

*A study of low mood and anxiety in a clinical population of dog owners using mobile methods*

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*Table of Contents*

Acknowledgements.....	6
Abstract.....	7
1.0 Introduction.....	8
1.1 Overview .....	8
1.2 Positionality.....	8
1.3 Epistemological Approach .....	10
1.4 Self-reflexivity .....	11
1.5 Animal Assisted Therapies & Services for Physical health.....	12
1.6 Pet Ownership and Mental health .....	14
1.7 Dog Ownership and Mental Health.....	17
1.7 Rationale for Systematic Literature Review .....	20
1.8 Overview .....	22
2.0 Methods.....	22
2.1 Search Strategy and Selection Criteria .....	22
Figure 1: Prisma 2020 Flow Diagram of Study Selection Process .....	23
Table 1: Search Terms .....	25
2.2 Data extraction and analysis .....	25
2.3 Quality assessment .....	26
3.0 Results.....	27
3.1 Overview .....	27
Table 2: Summary and Evaluation of the studies in the Systematic Literature Review ..	28
3.2 Critical Appraisal .....	40
Table 3: Quality assessment of the studies included in the Systematic Literature Review using the Critical Appraisal Skills Programme (CASP, 2018).....	41
3.3 Themes .....	51
3.3.1 Social connectedness .....	51
3.3.2 Safety and security.....	54
3.3.3 Routine/ boundaries & personal growth.....	55
3.3.4 Therapeutic impact .....	58
3.3.5 Increased meaning and purpose.....	61
3.3.6 Comfort.....	64
3.3.7 Challenges .....	65

4.0 Discussion .....	69
4.1 Strengths and limitations .....	74
4.2 Conclusions and Rationale for Current Study .....	75
4.2.1 Aims for current research .....	77
4.2.2 Research Question .....	77
5.0 Methodology .....	77
5.1 Design.....	77
5.2 Mobile Methods .....	77
5.3 Interview schedule.....	78
5.4 Interview procedure.....	79
5.6 Reflexive Thematic Analysis (TA) Rationale .....	80
5.7 Participants .....	80
Table 4: Participant Inclusion Criteria.....	81
Table 5: Participant Demographics .....	81
5.8 Epistemology and Positionality.....	83
5.9 Ethical Considerations.....	84
5.10 Expert by Experience Consultation.....	84
Table 5: Expert by experience consultation .....	85
5.11 Data Analysis .....	86
5.11.1 Reflexive Thematic Analysis.....	86
5.11.2 Quality, Validity and Self Reflexivity .....	87
6.0 Results.....	88
6.1 Overview .....	88
Figure 1: Diagram of higher order themes (master) and lower order themes (subthemes) .....	90
6.2 Themes .....	90
6.2.1 Theme 1: Behavioural factors.....	90
6.2.1.1 Human-animal interactions .....	90
6.2.1.2 Animal Behaviours .....	92
6.2.1.3 Challenging behaviours .....	92
6.2.1.4 Social Connection .....	93
6.2.2 Theme 2: Spiritual companion .....	93
6.2.2.1 Psychological Safety .....	93
6.2.2.2 Mortality .....	94
6.2.2.3 Unconditional Love .....	95

6.2.3 Theme 3: Therapeutic Impact .....	96
6.2.3.1 Managing challenges in life .....	96
6.2.3.2 Protective from mental health symptoms .....	97
6.2.3.3 Social Anxiety Relief .....	99
6.2.3.4 Self-Identity .....	100
7.0 Discussion .....	102
7.1 Summary of Findings .....	102
7.1.1 Behavioural factors .....	102
7.1.2 Spiritual Companionship .....	104
7.1.3 Therapeutic Impact .....	106
7.2 Critical Appraisal .....	109
7.3 Clinical implications .....	110
7.4 Suggestions for further research.....	112
7.5 Conclusions .....	113
References.....	114
Appendices:.....	128
Appendix I: Ethical Approval Form.....	128
Appendix II: Participant information sheet.....	131
Appendix III: Consent form .....	135
Appendix IV: Debrief sheet .....	137
Appendix V: Reflective Diary Extracts .....	138
Appendix VI: Interview Schedule.....	140
Appendix VII: <i>Example of coding according to A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research (Naeem et al., 2023)</i> .	142

## List of tables and figures:

**Table 1: Search Terms**

**Table 2: Summary and Evaluation of the studies in the Systematic Literature Review**

**Table 3: Quality assessment of the studies included in the Systematic Literature Review using the Critical Appraisal Skills Programme (CASP, 2018).**

**Table 4: Participant Inclusion Criteria**

**Table 5: Participant Demographics**

**Figure 1: Diagram of higher order themes (master) and lower order themes (subthemes)**

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## Abstract

Dog ownership has been indicated by previous research findings to provide beneficial impacts on mental and physical wellbeing in the general population. However, despite researchers efforts to understand such advantages in the general population limited research has examined the possible benefits of dog ownership in a clinical group of individuals whom suffer from mental health difficulties. Even fewer have adopted qualitative methodologies which may be more advantageous to quantitative designs in order to capture the complexities and nuances of such experiences. This study used Mobile Method walk along, semi-structured interviews to capture experiences of dog ownership in seven individuals with lived experience of Anxiety and/or Low mood. In line with the authors social constructivist epistemological position, and in consultation with an expert by experience to enhance reflexivity and minimise risk of bias, data were analysed through Reflexive Thematic Analysis (RTA) and three themes were present in the data: (1) Behavioural factors, (2) Spiritual companionship and (3) Therapeutic Impact. These findings are discussed in relation to previous findings, clinical implications and areas for future research.

## **1.0 Introduction**

### **1.1 Overview**

This qualitative research study explores individuals experiences of living with mental health difficulties and dog ownership. The qualitative methodology employed uses reflexive thematic analysis (TA; Braun & Clarke, 2006, 2013, 2019) to analyse data from seven semi-structured qualitative interviews performed using the mobile methods technique (Cameron et al., 2014; Campbell et al., 2016) to understand individuals experiences of living with mental health challenges whilst owning a dog, specifically targeted at understanding facilitative and debilitating components on a behavioural, psychological and social level, to dog ownership . In this introductory chapter the researcher will outline their own positionality and epistemological stance in order to outline how positionality and epistemology influences their approach to methodological decisions and processes and how positionality and epistemology shape the lens through which data was viewed, understood and interpreted. Subsequently, an overview of the topic area is explored including relevant definitions and descriptions of the broad research literature. After, there is a systematic review of the quality and quantity of current literature focusing on the impact of pet ownership on mental health. To conclude this chapter, a rationale for the current study and statement of research aims is included.

### **1.2 Positionality**

The idea of positionality in research is ‘determined by where one stands in relation to ‘the other’’, here ‘the other’ being the participants, and is reflective of the shared or differences in experiences which may allow for an outsider or insider perspective into the experiences of the participants, which can shift depending on space, context or time (Bayeck, 2022). It is essential for me to acknowledge that my life experiences, social GRRRAACCEESSS which refer to differences in beliefs, power and lifestyle which may be visible or invisible,



(Burnham, 2018) and positionality will all have had an impact on this research. I am a twenty-nine year old white, British woman born in the south of England. I recognise that the chosen use of theories in this account may, at times, be due to and reflective of the middle class, western education I received and may consequently be reductionist. With this in mind I have endeavoured to attend to and limit my own bias by sharing my reflexive thoughts. I have also done so by including as much of my own and individual's voices in this research, those included in other studies and in the present study, in order for the reader to experience accounts through their own words, as well as through my own induction. I have held different privileges which will have informed the lens through which I conducted this research. The identities I hold also include less or differently privileged parts too, which, I hope, help to provide more balanced, empathetic interpretations of these accounts. I have gratefully accepted the accounts which the individuals within this study have kindly and generously shared with me for analysis, which often came with their expressed hope that their stories may be able to help others. I have personal experience of neurodiversity and mental health difficulties which I have carried with me through my life and the process of completing this research and I have been reminded of these at every stage of these journeys. I have owned, deeply loved and heartbreakingly dealt with the grief of losing a dog in comparable ways to those interviewed in this study. Whilst conducting this research, I lost my beautiful dog Willow and I grieved her loss deeply as I listened to, transcribed, read and re-read these extremely moving accounts of meaning, purpose, connection, challenge, love and loss. I was so beautifully reminded that some things in life are so complex that they can feel difficult to quantify and truly understand, but that still, there can be simplicity in the recognition of a deeply shared and felt human experience. The love people have for their animals and how this can help them cope through even terrible suffering, felt, to me, like something so familiar that it has been even more important for me to recognise and acknowledge my own bias in

this. It has been a privilege to explore this topic, and I hope I have done so sensitively and meaningfully.

This is written for anyone who has loved a pet, or struggled with their mental health and this is written for Willow.

### **1.3 Epistemological Approach**

The epistemological approach of the researcher is addressed here in order to convey the way in which the researcher has approached this project and their beliefs in terms of how knowledge is acquired and understood, this is important as it enables the reader to conceptualise theoretically how the researcher understands the data and the way in which the reader should interpret the findings (Braun & Clarke, 2013). This study employs a constructivist paradigm, where the epistemological approach is that reality is dependent on interpretation (Jupp, 2006). A constructionist epistemology is appropriate for the qualitative approach used in this study and for a reflexive thematic approach in particular where adoption of a constructionist epistemology implies that the author has acknowledged the importance of recurrence of concepts, but places meaning and meaningfulness as central criteria for understanding and interpretation (Byrne, 2022). This is also, in part, to move away from the longstanding research approach created by and employed on overwhelmingly western, educated, industrialized, rich and democratic (WEIRD) individuals, which represent approximately 12% of the world's population (Arnett, 2008) and despite this has routinely suggested that their findings and interpretations are generally representative, and rarely acknowledge the lack of diversity in research when considering the generalisability of their findings (Henrich, 2010). Due to the decision to move away from more positivist approaches

the researcher's own approach and interpretations will, at times, be expressed using first person language.

## **1.4 Self-reflexivity**

The researcher's own role in the project and relationship with participants will be continuously reflected on using reflexive Thematic Analysis (TA) (Braun & Clarke, 2006, 2013, 2019). Reflexive TA is an accessible and flexible interpretative approach to qualitative data analysis which includes highlighting the researcher's active role in knowledge production (Byrne, 2022; Braun and Clarke 2019). Reflexive TA offers rich, detailed and nuanced analysis, although it may be criticised for its flexibility which can lead to less scientific rigour in analysis (Trainor & Bundon, 2020). This approach was chosen above a narrative approach, which was also considered, as TA allowed for comparison between the individual accounts of participants so we were able to see commonalities between these experiences which could tell us more about what was helpful and unhelpful for individuals within this group rather than focusing on individual narratives. In addition to this, reflexive TA allowed for a reflexive approach to be taken, which felt appropriate to the author in order to recognise and reflect over my own biases and processes throughout the study and also to consider my own relationship to the project and the participants. The specific methodology which underpins reflexive TA will be further described in the 'Methods' section of the present study, however, I have adopted a reflexive approach by keeping a reflective journal, consulting with experts by experience and regularly reviewing with my supervision team. These steps have allowed me to consider my own role in constructing interpretations and that there will inevitably be some discrepancies between the researcher and participant's interpretations of the data (Varpio, 2017).

## **1.5 Animal Assisted Therapies & Services for Physical health**

Animals have been used as a resource for therapeutic support by services in order to support individuals struggling with physical health concerns, and, although the benefits and drawbacks to this are useful in our understanding of the impacts of animal interactions for clinical populations, the majority of work has focused on physical therapies and psychological support outside of anxiety and depression (Bert et al., 2016). Historically, the presence of animals within healthcare settings has been discouraged due to infection prevention and control (Bert et al., 2016). However, a recent review on animal assisted interventions concluded that the human relationship with animals can be useful and relatively safe (Bert et al., 2016), in particular in cases where an animal already exists in an individual's environmental ecosystem. Research has also shown there is very little evidence to suggest significant risk of zoonotic infections in controlled settings due to visiting animals (Lefebvre et al, 2006). Animal Assisted Therapy (AAT) or Animal Assisted Intervention (AAI) has been used as an effective tool to help individuals managing mental health difficulties including depression and schizophrenia as well as alcohol/drug addictions and is founded in a holistic approach through interaction with animals in nature (Kamioka et al., 2014). AAT has also been used effectively in inpatient settings, such as with older adults who are institutionalised and struggle with anxiety and/or depression with reassuring results (Ambrosi et al., 2019). Although AAI may simply involve pet visitation, AAT is more structured and involves individualised goals and is organised considering the activity type and duration in line with the "Pet Partners guidelines", usually this may involve therapy sessions with an animal such as a dog being present or having animals present for or involved in their physical rehabilitation programme (Bert et al., 2016). These interventions are implemented in different settings including hospitals, nursing homes and schools and sessions can be individual or group interventions (Bert et al., 2016). Some reported benefits for individuals experiencing

physical health conditions for example oncological patients were pain reduction, decreased loneliness, increased relaxation and improved self-esteem (Bert et al., 2016). However, work exploring the use of AAT's is in its infancy and not without limitations, for instance, in Bert et al.'s review (2016) the authors found that information regarding the type of intervention, safety, economic issues and diseases was insufficient and lacked detail which is required in future work to understand the effectiveness of these programmes. Indeed, Bert et al. (2016) called for increased researchers efforts whilst considering details concerning specific outcomes and intervention modalities to describe all the potential benefits and risks of AAT (Bert et al., 2016). Overall, AAT has been evidenced to be helpful, although using prescriptive AAT remains difficult to access due to funding and availability (Bert et al., 2016). Although, evidence exists that including animals in mental healthcare provides therapeutic benefits there is a dearth of research exploring how companion animals already existing and accessible within the home impacts mental health and wellbeing for individuals struggling with mental health difficulties. This is important for a number of reasons; First, to attune to resources already available to people's environments we need to include their preexisting relationships with their pets and understand how separation from them through accessing services could negatively impact their wellbeing. Next, individuals who access supportive services report pet ownership as a barrier to them receiving support or housing and do not often have their pets included in their care plans by professionals if they do access support (Hawkins & Hawkins, 2021). If individuals with pets are unable to access services then they may miss out on essential care, or they may have to give up an important existing resource in the relationship they have with their pets. Individuals should not have to make these decisions, the onus is on services to help people in need to access support and to include important relationships and potential protective factors into their care planning.

## 1.6 Pet Ownership and Mental health

Humans and animals have co-existed and shared intuitive relationships for thousands of years, which is, most likely, why as many as 53% of UK adults (PDSA, 2023) choose to have household pets (Fine & Weaver, 2018). The bonds people have with their pets are ‘relational, personal, contextual and changeable’ in that we share close, nuanced, socially influenced and ever evolving connections with the animals we own (Cleary et al., 2021). These bonds are intricate and multifaceted which, as a consequence, means they can be difficult to capture and complex to understand (Barcelos et al., 2020). Cross-culturally and historically we have examples of the significance of animals for humans; for example pet dogs were found to be kept among East Asian, Western European and Aztec elites and cats were mummified and buried with Ancient Egyptians (Clutton-Brock, 2016). In more recent times we have seen changes in the ways pets are treated in different cultures across the world, with improvements to animal welfare being seen in the way animals are fed and sheltered in many countries including China, Japan and in the United States (Grey & Young, 2011). Young (2011) found that across a range of 60 societies animals most often served a utilitarian function, such as for hunting, waste removal and protection and in these societies pet animals were more likely to be maltreated or killed (Grey & Young, 2011). Other than this, remarkably, there does not appear to be any rigorous, systematic attempt to assess human-pet dynamics in cross-cultural perspective (Grey & Young, 2011). Despite conceptual and methodological complexities, multiple advantages exist to understanding human-pet relationships in more depth, including the potential therapeutic and wellbeing benefits of pet companionship such as increased social connection, decreased loneliness, better rated levels of mental wellbeing, higher levels of physical activity and positive health outcomes (Kretzler et al., 2022; Siegel et al., 2010). It is important to be cognisant that there are a host of divergent moderating factors shaping the nature of human-pet relationships, such as human-animal bond, compatibility, life

experiences and health difficulties (Kretzler et al., 2022; Siegel et al., 2010). A consequence of difficult to measure, complex and nuanced relationships between humans and their pets, coupled with divergent moderating variables, is that the literature in this research space yields equivocal outcomes and consequently researchers experience difficulty in synthesizing literature to draw research informed conclusions about the overall positive or negative impacts of these relationships (Brooks et al., 2018). In this study, the ‘general population’ refers to individuals who do not struggle with mental health difficulties, few studies have provided new information delving into how pet ownership can benefit or challenge individuals who experience mental health difficulties. In the limited existing literature in the general population, research articles have informed us about how factors including the reported human-animal bond can moderate the potential positive impacts of these relationships on mental wellbeing (Tan et al., 2021). An example of how pet ownership may act as a moderator is how the emotional connection between humans and their pets might encourage people to take part in physical activity (Christian et al., 2013; Tan et al., 2021) and embrace social interactions which could improve their overall wellbeing (Kretzler et al., 2022). Participation in these activities may partly contribute to higher ratings of overall health and general wellbeing and decreased instances of loneliness (Christian et al., 2013; Tan et al., 2021). However, this only goes part of the way towards our understanding of these relationships. For instance, it does not tell us fully about the complexities between pet ownership and mental health, for example, does not characterise which specific factors may be helpful or challenging for individuals living with mental health difficulties when it comes to pet ownership nor does it identify how we can make use of different factors to assist individuals living with these conditions. In addition, most of the studies exploring the topic of mental wellbeing and pet ownership including those which suggest various therapeutic and wellbeing benefits, for example through increased social connectedness (Kretzler et al., 2022)

or by increasing physical activity (Tan et al., 2021), focus on a non-clinical population and, as a result, the majority of our knowledge about animals and wellbeing only applies to those who do not suffer with mental ill health. Consequently, those who may benefit most from the findings of the research, in terms of improved mental wellbeing, decreased loneliness and increased social support, are not being represented in, or benefitting enough from, the potential beneficial and therapeutic implications of this research. It follows then, that the more we know about such complexities, within an aligned population, the more we can understand about the potential therapeutic applications of this knowledge.

