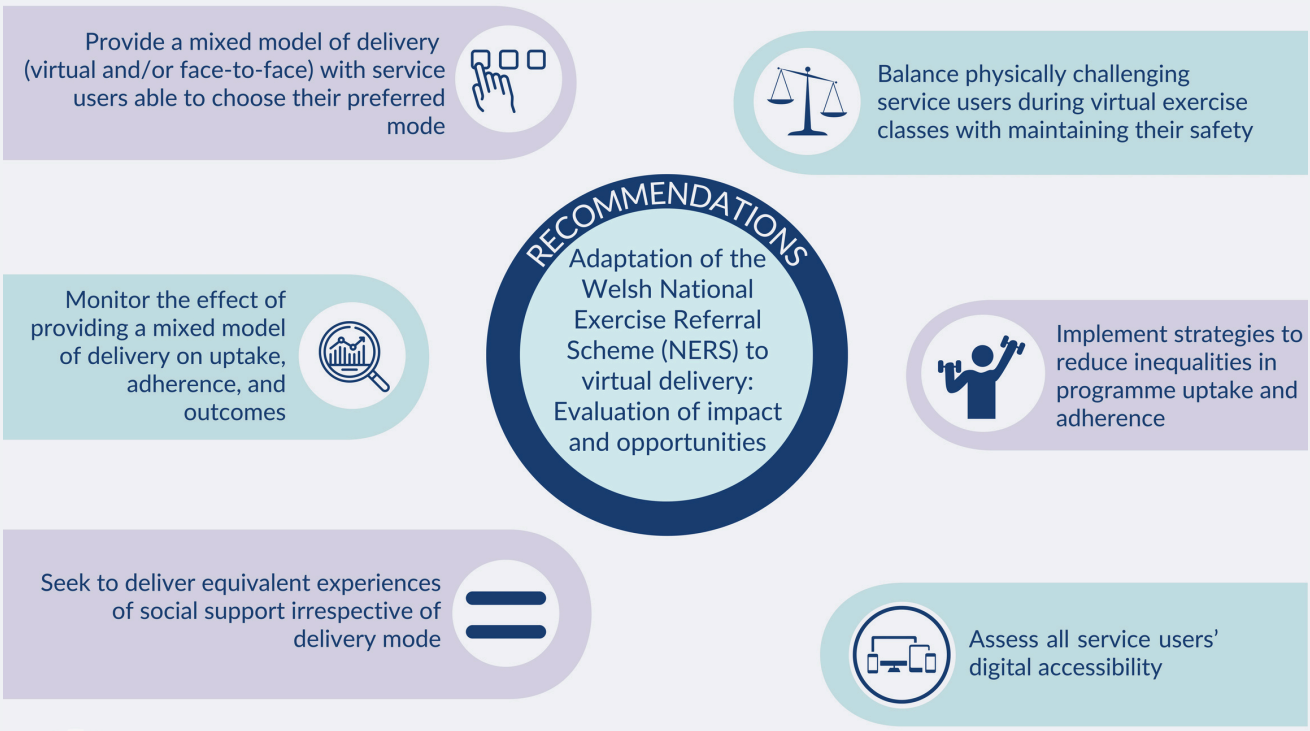
### Study One

- Service users experience lack of clarity and uncertainty around referral; those with lower levels of health literacy may be disadvantaged as a result and less likely to enter the scheme
- Digital accessibility can restrict access to virtual content of the NERS; there is overlap in the groups identified as at greatest risk of digital exclusion, and those facing the greatest barriers to accessing the scheme in general, such as those on lower incomes, and those living with illness or disability
- There was evidence that for some people, out-of-pocket costs associated with both face-to-face and virtual delivery had a negative impact on uptake and levels of engagement
- Key ingredients of the NERS programme which are likely to promote engagement are largely undisturbed by virtual delivery. Caveats to this include that the virtual classes must be in a live format, enable social support to be provided, and physically challenge service users whilst also ensuring their safety
- 1-2-1 consultations between ERPs and service users are best delivered face-to-face

### Study Two

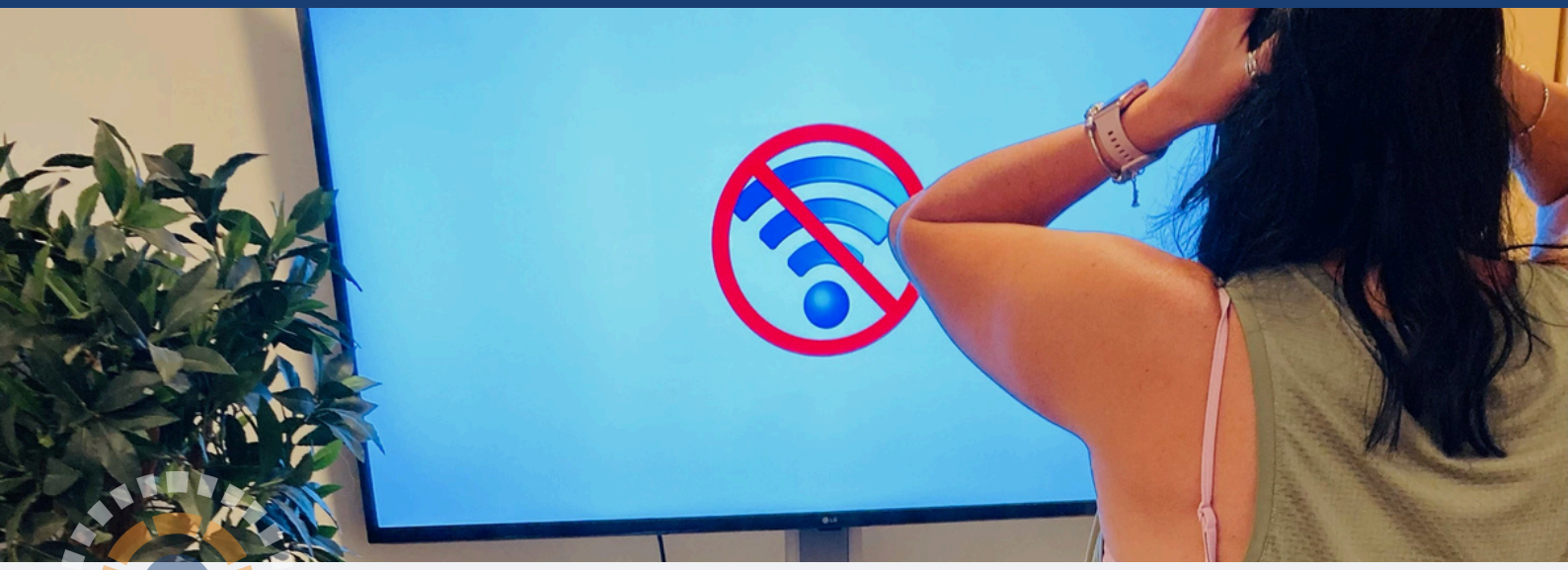
- Engagement was lowest for the remote programme. This may reflect the modes of delivery employed or wider psychological/physical demands placed on service users at the time of the pandemic
- Being older and coming from an area of low deprivation increased the likelihood of uptake and adherence. Being female increased the likelihood of uptake but reduced the likelihood of adherence
- There was small positive effect of the NERS on physical activity; programme type had no effect on this outcome. There were small positive effects on all health outcomes examined, with evidence of remote delivery resulting in poorer average improvements in heart rate and quality of life in comparison to standard delivery
- The cost per patient of virtual delivery (modified programme) was substantially higher than that of face-to-face delivery (standard programme). This difference is largely attributed to having an second ERP present for safety purposes and having waived session fees. This has implications for the future sustainability of this mode of delivery

## Recommendations made across the two studies are displayed in the infographic below.




## Conclusion

Continuing to offer virtual delivery could help the NERS to address inequalities in uptake and adherence through removing barriers to access often experienced by those from underserved populations. Virtual delivery is however costly, and issues of sustainability need to be addressed. The patterns of uptake and adherence across demographic groups observed reflect those in the wider literature on exercise referral schemes. The findings can be used to inform decision-making about the delivery of the NERS programme as well as of other exercise referral schemes and wider public health services.



# INTRODUCTION

## Overview of NERS

The Welsh National Exercise Referral Scheme (NERS) is a Welsh Government funded scheme available to residents aged 16 years or over, who are sedentary and at risk of or with established disease. It aims to increase physical activity, and in doing so improve physical and mental health outcomes, and motivation for self-care. The NERS has been delivered since 2007 across all 22 local authorities. Full strategic and operational oversight of the scheme is managed by Public Health Wales (PHW) following the transfer of operational oversight from the Welsh Local Government Association (WLGA) in April 2022.

The NERS is an evidence-based health intervention that incorporates physical activity sessions and behaviour change content. Individuals are first referred to the NERS by their GP or allied health professional (e.g. physiotherapist, dietician). Following referral, individuals receive a letter and/or a phone call from their local NERS coordinator inviting them to book a consultation session. At this consultation, their allocated Exercise Referral Professional (ERP) introduces them to the programme and uses behaviour change skills and techniques to assist them in developing short, medium, and long-term goals. Assessments of physical activity, health and wellbeing are also made at this time.

A 16-week programme of exercises sessions is then initiated. These sessions are designed to be fun, rewarding and easily incorporated into everyday life. In the first four weeks, users are closely supervised by their ERP to ensure that they are engaging with the programme and performing the activities safely. Once this is established, users are afforded more independence. At 16 weeks, service users are assessed on the same measures once again. At this point, most service users are signposted to exit routes so that they can continue to embed exercise into their daily lives. Service users on specialist pathways for specific conditions/risk factors may however be offered one further 16-week programme of sessions if this is deemed beneficial. Service users receive a further repeated assessment at 52 weeks to measure long-term outcomes.

## Review of existing literature

Exercise referral schemes have shown mixed evidence in their ability to improve physical activity and wider wellbeing outcomes (e.g. Pavey et al., 2011; Campbell et al., 2015), with one review suggesting that 17 inactive adults would need to be referred for one to become moderately active (Williams et al., 2007). Evidence concerning their cost-effectiveness is also inconclusive (Abu-Omar et al., 2017).

Poor ERS uptake and adherence can have a negative impact on effectiveness and cost-effectiveness. Across several systematic reviews, both the definitions and level of uptake (ranging from 35-81%) and attendance (ranging from 12-49%) show considerable variation (Shore et al. 2019). There is also evidence of that ERS uptake and adherence are patterned by socio-demographic factors (Pavey et al. 2012), which can have the effect of introducing or widening health inequalities. In normal delivery circumstances, facilitators to adherence include social support and personalised sessions, and barriers include negative perceptions about gym atmosphere and equipment, and location and cost factors (Morgan et al., 2016).

## The problem being addressed and why this research was undertaken

As outlined above, evidence on the uptake, adherence, effectiveness, and cost-effectiveness of ERSs is equivocal. There are a range of barriers that have the potential to impact upon these measures. These include the demographic characteristics of those invited to join exercise referral schemes, but also aspects of programme characteristics such as how it is delivered. In March 2020, to continue to support users during the Covid-19 pandemic, the NERS suspended delivery of its standard (face-to-face) programme and phased in delivery of a remote/hybrid programme (attendance at the consultation and first exercise session, face-to-face, changed to remote/hybrid delivery somewhere between 4–16 weeks, whereby classes were virtual (pre-recorded or live), and/or by pre-written exercise script, with 'check-in' phone calls). Twelve months later, the remote/hybrid programme was replaced with a 'modified' programme (classes/ consultations delivered face-to-face, virtually, or a mixture of the two; in line with service-user risk/preference).

Using routinely collected monitoring and evaluation data, supplemented by additional primary research, this change provided an opportunity to examine the effect of changes in mode of delivery on programme process and outcome measures. Mode of delivery has the potential to act as both a barrier and a facilitator of programme uptake and adherence, and to have either a beneficial or deleterious effect on outcome and costs.