It is important to acknowledge that individuals do not exist in isolated environments; individuals develop, exist, survive and thrive within complex ecosystems and so too, do the mental health difficulties we develop (Bronfenbrenner, 2013; Eriksson et al., 2018). Consequently, in considering an individual's mental health, it is important to understand not only the personal factors but also the complex ecosystem the person develops in to help contemplate what helps, hinders or exacerbates mental health difficulties and to help the identification of resources to help people manage (Eriksson et al., 2018). NICE guidelines (2011, 2022) primarily recommends individual or group therapies and medication for Anxiety and Depression, which are expensive and costly to the National Health Service (NHS). The NHS has been facing ever-building pressure to support the growing number of individuals experiencing these difficulties which has led service providers to begin to consider alternative treatment modalities (Brooks et al., 2018). In addition, existing costly treatments are hard to access, so it is important to consider all available resources to help manage symptoms of anxiety and depression, for example, one may consider the existing evidence base around the multi-faceted ways in which pet ownership can improve mental wellbeing for those who experience mental health difficulties; such as potential improved social connectedness or increased resilience to persevering through challenging life experiences as indicated by



Brooks et al.'s (2018) review. Where individualised treatments may be hard to access and may situate the responsibility and onus within the individual to manage, understanding individual's relationships with their environments, including those with their pets, and using these as resources could be easier to access and less blaming for people struggling. This may also be a more strengths based approach, in that it could focus on the strengths that these relationships foster rather than highlighting where individuals are struggling in their daily lives.

## **1.7 Dog Ownership and Mental Health**

Where pet ownership generally has been shown to have benefits for mental health, dog ownership has received the majority of researcher's efforts and has often been reported to protect or improve mental wellbeing (Bao & Schreer, 2016; Liu et al. 2019; Powell, 2019 Ramírez et al., 2014; Wells, 2009). For instance, Bao & Schreer (2016) found that pet owner's rated higher in wellbeing measures related to life satisfaction than non-owners and Powell et al (2019) found reductions in subjective measures of loneliness as a result of dog ownership. Positive affective findings are impactful and informative as the largest proportion of pets in the UK are dogs (29% of the UK population own a dog; PDSA, 2023) and as such a significant number of the UK population may reap existing benefits associated with dog ownership. Reported benefits to mental health have been indicated even when paired with other challenging life experiences such as living with chronic pain (Carr et al., 2018; Carr et al., 2019; Carr et al, 2020; Janevic et al., 2020), HIV (Kruger et al., 2014; Kabel, Khosla & Teti, 2015; Muldoon et al., 2017), Autism (Barcelos et al., 2021), ageing (Seigel, 1990; Knight; 2008; Taniguchi et al, 2018) and the COVID-19 pandemic (Johnson & Volsche, 2021; Ratschen et al., 2020). For instance, Kabel et al.'s (2015) study explored how companion animals can help women with HIV to manage symptoms of their illness by providing an unconditional source of support, purpose and acting as a kind of 'spiritual

custodian' or guardian by identifying when their human companions required support or warning them when they faced danger. Studies such as those conducted by Kabel et al. (2015) tell us about the experiences of pet owners who struggle with different life experiences and can inform us about their mental health and wellbeing in the context of these experiences and taking the findings together, showcase the positive consequences attributed to dog ownership (e.g. Carr et al, 2020; Kabel et al., 2015). However these articles are restricted in the sense that they do not focus directly on individuals with mental health difficulties. There is also similar inconsistency regarding the mental health benefits of canine companionship in these studies (Barcelos et al., 2020); for example, some studies show pet ownership improves symptoms of low mood (Allen et al., 2002; Pereira et al., 2018), however others report that there is no effect (Branson et al., 2016), or that pet ownership may even have negative effects on those with depression (Barker et al., 2018).

These contradictions are also present for other factors including loneliness (Albert & Anderson, 1997), stress (Bradley & Bennett, 2016), anxiety (Bennett et al., 2015) and life satisfaction (Barcelos 2020; Friedman & Krause-Parello, 2018). The inconsistency in these results may be partially determined by the complex, heterogenous nature of dog-owner relationships (Barcelos, 2020). As a consequence, researchers have commented on the need for further investigation of variation in dog ownership behaviours and their impacts (Brooks et al., 2018; Liu et al. 2019; Barcelos, 2020). To address this, Barcelos et al. (2020) proposed a framework for dog and owner related activities and their impact on well-being and life satisfaction among the general adult population of dog owners in the UK. Their framework detailed 58 dog-human related activities which they linked to specific hedonic wellbeing, life satisfaction and eudaimonic wellbeing outcomes. In their study they outline how most activities were reported to improve owner's wellbeing; they reported associations between 'positive valence-high arousal' feelings, for example feelings of 'happiness', 'joy', 'fun' and

‘excitement’, with engaging in exercise based activities with their dogs. ‘Positive valence-low arousal’ feelings such as ‘calmness’, ‘relaxation’, ‘peace’ and ‘love’ were associated with tactile interactions with their pets. A minority of activities were associated with negative outcomes; reportedly ‘negative valence-high arousal’ feelings such as ‘annoyance’, ‘anger’, ‘stress’, ‘worry’ and ‘frustration’ were mainly associated with unwanted dog’s behaviour such as barking, but also more benign social interactions with dog/people, in particular negative encounters whilst out with their dog. ‘Negative valence low arousal’ feelings such as ‘sad’, ‘tired’, ‘lonely’ and ‘unhappy’ were increased mostly when owners reported a feeling of failure to meet their dog’s expectations/needs. This framework demonstrated that most activities were reported to improve owner’s wellbeing, with a minority associated with negative outcomes, such as ‘unwanted behaviours’ and ‘ageing and end of dogs life’ (Barcelos 2020). However, the application of reported findings to a clinical population of individuals with lived experience of mental health difficulties may be limited. Other studies have researched the impact of dog walking on wellbeing both in the general population (Campbell et al., 2017; Peel et al 2010; Utz 2013; Wharf-Higgins et al 2013) and with individuals who have health difficulties (Smith et al., 2017). These studies have informed us about how the emotional connection between humans and their pets encourages people to take part in physical activity. For instance, Smith et al. (2017) described how a felt ‘obligation of love’ encouraged participants to engage with dog walking where ‘gentle encounters’ and ‘pleasant sensations’ reportedly led to an enhanced sense of wellbeing. Despite researchers concluding consistent advantages and facilitative affective, behavioural and psychological effects to dog ownership (e.g. Barcelos 2020; Smith et al., 2017) the potential benefits for identified dog related activities remain relatively unexplored in a clinical population and consequently, to the authors knowledge, the application of this knowledge is limited for a clinical group.

## 1.7 Rationale for Systematic Literature Review

Growing costs and pressures on mental health services confronts us with the reality that we need to consider other resources when helping to support individual's mental health difficulties (Brooks et al., 2018). In particular, this is recognisable when we contemplate the devastating impact mental health difficulties can have on individual's lives; for instance, depressive disorders are one of the leading causes of disability and adjusted life years (DALYs) in the United Kingdom (WHO, 2018; WHO 2020). If one can better understand and make use of potentially already existing, in-house and accessible resources, one can better understand how existing accessible resources might be utilised to help manage and alleviate symptoms of mental health difficulties (Barcelos, 2020). One of these resources may be individuals relationships with their pets (Brooks et al., 2018). As a consequence, this literature review aims to analyse the available research on mental wellbeing and pet ownership to assess the breadth, depth and quality of this research, and to assess the availability of studies which contemplate this relationship in the context of pre-existing mental health difficulties in a clinical population.

Although previous systematic reviews have sought to answer a similar research question, it is important that their findings are consumed within the context during which they were published. For instance, in 2018, Brooks et al. conducted a systematic review of the dog-ownership literature which concentrated on the power of support from companion animals for people living with mental health problems. The authors explored how pets might contribute to managing long term mental health conditions and evaluated the quality of evidence associated with the utility of pet ownership for individuals living with mental health difficulties (Brooks et al., 2018). Their review suggested that there are benefits of pet ownership to these individuals, but that further research was necessary in order to test the nature and extent of this relationship (Brooks et al., 2018). In their review they also

emphasise the increasing importance of identifying and utilising resources for individuals with mental health difficulties (Brooks et al., 2018). However, contextually, socially and environmentally much has changed on a global, international and national level, which suggests these findings are unlikely to transfer across to today. For example, it has been convincingly documented that the COVID-19 pandemic had negative impacts on mental wellbeing including increased instances of post-traumatic stress disorder (PTSD) and anger (Brooks et al., 2020; Xin et al., 2021), particularly for those from more socially disadvantaged backgrounds and those with pre-existing mental health difficulties (O'Connor et al., 2021) and already overstretched services have struggled to meet the needs of those impacted by these difficulties (Wu et al., 2021). Events like Covid-19 and the Cost-of-Living Crisis has worsened individual's experiences of discrimination, safety and security in their daily lives (Miller et al., 2021; O'Connor et al., 2021; Prajapati & Liebling, 2021). It is understandable to suggest that experiences of a pandemic, where people had limited access to outdoor space and other necessary resources related to pet ownership and mental wellbeing, may have impacted how people with mental health difficulties experienced having pets, which may also have longer term consequences on mental wellbeing such as continued anxieties or guilt around abilities to provide for pets during lockdown or PTSD from this period of time (Brooks et al., 2020). The current cost of living crisis may have also impacted people's abilities to obtain, take care of and provide for pets (Applebaum, 2020). Individuals are disproportionately impacted by these events depending on social GRRRAACCEEESSS (Burnham, 2018). For example, it is known that individuals who experience poverty also struggle with higher rates of anxiety and depression (Lund, 2012) and individuals from the global majority experience further difficulties accessing services for support in the United Kingdom (Miller et al., 2021; Prajapati & Liebling, 2021). These factors have led to a change

in the environmental framework in which we exist currently, and consequently, there is a need for a more contemporary review of the research on this topic.

## **1.8 Overview**

The following section includes a systematic review of the literature relevant to the wider topic of pet ownership and mental health. As has been described before, a scoping search of the available literature indicated a lack of research on this topic despite the potentially promising implications for mental wellbeing for both clinical and general populations.

The review aimed to answer to the following research question:

1. How does pet ownership alleviate mental health difficulties and psychological characteristics of ill-being.
2. How does pet ownership contribute to existing mental health difficulties and psychological characteristics of ill-being.

## **2.0 Methods**

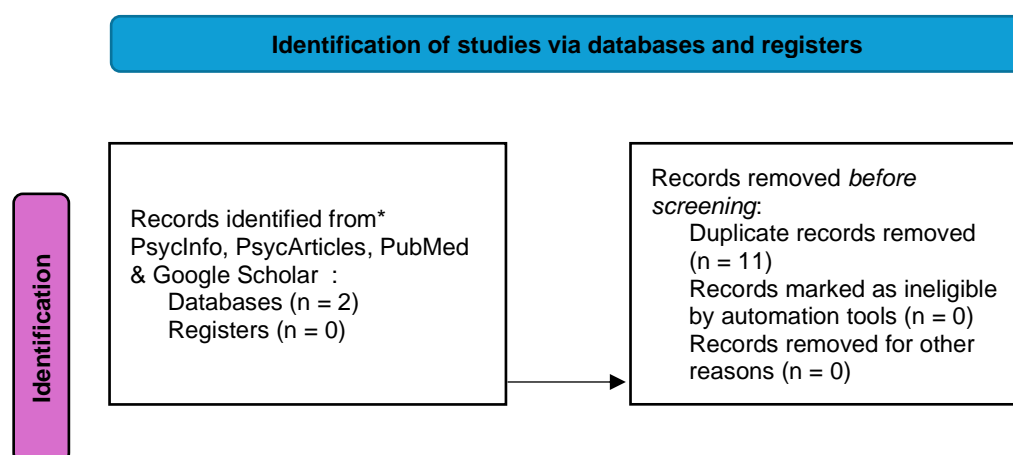
### **2.1 Search Strategy and Selection Criteria**

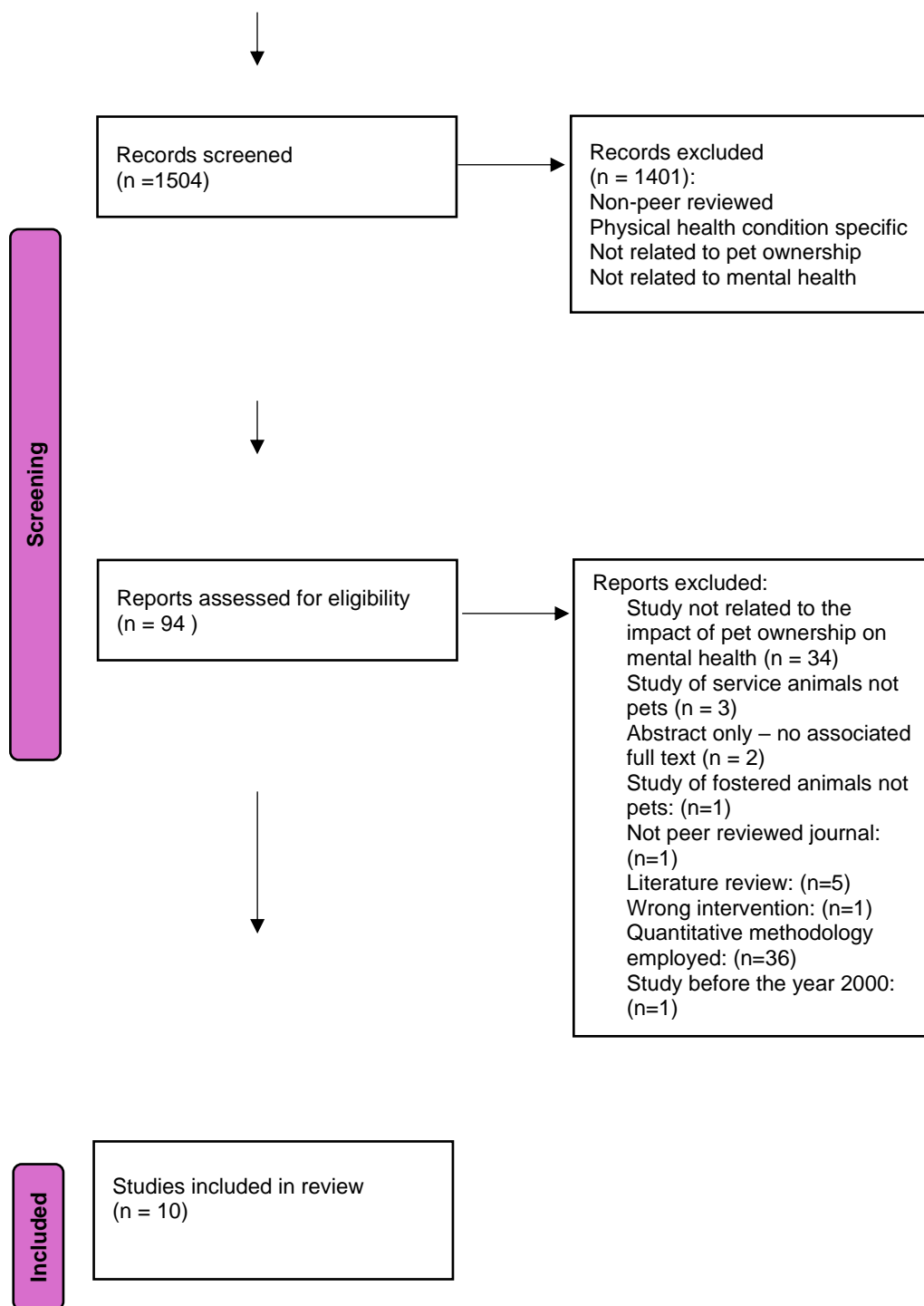
A comprehensive search of 3 databases (PsycInfo, PsycArticles and PubMed) and Google Scholar took place in November 2023. The methods and reporting of the results of this systematic review are described in line with Preferred Reporting Items for Systematic Review and Meta Analyses (PRISMA) guidelines (Page et al., 2021) Our search strategy is reported in Figure 1.

Titles and Abstracts were screened in line with our inclusion and exclusion criteria (See Table 1). Studies were not included if they were not related directly to pet ownership or if they were published before 2000 (as the authors felt results prior to this would be insufficiently contemporary and outdated. Indeed, one recommendation when conducting

systematic reviews is that that included research should be relevant and not outdated (Kuckertz & Block, 2021) and reviews should not include existing literature reviews, narrative reviews, scoping reviews, systematic reviews or meta analyses which would contain inherently within them outdated literature. In this review, quantitative studies were also excluded as qualitative methodologies better fit with the epistemological stance of the researcher. This also allowed for more naturalistic observations to capture human-animal relationships, in contrast to the majority of previous research conducted in this area which adopted more positivist, quantitative approaches to explore this topic (Fraser, 2009). In addition to this, the benefits of qualitative research approaches in this area have been highlighted by researchers such as Shen-Miller (2011) as advantageous in capturing the complexity of this area, markedly in relation to issues such as loss, grief, mental health and the benefits of animal companionship (Shen-Miller, 2011). Subsequently, the remaining articles' full texts were reviewed, defining the final sample of articles to review the association between pet ownership and mental health. The title-abstract screening and full text screening were conducted independently by two reviewers (IA and MJ). Disagreements between the two reviewers during screening was resolved through discussion.

**Figure 1: Prisma 2020 Flow Diagram of Study Selection Process**







Exclusion criteria are outlined in Table 1. Search terms were combined using Boolean operators ‘AND’/ ‘OR’. Only English language papers were included in the study. Studies were excluded by date if they were published before January 2000.