This research is timely, with the number of referrals to the NERS growing annually. Offering all or part of the scheme in a virtual format has the potential to increase capacity and therefore the number of people who can be supported. It is unknown however what impact this might have on uptake, adherence, delivery, and costs.

# AIM

This research aimed to examine the impact of using face-to-face and/or virtual modes of delivery for the NERS in order to support future decision making and considerations about programme implementation.

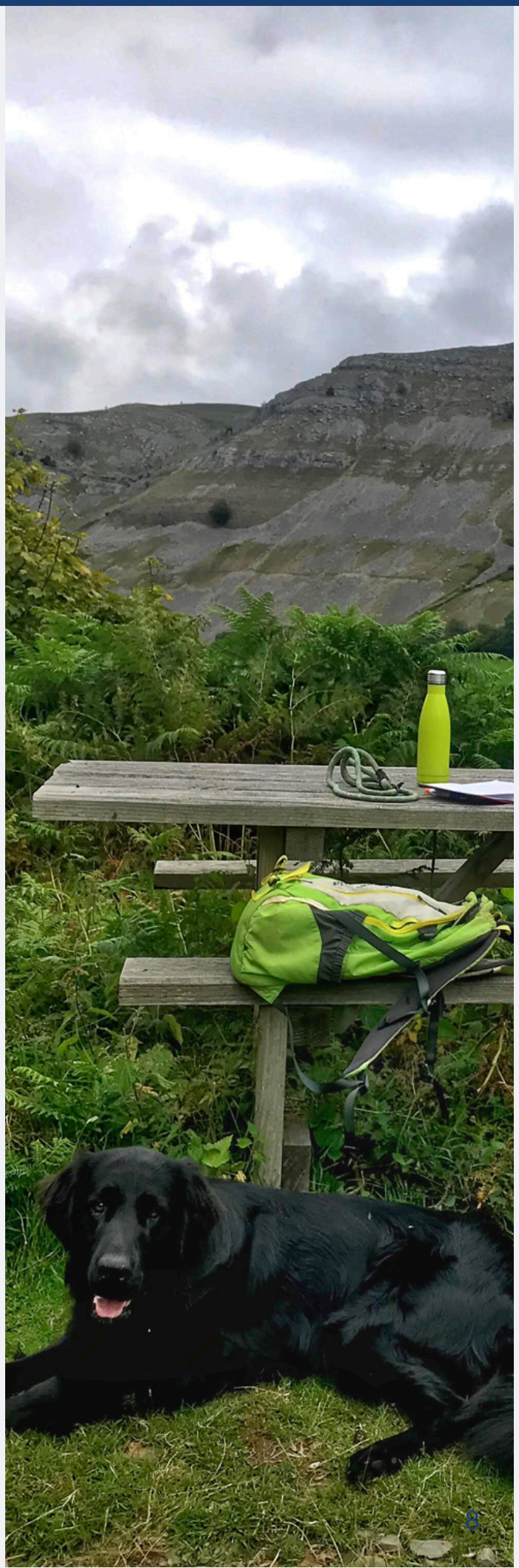
# RESEARCH OVERVIEW

The research aim was addressed using existing, routinely collected monitoring and evaluation data collected by the NERS programme, and additional qualitative data. Detailed information on methodology and findings are provided in two published research papers presented within the next section of this report.

**Study one**: Adaptations to the Welsh National Exercise Referral Scheme during the Covid-19 pandemic: A qualitative study with service users and providers and supplementary out-of-pocket costs analysis

**Study two**: Moving an exercise referral scheme to remote delivery during the Covid-19 pandemic: an observational study examining the impact on uptake, adherence, outcomes, and costs

Table one on the next page aligns the two studies to the per protocol research questions. The protocol is published on the Research Registry (ID: 7842).





8

## Table 1. Alignment of research questions to study

| | Research question | Study | |
|---|---|---|---|
| 1 | What are stakeholder views and experiences of the NERS when delivered in face-to-face and/or virtual formats, how do they compare, and what are the implications for programme uptake, engagement, and delivery? | One | |
| 2 | Does offering a version of the NERS in which some elements may be delivered virtually affect service-user uptake? | Two | |
| 3 | Does implementing different versions of the NERS, in which either some or all elements are delivered virtually affect service-user engagement*? | Two | |
| 4 | Does implementing different versions of the NERS, in which either some or all elements are delivered virtually, affect service user retention**? | Two | |
| 5 | Does implementing different versions of the NERS, in which either some or all elements are delivered virtually, affect health and wellbeing outcomes? | Two | |
| 6 | What are the expected resources and corresponding costs (including impact on service user out-of-pocket expenses) of delivering core parts of the NERS programme, and do they differ for face-to-face and virtual delivery? | One<br><br>Two | Out of pocket costs<br><br>Programme costs |

| | |
|---|---|
| * | Referred to as 'adherence 1' within this report and paper 2 |
| ** | Referred to as 'adherence 2' within this report and paper 2 |

# STUDY ONE

Paper published in BMC Public Health, available here.

Newby et al. BMC Public Health (2025) 25:406
https://doi.org/10.1186/s12889-025-21502-3

BMC Public Health

RESEARCH Open Access

## Adaptations to the welsh national exercise referral scheme during the COVID-19 pandemic: a qualitative study exploring the experiences of service users and providers and supplementary out-of-pocket cost analysis

Katie Newby[1*], Neil Howlett[1], Adam P. Wagner[2,3], Nigel Lloyd[1], Imogen Freethy[1], Charis Bontoft[1], Olujoke Fakoya[1], Shelley Jackson[4], Carla Jackson[5], Wendy Wills[3,6], Mary-Ann McKibben[7], Annie Petherick[7] and Katherine E. Brown[1]

**Abstract**

**Background** Despite the proliferation of exercise referral schemes in the UK, evidence on their efficacy is equivocal. The Welsh National Exercise Referral Scheme (NERS) is heavily used but inequalities in uptake have been reported. As a result of the COVID-19 pandemic, NERS was initially suspended and then transitioned from standard face-to-face delivery to alternative remote methods, including virtual delivery. The aim of this study was to explore the barriers and facilitators to uptake and engagement of NERS when delivered in face-to-face and virtual formats, and to examine the cost to service users of engaging with the scheme in these different ways.

**Methods** This was a qualitative study with supplementary cost analysis. Maximum variation sampling was used to recruit participants. Interviews with service users ($n=21$) and one person who declined the service, and three focus groups with service providers ($n=19$), were conducted. Framework analysis was used to analyse the qualitative data. Quantitative data obtained through the interviews on service users' out-of-pocket costs of attending face-to-face or virtual classes were summarised using descriptive statistics.

**Results** Five themes were identified from the qualitative analysis which summarised barriers and facilitators to uptake and engagement as perceived and experienced by the different stakeholders. Themes included: opaqueness and uncertainty around referral; Exercise Referral Professionals allaying concerns and providing reassurance at scheme entry; the mixed appeal and accessibility of virtual delivery; factors that support ongoing engagement; and personal and financial circumstances restricting uptake and engagement.

# STUDY TWO

Paper published in BMC Public Health, available here.

Newby et al. BMC Public Health (2024) 24:2324
https://doi.org/10.1186/s12889-024-19392-y

BMC Public Health

RESEARCH Open Access

# Moving an exercise referral scheme to remote delivery during the Covid-19 pandemic: an observational study examining the impact on uptake, adherence, and costs

Katie Newby[1*], Neil Howlett[1], Adam P. Wagner[2], Nigel Smeeton[3], Olujoke Fakoya[1], Nigel Lloyd[1], Imogen Freethy[1], Charis Bontoft[1], Katherine Brown[1], Mary-Ann McKibben[4], Annie Petherick[5] and Wendy Wills[3]

**Abstract**

**Background** Exercise Referral Schemes (ERSs) have been implemented across Western nations to stimulate an increase in adult physical activity but evidence of their effectiveness and cost-effectiveness is equivocal. Poor ERS uptake and adherence can have a negative impact on effectiveness and cost-effectiveness and, if patterned by socio-demographic factors, can also introduce or widen health inequalities. Different modes of ERS delivery have the potential to reduce costs and enhance uptake and adherence. The primary aim of this study was to examine the effect of different programmes of ERS delivery on scheme uptake and adherence. Secondary aims were to examine the effect of socio-demographic factors on scheme uptake and adherence, and the impact of delivery mode on the expected resource and corresponding costs of delivering core parts of the programme.

**Methods** This was an observational cohort study with cost analysis. Routine monitoring data covering a three-year period (2019–2021) from one large UK ERS (number of patients = 28,917) were analysed. During this period three different programmes of delivery were operated in succession: standard (all sessions delivered face-to-face at a designated physical location), hybrid (sessions initially delivered face-to-face and then switched to remote delivery in response to the Covid-19 pandemic), and modified (sessions delivered face-to-face, remotely, or a combination of the two, as determined on a case-by-case basis according to Covid-19 risk and personal preferences). Multi-level binary logistic and linear regression were performed to examine the effect of programme of delivery and socio-demographic characteristics on uptake and adherence. Cost data were sourced from regional-level coordinators and through NERS audits supplied by national-level NERS managers and summarised using descriptive statistics.

**Results** There was no effect of programme of delivery on scheme uptake. In comparison to those on the standard programme (who attended a mean of 23.1 exercise sessions) those on the modified programme had higher adherence (mean attendance of 25.7 sessions) while those on the hybrid programme had lower adherence (mean attendance of 19.4 sessions). Being older, or coming from an area of lower deprivation, increased the likelihood of uptake and adherence. Being female increased the chance of uptake but was associated with lower adherence. Patients referred to the programme from secondary care were more likely to take up the programme than those referred from primary care for prevention purposes, however their attendance at exercise sessions was lower. The estimated

# DEVELOPMENT OF RECOMMENDATIONS

Development of the recommendations was an iterative process involving both the research team and stakeholders. Early tentative recommendations were formed by researchers during data analysis and interpretation. These were then built on through a series of stakeholder presentations followed by a stakeholder consultation workshop.

**Stakeholder presentations**

Once studies one and two were completed, presentations were convened to share the research findings. These presentations were to three groups of stakeholders that had guided the research team throughout the project:

- PHIRST Connect PIRg (a group consisting of members of the public, service users and carers providing advice and support across all PHIRST Connect projects)
- The NERS Public Voice group (a group with lived experience of referral to and/or participation in the NERS)
- The NERS project-specific Advisory Group (a group of stakeholders representing Welsh local government, the charity sector, and Public Health Wales, along with academics, health professionals and people with lived experience of exercise referral schemes).

At all presentations, attendees were encouraged to reflect on the implications of the findings for practice. After the events, the research team reflected on the discussions, and further developed the draft recommendations. As a result, some key areas of focus, where further input from stakeholders was required, were identified.

**Stakeholder consultation workshop**

A stakeholder consultation workshop was organised to gain stakeholder input on these key areas of focus. In particular, the team hoped to elicit practical suggestions from stakeholders to further refine the recommendations.

**Attendees**

In total, there were 41 attendees at the workshop. Thirty of these attendees were stakeholders representing the following groups:

- NERS project-specific Advisory Group (as above)
- NERS Public Voice Group (as above)
- PHIRST Connect PIRg (as above)
- PHIRST Connect Advisory Board (an independent board providing external policy-orientated advice across PHIRST Connect projects)
- NERS coordinators and ERPs
- NERS service users
- The Welsh Local Government Association and Public Health Wales

The remaining eleven attendees were members of the PHIRST Connect research team who were present to assist with workshop facilitation.

**Format and procedure**

The workshop was held virtually (Zoom). It was two hours in length and structured as follows:

- Welcome and overview of study and findings (25 minutes)
- Breakout room first discussion (30 minutes)
- Breakout room second discussion (30 minutes)
- Plenary feedback from groups (15 minutes)
- Summary, next steps and close (20 minutes)

Ahead of the workshop, stakeholders were split into five groups of between five to seven members that represented a mix of roles, experience, knowledge of the NERS, and operational/strategic expertise. The workshop began with a brief overview of the study's aims and main findings provided by the study lead. The pre-determined groups of attendees were then moved into two virtual breakout rooms in turn, where they were asked to discuss two of the five areas of focus (a different area of focus per room; see below) and develop suggestions for action.