**Table 1: Search Terms**

Inclusion Criteria	Exclusion Criteria	Search Terms
English language paper	Not an English language paper	Depression (OR) anxiety
Primary Data	Not primary data (e.g. a review article/opinion piece)	(OR) psychological wellbeing (OR) mental health (OR)
Peer reviewed journal article	Not a peer reviewed journal article (e.g. books/book chapters)	stress (OR) nervous (OR) fatigue (OR) melancholia
Related to pet ownership	Studies not related to pet ownership (e.g. Animal Assisted therapy which does not involve pet ownership)	(OR) lonely (OR) loneliness (OR) panic (OR) phobia (OR) dysthymia (OR) mood (AND)
Related to pet ownership on mental health	Not related to the relationship between pet ownership on mental health	Dog ownership (OR) pet ownership
Recently published study (since the year 2000)	Not recently published (pre 2000)	
Qualitative methodology employed	Quantitative or mixed-methodology employed	

## 2.2 Data extraction and analysis

Data extraction was executed by one reviewer (IA) and cross checked by a second reviewer (MJ). This was conducted using thematic synthesis (Braun & Clarke, 2006) of qualitative data from the remaining studies, in addition to summarising and evaluating data relating to

design of the study, participant demographics and other contextual factors. Thematic synthesis involved the transformation of phenomena from these studies into codes and themes to enable deeper analysis (Braun & Clarke, 2006). Thematic synthesis is a systematic, comprehensive approach where each stage of analysis builds on the previous, in order to provide an organised method of considering the data which enhances reliability and allows for clarity in observed connections between data, interpretation and final conclusions which also limits bias (Naeem et al., 2023). The researcher noted recurring themes and assessed for meaningful occurrences in the papers specific to the question focused on in the systematic review (Braun & Clarke; 2006 Byrne, 2022). This was conducted through a six stage process of 1) familiarization with the text by reading and re-reading the papers, 2) coding text by highlighting meaningful excerpts of text which were interpreted as the researchers to be relevant to the question of the systematic review, 3) grouping into themes of codes which felt meaningful and relevant to each-other and the aim of the review, 4) the researchers then reviewed these themes together to see if they felt appropriate, relevant and meaningful, 5) themes were defined and named (Social Connectedness, Safety and security, Routine/ boundaries & personal growth, Therapeutic impact, Increased meaning and purpose, Comfort and Challenges), 6) finally these themes were written up (Byrne, 2022; Braun & Clarke, 2006).

### **2.3 Quality assessment**

Articles included were assessed for relevance by two reviewers to reduce bias (IA and MJ) in line with recommendations for reflexive TA (Braun & Clarke, 2018). The Critical Appraisal Skills Programme (CASP) tool was used to evaluate the quality of the articles included in the systematic review (CASP, 2018). Specifically, the ten-item checklist was used to assist with evaluating qualitative research according to validity (e.g. Was there a clear statement of the aims of the research? Is a qualitative methodology appropriate? Was the research design

appropriate to address the aims of the research? Has the relationship between researcher and participants been adequately considered?) consideration of the results including ethics (Have ethical issues been taken into consideration?), rigor (e.g. Was the data analysis sufficiently rigorous? If there is an in-depth description of the analysis process?), contribution to knowledge and generalisability (e.g. How valuable is the research?) If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research based literature; CASP, 2018). Any disagreements concerning the quality of articles were resolved between IA and MJ via debate and discussion. No studies were excluded solely on quality.

## 3.0 Results

### 3.1 Overview

The present review included ten studies in data analysis, the ten papers selected for inclusion in the review have been summarised in Table 2. Within the ten remaining studies a range of qualitative research methods were used; Narrative analysis (n=3), Phenomenological analysis (n=2), Multisided ethnography supported by Grounded Theory (n=1) and Thematic analysis (n=4). Overall, the studies included  $n= 199$  participants and all the studies were conducted with an adult population (18-75 years old). Two studies included solely an older adult population (65 years and above; Obradović et al., 2021; Hui Gan et al., 2020). Sample sizes ranged from 1 (e.g. Obradović et al., 2021 )- 54 (e.g., Brooks et al., 2018). Two studies reported limited data on participant demographics (e.g Brooks et al., 2018 did not include age range or average). Data was derived from five countries. Specifically; England (n=4 studies), Norway (n=2 studies), Sri Lanka (n=1 study), Brazil (n=1 study) and Australia (n=2 studies). Of the ten studies *five* focused solely on dog ownership (Barcelos et al., 2020; Barcelos 2021; Correa; 2021; Kerr-Little et al., 2023; Obradovic et al., 2021), the rest of the studies included

other animals as pets for example cats and birds (e.g. Brooks et al., 2018). All the studies focused on pet ownership and mental health and/or wellbeing, but only six studies focused on this specifically with people who had clinically significant mental health difficulties (e.g. Barcelos et al., 2021, Brooks et al., Cleary et al., 2021, Friesinger et al., 2021, Kerr-Little et al., 2023, Obradovic et al., 2021). Of the studies which involved clinical participant groups; one focused on individuals experiencing substance use disorder (Kerr-Little et al., 2023), one on individuals with long term mental health difficulties living in community settings (Brooks et al., 2018), one on individuals experiencing homelessness and mental health difficulties (Cleary et al., 2021), one on individuals diagnosed with Autism who had experienced suicidal ideation (Barcelos et al., 2021), one on individuals living in supportive housing (Friesinger et al., 2021) and one on mental health in older adulthood (Obradovic et al., 2021).

**Table 2: Summary and Evaluation of the studies in the Systematic Literature Review**

Title	Year and Country	Authors	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Strengths and limitations
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Exploring dog ownership in the lives of people with substance use disorder: a qualitative study	2023, Norway	Andi Kerr-Little, Jørgen G. Bramness, Ruth C. Newberry, Stian Biong	Sample size: 8. Individuals with personal experience of living with SUD and owning a dog. Age range: 38-54	Exploring how people living with substance use disorder (SUD) experience and describe their experiences of dog ownership.	Semi-structured interviews. Qualitative content analysis.	(1) Living with SUD and owning a dog was primarily something positive in their life, (2) People increased their social connections personally and within society, (3) They felt a belonging which gave a sense of agency and purpose, and (4) They developed structure in their day and boundaries to their environment. Dog ownership could hinder access to services, which was challenging for some participants.	Qualitative	Strengths: Narrative approach allows for enhanced understanding of phenomenon of dog ownership, relatively under studied area. Limitations: the analytic approach in this study had a limited capacity for exploring processes over time and the results reflect the experiences of a limited sample of people living with SUD and owning a dog in a major city in a Nordic welfare state. Relatively small sample size.
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

"In times of stress, it is good to be with them": experience of dog owners from a rural district of Sri Lanka.	Sri Lanka, Devarajan Rathish, Jayanthe Rajapakse & Kosala Weerakoon	Sample Size: 24. Dog owners aged between 40 and 65 years old residing in the Anuradhapura district for 5 years Sri Lanka owning 3 dogs or less.	To explore the experience of dog owners on dog ownership and its effects on personal and family health in Anuradhapura, Sri Lanka.	Semi-structured interviews. Phenomenologica 1 Qualitative analysis.	Themes identified: Qualitative 1. Experience of dog owners 2. Pet dogs for children 3. Village dogs as pets 4. Role of pet dogs in personal and family health 5. Participants' advice on dog ownership Positive aspects: companionship, stress reduction, mental satisfaction. Concerns: expenses, reduced travel. Importance of child's preference in owning a pet dog. Willingness to adopt village dogs. Participants seldom experienced major health risks from their pet dogs.	Strengths: the findings are unique because it was conducted in a rural district of a developing country where similar studies were scarce. Limitations: Evidence could have been strengthened by videotaped observation of owner-dog interaction despite the challenges of consent and data analysis. The study selected only the later middle age group of $\geq 40$ to $\leq 65$ years as participants.
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Human-Animal Relationships Supported Housing: Animal Atmospheres for Mental Health Recovery.	2021. Norway	Friesinger JG; Birkeland B; Thorød AB	Sample size: 12. Participants were people with mental health difficulties living in supported housing.	The study explores human-animal relationships focusing on housing situations for people with mental health problems (with or without co-occurring substance use), who get assistance from community mental health services.	Multisited ethnography supported by Grounded Theory approach	Qualitative analysis.	Animals in the buildings were found to promote solidarity and connectedness among people, contributing to the mental health recovery of tenants by creating acknowledgment and rootedness. Strict pet policies that prohibit animals can create emotional tensions between tenants and staff or landlords. The study emphasizes the importance of public housing services guaranteeing equal rights to tenants, including the right to keep a pet, to support mental health recovery.	Qualitative	Strengths: relatively understudied area with clinical group and real life implications for changes to approaches of housing individuals with these experience Limitations: relatively small sample size.
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Understanding the impact of dog ownership on autistic adults: implications for mental health and suicide prevention.	2021, England	Ana Maria Barcelos, Niko Kargas, Chris Packham & Daniel S. Mills	Sample size: 18 adult men. Autistic adults aged 18-74 years.	To generate a framework of well-being outcomes for dog-related activities in autistic adults and compare it to the framework generated for a general adult population.	Semi-structured interviews. Thematic Qualitative analysis.	16.7% of autistic dog owners reported that their dogs prevented them from taking their own lives, mainly due to the dog's affection and the need to care for the animal. Close interactions with dogs (e.g., cuddling, walking, dog's presence) were the most frequent activities improving emotions/moods and life functioning. While routine-like activities (e.g., feeding the animal) particularly enhanced life functioning. Well-being worsening was mainly linked to dog behaviour problems, poor health/death of the dog, and obligations to the dog. Despite some negatives associated with ownership, having a dog could improve the well-being of many autistic adults and assist in suicide	Qualitative	Strengths: Implications for suicide prevention in autistic male adults. Saturation of data. Demographic balance within sample. Extensive geographical variation among participant..Limitation s: limited number of participants restricted to those able to engage with the research methodology (qualitative interviews).Only female participant.
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prevention  
strategies in this  
high-risk group.  
The generated  
framework  
suggests focusing  
on specific dog-  
related activities  
rather than the  
vague concept of  
"ownership" when  
considering the  
impact of dog  
ownership on  
well-being,  
consistent with  
previous findings.

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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

<p>A framework for understanding how activities associated with dog ownership relate to human well-being.</p>	<p>2020, England Barcelos AM; Kargas N; Maltby J; Hall S; Mills DS</p>	<p>Sample size: 35 adult British dog owners</p>	<p>Develop a comprehensive framework of dog-human related activities and their impact on owner well-being</p>	<p>Qualitative study, Dog-human thematic analysis of semi-structured interviews</p>	<p>related activities and themes were linked to reported changes in well-being through matrix coding. A framework of 58 dog-human related activities linked with specific hedonic well-being, life satisfaction, and well-being outcomes was generated. Most activities were reported to improve owners' well-being, such as human-dog tactile interaction increasing self-esteem, while a minority were associated with negative outcomes.</p>	<p>Qualitative Strengths: This more specific approach opens the door to the investigation of changes in human well-being which acknowledges the individuality of each dog-owner dyad. Limitations: The framework cannot encompass all possible activities existent in all dog-owner dyads</p>
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Ontological security and connectivity provided by pets: a study in the self-management of the everyday lives of people diagnosed with a long-term mental health condition.	2018, England	Brooks H; Rushton K; Walker S; Lovell K; Rogers A	Sample size: 54 adult participants with long-term mental health difficulties	Explore the role of pets in the support and management activities of people with long-term mental health problems	Semi-structured network interviews with ego network mapping and narrative illness framework analysis	Results indicated that the majority of pets were placed in the central, most valued circle of support within the network diagrams. Pets were involved in relational work by providing secure and intimate relationships not available elsewhere. They were considered valuable sources of illness work, helping to manage feelings through distraction from symptoms and upsetting experiences, and providing encouragement for activity. Pets were particularly salient where relationships with other network members were limited or difficult. However, despite these benefits, pets were not considered or incorporated into individual mental health care plans.	Qualitative	Strengths: The utilisation of an established theoretical framework (Corbin and Strauss's Illness Work) and the comparison with non-pet owning participants. Qualitative, social network approach provided rich data with which the theoretical 'illness work' framework. Limitations: Participants were recruited from within two locations in the UK, included only those cared for withing the community and did not recruit any participants from the global majority which limits generalisability of findings.
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Dog-related activities and human well-being in Brazilian dog owners: A framework and cross-cultural comparison with a British study.	2021, Brazil	Corrêa GF; Barcelos AM; Mills DS	Sample size: 32 Brazilian adult dog owners from five regions of the country.	Explore specific aspects of dog ownership impacting human well-being in Brazil and compare with findings from a similar study in England	Qualitative Thematic analysis of remote semi-structured interviews	Thematic analysis of the interview transcripts identified a total of 58 dog-related activities, organized into 13 themes. Most activities were reported to have a positive effect on participants' well-being, comprising 76.8% of the total mentions in the interviews. – 'Playing with dog' and 'Dog presence' emerged as the themes most frequently associated with positive well-being outcomes, while 'Unwanted behaviors' and 'Failing to meet dog's needs' were commonly associated with negative outcomes.	Qualitative	Strengths: Focus on both subjective and psychological aspects of human well-being. Samples had high participant diversity (e.g. region, age, gender and dog size). Similar data analysis has been used across this and the previous British study to obtain valid data in qualitative cross-cultural study – The main researcher of this study is a Brazilian Portuguese native speaker which also aided this. Limitations: Limited generalisability of qualitative results to the population level. Potential social desirability bias.
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Understanding the Benefits, Challenges, and the Role of Pet Ownership in the Daily Lives of Community-Dwelling Older Adults: A Case Study.	2021, England	Obradović N; Lagueux É; Latulippe K; Provencher V	Sample size: 2. Violet, a 77-year-old dog owner, and her healthcare provider	Better understand the role of pet ownership in the daily lives of older adults and explore the benefits and challenges of owning a pet for this population	Qualitative case study, thematic content analysis	Qualitative data analyzed by two evaluators and validated by participants. Both participants agree that benefits outweigh challenges for both older adult and her pet. Benefits include sense of safety, positive influence on mood; challenges include slight fall risk and financial costs. Ensuring pet's well-being important for owner; pet benefits from continual presence and care. Findings suggest improving fit between owner and pet characteristics may support meaningful role of pet ownership in aging-in-place.	Qualitative	Strengths:4 interviews to explore in depth the more complex nuances of the relationship. Understudied population in this area. Limitations: Case study design limit generalisability and causality. COVID-19 lockdown prevented direct observations of the participant's home environment and interactions with her animal, which would have enriched the case
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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Pet ownership and its influence on mental health in older adults.	2020, Australia Hui Gan GZ; Hill AM; Yeung P; Keesing S; Netto JA	Sample size: 14 Community- dwelling older adults aged 65 and above who were pet owners	Explore pet ownership in community- dwelling older adults and its influence on mental health	Semi-structured interviews, Colazzi's Phenomenologica l framework Qualitative analysis	Four themes emerged: 1. pets provide comfort and safety. 2.pets facilitate social inclusion and participation.3.pet s contribute to purposeful routine and structure.4. pets offer a meaningful role.	Qualitative	Strengths: Under studied population in this context. Findings have potential clinical implication. Limitations: Only community dwelling older adults impacts generalisability
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

The Unbreakable Bond: The Mental Health Benefits and Challenges of Pet Ownership for People Experiencing Homelessness.	2021, Australia Cleary M; West S; Visentin D; Phipps M; Westman M; Vesk K; Kornhaber R	Individuals experiencing homelessness and their pets	Explore the relationship between a person and their pets during a period of homelessness and subsequent search for accommodation	Examination of two firsthand narratives	Both narratives highlight aspects of the emotional bond between owner and pet: choosing pet over place, improved mental health and changed behaviors, stressors or negative emotions of parental concern, separation anxiety, and grief. Emphasizes importance of supporting, expanding, and creating new pet-friendly crisis and permanent accommodation options for pet owners experiencing homelessness.	Qualitative	Strengths: In-depth accounts with rich descriptions of individuals' experience. Narrative inquiry uses storytelling as a means of conveying the reality of one's experience, allowing a more in-depth and contextual understanding of the participant's viewpoint.  Limitations: restrictions on the collection (only two interviews were able to be conducted)of data due to the COVID-19 pandemic
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### **3.2 Critical Appraisal**

The CASP tool was used to evaluate the quality of the papers included in this review (CASP, 2018). CASP (2018) advise that quality should be classified using risk of bias as ‘high’, ‘moderate’ or ‘low’ using their criteria due to concerns that scores may be ‘misleading’ therefore it is preferable to report on risk of bias and then detail the domains where identified potential biases exist (See Table 3). Of the studies evaluated, six did not adequately consider





A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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Exploring dog ownership in the lives of people with substance use disorder: a qualitative study	Yes, outlines aims and rationale for research.	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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In times of stress, it is good to be with them": experience of dog owners from a rural district of Sri Lanka.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. Saturation of data discussed.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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Human-Animal Relationships in Supported Housing: Animal Atmospheres for Mental Health Recovery.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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Understanding the impact of dog ownership on autistic adults: implications for research mental health and suicide prevention.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. the researcher has made the methods explicit. Saturation of data is. discussed.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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A framework for understanding how activities associated with dog ownership relate to human well-being.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. the researcher has made the methods explicit. Saturation of data is. discussed.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described. explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, finding described.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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Ontological	Yes,	Yes,	Yes, the	Unclear,	Yes, it is	Yes, the	Yes, discussed	Yes,	Yes,	Yes, the
security and	outlines	appropriate to	researcher	Participants	clear how	researchers	ethical	rigorous	finding	researcher
connectivity	aims and	explore and	has justified	were recruited	data was	critically	considerations.	approach is	described	discusses the
provided by	rationale	understand	the research	from within two	collected	examined their		described.	explicitly.	contribution the
pets: a study in	for	experiences	design	locations in the	and the	own role,			Discussed	study makes to
the self-	research			UK, included	methods	potential bias			in relation	existing
management of				only those cared	chosen are	and influence			to research	knowledge or
the everyday				for withing the	justified.	on the data			aims and	understanding.
lives of people				community and	Form of	collection and			questions.	They identify
diagnosed with				did not recruit	data	interpretation.				new areas
a long-term				any participants	collection					where research
mental health				from the global	clear. the					is necessary.
condition.				majority which	researcher					They considered
				limits	has made					other ways the
				generalisability	the					research may be
				of findings.	methods					used.
					explicit.					
					Saturation					
					of data is.					
					discussed.					

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## A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Dog-related activities and human well-being in Brazilian dog owners: A framework and cross-cultural comparison with a British study.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Purpose maximum variation sampling using social media	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. Saturation of data discussed.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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Understanding the Benefits, Challenges, and the Role of Pet Ownership in the Daily Lives of Community-Dwelling Older Adults: A Case Study.	Yes, outlines aims and rationale for research	Yes, appropriate to explore and understand experiences	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. the researcher has made the methods explicit.	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions. They identify new areas where research is necessary. They considered other ways the research may be used.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
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A study of low mood and anxiety in a clinical population of dog owners using mobile methods

Saturation the research  
of data is. design.  
discussed.