Each break-out room discussion lasted for thirty minutes and had two members of the research team present, one to facilitate and one to take notes. Ahead of the workshop, each facilitator was provided with a summary of evidence from the two studies relevant to their area of focus. Facilitators and note-takers stayed in the same break-out rooms throughout to provide continuity. With the consent of attendees, discussions were audio-recorded to aid note-takers. One further research team member was available across break-out rooms to provide support to facilitators and to resolve any technical issues.

The five areas of focus were as follows:

- What programme/system changes could be made to achieve more equitable uptake of the NERS
- How could service users (particularly those less likely to take up the programme) be supported to overcome barriers to access
- What could be done via the NERS to improve digital accessibility
- How could safety concerns of those receiving and delivering NERS virtual exercise classes be addressed
- How could a community feel be created, and connections fostered, for those participating virtually in the NERS

In total, 10 group discussions took place, with each of the five areas of focus discussed twice. The workshop ended with a final plenary session in which each facilitator provided a summary of the main points discussed within their two facilitated sessions.

## Workshop findings

The following section presents an overview of the main points discussed in relation to each of the five areas of focus, alongside suggestions for action made by the stakeholders.

### Area of focus 1: What programme/system changes could be made to achieve more equitable uptake of the NERS

The stakeholders discussed a range of programme design and implementation topics, including those relating to staffing capacity; capacity of leisure centres to accommodate the NERS sessions; referral processes (e.g. challenges with ensuring that referrals are appropriate and how to ensure that service users are referred at the most opportune time); potential lack of suitability of the NERS exercise sessions to younger service users; ways that the NERS could better inform potential service users about the nature and benefits of engagement; and challenges with implementing suitable and effective exit routes from the programme.

Various suggestions were made for how more equitable uptake of the NERS might be achieved. These included:

- Increasing the focus on recruiting from service user groups that have proved hardest to engage
- Exploring potential ways to reduce inappropriate referrals
- Exploring strategies to support uptake including reducing the time between referral and initial NERS consultation; encouraging greater GP discussion of the NERS with patients; implementing a 'buddying' system between new and current NERS service users; and considering greater use of publicity to highlight positive service user experiences
- Addressing the lower uptake by males through focused work to address barriers to male engagement

### Area of focus 2: How could service users (particularly those less likely to take up the programme) be supported to overcome barriers to access

Stakeholders described their knowledge of the NERS referral processes, including discussion of the experiences of service users. A range of barriers were identified, including reluctance of health professionals to refer; delays between referrers discussing the NERS with service users and a formal referral occurring; cliquey, established groups and a seeming lack of group welcome for newcomers at times; working and caring responsibilities; lack of wi-fi connectivity and other digital access issues; and lack of availability of transport to exercise sessions.

There was general agreement that offering both face-to-face and virtual options for engagement enhanced choice for service users and was likely to assist with widening access to the NERS programme.

Stakeholders highlighted a range of ways in which service users could be supported to overcome barriers to access. Key suggestions were:

- Additional efforts to ensure that referrers understand the NERS, are referring where appropriate, and are encouraging participation in the programme
- Ensuring that those referred to the NERS are fully informed about the nature of the programme they have been referred onto and what their participation will involve
- Making use of social activities for group members to help service users feel comfortable in their exercise group
- Supporting service users during the early days of their engagement with the NERS (e.g. by the implementation of a 'buddying' or 'mentoring' scheme)
- Assistance with transport costs to face-to-face exercise sessions
- Addressing concerns about potential loss of benefits payment for some groups (e.g. if service users can travel and/or exercise, they may risk a benefit payment cut)
- Exploring childcare provision to encourage engagement from parents/carers
- Addressing digital exclusion issues (e.g. by facilitating access to digital devices through local organisations)
- Offering evening exercise sessions for those who work during the day

### Area of focus 3: What could be done via the NERS to improve digital accessibility

Stakeholders discussed a range of ways that digital accessibility and inclusion might be improved for the NERS programme, and the potential benefits and drawbacks of these. Much of the discussion focused on strategies for increasing service users' confidence and familiarity with digital devices, technology, and remote engagement with services. An additional key focus was on ensuring that service users are fully aware of what virtual engagement with the NERS might involve.

There was general agreement that the offer of both face-to-face and virtual NERS exercise sessions was beneficial for service users and increased choice. Stakeholders highlighted the importance of service users having the option to participate in the NERS programme online or in-person, depending on their circumstances. Stakeholders felt that the delivery mode should be tailored to the individual service user's preferences.

Key suggestions for action to improve digital accessibility were:

- Implementing one-to-one tech support for service users through local providers or NERS peers (e.g. current or previous service users), to help build the digital skills and confidence of service users

- An in-person meeting between NERS representative and service user early in the programme (e.g. at or around the time of the first consultation) to assess suitability for virtual delivery of the NERS, and then regular check-ins during the 16-week programme to enable any issues related to virtual engagement to be addressed
- Exploring a range of options for accessing digital devices that can be loaned to service users (including, device recycling/refurbishment schemes and local or national digital inclusion initiatives)
- Ensuring that, from an early stage, service users are fully informed of what to expect from virtual engagement with the NERS (e.g. production of a 'Frequently asked questions' guide that utilises the voices of previous service users and ensures that clear information is available through referrers)

### Area of focus 4: How could safety concerns of those receiving and delivering Welsh NERS virtual exercise classes be addressed

Stakeholders highlighted a range of safety concerns related to delivering the NERS virtually, alongside existing safety measures that are in place to manage these concerns (e.g. programme assessments of the severity of service users' health conditions prior to them engaging in virtual NERS exercise sessions).

Stakeholders expressed a general positivity towards the idea of using a hybrid model of NERS delivery for exercise classes. They highlighted several potential benefits of virtual delivery (such as, the ability to participate more anonymously and the potential for increased engagement).

Stakeholders highlighted a range of ways in which the safety concerns brought about by virtual delivery could be addressed. These typically mirrored those highlighted by the findings of the qualitative analysis and tended to be a restatement of their importance. Key suggestions were:

- Two ERPs should deliver virtual exercise sessions
- Since it is often very challenging to conduct safety checks remotely, ERPs should delivery initial safety checks in person rather than virtually
- A 'manual' of exercises used during NERS sessions should be available to service users to provide additional guidance on how to exercise safely
- The first group exercise session attended by any individual should be received face-to-face, as this would facilitate effective assessment and the building of rapport between the service user and the ERP and also with other service users

## Area of focus 5: How could a community feel be created, and connections fostered, for those participating virtually in the NERS

Much of the discussion focused on creating opportunities within the NERS for socialising, and rapport and relationship building. Stakeholders stated that, particularly where attendance was virtual, such opportunities are important for engagement and retention.

Stakeholders provided examples of approaches that had facilitated a feeling of community among NERS service users during the pandemic, and some of the challenges to implementing them. For example, the need to give due consideration to resourcing the setup, management, moderation, and facilitation of virtual or face-to-face social groups and events, and the challenges of effectively managing social network-based interactions.

Suggestions for creating a community feel among service users participating virtually in the NERS, included:

- Implementing 'protected' time within the programme for chatting and socialising (e.g. before and after exercise sessions)
- Using social media such as WhatsApp to enable NERS service users to keep in touch with each other and to build a feeling of 'community'. Stakeholders stated that this had been done successfully in some localities during the pandemic
- Exploring mechanisms for sharing best practice so that what has worked well during the pandemic can be more widely adopted (e.g. the use of virtual coffee mornings)
- Holding virtual or face-to-face social events that include structured sessions and speakers on topics related to health and wellness or other non-health subjects


### Process of finalising recommendations

After the workshop, the suggestions for action from these five key areas of focus were reviewed by the research team and, where ideas were considered appropriate and feasible, these were incorporated into a finalised set of recommendations.

# FINAL RECOMMENDATIONS

**Provide a mixed model of delivery (virtual and/or face-to-face) with service users able to choose their preferred mode**

This recommendation is made as there was evidence that offering virtual delivery could reduce inequalities in uptake/adherence and further, that core programme ingredients that promote engagement and long-term behaviour change are retained through virtual delivery (providing it is delivered in a live format as opposed to pre-recorded).

Offering choice also encourages the development of intrinsic motivation, a predictor of long-term behaviour change. It is advised that promotional material and referral conversations highlight service user choice in how they will receive the programme. It is advised that service users be able to choose whether to engage in exercise sessions virtually or face-to-face on a session-by-session basis. Service users should be encouraged to attend the initial and 16-week consultation face-to-face (facilitates rapport building, ERPs notice more subtle indicators of health and wellbeing, aids breadth/accuracy of data collection) but should still be given choice.

Given the elevated costs of delivering the programme virtually, a sustainable future funding model needs to be considered. Most service users interviewed said that they would be willing to pay for virtual exercise classes. Introducing the session fee for virtual classes should therefore be considered to help reduce costs (see 'Implement strategies to reduce inequalities in programme uptake and adherence' for recommendations around supporting those with difficulties affording the NERS). Apart from helping to address issues around sustainability, this would also counter the potential for fee-free classes to de-value virtual delivery and create inequity across the two delivery modes. A further approach to address costs that should be considered is delivering all virtual classes through a single specialist hub (this would also have the added benefit of increasing service user choice in terms of the timings and types of classes available). In this scenario, given the significance of the service user-ERP relationship in supporting adherence, promoting continuity and shared care between ERPs (who are separately delivering face-to-face and virtual activities) is likely to be important.

**Monitor the effect of providing a mixed model of delivery on uptake, adherence, and outcome**

Findings concerning the effect of delivery mode on adherence and outcomes (study 2) are likely confounded by the pandemic context. Further none of the programmes examined (standard, remote/hybrid or modified) reflect the proposed mixed model of delivery i.e. with delivery mode unconstrained and in line with service user preference.

It is therefore recommended that if a mixed model of delivery is adopted, that the effect of delivery mode on these key performance indicators is monitored. To facilitate examination of this, it is advised that the following additional fields are added to the NERS database: whether the mixed model of delivery was discussed at referral (No: 0, Yes: 1), delivery mode used for first consultation (virtual: 1, face-to-face: 2), delivery mode used for 16-week consultation (virtual: 1, face-to-face: 2), and delivery mode of each attended session (virtual: 1, face-to-face: 2). Analysis would be further facilitated by including binary numeric fields for: attendance at first consultation (No: 0, Yes: 1), attendance at first exercise session (No: 0, Yes: 1), attendance at 16-week consultation (No: 0, Yes: 1).

### Assess all servicer users' digital accessibility

It is recommended that digital accessibility is assessed and recorded at or around the time of the first consultation as part of a wider assessment of accessibility (see 'Implement strategies to reduce inequalities in programme uptake and adherence' below). This should include an assessment of whether the individual has access to a suitable device, a stable home internet connection, and the skills/confidence required to access the required online platform(s).

Whilst not being online is a choice for some people, there was clear evidence that digital accessibility prevented some service users from engaging with virtual delivery. Where this is the case, it is therefore recommended that steps are taken to address accessibility, especially as there is overlap in the groups known to be most at risk of digital exclusion and those most likely to benefit from virtual delivery. This could be done through signposting to community and charitable initiatives and/or though provision within the programme. Suggestions for the latter include assigning 'digital buddies' (i.e. more digitally adept service users providing 1-2-1 support) and developing a NERS device bank (i.e. a pool of recycled/refurbished devices made available for loan; service users exiting the NERS could be asked if they have any unused digital devices that they would like to donate).

It is advised that everyone is assessed for two reasons. Firstly, this will ensure that, should the programme need to move again to mandatory remote delivery in the future (e.g. new pandemic, extreme weather conditions), service users' preferences and needs are recorded thus facilitating rapid decision making as to each individual's most appropriate mode of support (i.e. virtual delivery or a home programme). Secondly, as resistance can mask access issues and anxieties around the use of technology, offering support may encourage hesitant users (who would benefit from this mode of delivery) to try-out and adopt this mode (as evidenced by some service users interviewed in study one).