Pet ownership and its influence on mental health in older adults.	Yes, outlines aims and rationale for research	Yes, outlines aims and rationale for research	Yes, the researcher has justified the research design	Unclear, The researcher has made clear that this was limited by the COVID-19 pandemic and situational difficulties, target population had been approached.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. the researcher has made the methods explicit., the	Unclear, the researcher does not describe having critically examined their own role, potential bias and influence or how they responded to events during the study and whether they considered the implications of any changes in the research design.	Yes, discussed ethical considerations.	Yes, rigorous approach is described.	Yes, finding described explicitly. Discussed in relation to research aims and questions.	Unclear, the researcher discusses the contribution the study makes to existing knowledge or understanding, however generalisability is limited due to it being a case study.
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Pet ownership and its influence on mental health in older adults.	Yes, outlines aims and rationale for research	Yes, outlines aims and rationale for research	Yes, the researcher has justified the research design	Yes, researcher explained how participant were selected. Specific target population approached to provide access to the type of knowledge sought by the study.	Yes, it is clear how data was collected and the methods chosen are justified. Form of data collection clear. the researcher has made the methods explicit., the	Yes, triangulation of analysis was performed to limit bias and reflective jourmalling was completed by the first author during the process. Themes were member checked by participants.	Yes, discussed ethical considerations.	Yes, approach is described explicitly. Discussed in relation to research aims and questions.	Yes, finding described explicitly.	Yes, the researcher discusses the contribution the study makes to existing knowledge or understanding. They identify new areas where research is necessary. They considered other ways the research may be used.
The Unbreakable Bond: The	Yes, outlines aims and	Yes, outlines aims and	Yes, the researcher has justified	Yes, researcher explained how participant were	Yes, it is clear how data was	Unclear, the researcher does not describe	Yes, discussed ethical considerations.	Yes, rigorous	Yes, finding described	Yes, the researcher discusses the

Mental Health	rationale	rationale for	the research	selected.	collected	having	approach is	explicitly.	contribution the
Benefits and	for	research	design	Specific target	and the	critically	described	Discussed	study makes to
Challenges of	research			population	methods	examined their		in relation	existing
Pet Ownership				approached to	chosen are	own role,		to research	knowledge or
for People				provide access	justified.	potential bias		aims and	understanding.
Experiencing				to the type of	Form of	and influence		questions.	They identify
Homelessness				knowledge	data	or how they			new areas
				sought by the	collection	responded to			where research
				study.	clear. the	events during			is necessary.
					researcher	the study and			They considered
					has made	whether they			other ways the
					the	considered the			research may be
					methods	implications of			used.
					explicit.,	any changes in			
					the	the research			
						design.			

### 3.3 Themes

After thematic synthesis of the ten articles had taken place seven themes relating to mental wellbeing and pet ownership were identified by the researchers: Social Connectedness, Safety and security, Routine/ boundaries & personal growth, Therapeutic impact, Increased meaning and purpose, Comfort and Challenges.

#### 3.3.1 Social connectedness

When considering the evidence around how pets may impact mental wellbeing of owners, the evidence supports the idea that pets provide opportunity for improved social connectedness through means such as meeting other individuals during activities with pets, providing a network, opportunities for social interaction and promoting connectedness among people (Barcelos et al., 2020; Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Hui Gan et al., 2020).

For instance, positive social inclusion and connectedness was described in individual's accounts of dog ownership to help them feel a part of society (Kerr-Little et al., 2023):

*“...to feel a part of society and feel that you are part of the system, that’s what a dog does.”*

This is particularly true and important for individuals who may feel stigmatised and marginalised by society due to their mental health or other factors and therefore feel far away from other people’s experiences and unable to connect. People with mental health difficulties described how they felt isolated from other people and misunderstood. For instance, one participant in Brooks et al., (2018) revealed:

*"I think it's hard really when you haven't had mental illness to know what the actual experience is for someone who has had the experience. There's like a chasm, deep chasm between us - a growing canyon. They're on one side of it and we're on the other side of it. We're sending smoke signals to each other to try and understand each other but we don't always - we don't always understand each other I don't think."*

Mechanisms are provided for increased social connectedness. For instance, participants describe various mechanisms for facilitating social interaction, one of which being increased confidence to go out (Barcelos et al., 2021):

*"I think my dog helps me, because now I can go out on my own, I can do like the food shopping and things like that on my own. Whereas before I found that really hard. Her company makes me feel a bit more confident, I think and less worried about things"*

In addition, participants revealed that through their pets they experienced increased instances of others engaging in social interactions (Barcelos et al., 2021):

*“That surprised me, you know, the amount of people that stop and talk to him, and that, yeah, it cheers me up with him. I haven’t got much in my life, but he’s quite good, yeah.”*

Participants also described how having a pet may lead to conversations with other pet owners too and through conversation participants revealed that they felt a connection with the individual with which they were conversing (Correa et al., 2021):

*“When I take her (the dog) to a square where there are other dog owners, the fact that I have a dog ends up stimulating interaction with other dog owners”*

Through conversations with other dog owners participants felt as though they were included in other pet owners social networks and participants developed their social network through conversations with other pet owners. For instance, in Hui Gan et al., (2020) study, one participant stated:

*“They were virtually all strangers. But now I know the names of half of them, and the names of most of their dogs... the dogs meet first, then you get to know the people”*

This could also lead to inclusions in and developments of network of other pet owners (Kerr-Little et al., 2023; Hui Gan et al., 2020):

*“With a dog, you meet other dog owners, not just dog owners, other people too [...] You get to know people, just like that, through the dog, and suddenly someone you meet maybe becomes part of your network...”*

One article identified that participants felt as if a sense of connection with other dog owners did not need to occur face-to-face. Rather, a sense of community could be achieved through online modalities (Hui Gan et al., 2020):

*“She’s got her own Instagram page... I am always posting on Facebook because we belong to the ‘Groodle and Oodle’ pages... And we also have dog meet-ups and they are all through Facebook.”*

Importantly, within previous works, individuals described how they not only increased access to social connectedness but individuals also felt an increased capacity for deeper and more

meaningful connections through exposure to social scenarios with other dog owners. For instance, (Barcelos, 2021):

*"I've never really sort of connected with anyone or anything up until we got her. [...] I would assume people to be in my life short term, there was never any sort of long-term prospect, I was always by myself. When I got her, it was the first time I sort of allowed myself to think or to form a long-term bond, I suppose."*

Although the majority of findings in previous works have been largely positive, one individual in Barcelos et al.'s (2020) study reported that owning a pet can also lead to unwanted interactions which may lead to experiences of annoyance (Barcelos et al., 2020):

*"Sometimes it is annoying meeting other people. Yesterday, for example, there was a guy sitting with three dogs, and then a woman approached and tried to pet them, then all dogs started barking, and the guy was trying to calm the three dogs. Sometimes I think 'please don't interact with my dogs, just leave me'"*

This further illustrates the complexity of these themes; we are reminded here that few themes can be reduced to reductionist 'positive' or 'negative' labels when considering their association with mental wellbeing and instead we are interested in the complexity and meaningfulness of these accounts.

### **3.3.2 Safety and security**

Another theme that emerged from the data was how pet ownership added to a sense of experienced safety and security. Individuals described a felt sense of comfort and safety which contributed to improved emotional wellbeing (Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). This was true on a practical, protective level where pets could provide alarm and security benefit (Hui Gan et al., 2020):

*"I feel a little safer with him as he will bark when he sees a stranger coming up my driveway..."*

Similarly, on a practical level, it was felt that pets would provide literal protection to themselves and their homes above and beyond alerting them or acting as an alarm if danger was present (Rathish et al., 2022):

*"if we send the driver home to collect something, he (pet dog) will not let the driver in when we are not there. But, via the speaker on the phone, if he was told to allow the driver in, he would step aside and do so".*

In addition to this practical protection, pets were experienced as a reassuring and soothing presence in a way that supersedes the practical (Obradović et al., 2021):

*"I feel safe, in the house. That's very important for me because I don't like the darkness, I don't like when there is wind, when it thunders (laughter). So, Jack makes me feel safe..."*

Although again, this was not the experience of all participants, although the expectation may have been that pets would provide security (Rathish et al., 2022):

*"as they were brought up as pets, nothing can be expected on security. Recently there was a house burglary while these two were inside the house. Someone whom we knew had come during the day. They do not bark at known individuals"*

Generally though, many second order themes throughout the studies referenced a felt 'sense of security' which also contributed to improved mood.

### **3.3.3 Routine/ boundaries & personal growth**

The practical requirements of pet ownership were often seen to provide opportunity for routine, boundaries and personal growth which was associated with a sense of improved emotional wellbeing (Barcelos et al., 2021; Brooks et al., 2018; Friesinger et al., 2021;

Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). This was for a number of reasons, having a pet was described to provide (Hui Gan et al., 2020):

*'a bit of structure'*

This structure enabled them to take better care of themselves as well as their pets as is described in Barcelos et al.'s study (2021) where an individual felt unable to care for himself by doing 'mundane', self-care tasks such as cleaning the house which can support wellbeing:

*"I was in a pretty bad state before. Like I didn't really clean up the house[...]. Then got him, and I need to clean up the house[...], I need to get up in the morning to feed him and take him out for a walk. And it suddenly gave me all these things which I suppose for other people are maybe mundane tasks. It gave me a structure or gave me a routine.'*

As described, the necessity to take part in these tasks to support themselves and their animals was helpful to participants. The dependence of pets on participants in this way provided a unique dynamic to these roles which provided a different source of wellbeing than other relationships in their lives (Brooks et al., 2018):

*"I feel that the pets I suppose they depend on me and also I have daily contact with them and they also give me a sense of wellbeing which I don't get from any [one else]"*

Furthermore, the sense of duty to meet the dogs needs provided incentive to engage in a more structured routine which was also described to be similarly beneficial to wellbeing by providing containment (Barcelos, 2021):

*"The dog gives you something to get up for[...]. It's six o'clock, I must feed the dog. Six thirty I must take him out for his walk, you know, seven o'clock, we sit down and watch television together. Eleven o'clock, we go to bed"*



The duty to take care of their animals was also something some individuals described as an enjoyable process in itself, providing, therefore both primary and secondary benefits (Rathish et al., 2022):

*“I like to look after them”*

One participant described why these tasks may feel enjoyable to them by speaking of feelings of presence and mindfulness in these duties (Friesinger et al., 2021):

*“a pet connects you to reality.”*

Having a duty to their pets was also important for individuals who struggled with the sequelae of mental health difficulties including substance abuse as this also provided cause for having something more meaningful to engage with rather than less helpful behaviours or their habits (Kerr-Little et al., 2023):

*“You know, so in terms of mental health, when you just want to sink into a pit and just sort of retreat from the entire world, they force me, the cats force me to sort of still be involved with the world”*

Individuals were able to prioritise the needs of their pets even when they struggled with the symptoms of their mental health difficulties as described above, and also one individual described how financially they would prioritise the needs of their pet above their substance difficulties (Brooks et al., 2018):

*“That was why I sold those pills. I have to go and buy food [for the dog] and I haven't got any money.”*

This means they were not engaging in more harmful behaviours, but it also means that there was further opportunity and need for more helpful behaviours, for example regular physical activity, which they otherwise might not have engaged with (Obradović et al., 2021):

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*"Every day, we get out, and he walks 8 km per day. And I take him out on walks every day—otherwise I wouldn't go outside, I would stay at home."*

By prioritising and meeting the needs of their pets individuals described an increase a sense of pride (Obradović et al., 2021):

*"I feel proud of myself! A lot of people ask me: How do you manage to keep a dog in your house—you have no hands or legs. And I answer: So what? Do you need hands and legs to take care of a dog? No! You manage and find ways to do it. I don't have any problems with my dog. I brush him, I bathe him—you find ways to get organized. There are a lot of things that you figure out along the way."*

There were, however, some drawbacks described, for example some found the responsibilities of these caretaker roles to be constraining which could negatively impact a sense of wellbeing as they felt less independence (Barcelos et al., 2021):

*"I feel constrained sometimes. So, if I wanted to go on holiday, or be out to visit somewhere else, I would feel that I have to come back for the dogs."*

### **3.3.4 Therapeutic impact**

Another theme identified was the therapeutic impact of pet ownership (Barcelos et al., 2020; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Freisinger et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). The therapeutic impact of pet ownership was described in different ways; some described how simply having a pet in the environment is therapeutic in itself (Freisinger et al., 2021):

*"It's the best therapy to have a cat around."*

Others describe how the animal themselves can feel like a therapist, due to the strength of their relationship and the felt sense of feeling seen and understood (Brooks et al., 2018):

*"He is a therapist for me completely. He means so much to me."*

A reason for why this might be was provided by an individual in Kerr-Little et al.'s (2023) study:

*"I felt in a sense that my cat was my familiar in that he understood or was an extension of my thoughts."*

This sense of feeling understood is therapeutic in a similar way to the way individuals also described a the lack of perceived judgement from their animals, where they imagined others might judge them due to feeling they were not meeting societal demands of looking or behaving a certain way (Brooks et al., 2018;):

*"do not care whether you are fat, thin or happy"*

This was also true for individuals with mental health difficulties who felt that they may not meet societal standards of acceptance due to indications of their struggles with their mental health (Hui Gan et al., 2020):

*"They [pets] don't look at the scars on your arms, or they don't question things, and they don't question where you've been"*

Not only were animal's perceived as understanding or non-judgemental in a therapeutic way, but also they were also spoken of as someone that they can confide in and talk to when life feels stressful, like a therapist (Rathish et al., 2022):

*"Even when I have a problem in my mind when I feel stressed, it feels like the problem and stress in my head is lessening while I am petting and talking to them".*

In addition to this, the therapeutic effect of tactile interactions was also stated to be therapeutic (Hui Gan et al., 2020):

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*'Being licked, being cuddled, greeted [by dog] helps with self-esteem and self-acceptance because you can feel that you are loved, like when you feel sad, they pick up that and they try to cheer you up, it helps you accept who you are.'*

Individuals recognised the need to be interacted with in a tactile way for their wellbeing, and the importance of pets being able to provide this for them (Barcelos et al., 2020):

*'tactile part of living that is essential for people'*

In particular people struggling with their mental health described the presence of and interaction with their pet as an effective mood-regulator (Correa et al., 2021):

*"There are days when I get here (at home) very distressed, then when I play with them (the dogs) everything goes away."*

This was described to be particularly true in stressful times (Rathish et al., 2022):

*"It is for mental health. In times of stress, it is good to be with them"*

The importance of the recognition of this by mental healthcare professionals was also described (Kerr-Little et al., 2023):

*"My doctor knows how much he means to me, so he wrote that this dog is a therapy dog for me. He is a therapist for me completely. He means so much to me."*

In a similar way to individuals benefitting from these connections in times of stress, pet relationships were also cited as providing important therapeutic support to those experiencing grief and loss (Hui Gan et al., 2020):

*"When my wife died, she was consoling to me, without talking to each other... The recovery was a lot shorter because of the dog."*

The concept of "*unconditional love*" in individuals' connections with their pets also appeared to be an important component to their therapeutic impact of their connections (Barcelos et al., 2021):

*"It's an old saying that everyone should have a dog, so they give you unconditional acceptance[...] If I've been out like it, he's so happy to see me [greeting]. You know, you can't be all that bad if you're getting that sort of reaction. You know, you get a friendly reaction, rather than being ignored or so. You know, it does make you feel good."*

### **3.3.5 Increased meaning and purpose**

The data indicates that pets provide individuals with an increased sense of meaning and purpose (Barcelos et al., 2020; Brooks et al., 2018; Cleary et al., 2021; Correa et al., 2021; Kerr-Little et al., 2023; Obradović et al., 2021; Hui Gan et al., 2020). In the studies included in the present review, owners reported feeling that a pet provided them with important identities and roles such as parental roles (Hui Gan et al., 2020):

*'like a child of ours' and 'it is a responsibility... to look after them and care for them as you would with a child'*

Essentially, these relationships are described as the only ones in owner's lives where they can occupy these roles and how this has deepened their understanding of connection and love (Cleary et al., 2021):

*'... I haven't got any kids, but it actually taught me a bit more about love ...'*

This also led to a sense of capability which increases their confidence in other areas of their lives, in Barcelos et al.'s (2020) study, an individual reported feeling more independent and capable:

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*'As a pet parent I do feel protective of him and I have that sense that I can go out and take care of him, so I feel independent'*

Owners also described how there was a felt sense of meaning in their identity as someone who loves and cares for animals (Brooks et al., 2018):

*'Well I just love animals, I just really do love animals. I haven't got a partner so I have something around me otherwise I'd go totally bonkers. That's the most important thing to me is my animals.'*

In a connected way, individuals described how caring for something was able to increase their sense of purpose in a way that was positive for their wellbeing (Hui Gan et al., 2020):

*'My whole life, more or less, I have always been looking after people. Family, children, and then my partner. And that was all gone, so I was feeling pretty useless. So, she gave me a sense of purpose.'*

The recognition that their animals needed them to care for them, in a similar way to what has been described where individuals feel a need to care for and protect their animals, was also important for pet owners. They reacted positively to feeling depended on (Brooks et al., 2018):

*'When he comes and sits up beside you on a night, it's different, you know, it's just, like, he needs me as much as I need him, sort of thing.'*

Another aspect of identity which was acknowledged in these accounts was the recognition and embracing of a playful side to themselves, which could have felt lost after childhood, but felt beneficial to revisit and engage with for their wellbeing (Correa et al., 2021):

*'Playing, I feel like a child again, it is a moment of fun, I feel that they call us to a good situation in life, for us to remember good things, for us not to get stuck in work.'*

However, there is, of course, still the need for individuals to feel successful as adults as well, but owners expressed how their relationships with their pets may mirror and even improve these aspects of their lives, such as their performance at work (Correa et al., 2021):

*'I don't know why, but since they (the dogs) arrived, our life has improved, I have my company, it's going well, I think that one thing reflects on the other, if I weren't doing so well with them (the dogs), I wouldn't be doing so well at work and vice-versa.'*

By embracing these more responsible identities individuals struggling with mental health difficulties also described feeling able to tap into an inner strength and feeling of worthiness which helped them manage (Kerr-Little et al., 2023):

*'He helped me stay clean the whole way. After my father died [...] I started using again but [dog's name], he made it that my life was, it was something of worth because I had him.'*

In this way the relationships with their pets gave individuals incentive to address and improve their own emotional states when they were struggling with their mental health in order to meet the needs of their animals (Obradović et al., 2021):

*'When I'm not calm, when I'm under continuous stress, Jack feels it and he becomes bothersome. [...] When I'm like that, he senses it and wants to cuddle, cuddle, cuddle. So when I see that I'm making him unhappy, I say to myself: Calm down, look at what you're doing to him. He was happy before and now he's feeling down because of you.'*