### Seek to deliver equivalent experiences of social support irrespective of delivery mode

Service users' belief that virtual delivery would offer a poorer experience of social interaction, or the reality of this being the case, had a negative impact on uptake of and engagement with the virtual programme. There was however evidence of meaningful and supportive relationships having been developed online thus demonstrating that this can be achieved. It is advised that different ideas for creating communities of support for those engaging virtually are developed and explored with service user input (these could include for example, protected time at the start and finish of classes for informal conversations, use of WhatsApp groups, virtual coffee mornings). Further it is advised that when service users are briefed about the mixed model approach, that these opportunities are highlighted, and examples of success given. Care should be taken however not to assume that all service users have a desire for peer-to-peer social support – some may deliberately choose virtual delivery as a means to actively avoid interaction with others.

Service users find it rewarding when their ERP recognises the effort they are making to attend sessions and work hard. This recognition is likely to be important for sustaining engagement, particularly during the first few weeks of the programme. There was however evidence that service users feel less visible in the online space which risks a dilution of this reinforcing effect. It is therefore recommended that when delivering exercise classes virtually, ERPs acknowledge each service users' attendance and provide at least one piece of positive feedback per session that involves mentioning their name. The explicit use of names is important as service users reported not always being clear who ERPs were referring to during virtual sessions.

### Balance physically challenging service users during virtual exercise classes with maintaining their safety

Service users' perception that they were making positive progress towards their health and wellbeing goals was a motivator of ongoing engagement. There was however evidence that some service users felt that the content of virtual sessions was not sufficiently challenging for them to experience that progress. One way to overcome this is to ensure that where virtual classes are offered, service users are matched in terms of their fitness/ability thus avoiding sessions where the level of challenge is set by the less able attendees (see 'provide a mixed model of delivery' above; use of a single specialist hub would facilitate provision of a wider variety of classes). A potentially more feasible alternative is to support service users to self-regulate their own effort and number of repetitions. This could be achieved by providing guidance to service users on how to self-monitor and adjust their effort to maintain a benchmark level throughout each class (see Schwartz et al., 2021 for application of a Rating of Perceived Effort (RPE) scale in practice). This could be used to supplement existing advice given by ERPs on how to adjust the difficulty of exercises, through for example the number of repetitions performed.

There is a need however to balance the achievement of results with safety, a key concern for service users and ERPs. Highlighting measures that have already been taken to promote safety during virtual sessions (i.e. individual risk assessments, having emergency contact details, having two ERPs present) may help to address some concerns thus facilitating uptake. It is advised that service users continue to be assessed for suitability prior to commencement of virtual delivery (ideally in-person, and with the first exercise class face-to-face where concerns exist) and that this is periodically reviewed.

**Implement strategies to reduce inequalities in programme uptake and adherence**

The recommendation to reduce inequalities in uptake is made as there was clear evidence of patterned uptake, with young people, males, and those living in more deprived areas less likely to take up a NERS referral. It is advised that a new piece of work is commissioned that seeks to understand the barriers to uptake among these groups. This is necessary to draw firm conclusions about the best way to go about supporting individuals from currently underserved groups to attend. This should be a qualitative study in which people who did not take up a NERS referral are interviewed. Targeted approaches can then be implemented.

Some tentative suggestions for reducing inequalities in uptake are as follows. Implement a brand refresh that communicates to prospective service users that the NERS is for 'people like me'. This should demonstrate the diverse and inclusive nature of the programme, depicting people from across a spectrum of age, ethnicity, gender, ability, and background. Including 'success' stories of former service users from underserved populations (e.g. via short videos) could also be considered. It is acknowledged that funding to resource the proposed brand refresh would likely be required. Retaining virtual delivery may help those with transport difficulties, disability, caring responsibility, and cost barriers to access the programme. Waiving fees for those on benefits would also likely support uptake, especially among those from lower WIMD groups (it is advised that this is across virtual and face-to-face modes of delivery to promote service user choice and respond appropriately to inequality in NERS uptake/adherence) [1]. Address known anxieties that prospective service users have about engaging with the programme. This could be achieved through, for example, an introductory phone call from their assigned ERP ahead of the first consultation, assigning 'buddies' to new service users, and/or providing information about what to expect/FAQs to new service users.

[1] PHW are currently running a pilot project with the Department for Work and Pensions to assess the impact of providing free access and transport to the NERS for those on benefits living in Southeast Wales. The results of this pilot project will therefore be informative in this respect.

Better data on referral activity would also aid identification of where the inequality in uptake is introduced within the NERS and therefore where efforts should be targeted. Given data on the demography of UK healthcare users, a disproportionately higher number of referrals to the NERS from the lower WIMD groups would be expected. The lack of an observable difference across WIMD quintiles at referral (as observed in study two) may reflect selective action on the part of referrers. Possibly related to this, there was also evidence (from study one) of a high rate of patient self-referral (which although unsubstantiated, is likely to be from individuals in higher WIMD groups). To better understand this, one option would be to link NHS patient data with the NERS database such that all instances of NHS consultation, where a patients is eligible for the NERS, are recorded in the database (ideally data on referring organisation also captured). Further to this, where referral does occur, referrers could be asked to record whether the referral was 'referrer initiated' (coded 1) or 'patient initiated' (coded 2). This data would not only enable the levels of missed referrals (both missed patients and missed instances) and patient-initiated referrals to be monitored over time for trends, but also for the relationship between these variables and patient demographics to be examined. This would pinpoint whether there is a need to intervene at the level of referrer (to encourage more equitable referral), and/or at the level of the patient (to support uptake) and with which groups.

**Note:** data from study one indicates that referrers have poor knowledge about the NERS. While it is advised that efforts are made to address this, this alone is unlikely to address issues around inequality.

The recommendation to reduce inequalities in adherence is made as there was also evidence of patterned adherence, with females attending fewer exercise sessions than males, and younger people and those living in more deprived areas less likely to attend the final consultation. To address this, it is suggested that at or around the time of the first consultation, access issues of all new service users are assessed and addressed where possible. Access issues may be physical (disability, caring responsibility, poor public transport), digital (as already discussed), and/or financial (cost of classes, transport, exercise clothing/equipment). Suggestions for improving accessibility include waiving fees and assistance with transport costs (e.g. for those on benefits), car share scheme, maintaining virtual delivery, and increased availability of evening and weekend consultations and classes . It is acknowledged that some of these recommendations have financial implications and their feasibility within the current funding model therefore needs to be assessed.


# CONCLUSIONS

Introducing virtual delivery during the Covid-19 pandemic enabled the NERS to continue supporting service users to exercise. This project shows that continuing to offer exercise classes virtually, as part of a new model of delivery, could have positive impacts. Most significantly, offering virtual delivery could help to address inequalities in uptake and adherence through removing barriers to access often experienced by those from underserved populations (transport issues/costs, disability, caring responsibility). Future monitoring will be important however to establish this. Virtual delivery is costly for the NERS and thought needs to be given as to how to operationalise a mixed model of delivery that is sustainable in practice. Ideally service users are given choice as to how they receive the programme and supported to overcome access issues regardless of their chosen mode.

The patterns of uptake and adherence across demographic groups observed in this study reflect those in the wider ERS literature. Across studies, there is now good evidence that being older and coming from an area of lower deprivation increases the likelihood of both ERS uptake and adherence. There is also good evidence that being female increases the likelihood of ERS uptake and a growing body of evidence that it reduces the likelihood of adherence. The findings direct the attention of ERS providers towards specific patient sub-groups who, if inequalities are to be addressed, require additional intervention to support uptake and adherence. Further, these findings challenge the received wisdom that digital delivery is cost saving.

# GLOSSARY

ERP - Exercise Referral Professional
ERS - Exercise Referral Scheme
PIRg - Public Involvement in Research group
WIMD- Welsh Index of Multiple Deprivation
NERS - National Exercise Referral Scheme

# REFERENCES

Abu-Omar K, Rütten A, Burlacu I, Schätzlein V, Messing S, Suhrcke M. The cost-effectiveness of physical activity interventions: A systematic review of reviews. Prev Med Rep. 2017; 8: 72–8.

Campbell, Fiona, Holmes, Mike, Everson-Hock, Emma, Davis, Sarah, Buckley Woods, Helen, Anokye, Nana, et al. A systematic review and economic evaluation of exercise referral schemes in primary care: a short report. 2015.

Craike, M., Wiesner, G., Hilland, T.A. et al. Interventions to improve physical activity among socioeconomically disadvantaged groups: an umbrella review. Int J Behav Nutr Phys Act. 2018; 15,43.

Pavey, T.G., Fox, K.R., Anokye, N., Green, C., Mutrie, N., & Trueman, P. Effect of exercise referral schemes in primary care on physical activity and improving health outcomes: systematic review and meta-analysis. BMJ. 2011; 343.

Pavey T, Taylor A, Hillsdon M, Fox K, Campbell J, Foster C, et al. Levels and predictors of exercise referral scheme uptake and adherence: a systematic review. Journal of Epidemiology and Community Health. 2012; 66:737–44.

Morgan, F., Battersby, A., Weightman, A. L., Searchfield, L., Turley, R., Morgan, H., Jagroo, J., & Ellis, S. Adherence to exercise referral schemes by participants - What do providers and commissioners need to know? A systematic review of barriers and facilitators. BMC Public Health. 2016; 16(1).

Morgan, K., Rahman, M., & Moore, G. Patterning in patient referral to and uptake of a National Exercise Referral Scheme (NERS) in Wales from 2008 to 2017: a data linkage study. International Journal of Environmental Research and Public Health. 2020; 17(11), 3942.

Schwartz H, Har-Nir I, Wenhoda T & Halperin I. Staying physically active during the COVID-19 quarantine: exploring the feasibility of live, online, group training sessions among older adults. Translational Behavioural Medicine. 2021; 11(2), 314-322. https://doi.org/10.1093/tbm/ibaa141

Shore, C. B., Hubbard, G., Gorely, T., Polson, R., Hunter, A., & Galloway, S. D. Insufficient reporting of factors associated with exercise referral scheme uptake, attendance, and adherence: a systematic review of reviews. Journal of Physical Activity and Health. 2019; 16(8), 667–676.

Williams N, Hendry M, France B, Lewis R, Wilkinson C. Effectiveness of exercise-referral schemes to promote physical activity in adults: systematic review. British Journal of General Practice. 2007; 57:979-86.

FUNDED BY

NIHR | National Institute for Health and Care Research

(NIHR134153/PHIRST)

The project was undertaken by Dr Katie Newby, Dr Neil Howlett, Nigel Lloyd, Charis Bontoft, Imogen Freethy, Dr Olujoke Fakoya & Dr Adam P Wagner on behalf of NIHR PHIRST Connect (Senior Investigators: Professor Katherine Brown (1), Professor Wendy Wills (1), Dr Suzanne Bartington (2), Dr Gavin Breslin (3), Dr Neil Howlett (1), Professor Julia Jones (1), Dr Katie Newby (1), Amander Wellings (1), Dr David Wellsted (1), Dr Adam P Wagner (4), Nigel Smeeton (1)).

1. University of Hertfordshire, 2. University of Birmingham, 3. Ulster University, 4. University of East Anglia.

We are grateful for the advice and support of our collaborators at Public Health Wales and the Welsh Local Government Association (WLGA), and also the PHIRST Connect Advisory Board, the PHIRST Connect Public Involvement Research group (PIRg), The NERS Advisory Group, and the NERS Public Voice Group.

The team would like to extend their thanks to all of the individuals who gave up their time to participate in this research.

This project is funded by the National Institute for Health Research (NIHR) [Public Health Research Programme (NIHR134153/PHIRST)]. The views expressed are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

University of Hertfordshire UH

University of East Anglia

Ulster University

UNIVERSITY OF BIRMINGHAM

E: phirst@herts.ac.uk www.phirst.nihr.ac.uk