Even to the degree that this purpose and meaning helped protect them against suicidal intent and provided individuals with a meaning to live (Cleary et al., 2021):

*'I don't know if I would have suicided, but I came close. Like, in thinking I don't want to be here. So, just knowing I had to get up in the morning, I had to feed my cats, I*

*had to be there for them; it was just that thing that gave me reason to get up in the morning, basically.'*

### 3.3.6 Comfort

Pets were consistently described as providing a source of comfort to their owners in various ways which they valued and found helpful for their wellbeing. This was spoken of through physical comfort (Brooks et al., 2018; Hui Gan et al., 2020):

*"likes to come up and cuddle and things like that. So, I appreciate that."*

As well as physical comfort, pets provided a comforting and soothing presence to guard individuals from feelings of loneliness which they may have been struggling with, simply knowing they were present was comforting in this way (Brooks et al., 2018)

*'If I didn't have my pets I think I would be on my own... You know what I mean, so it's... it's nice to come home and, you know, listen to the birds singing and that, you know.'*

If people felt solitary in completing activities on their own, the companionship of pets could provide support in these times which felt comforting (Correa et al., 2021):

*'She (the dog) stays with me a lot when I am doing something, sometimes she comes to my bed and the feeling would be like you don't feel lonely, I feel less lonely with her here.'*

In a similar way, watching their animals or participating in activities together served to provide enjoyment (Brooks et al., 2018):

*'She, sort of, does random stuff, like climbs on the bars and... stuff [laugh] and things [which distract me] and it's quite funny watching her what she does because she's not like a normal hamster'*



For those struggling with their own mental health this could also serve as a distraction from their own mental wellbeing. Individuals described feeling a connection to their pet's mental health, in a way that they hoped to be able to help them overcome (Brooks et al., 2018):

*“I love budgies and every budgie I've had I've always managed to get it into a position where it will sit on my shoulder and at the moment I'm just training this one because I'm sure he's got PTSD”*

### **3.3.7 Challenges**

A theme which was identified during analysis was also the challenges associated with pet ownership. In the studies, many challenges were identified including managing unruly behaviours which could lead to self-criticism (Barcelos et al., 20210; Barcelos et al., 2021; Cleary et al., 2021 Correa et al., 2021; Kerr-Little et al., 2023; Rathish et al., 2022; Obradović et al., 2021):

*‘And you feel bad as a teacher, as a trainer, you know[...] I have not trained him well enough. Why is he not coming? Why are you being belligerent when I've asked you to come?’*

*‘On training she is great but on public she won't come back to me when I call her, then suddenly she starts to bark to someone with no reason, and I can't control her, it makes me feel completely useless.’*

These behaviours were described to impact an owner's mood (Correa et al., 2021)

*‘When she (the dog) runs after the cat, barking, she chases him, he runs away from her, that annoys me.’*

Owners also described the associated difficulties experienced in training their pets and the challenges that come with the commitment to this or if an animal is not trained (Rathish et al., 2022):

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*'lots of losses. I do not know if it is due to my lack of experience in petting a dog. She eats our slippers and clothes. You have to spend a lot of time with her. I feel a lot. We need to feed her before we eat'*

This could lead to concern around eliciting fearful and aggressive behaviours from others as a result of fear of their pets (Barcelos, 2021):

*'I occasionally meet a person with a dog and they've got them on a lead. It's usually a small fluffy thing that travels in a handbag. And they can get very worried because my dogs are off the lead, and some of them got quite aggressive and quite verbally abusive. And that's not a positive relation with others.'*

Or a similar concern about this impacting social interactions with individuals who do not like animals (Rathish et al., 2022):

*'transaction with neighbours have also been declined'*

Owners also described the constraints of autonomy felt due to needing to care for their pet (Barcelos et al., 2021; Correa et al., 2021):

*'I feel constrained sometimes. So, if I wanted to go on holiday, or be out to visit somewhere else, I would feel that I have to come back for the dogs.'*

As well as the financial burden of pet ownership (Obradović et al., 2021):

*'a financial burden for her [...] maybe she sacrifices some things to be able to pay for the veterinarian services.'*

Which is described as overlapping with the felt experience of lack of autonomy (Correa et al., 2021):

*'I feel a moral obligation to provide her (the dog's) food, to take her pain away if she is sick, to provide a space at home that is comfortably warm for her, so at that point,*

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*she dominates the 'environment' and she adds demands in life, because I find myself spending money on vet, clothes, buying toys, clothes for her.'*

Cleanliness concerns are also named as an area of concern for pet owners (Rathish et al., 2022):

*'The house is dirty. And, the dust enters in. Fur (of the pet dog) falls a lot. Have to mop the house frequently'*

Real concerns were raised about the potential impact of pet ownership on the health of owners (Rathish et al., 2022):

*'Both daughters have got allergies. The two dogs climb into the bed. A skin allergy. It does not go away even after treatment for a long-time. When channelled (a doctor) we were told to keep the pet dogs away. Also, they (daughters) develop a frequent cold'*

Owners also described how pressures to meet the needs of their pets impacted their emotional wellbeing when they felt they were unable to do so (Barcelos et al., 2021):

*'If I leave the house, it makes me sad because she (the dog) sits at the door waiting for me to return, this feeling of abandonment is related to my absence, it is something that is not healthy for me, because I know she is suffering. [Effect of activity 'leave the dog behind/alone']'*

Owner's emotional wellbeing was also impacted by their pet's poor health (Cleary et al., 2021):

*'I think back on it now and it was bloody awful. It was very, very distressing, especially the dog trying to hang on for dear life...I dreaded losing her ... I literally collapsed'*

Or concerns about their health in the future (Rathish et al., 2022):

*'We love him so much. Therefore, we would feel sad if he falls sick'*

Grief on the passing of their pets and the impact of this on their wellbeing was also another very difficult challenge for pet owners (Barcelos et al., 2021):

*'And then when he passed away, which I suppose you put it into purpose of life. It was one of the most devastating things I've ever had to deal with.'*

For individuals with mental health difficulties having a pet was, at times, reported to impact access to services and support for their difficulties (Kerr-Little et al., 2023):

*'It's been a couple of years now and I've been hoping that I could come off [methadone]. I feel I may have to buy drugs and do it my own way. They don't want me to do that—I should do it according to their rules, you know—but I feel I must do it that way as that's the only choice I have been given because I can't be away from him [the dog].'*

Owners also had concerns about not being able to stay with their beloved pets if they were no longer able to care for them due to needing to live in supported accommodation or nursing homes (Obradović et al., 2021):

*'I would tell myself: You're abandoning him. [...] Say I don't have a choice and I can't take care of him anymore...I'm quite scared to go there [nursing home] and not be able to bring him with me because there aren't any [animals]. At my age, that bothers me a little more, [the] I think about it...'*

Individuals who were homeless struggled to find temporary accommodation which would accept pets and therefore they would have to leave them or remain sleeping rough which also impacted their wellbeing (Cleary et al., 2021):

A study of low mood and anxiety in a clinical population of dog owners using mobile methods

*'... she had to stay in the car overnight ... I know she sleeps all the time, but I know where she'd rather be, and she spent a lot of time in that truck by herself. I don't want to think about that, actually'*

Individual's hopes to provide and care for their pets adequately meant that failing to meet these needs could impact their wellbeing in a negative way.

## 4.0 Discussion

The aim of this systematic review was to systematically summarise people's experiences of pet ownership on mental health and well-being. The findings from the review revealed the existence of seven key themes; 'Social Connectedness', 'Safety and security', 'Routine/ boundaries & personal growth', 'Therapeutic impact', 'Increased meaning and purpose', 'Comfort' and 'Challenges' (Barcelos et al., 2020; Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Cleary et al., 2021; Freisinger et al.; Kerr-Little et al., 2023; Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020).

Individuals with and without mental health difficulties presented overwhelmingly positive accounts of the benefits to their mental and emotional wellbeing as a result of pet ownership in the themes; 'A sense of Social Connectedness', 'Safety and security', 'Routine/ boundaries & personal growth', 'Therapeutic impact', 'Increased meaning and Purpose' and 'Comfort' (Barcelos et al., 2020; Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Cleary et al., 2021; Freisinger et al.; Kerr-Little et al., 2023; Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020).

A sense of social connectedness was consistently reported in both groups of individuals who did and did not struggle with mental health difficulties (Barcelos et al., 2020; Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Hui Gan et al., 2020).

In particular this was portrayed as an important catalyst for improved social connectedness

for those who had experienced isolation due to their mental health and was widely reported to support individuals to engage with society and build a network which we know to be helpful for individuals who struggle with their mental health (Wickramaratne et al., 2022). It was also reported to be stressful for those who did not wish to interact with others, which may be considered in individual's care plans, for example, clinicians could consider some visual tool to indicate to others whether they do or do not wish to be interacted with when they have their pet (Barcelos et al., 2020). Increasing understanding and awareness of these animals as support animals may also improve the quality of social interactions for those with pets who struggle with their mental health, this is particularly important when we consider that most recent, relevant longitudinal studies have shown that social connectedness protects adults in the general population from low mood and depressive symptoms (Wickramaratne et al., 2022). This also aligns with research in the area of public health that suggests social connectedness protects and promotes mental and physical health and decreases all causes of mortality (Wickramaratne et al., 2022).

Pet ownership also appeared to add to a sense of experienced safety and security which contributed to improved mental wellbeing (Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). This is consistent with what we know about how our environments and experienced states of threat can impact our wellbeing (Rutter et al., 2005) and also that our basic needs of safety and security need to be met in order for us to be able to achieve better emotional wellbeing according to Maslow's hierarchy of needs (Maslow, 1987). A sense of provided comfort was also an important commonality in the accounts which was able to soothe and distract from low mood or distress and guard from feelings of loneliness which could impact their mental health (Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020).

The routine and boundaries involved with pet ownership were reported to provide opportunity personal growth and experience of pride which was associated with the feeling of improved emotional wellbeing (Barcelos et al.,2021; Brooks et al., 2018; Friesinger et al., 2021; Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). Individual's reported benefitting from structure and caring for an animal; which, in turn, caused them also to take better care of themselves and their environment or feel more confident in doing so (Barcelos et al., 2021). Taking better care of themselves and their animals involved taking part in physical activity which otherwise wouldn't have been engaged with and which we understand is good for managing mental health difficulties (Obradović et al., 2021) this is in line with findings that physical activities affects mental health positively and can be used to combat challenges associated with mental health difficulties, potentially via the mechanism of improved functioning of the hypothalamus-pituitary-adrenal axis (Mahindru et al., 2023). These behaviours were described as mindful activities that could serve to distract people from the symptoms of their mental health difficulties and also as more meaningful alternatives to engaging in less helpful behaviours for self-medicating mood difficulties (Brooks et al., 2018; Kerr-Little et al., 2023). This may be supported by previous research which has indicated that distraction may be an adaptive strategy for emotion regulation for those who experience mental health difficulties so long as it has positive associations for the individual (Wolgast & Ludh, 2017). However, some found the responsibilities of these caretaker roles to be constraining and difficult to manage, which should also be considered when contemplating how individuals with mental health difficulties may manage this (Barcelos et al., 2021).

The therapeutic effect of animal ownership was also highly reported by pet owners as a mechanism to support emotional wellbeing (Barcelos et al., 2020; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Friesinger et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). The mere presence of pets was felt to be therapeutic for some individuals which

could act as an effective mood regulator, particularly for those who struggled with mental health difficulties (Freisinger et al., 2021; Correa et al., 2021; Rathish et al., 2022). Some of the reasons for this were related to the atmosphere they created which was perceived as soothing, but also the tactile elements of their relationship were also reported to feel therapeutic (Barcelos et al., 2020; Hui Gan et al., 2020). The animal was described by some as a therapist in themselves, someone to speak to who provided lack of judgement, as a therapist might, and provide the individual with the feeling of being unconditionally loved in a way they may not feel in their lives otherwise (Kerr-Little et al., 2023). This was even true at the darkest of times when people were experiencing severe low mood, self-criticism, low self-esteem or grief (Hui Gan et al., 2020). Attachment theory states that the feeling of having experienced love and healthy attachment is an extremely important mediator in emotional wellbeing and ability to experience and sustain healthy, fulfilling connections (Bowlby, 1979):. Research has linked insecure attachment styles to higher risk of mental health difficulties and suicidality (Palitsky et al., 2013); these relationships may be a way for individuals who have suffered from attachment difficulties or trauma to achieve this sense of love in a way that is accessible for them when they may struggle to find this with others in their lives. Furthermore, it was described how this experience of love may then allow a pet owner to accept and transfer this love to other relationships, or feel more open to these connections and allow for deeper attachments in their lives which could improve emotional wellbeing (Barcelos et al., 2021). This could be an area of future study with potential clinical implications for attachment therapies.

Participants reported feelings of increased meaning and purpose through experiencing different, more 'capable' sides to their identities as a parental figure which can, again provide opportunity for feelings of achievement but also love and connection not experienced elsewhere (Barcelos et al., 2020; Brooks et al., 2018; Cleary et al., 2021; Correa et al., 2021;



Kerr-Little et al., 2023; Obradović et al., 2021; Hui Gan et al., 2020). This felt sense of parental attachment may also relate to attachment theory (Bowlby, 1976), but may relate to ideas from therapeutic understandings from Internal Family Systems therapy where improved mental health can be experienced by accessing more executive, nurturing and, arguably, therefore ‘parental’ in some ways, side to one’s own self (Schwartz & Sweezy, 2019). This increased sense of capability and ‘worthiness’ was reported to improve their confidence in other areas of their lives (Correa et al., 2021). We may understand this in terms of societal pressures to conform to the idea that arguably social ‘worthiness’ may be determined largely by productivity (Foster, 2016). This, however, may have important implications for helping individuals with mental health difficulties engage in other activities which may be beneficial for their mental wellbeing. Those able to engage in employment expressed how these relationships were felt to mirror and even improve their performance in this and other areas of their life (Correa et al., 2021). Owners communicated a sense of purpose and identity was found through pet ownership that felt lost or diminished due to their mental health difficulties (Hui Gan et al., 2020). Pets provided owners with incentive they otherwise may not have had to address their own difficult emotions so as to meet the needs of their animal or to avoid upsetting them (Obradović et al., 2021). They also allowed people to experience joyfulness and play which they may not have in other areas of their life and can help manage symptoms of mental health (White et al., 2017). This sense was able to act as a protective factor for experiences of suicidal ideation and intent, which could have significant implications for clinical care (Cleary et al., 2021).

It appears that individuals with mental health difficulties do experience benefits to their mental health as a result of these relationships and factors in the same way those without mental health difficulties do (Barcelos et al., 2020; Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Cleary et al., 2021; Freisinger et al.; Kerr-Little et al., 2023; Obradović

et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). Although some challenges were also described within each of these themes, overpoweringly these captured how beneficial these relationships are for mental wellbeing and those who struggle with mental health difficulties (Barcelos et al., 20210; Barcelos et al., 2021; Cleary et al., 2021 Correa et al., 2021; Kerr-Little et al., 2023; Rathish et al., 2022; Obradović et al., 2021). On further analysis of the challenges identified in the review, the complexities of even these are further revealed. Challenges related to being unable to access accommodation or mental health facilities due to having animals was often reported in these accounts, which may provide rationale for consideration of how individuals with pets and mental health difficulties can be better supported by services, and even have their pets included in their care or as a part of their care plan (Cleary et al., 2021; Kerr-Little et al., 2023; Obradović et al., 2021). Despite the identified benefits from these relationships, these relationships were not always considered into healthcare plans (Cleary et al., 2021; Kerr-Little et al., 2023; Obradović et al., 2021). The reactions of services to these individuals may add to their stress or the perceived burden of pet ownership when, if properly considered, further benefits may be yielded from including pets in care plans.

#### **4.1 Strengths and limitations**

The search strategy for this review benefits from its rigorous, systematic approach to analysis which benefitted from the input of separate two reviewers to reduce bias. Third order themes were identified by grouping second order themes and first order quotations each in turn from the studies which was extremely comprehensive and allowed for the voice of individuals within these studies to shine through which was in the interest of the authors and in line with their epistemological position. In the authors opinion the decision not to numerically assign ratings of quality, but instead to describe more specifically the quality and the potential areas of bias was not only in line with suggestions by CASP (2018), but also, similarly aligns with

the author's wishes to move away from the historically empirical, positivist and westernised approach to analysing this topic (Fraser, 2009). This further allies with the authors' epistemological approach to this review. Most of the studies included in this review were conducted in affluent, western countries, which, of course, limits our understanding about differences in experience and understanding of these phenomena.

## **4.2 Conclusions and Rationale for Current Study**

We can make various conclusions from this review; firstly, that there is a limited number of studies (n=10) which have sought to investigate the relationship between mental health difficulties and dog ownership, and even fewer which have done so using in depth, qualitative analysis to capture the complexities of these relationships to a high quality and to generalisable standards. The outcomes were in line with the outcomes from Brooks et al.'s (2018) systematic review which indicated that this is an area of research which is early in its development and exploratory in nature. Very few studies have focused on a clinical population, when, as described previously, this population may benefit most from information from these studies (for example this information could be utilised by mental health professionals and may have clinical implications for care). In particular there are gaps in the research exploring these relationships in the context of specific mental health difficulties such as depression and anxiety. These topics have also not been studied in young people which is an area for potential future research, but very few have also been conducted in adults with mental health difficulties who are able to own a pet themselves. Very few studies investigated the relationship between individuals and dogs specifically, although these relationships were most represented in these studies as extremely beneficial and meaningful relationships to individuals who struggled with their mental health. Each theme, excluding the theme which spoke specifically to 'challenges', highlighted and explored beneficial and positive components to dog ownership, however, the many challenges also highlighted as a

theme in these studies demonstrates the complexity of these relationships and reminds us of the need for research which allows for exploration of both the positive and more challenging aspects of these relationships so we can understand more about what might be helpful or challenging about these dynamics in clinical and real world applications. Professionals attitudes toward including pets in individual's care is similarly an area for future research focus and changes may be considered in formal healthcare provision in order to make meaningful use of the resources already available to people in their environments. Other reported concerns could similarly be considered for those with mental health difficulties and pets such as financial aid to help support them in meeting their pets needs or the recognition of their animals as mental health support pets and ability to access benefits for this. Considerations should be made, however, to the impact of grief on those who lose their pets which could have long-term impacts on emotional wellbeing, particularly for those with diagnosable mental health conditions due to the powerful and helpful relationships described which may need to be considered in care planning. There is evidently further need for research which explores of these more in depth accounts.

Although this study highlighted the lack of thorough research into this topic, in the review conducted there are meaningful and moving accounts of how pet ownership related to an improved sense of mental wellbeing for individuals with and without mental health difficulties. For individuals with mental health difficulties further research in this area could have even better impacts in terms of care and outcomes and so it is important that this is focused on as an area for further in depth study. Individuals accounts of their experiences of pet ownership and mental health difficulties can provide essential insight into how we might better make use of these resources to support them, and consequently this should be a focus for future research. This may also have implications for policy and clinical services.

### **4.2.1 Aims for current research**

The aim of this empirical research study is to understand the relationship between dog ownership and mental wellbeing in a population of individuals with clinical anxiety and/low mood.

### **4.2.2 Research Question**

To explore dog owner's with low mood and/or anxiety experiences of dog ownership?

## **5.0 Methodology**

### **5.1 Design**

A Qualitative approach was used in the current study, where semi-structured walk-along interviews were transcribed verbatim and analysed using reflexive TA (Braun & Clarke, 2018; 2019).

### **5.2 Mobile Methods**

'Mobile methods' has recently been investigated as a way of capturing and analysing data (Cameron et al., 2014; Campbell et al., 2016). Mobile methods involves 'go along' interviews which collect data 'on the move' to observe interactions participants have with their environment as part of the study (Cameron et al; Kusenbach, 2003). This is a response to an intellectual movement called the 'mobilities paradigm' which aims to appreciate how movement (or lack thereof) is part of our everyday experiences (Cameron et al., 2014). Mobile methods has been used to study physical activity in order to give greater understanding into this subject. However, there are other benefits to this approach, such as the way it has reportedly facilitated equity of power between an interview and interviewee due to its more informal nature which may result in more comfortable 'free flowing' conversation (Cameron et al., 2014). In the present study, the researchers have focused on the

complex nature of the topic of 'dog ownership' rather than specifically 'dog walking'. In order to add richness to data collection, the researchers collected data using techniques from the Mobile methods, in a similar way to Cameron et al (2014).

The present interview comprised of individual semi-structured interviews whilst participants were on their daily dog walk using a technique from the Mobile Methods paradigm. Five interviews took place in person, however, in order to reach participants further away two interviews were conducted via telephone. These interviews took place in private residences, parks and public areas. Individuals were asked to stick to their usual dog walking routine to facilitate participant comfort with the location and to increase accessibility of dog walking as an adjunct intervention in order to learn more about participants usual experiences.

Interviews lasted between 27 -32 minutes (Mean= 28 minutes). Interviews were securely audio-recorded, the data was stored on a cloud based storage system that only the researcher and supervisor had access to and interviews were transcribed anonymously.

### **5.3 Interview schedule**

The semi-structured interview schedule was developed by the researcher (See Appendix VI) using information from previous findings in order to generate a list of questions and prompts with open ended questions. These questions were reviewed and amended by the supervisory research team collaboratively in order to ensure the questions aligned with the aims of the research. These questions were also reviewed by an expert by experience in the format of a pilot interview. Reflections from the expert by experience were fed back to the researcher, specifically the expert by experience suggested that the format of the questions should be amended and adopted in subsequent interviews (see reflective journal entry Appendix V).

The interview schedule (See Appendix VI) aimed to address individuals experiences of dog ownership, their experiences of mental health difficulties and their understanding and experiences of the two concepts together.

## 5.4 Interview procedure

Before recording commenced, the researcher introduced themselves and outlined the practicalities of the interview procedure, specifying that the researcher would be accompanying them on their daily dog walk and that their conversation would be recorded using an audio voice recorder which would be stored securely. The researcher took time to build rapport with participants before the interviews. They did this by engaging in conversation and using interpersonal and relationship building skills developed during their experience training in Clinical Psychology to try to put the client at ease or recognise and address any anxieties they might have about engaging in the study. This was deemed to be important by the researchers as they recognised the sensitivity of the topics discussed in the present study which they felt should be met with recognition and support by the researchers. They reminded participants that they could pause or stop at any time for any reason, namely, as the expert by experience had suggested, that they were able to pause if other dog walkers were close by and resume once they had passed. Verbal consent was then asked to commence recording. The mobile methods and reflexive TA approach permits for natural flowing conversational interview style in order to reduce the perceived hierarchy in the dynamic and allow further rapport to be enabled. This resulted in slight differences in the order and phrasing of questions in each interview. The interviewer had a copy of the questions on their phone which they referred to throughout the interview, the participant was informed that they would be referring to their phone in this way as they walked in order to ensure they covered the interview questions. The interviewer ended by checking they had not missed any questions or prompts that felt important and checked if there was anything else the participant would like to bring to the discussion before the recording was stopped. The researcher and participant then took time, if desired by the participant, to debrief on their conversation and comment on their experience. Debrief sheets were shared with all participants after their

study and participants were signposted to contacts for further support in case they required these.

## **5.6 Reflexive Thematic Analysis (TA) Rationale**

Reflexive TA (Braun & Clarke, 2006; 2013; 2019) was employed as method of analysis in the present study. According to Braun and Clark (2006; 2013; 2019) this includes six steps, although these are not to be viewed as a linear process, rather a recursive and iterative one: Step 1: Familiarisation with the data (thorough overview of data collected), Step 2: Generating initial codes (highlighting sections of text which the researcher deems meaningful to the question of the study), Step 3: Generating themes (identify patterns in meaning between codes and combine them into a broader theme), Step 4: Reviewing potential themes (review between researchers, deep weather themes are meaningful representations of the data), 5: defining and naming themes (formulating a name for each theme depending on how the researchers have understood the data in relation to the research question), Step 6: Write up (writing up the analysis, process and outcomes) (Braun & Clarke, 2006). I have chosen reflexive thematic analysis in order to provide descriptive analysis of the data which is as close to participants accounts as possible to keep participants voices present as much as possible in these accounts. Thematic analysis has been appropriately used by peer reviewed, similar studies (Cameron et al., 2014; Campbell et al., 2016), however the reflexive approach aligns with my own epistemological position which I will describe further below.

## **5.7 Participants**

Individuals with dogs who have lived experience of low mood and/or anxiety were recruited via poster which was shared on social media to over 1500 social media users on Instagram and Twitter between February and March 2024. These platforms were chosen due to access of the researcher and as it was believed they would reach a range of individuals in the target population in the shortest amount of time due to the time limitations of recruitment due to the



deadline of the project and delays in ethics applications. Having said this, there were disadvantages of solely advertising the study on social media as it may have resulted in some groups being less likely to be aware of the study such as individuals who did not have access to laptops or phones for example older adults. A poster summarising the study's aims and approach which included contact details of the researcher (via email address) was shared with potential participants and experts by experience. Participants and potential experts by experience then had the opportunity to contact the researcher via contact details on the poster. A dog welfare organisation was contacted in order to help with recruitment however there was no response. Participants needed to be able to converse in English to engage in the interview, allowing for reasonable adjustments where necessary. One expert by experience was recruited in this way meaning that they had personal experience of owning a dog and anxiety and/or depression and were therefore considered to have expertise in this area.

#### **Table 4: Participant Inclusion Criteria**

Adult (over 18)
English Speaking
Currently owns a pet dog
Has lived experience of Anxiety and/or low mood (depression)

#### **Table 5: Participant Demographics**

32 Female White British Anxiety & Low mood
34 Male White British Anxiety & Low mood
40 Female Argentinian Italian Low Mood
39 Female White British Low mood
30 Female White British Anxiety and Low mood
27 Male White British Anxiety and Low mood
65 Male White British Anxiety

The majority of individuals who expressed interest were white and British between the ages of 20-65 years of age.

Thirteen individuals responded to the poster expressing interest in the present study, of these all individuals were responded to and sent participant information sheets and asked to arrange a time to meet for a walk along interview. Of these, two participants were excluded due to not having lived experience of mental health difficulties (they had misunderstood and believed we had wanted to discuss individuals with anxious dogs- a possible area for future research!), two did not currently own a dog and two no longer wished to take part in the study due to other reasons or commitments. Those who had originally expressed interest but did not respond to emails to follow up on this received an email to thank them for their interest in the study and were asked again if they wished to participate toward the end of the recruitment process, however no further responses were received.

Previous research recommendations suggest a minimum sample size of 12 in order to reach data saturation (Aguboshim et al., 2021), although the idea of data saturation in qualitative data sets has controversies and does not necessarily apply to qualitative samples (Levitt et al., 2018). There may be rationale for smaller sample sizes where research requires a more specific participant inclusion criteria in order to focus on a niche group as the researchers considered of the present study where the inclusion criteria was specific to individuals who had experiences of anxiety and/or low mood and who owned a dog (Malterud et al., 2016). This study had a very specific and narrow focus and had estimated that a maximum of 12 participants would be required for the study, however, it is difficult to estimate the total population of individuals in the United Kingdom who currently own a dog and have lived experience of anxiety and/or low mood and consequently we can compare the final sample size of seven with similar peer reviewed studies such as that conducted by Leonhardt-Parr,

2024). Sampling stopped after the seventh interview, due to the non-emergence of new themes/codes (Saunders, 2018).

## **5.8 Epistemology and Positionality**

As previously reported, this study was performed from a constructionist epistemology. In order to understand the language and experiences of individuals I have endeavoured to view language as embedded in the bidirectional social production and reproduction of meaning and experience (Braun & Clark, 2012). Therefore, when it comes to analysis, meaningfulness has been highly influential in the development and interpretation of codes and themes; the criteria for noteworthiness of a theme has traditionally been the repeated presence of this within the data, however, as Braun and Clarke (2012) suggest, a critical perspective further examines patterns within the data using a theoretical understanding that language can create, as well as reflect, social reality. My own critical perspective has allowed me to consider what has informed these meanings and offer my own interpretations of meanings, which may or may not differ to those held by the participants, however codes are identified through explicit or surface meanings from the data and the researcher has endeavoured not to examine beyond the participant's accounts. I have also sought to consider how wider social contexts may have informed these systems of meaning, both for my own interpretations and those of the participants in order to reflect my own experience of social reality as well as examining the construction of social reality (Braun & Clark, 2012). As previously discussed, this approach was used in order to consider my own social construction of these accounts, and to keep in mind that the participants will also hold their own meanings which I aimed to capture as accurately as possible. In order to achieve this I kept my own reflexive journals and liaised with experts by experience in order to pilot the study and also discuss codes and themes of the present study to capture their own reflections on these and use this to deepen understanding of individual's experiences on this topic and during this research.

## **5.9 Ethical Considerations**

This study has approved by the University of Hertfordshire's Health, Science, Engineering and Technology Ethics Committee with Delegated Authority, Protocol number:

LMS/PGR/UH/05454 (see Appendix I) The present research required several considerations to suitably meet ethical standards which have been included in the Participant Information Sheet in line with the British Psychological Society's Ethical Guidelines (Speer & Stokoe, 2014). Participants were provided with information sheets before participating and provided verbal as well as written consent. This information included aims of research and details of participation and are available in Appendix II. Confidentiality was discussed with participants as well as right to withdraw at any point for any reason. Participants were provided with a debrief sheet and provided with service information (directed to contact either their GP or Samaritans and provided with contact details) if they felt distressed at all during or after participation. Anonymity was discussed with participants including the secure storage of data and alteration of any personal information. Participants were reminded at the beginning of the interview that if any psychological distress was experienced during the interview due to the nature of the topic that they were able to pause or stop participation at any point. The researcher was able to use her skills and experience to provide a sensitive and compassionate approach to interviewing, whilst ensuring participants were also aware that participation would not include any therapeutic interventions.

## **5.10 Expert by Experience Consultation**

Experts by experience were recruited via advertisement poster and word of mouth. Once the research had been explained to the individuals one individual expressed interest and provided informed consent. The researcher met with the expert by experience to offer further information about the study and discuss how they wished to participate in consultation. One individual was deemed sufficient as we did not wish to exhaust a limited participant group

due to the specificity and complexity of the individual characteristics required to answer the research question, . This consultant participated in each stage of research including the methodology (participating in a pilot interview and feeding back ways to improve interview, reviewing interview questions, information sheets, consent form and recruitment poster), Analysis (reviewing codes and themes), discussion (reviewing future directions or service and policy recommendations) and dissemination (discussing ideas around potential dissemination other than peer review publication) for further details see Table 5. The consultant was met with a total of three times, one for the pilot interview which lasted approximately half an hour and twice more for approximately half hour meetings to discuss analysis, discussion and dissemination.

**Table 5: Expert by experience consultation**

Methodology	<p>Approving interview schedule, information sheets, consent form and recruitment poster</p> <p>Suggesting that the interviewer tell the participants at the beginning of the interview that if other dog walkers come by they are free to pause the interview and resume once they have passed</p>
Analysis	<p>Reviewing themes; suggesting ‘comforting behaviours’ as the name of a sub theme, discussion around the personal significance of mindfulness, discussions around having ‘challenges’ be included as sub-themes within other themes and not a theme in itself in order to better capture the nuance of each theme and capture the complexity of the human responses within these areas</p> <p>Approving other themes and sub-themes</p>
Discussion	<p>Reviewing future directions and service/policy recommendations</p>

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Dissemination	Discussing ideas around dissemination including use of social media to share results
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## 5.11 Data Analysis

### 5.11.1 Reflexive Thematic Analysis

Reflexive TA was used, in line with Braun and Clarke's six phase model (2006, 2013, 2019). In phase one Data familiarisation occurred, where the researcher listened to and transcribed audio recordings in order to become better acquainted with and fully immersed in the data. In the second phase, the researcher highlighted, or coded, phrases which felt relevant to the research question from each of the transcripts. These codes were shared and discussed with an expert by experience in order to reduce bias. Codes were shared with the supervisory team to further reduce risk of bias and discussion took place to allow for reflexivity of the researchers and facilitate further engagement with the data. In the third phase, once all of the individual data items within the data set had been identified, the researcher generated themes by focusing on aggregated meaning across the dataset. This involved both collapsing multiple codes with a similar underlying feature into a single code or identifying overarching narratives within the data which was then identified as a sub theme or theme (Braun & Clarke, 2012). Importantly, the researcher recognises their own role in creating these themes which they believed was inevitably based on their own experiences and social constructions, rather than simply identifying themes already present within the dataset. The meaningfulness of the data within the patterns and codes in order to answer the question was prioritised over the number of codes within a theme (Braun & Clarke, 2013). A table/thematic map was used to collate codes and data items into respective themes (Braun & Clarke, 2012). In phase four, the researchers reviewed the themes asking questions such as 'does this theme tell me something useful about the data set and my research question?' and 'are the data too diverse

and wide ranging?’ (Braun & Clarke, 2012). This review was conducted by the researcher and the supervision team together. Then, these were reviewed by an expert by experience. The review was conducted at two levels as recommended by Braun and Clarke (2012), initially considering how the relationships between the data items and codes informed each theme or sub-theme, then reviewing the themes in relation to the data set and research question, this was a recursive process. Phase five included defining and naming themes, expressing them in relation to the data set and the research question. Internal and external homogeneity of themes was considered (Patton, 1990). The researcher, supervisory team and expert by experience defined, considered and redefined themes in attempt to meaningfully reflect the data. Phase six involved producing the report. Illustrative descriptions were provided in order for the analysis to reflect participants voices as closely as possible as well as some analytic descriptions which have focused on what the researcher had found to be important within the data as perceived to be related to the research question. The researcher aimed to connect themes in a logical, meaningful manner (Byrne, 2022).

### **5.11.2 Quality, Validity and Self Reflexivity**

The quality and validity of the present study was considered using the CASP appraisal tool (2018; See further details in Table 7 of the Discussion section). Codes and themes were shared with expert by experience and supervisors team in order to address researcher subjectivity and codes and themes were described illustratively in order to remain close to the original narratives of participants. The reflexive TA approach, including keeping a reflexive journal enabled the researcher to consider their own biases, and acknowledges the researcher’s own role in constructing interpretations and that there will inevitably be some discrepancies between the researcher and participant’s interpretations of the data (Varpio, 2017). This aligns with the epistemological approach of the researcher in that it is their belief that the knowledge constructed through these interpretations will be a result of influential

societal factors and will consequently differ from individual to individual based on their own unique lived experiences. Any tool to assess for quality or validity which was not deemed to align with the epistemological approach of the researchers was not utilised. My own experiences of dog ownership as well as low mood and anxiety may have meant I had both a potentially biased opinion on this topic but also may have given me further aligning insight into the stories shared by the individuals within the study. I considered these, as well as whether to self-disclose my own lived experiences within my conversations with my supervisory team and also in my own reflexive journal; I decided that it was essential in order to align with my epistemological approach of considering what has constructed my own ideas around this topic. The choice of reflexive TA was intentional in that I was able to engage in deep critical reflexivity throughout the study, enabling me to consider factors such as what my own expectations were of the study and also my relationship with the participants in the study and how this may have influenced what was shared. This was also a rationale for using the mobile methods approach, in order to enable the participant to feel more at ease in their own environment and using a more informal, less clinical approach. These were conscious decisions made to reduce potential power differences which may have occurred between researcher and participant.

## **6.0 Results**

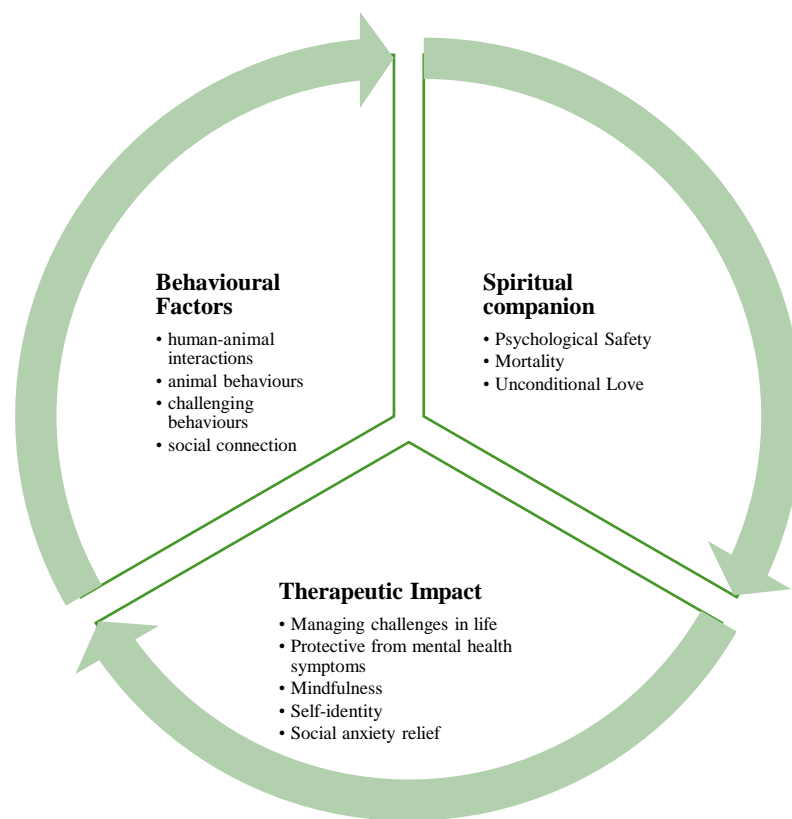
### **6.1 Overview**

Three higher-order themes were identified through analysis: (1) Behavioural factors, (2) Spiritual companion and (3) Therapeutic impact. Examples of coding according to A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research can be found in Appendix VII (Naeem et al., 2023). Higher order themes reflect the broad, overarching patterns of meaning assigned by the researchers to either individual or



groups of lower order themes which represent more specific information within the coded data (Braun & Clarke, 2006). As previously described, these themes are the author's own constructions from the information provided by individuals in their accounts with the understanding that these were influenced by the social context of the participants and the researchers. It is the author's beliefs that the language of these themes is based on the implicit in the social production and reproduction of both meaning and experience (Naeem, 2023). These themes have been created with the intent of capturing intended meaning that participants attributed to their own lived experiences of dog ownership and low mood and/or anxiety, meaningfulness has been highly influential in the development of codes and themes, the criteria for a theme to have been considered noteworthy via repeated presentation in the data alone was not prioritised in itself or considered sufficient for inclusion without also being perceived to have held particular meaning in line with Braun and Clarke's recommendations (2012).

The higher-order (master themes) and lower order themes (sub themes) have been presented in the form of a diagram in order to capture their complex nature and represent both their individual and interconnected nature which forms part of a whole picture of individual's experiences. The cyclical form of this diagram was selected to reflect how these themes feed into one another in an ever continuing process and may be seen as a dog's ball to capture the described significance of the playful nature of these relationships.

**Figure 1: Diagram of higher order themes (master) and lower order themes (subthemes)**

## 6.2 Themes

### 6.2.1 Theme 1: Behavioural factors

The theme '*Behavioural factors*' includes the subthemes: '*human-animal interactions*', '*animal behaviours*', '*challenging behaviours*', and '*social connection*'. This refers to behavioural factors which were described by participants to be part of, or influence, their experiences of low mood and/or anxiety.

#### 6.2.1.1 Human-animal interactions

Individuals described how having a dog led to the necessity to engage in '*human-animal interactions*', one of the most discussed of these was simply having the necessity to leave house and how this impacted their wellbeing:

*'He changed my life because like I said he just physically got me out the house'*

Participants described how challenging it could feel to leave the house when struggling with their emotional wellbeing and the significance of having an external motivator to encourage them out:

*'it kind of drags you out the house on those days where you think, oh, I can't be arsed to leave my bed but you do for them and then it makes you feel better'*

As it felt challenging to leave the house, owners may not have otherwise engaged in activities which would be important for their wellbeing such as exercise, this was reported by one individual who noted:

*'I definitely enjoy going on walks and that for me is a source of exercise'*

Individuals reported relying on these walks, sometimes multiple times per day in order to help them with their mental health and provide time for themselves to focus on their wellbeing:

*'I do still rely on walks two to three times a day and that's my therapy I guess, at the moment'*

Many participants described their daily walks as the only form of exercise that they participated, or at least their main and most regular form:

*'I walk so much more than I would if I didn't have a dog'*

Some owners described how this had overtaken other forms of exercise, due to the necessity of this happening so regularly:

*'It's mainly walking with him now'*

Tactile interactions with their dogs were described as being extremely meaningful to individuals, they described the importance of physical touch and comfort when they were struggling with their symptoms:

*'The physical side of having like actually a dog like to cuddle when you're feeling a bit low'*

### **6.2.1.2 Animal Behaviours**

Participants also spoke about their experiences of being soothed by their dog's behaviours. They described how they perceived their dogs understood when they were struggling with their wellbeing or that they recognised their dogs mirrored their moods and behave accordingly which owners found soothing:

*'They do seem to sort of exhibit certain behaviours when you are sad or upset that sort of tend to almost, not mirror your image, but you know, they'll be quiet, they'll be calm'*

Participants also spoke about their responses to the *animal's behaviours* exhibited and how they found pleasure in observing them. The process of watching their dogs participate in activities was described to be diverting as well as a source of distraction and pleasure.

Owners described how they found their pet's actions enjoyable or cute:

*'I find him extremely adorable'*

### **6.2.1.3 Challenging behaviours**

Challenging behaviours were also recognised in the present study, when their dogs engaged in naughty or challenging behaviours this was described to create a sense of stress or worry:

*'Sometimes he can be reactive, so there is that worry'*

People found the challenge of training puppies and dogs to be 'tough work';

*'they're pretty tough work as puppies, she was a nightmare, so much so we almost thought about sort of giving her back'*

this was described to be taxing in terms of both time and even financial commitment if they required behavioural training:

*'he had dog behavioural training because he was a rescue when he was a puppy but that had to stop because that was being co-funded by my ex husband so I couldn't afford it'*

#### **6.2.1.4 Social Connection**

Social connection was also discussed in the present study. Having a dog was also described to provide the opportunity to meet others:

*'there's a group that I used to walk with quite regularly when he was quite young and they kind of naturally dispersed and a few of them moved out but I have kept in touch with a few of them... that is quite nice, I do kind of make time to go and see them and then there's the familiarity aspect. He remembers them, they remember him. So yes, it's very sociable, amazing'*

This social connection was spoken of as helpful for mood enhancement:

*'social connection as well was helpful for mood'*

### **6.2.2 Theme 2: Spiritual companion**

The theme '*Spiritual companion*' captures the subthemes '*Psychological Safety*', '*Mortality*' and '*Unconditional love*'. This theme describes the felt sense of spiritual companionship that was described by dog owners in relation to their pet dogs which was described in relation to their experiences of low mood and/or anxiety.

#### **6.2.2.1 Psychological Safety**

Individuals described a felt sense of Psychological Safety when their pet was present which could combat feelings of isolation or vulnerability:

A study of low mood and anxiety in a clinical population of dog owners using mobile methods

*'I do remember when my husband would go abroad which he does a lot with his job  
I'd feel much more vulnerable without her there so I do think that is a benefit'*

Owners described how feelings of vulnerability could exacerbate feelings of anxiety which could be combatted by having their pets with them and therefore could improve their sense of wellbeing:

*'The anxiety side of things I guess in terms of being home alone, which is one of the main reasons I got him to enable myself to feel safer'*

Dogs were spoken of as if they could act as an alert to real or imagined danger and this provided their owners with a sense of ease as if they were protected and had one less thing to worry about in this respect. One owner even described how, having difficulties with hearing, his dog could act as an alert system for him:

*'I am very attuned to his sort of body language and his recognition of sounds and you know, just a simple look, look across, look up'*

The experience of feeling safer in the world was described to be beneficial to their sense of wellbeing.

There was also a sense of loyalty and protectiveness towards themselves and their family in these accounts, particularly when someone may be perceived to be more in need of protection, which was described to be comforting:

*'My wife is pregnant again and he's very attached to her at the moment and falls asleep on her belly and really snuggles up to her more than me 'cause he's got that sort of recognition'*

#### **6.2.2.2 Mortality**

Participants also described the fear of losing the dog which they felt would lead to high levels of sadness and grief:

*'I also do think that if you are an emotional human then the emotional tie to the dog is quite powerful and therefore it can set you up to a lot of heartache'*

This individual has described that she identified herself as a 'emotional' person, perhaps in relation to her mental health difficulties, which she believed set herself up to feel both more attached to her pet, perhaps than others who did not struggle with mental health difficulties, but also potentially more psychological pain on their passing.

### **6.2.2.3 Unconditional Love**

Another subtheme was the felt sense of Unconditional Love experienced by dog owners in the study. This was described over and over, with great sense of meaning to participants:

*'I just fell in love, this sort of unconditional love which I never thought existed, like I could be a really horrible person but you are still gonna be nice to me'*

This love appeared to provide participants who had experienced low mood and/or anxiety with a sense of love when they were struggling and perceived others were also not able to provide fully in the same way:

*'when you don't have the support of your other half, I'd have his support'*

In addition to unconditional love, the feeling of unconditional acceptance was also described to be important for owner's sense of self-acceptance and therefore wellbeing:

*'there is an element where he's like unconditional acceptance, well I think that is very good in some ways because you have someone who loves you unconditionally'*

This was independent of different life experiences:

*'you can always imagine that they are on your side, no matter what the case'*

The unconditional nature of these connections was also reflected in the accounts of a felt lack of pressure to perform socially with their dog was also described to feel helpful:

*'Getting back home and just having that thing or person really that is not gonna ask you questions, not gonna tell you to put your shoes up or do this or do that, just sit there and be with you. That was the therapy that'*

The unconditional bond was described to be a containing experience which dog owners valued highly and created a positive emotional response.

### **6.2.3 Theme 3: Therapeutic Impact**

Participants described the *'Therapeutic Impact'* of dog ownership which is captured in the third and final theme. The subthemes of this are: *'Managing challenges in life'*, *'Protective from mental health symptoms'*, *'Mindfulness'*, *'Social anxiety relief'* and *'Self-identity'*

#### **6.2.3.1 Managing challenges in life**

Participants spoke about how dog ownership helped them in Managing challenges in life.

Participants spoke about going through extremely difficult experiences in their lives such as bereavement and trauma and how their pets were a comfort through these challenges:

*'He was a big, big help for me there to be able to come back and have that sort of comfort from him. Because my wife was in hospital for a long time and my daughter was in hospital for a long time, so coming back on my own, but having him there to be able to sort of give a little cuddle to'*

In this way tactile interactions were also described to be important in these times and also having the presence of something to care for and nurture:

*'I actually miscarried so it was kind of like filling a hole. So that was the reason I kind of wanted, wanted a thing, I needed something to nurture'*



Owners enduring very difficult times was spoken of by others too; this was also a described sense of feeling the need to survive and endure challenging times for the sake of their pets:

*'We had a scare that my mum was gonna die then, so I was like, is there something about me bringing new creatures into the world and the world, and then when she came along I sort of thought maybe it's a blessing, maybe I was gifted other people or creatures to think about so that I didn't collapse because you have to pick yourself up'*

Importantly, though, there were challenges to pet ownership during tough times, too which could create stress and potentially counterbalance these more positive impacts:

*'I had been made redundant from a job I was living in a new flat, newly on my own and insurance and food and daycare, finding someone to look after the dog when I was at work you know, I did not have the disposable then to spend on a dog'*

### **6.2.3.2 Protective from mental health symptoms**

Dogs were also described to be *protective from mental health symptoms*, including self-harm, although being away from their animals could reportedly put them at risk of these behaviours:

*'The certain point where I was self-harming think being away at that stage, I wasn't around the dogs'*

One owner described how she had overcome suicidal thoughts and plans to end her life mainly due to her dog:

*'He was the reason that I didn't really, I couldn't ultimately go through with it... I just couldn't face the thought of not being with him.'*

A possible explanation for this may be found in the way individuals spoke about dog ownership as therapeutic in itself, describing it as:

*'a nice sort of therapy'*

Pet owners also described a sense of a calming presence their pets provided which helped them combat mental health symptoms in a therapeutic manner:

*'I've certainly found that dogs can be a calming presence and a resource of comfort when you are feeling upset or anxious or you know worried or whatever'*

Even if this was on their phone as a reminder of them:

*'definitely find comfort in having photos of the animals'*

Another mechanism for this could be found in descriptions by participants where pets were described to provide opportunity for participants to feel fully present and connect to the moment in a way that felt mindful and helpful for wellbeing:

*'Almost like a way to recentre cause you're having to pause because you can't be moving around while you're cuddling him and you just have to stop. It's quite mindful. Yeah, that's exactly it and you know, rather than just carry on, keep charging around, being like, I need to do this and this it just makes you stop and just like take a moment'*

In addition to the mindful nature of these interactions, spending time with their pet dogs was also described to be mood enhancing in a way which protected them from critical thoughts, anxiety or symptoms of low mood:

*'You associate your dog with good and happy, positive, so therefore, you know, spending time with them, that kind of positivity and happiness sort of rubs off on you because you don't associate them with a bad thing'*

In this way the participant has described how 'positivity and happiness' can counterbalance mental health related symptoms.

### 6.2.3.3 Social Anxiety Relief

Individuals who described struggling with *Social anxiety* due to their mental health difficulties also spoke of how dog ownership had improved this and had helped them to come out of their shell and develop confidence socially:

*'He has drastically improved the social anxiety I had'*

One mechanism for this was described to be feeling more confidence in interactions with others:

*'Definitely kind of brought me out of my shell'*

One participant also spoke of how she had noticed that for her son who struggled with social interactions this had also been helpful for him:

*'I think because he's kind of struggled socially a bit as well I think its kind of like she's my buddy''*

Not only could dogs help people feel more confidence in social interactions, but they could also providing companionship themselves in a way which was described to provides similar benefits:

*'They are your friend, your buddy, your companion'*

This could be helpful in combatting feelings of loneliness and social isolation which individuals described feeling as a result of their mental health difficulties:

*'So having him helped me, you know, not feel as lonely and stuff'*

Owners described a felt sense of joy from these connections:

*'He just sort of makes me laugh, he's a very happy companion, always delighted to see me'*

The social connections with their animals were described to be of high value and importance to owners, their dogs were described as being like a friend or family member, which was particularly significant:

*'its genuinely kind of a friendship, companionship'*

This was described to be without some of the complications of other relationships and consequently more positive for individuals:

*'It's a little bit like a sibling but one that doesn't talk back to you'*

They were not only described as family but also to fit in with the existing families and connections individuals had in a way that was felt to complete these connections in a satisfactory way:

*'it would be like missing a member of the family'*

And consequently owning and having a dog could provide a feeling of familial attachment.

#### **6.2.3.4 Self-Identity**

Participants spoke of an increasingly positive experience of *Self Identity* as a result of dog ownership in the context of their mental health. Individuals discussed how their sense of self-worth and self-esteem was improved by their felt sense of identity as a dog owner and ability to care for their animals:

*'it gives you like a feel, a sense of achievement of something'*

This felt sense of identity as a dog owner was described to bring out a different, softer side to their personality:

*'It's almost like he brought out that soft side to me that I think was always there'*

Individuals often described feeling more positive towards these softer, more playful or parental sides of themselves. They spoke about how they were able to access the person they were before their mental health difficulties:

*'And my mom, I think at one point after I'd had him for about six months, she was like, it's so nice to see the real you, although the real you doesn't come out unless the dog's in the room with you. But she said it's so nice to see that you do have your spark back because puppies do kind of turn you into this playful, protective kind of character and you have that role to play and naturally it comes out.'*

Owners also spoke of a felt experience of discovering their true selves for the first time:

*'I just became more me'*

## 7.0 Discussion

The aim of this empirical study was to understand the benefits and challenges of pet ownership whilst experiencing clinical anxiety and low mood. The study used Mobile methods to enhance the richness of data collection and in order to facilitate a more balanced power dynamic between interviewer and interviewee (Cameron et al 2014; Kusenbach, 2003). The discussion will begin by summarising the key findings of the present study in relation to the research question '*What are pet owner's experiences of pet ownership and low mood and/or anxiety?*'. The results (higher and lower order themes) will then be discussed in reference to the theoretical and empirical literature, drawing on information detailed previously and in the systematic review. Strengths and limitations of the present study will also be reviewed as well as suggested ideas for future research. Then clinical implications of the present findings will be explored. The final section will offer some concluding remarks regarding the key messages from the study.

### 7.1 Summary of Findings

As previously outlined, the researchers constructed three main themes through analysis, these were: (1) '*Behavioural factors*' (2) '*Spiritual Companion*' and (3) '*Therapeutic Impact*'. As previously outlined, the researcher was not looking to find empirical 'truths' in the dataset, more to construct their own understandings of the language of participants through a process of shared meaning making. Consequently, these themes should be viewed as constructions by the researchers as a consequence of their own experiences and beliefs.

#### 7.1.1 Behavioural factors

The sub themes for '*Behavioural factors*' were '*human-animal interactions*', '*animal behaviours*', '*challenging behaviours*', and '*social connection*'. In terms of '*human-animal interactions*' pet owner's in the present study described the value in the simple necessity to

leave the house each day to take their dog out, particularly at points when they were feeling low, and the positive impact this had on their sense of emotional wellbeing. This is in line with findings from the systematic literature review (SLR) where the practical requirements of pet ownership were spoken of as being beneficial in terms of providing a structure to people's days and the resulting pride on completing these tasks and acting in a responsible way for their pets, captured under the theme '*routine, boundaries and personal growth*' (Barcelos et al., 2021; Brooks et al., 2018; Friesinger et al., 2021; Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). This may be linked to societal pressures to conform to the idea that social 'worth' may be determined, in part, by productivity in a capitalist, westernised culture (Foster, 2016). In this way dog ownership may help individuals to feel more able to access feelings of better self-esteem by engaging in more 'productive' behaviours. Engaging in activities such as walking their dogs was also described by individuals in the present study to be therapeutic which is in line with previous findings from the SLR which highlights how engaging with physical activity was described as beneficial for mental wellbeing (Christian et al., 2013; Tan et al., 2021; Obradović et al., 2021). This is consistent with what we know about individuals with mental health difficulties more generally and, as previously described, may be a result of physical activity leading to improved functioning of the hypothalamus-pituitary-adrenal axis (Mahindru et al., 2023). Individuals in this study reported that they engaged in exercise by walking their dog in a way they had not before they owned a pet and found the results of this to be beneficial for their emotional wellbeing in a way that is consistent with dog owners from non-clinical groups of dog owners (Barcelos, 2020). Findings from this clinical population are consistent with Smith et al. (2017) who described how a felt 'obligation of love' encouraged dog owners in the general population to engage with dog walking where 'gentle encounters' and 'pleasant sensations' reportedly led to an enhanced sense of wellbeing.

In a similar way, observing '*animal behaviours*' led to a sense of enjoyment and was described as distracting for the symptoms of mental health difficulties. This is in line with findings from the SLR which suggested that diverting activities that could serve to distract people from the symptoms of their mental health difficulties (Brooks et al., 2018; Kerr-Little et al., 2023). As previously outlined, distraction may be an adaptive strategy for emotion regulation for those who experience mental health difficulties so long as it has positive associations for the individual; participants from the present study generally describe watching animal behaviours as positive experiences (Wolgast & Ludh, 2017). Pets behaviours also facilitated experiences of joyfulness and play which researchers have found can help manage symptoms of mental health (White et al., 2017). However, the presence of '*challenging behaviours*' was described to be experienced as very stressful in a way which was also in line with what was described in the SLR captured under the theme '*challenges*' (Cleary et al., 2021; Kerr-Little et al., 2023; Obradović et al., 2021). In this study and in the SLR individuals described feelings of self-criticism following unruly behaviours which impacted mood negatively. This is also in line with findings from the general population (Barcelos 2020). Having a dog was also described to provide the opportunity for positive social interactions, in line with findings from the SLR and in non-clinical populations which suggest that this social connection is helpful for mental wellbeing (Wickramaratne et al., 2022). In the present study this was described to be helpful for mood enhancement.

### ***7.1.2 Spiritual Companionship***

The theme '*Spiritual Companionship*' captures the subthemes '*Psychological Safety*', '*Psychological challenges*' and '*Self-Identity*'. The title of this theme draws on previous research by Kabel et al.'s (2015) who recognised that for individuals living with HIV, pets were described to act as a '*spiritual custodian*' providing unconditional support and acting as an alert or alarm when they experienced a felt sense of danger in a similar way to has been



described in the findings of the present study. The subtheme '*Psychological Safety*' is reminiscent of Kabel et al.'s (2015) findings, but also bears similarities to the SLR theme of '*Safety and security*' describing the felt sense of experienced safety and security which led to a described experience of improved emotional wellbeing for participants (Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). As outlined in the SLR, this may be understood by considering Maslow's model which outlines that we all require our basic needs of safety and security to feel met in order to achieve improved emotional wellbeing and good mental health (Maslow, 1987). This is in line with findings which suggest that perceived senses of threat can impact our wellbeing (Rutter et al., 2005). Interestingly, these findings suggest that dog ownership may be able to assist in felt senses of safety, which, in turn could meet these needs and lead to improved emotional wellbeing for individuals who struggle with low mood and/or anxiety.

Within this theme participants also spoke of pet's '*mortality*'. This was also referenced in the SLR under the theme '*challenges*' where pet owners, understandably, were worried about losing their pets and felt profound grief and loss if their pet was unwell or had passed away (Barcelos et al., 2021). Interestingly, in the present study it was suggested that individuals who struggle with mental health feel things very deeply, this is in line with previous findings which suggests that individuals with mental health difficulties may struggle particularly keenly with bereavement (Thimm et al., 2020).

The experience of '*unconditional love*' was also captured as a sub theme of the present study as it was in the SLR under the theme '*therapeutic impact*' (Barcelos et al., 2020; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Freisinger et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). The beneficial effects of the sense of unconditional love experienced in these relationships is also described by Kretzler et al. (2022) who used Attachment theory to provide a potential explanation for the described positive impacts of

this in pet owners. Attachment theory may describe the beneficial effects of pet companionship as we know from this theory that individuals require positive, loving attachments in their lives (Bowlby, 1979). Kretzler et al., (2022) posit that, as research has linked insecure attachment styles to higher risk of mental health difficulties and suicidality (Palitsky et al., 2013), these relationships may provide opportunities for individuals who have struggled with disruptions to these attachments to achieve the sense of love in a way which is accessible to them and this may be beneficial for those who tend to lack social support for example those who struggle with mental health difficulties (Kretzler et al., 2022). Previous studies even suggest individuals with high rated levels of attachment to pets do not perceive differences between human to human interactions and animal to human interactions (Kurdek 2008; Kretzler, 2008). The felt sense of companionship provided by pets is also described as having positive mental and physical health benefits in the general population as is described in the present study (McNicholas et al., 2005).

### ***7.1.3 Therapeutic Impact***

The subthemes for theme '*Therapeutic impact*' were '*Managing challenges in life*', '*Protective from mental health symptoms*', '*Mindfulness*', '*Social anxiety relief*' and '*Self Identity*'. Participants in this study described how pets helped individuals manage challenges in their lives, this is supported by findings from the literature review captured under the theme '*meaning and purpose*' where pets were described to help support individuals in getting through very difficult times in their lives, either related to their mental health difficulties or other factors such as bereavement (Barcelos et al., 2020; Brooks et al., 2018; Cleary et al., 2021; Correa et al., 2021; Kerr-Little et al., 2023; Obradović et al., 2021; Hui Gan et al., 2020). Pets have also been shown to help individuals to manage challenges in life in general populations of pet owners (Kretzler et al., 2022). As stated in the introduction to this thesis, mental health benefits of pet companionship have been indicated even when

paired with other challenging life experiences such as living with chronic pain (Carr et al., 2018; Carr et al., 2019; Carr et al., 2020; Janevic et al., 2020), HIV (Kruger et al., 2014; Kabel, Khosla & Teti, 2015; Muldoon et al., 2017), Autism (Barcelos et al., 2021), ageing (Seigel, 1990; Knight; 2008; Taniguchi et al, 2018) and the COVID-19 pandemic (Johnson & Volsche, 2021; Ratschen et al., 2020). Interestingly, findings from the present study suggests that pet dogs may even be a resource for mental health and wellbeing in these challenging times.

Individuals in the present study also spoke of how dog ownership was '*protective from mental health symptoms*', including, at their most severe, self-harm and suicide. This is consistent with findings from the literature review which detailed accounts of individuals expressing that their dogs also protected them from engaging in harmful or suicidal behaviours and supported them in managing the symptoms of their mental health difficulties captured under the theme '*increased meaning and purpose*' (Cleary et al., 2021).

In the present study individuals spoke of the opportunities for mindfulness pet ownership provided, in a similar way to the SLR where it was suggested mindful activities that could serve to distract people from the symptoms of their mental health difficulties and also as more meaningful alternatives to engaging in less helpful behaviours for self-medicating mood difficulties (Brooks et al., 2018; Kerr-Little et al., 2023). In the general dog ownership is described to provide opportunity for individuals to engage with their dogs in a way that made them feel mindful and present to a degree that this felt supportive to their mood and was described as therapeutic in a similar way (Barcelos et al., 2021).

Individuals from the present study who struggled with social anxiety described increased levels of confidence in social interactions due to dog ownership, this is in line with findings from the SLR outlined under the '*social connectedness*' theme (Barcelos et al., 2020;

Barcelos et al., 2021; Brooks et al., 2018; Correa et al., 2021; Kerr-Little et al., 2023; Hui Gan et al., 2020). However in the SLR individuals also described the potential challenges of feeling pressure to speak to others when they had their dog when they did not wish to speak to anyone, which felt like a challenge to them (captured under the theme '*challenges*') (Barcelos et al., 2021). These challenges were not spoken of directly in the present study.

The SLR identified that dog ownership provided individuals with mental health difficulties with opportunities for '*Personal growth*' through the practical experiences of pet ownership (Barcelos et al., 2021; Brooks et al., 2018; Friesinger et al., 2021; Obradović et al., 2021; Rathish et al., 2022; Hui Gan et al., 2020). Similarly, the current study identified increasingly positive experience of '*Self Identity*' as a result of dog ownership in the context of their mental health difficulties. Individuals discussed how their sense of self-worth and self-esteem was improved by their felt sense of identity as a dog owner and ability to care for their animals. Individuals described connecting with a side of themselves which they found to be more executive and beneficial to their wellbeing which may relate to ideas from therapeutic formulation and intervention techniques such as Internal Family Systems therapy (Schwartz & Sweezy, 2019) where improved mental health can be experienced by tapping into a more responsible, calm and executive part of one's own identity. Or a more playful side to themselves which individuals may not have in other areas of their life and has been indicated to help individuals manage symptoms of mental health difficulties (White et al., 2017).

Generally, findings of the present study align with previous finding that individuals with mental health difficulties do experience benefits to their mental health as a result of dog ownership in similar ways to the general population. Challenges to dog ownership was also described in these accounts which we can learn from when considering applications of these findings to clinical populations. Overwhelmingly though, individuals described these relationships to be extremely meaningful and beneficial to their mental health. The



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Yes,	Yes,	Yes, the	Yes,	Yes, it	Yes, a	Yes,	Yes,	Yes,	Yes, the
outline	appropriate	researcher	researcher	is clear	reflexive	discussed	rigorous	findings	researcher
s aims	to	er has	explained	how	approach	ethical	approach	describes	discusses
and	explore	justified	how	data	was taken	considerations.	his	ed	the
rational	and	the	participant	was	and	ons.	describe	explicit	contributions
le for	understanding	research	were	collected	relationships	d.	ly.	in	the study
research	design	selected.	Specific	the	participant		Discuss	makes	to
h.	experiences	target	population	s	considered		ed	in	existing
		approached	chosen				relation	knowledge	
		to provide	are				to	or	
		access to	justified				research	understand	
		the type of	. Form				h aims	ing.	They
		knowledge	of data				and	identify	
		sought by	collection				questions.	where	
		the study.	on				ns.	where	
		clear.					research	is	
							necessary.		
							They		
							considered		
							other	ways	
							the		
							research		
							may	be	
							used.		

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### 7.3 Clinical implications

There are a number of potential clinical implications for this research. Firstly, as posited in the introduction to this report, findings from this study suggest that individual's dogs may be considered as a resource for mental health professionals to include in the care of individuals

struggling with anxiety and/or low mood. Individuals described pet ownership as being therapeutic which provides implications for care. Clinicians who work with dog owners experiencing low mood and/or anxiety may consider incorporating individual's relationships with their dogs into care planning in order to make meaningful use of the resources already available to people in their environments. The breath of this research allowed for us to identify that this may have implications for those struggling with attachment difficulties that may underlie their mental health difficulties; our findings suggest pet dogs could be seen as a helpful resource for this.

Participants also spoke of improved ideas around positive self-identity through experiencing different, more 'capable' sides to their identities as a parental figure which can, again provide opportunity for feelings of achievement but also love and connection not experienced elsewhere. This increased sense of capability may improve their confidence in other areas of their lives. This may have important implications for helping individuals with mental health difficulties engage in other activities which may be beneficial for their mental wellbeing including work, social activities or sports. This has implications for how clinicians could use dog ownership to facilitate therapeutic techniques in a strength based way, for example clinicians could provide examples of when individuals succeeded in dog ownership to help improve self-esteem. Dog ownership could also be used to help encourage participants to take part in activities for example exposure therapy in Cognitive Behavioural Therapy (Beck, 2020). This could be relevant for individuals who struggle with social anxiety, as described by our findings. Dogs were described as providing opportunities to facilitate physical activities and exercise which was described to be positive for wellbeing, which could be considered in care planning by clinicians. Ideas around self-identity related to dog-ownership could be used in Internal Family Systems (Schwartz & Sweezy, 2019) to foster the ideas around an executive, responsible self. The challenges identified in this research could also

provide opportunity for us to consider this in potential clinical interventions, for example, individuals may be offered support in training their dogs, or therapeutic support with managing the challenges related to this and feelings of self-criticism. Support with behavioural training could even be considered an intervention to help improve individual's sense of capability. It is important for clinicians to consider the challenges associated with dog ownership in their care plans as well as the benefits to consider how people may be handling the demands of dog ownership or to be aware to care plan for the extra need for support when a pet is away, unwell or dies which was described to lead to times of particular vulnerability for individuals with anxiety and/or depression. Other reported concerns could be considered for those struggling with anxiety and/or low mood who own and pet dogs such as financial aid to help support them in meeting their pets needs or the recognition of their animals as mental health support pets and ability to access benefits for this. Individuals who require access to mental health services should not experience barriers to this as a result of dog ownership, this should instead be seen as a resource for clinicians and service users. It is, however, also important for clinicians to consider the welfare of animals when implementing these plans in terms of ensuring animal's needs are being met and safeguarding animals to ensure they are not at risk of harm, neglect or abuse by discussing potential concerns with pet owners and considering the ethical implications of including animals in care plans.

#### **7.4 Suggestions for further research**

Future research may use a similar focus to study individuals with other specific mental health difficulties for example Schizophrenia, Obsessive Compulsive disorder or Bipolar Disorder. In the present study individuals also spoke about pet ownership in the context of parenthood which could also be an educational topic to consider further. Using a similar approach to investigate dog ownership and anxiety and/or low mood with individuals from different



communities or with varying demographics may also be an important area to focus on, for example those in older communities who may experience more loneliness and could consequently benefit more from dog ownership (Coyle & Dugan, 2012). Research involving the effects of clinicians involving pet dogs in care planning and treatment would also be a beneficial area for future research in order to understand more about the benefits, challenges and nuances are around this. Further research could also focus specifically on how those struggling with mental health difficulties as a result of attachment disturbances may benefit from dog ownership. The same could be considered for individuals with mental health difficulties who lack social access or support.

## **7.5 Conclusions**

The present study has provided a critical review of current findings in relation to dog ownership and mental health difficulties which has provided further understanding of these relationships. This study found many benefits to dog ownership for individuals who have experiences of anxiety and/or low mood. There were challenges in these relationships too which are important to recognise and consider, however, these findings highlighted many helpful aspects of dog ownership to wellbeing of individuals with anxiety and/or low mood. Strengths and limitations of this enquiry were also considered in this process. The present study has focused on the complexities of the relationships between individuals and their pet dogs within the context of low mood and/or anxiety which has potentially important implications for the clinical care of these individuals by NHS services as well as raising awareness to this clinical population of the potential benefits and challenges of dog ownership.

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## Appendices:

### Appendix A: Ethical Approval Form



#### HEALTH, SCIENCE, ENGINEERING AND TECHNOLOGY ECDA

#### ETHICS APPROVAL NOTIFICATION

<b>TO</b>	Isabel Avery
<b>CC</b>	Dr Matt Jewiss (ARU) Professor Lee Smith (ARU)
<b>FROM</b>	Dr Rebecca Knight, Health, Science, Engineering and Technology ECDA Vice-Chair
<b>DATE</b>	30/11/2023

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Protocol number: **LMS/PGR/UH/05454**

Title of study: Walking with Wolves: A study of low mood and anxiety in a clinical population of dog owners using mobile methods

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: 30/11/2023

To: 20/06/2024



**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 B: Participant and Expert by Experience recruitment poster**

**University of Hertfordshire UH**

## **DOG OWNERS ...** **WE NEED YOU!**

... as part of my research I would love to hear more about people's experiences of dog ownership and anxiety and/or depression.

You can be part of our study, or consult as an 'expert by experience' if you own a dog and have had some experience of anxiety and/or depression, whether or not you are currently experiencing symptoms. The study will involve taking part in a 'walk along interview' on your usual dog walk to discuss your experiences. You will be able to withdraw from the study at any point. If you would like to speak to us about consulting as an 'expert by experience' on this project please contact us to discuss this further.

To take part in this study please contact me by email: [i.avery@herts.ac.uk](mailto:i.avery@herts.ac.uk).

All information you provide will be anonymised.  
I look forward to receiving your responses,

Isabel

(THIS STUDY HAS BEEN ETHICALLY APPROVED BY THE HEALTH, SCIENCE, ENGINEERING & TECHNOLOGY ECDA, PROTOCOL NUMBER LMS/PGR/UH/05454)

*Any questions please feel free to contact us on [i.avery@herts.ac.uk](mailto:i.avery@herts.ac.uk)*

## Appendix C: Participant information sheet

### *Information Sheet*

UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS



FORM EC6: PARTICIPANT INFORMATION SHEET

1 **Title of study**

*Walking with Wolves: A study of low mood and anxiety in a clinical population of dog owners using mobile methods*

2 **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. The University's regulation, UPR RE01, 'Studies Involving the Use of Human Participants' can be accessed via this link:

<https://www.herts.ac.uk/about-us/governance/university-policies-and-regulations-uprs/uprs>  
(after accessing this website, scroll down to Letter S where you will find the regulation)

Thank you for reading this.

3 **What is the purpose of this study?**

To understand more about people's experiences of dog ownership and anxiety/low mood.

**4 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 are free to withdraw at any stage without giving a reason. A decision to withdraw at any time, or a decision not to take part at all, will not affect any treatment/care that you may receive (should this be relevant).

**5 Are there any age or other restrictions that may prevent me from participating?**

Individuals under the age of 18 are not able to participate in this study. If you do not have a pet dog you may not be able to participate in this study. If you do not have experience of low mood and/or anxiety you will not be able to participate in this study.

**6 How long will my part in the study take?**

If you decide to take part in this study, you will be involved in it for a roughly hour long interview on your usual dog walk.

**7 What will happen to me if I take part?**

The first thing that will happen is that you will reach out to the researcher to discuss the study and then you will both set up a date and time for the interview having received the researchers contact information either through a flyer, a poster or by being provided it by a professional working with one of the charities we will ally with. The interview will take place on your usual dog walk, we ask that you take a route you usually take and stick to your usual schedule where possible. After this the interview will be transcribed and you will have the opportunity to review the transcript of the interview. Interview will be recorded covertly using an iPhone. It should not be obvious to other individuals that an interview will be taking place.

**8 What are the possible disadvantages, risks or side effects of taking part?**

(Note: if appropriate for this particular study, you will be asked to agree to any required health screening questionnaire in advance of the study. Please also note that circumstances may arise that could result in the need for you to withdraw from the study; should such circumstances occur, the investigator will discuss the matter with you.) If we notice any signs that you feel overwhelmed or you share with us that you are then we are able to stop testing and, although we will not provide support ourselves, we will signpost you to

We are not able to provide any intervention of mental health support in this study, but we will signpost you to services where you can arrange for support to take place such as your GP. We are asking you to speak to us whilst taking part in your usual routine in order to minimize any burden on you or

potential risk. We also hope that this will help us to learn more about your usual experience walking your dog.

**9 What are the possible benefits of taking part?**

The benefits for the researcher will be that taking part in the project will enable me to complete my research project for my doctorate in Clinical Psychology. The benefit for you will be the opportunity to tell your story, in your own words, of your experiences having a dog and anxiety in a way that can meaningfully contribute to research and our understanding of these experiences. The interview itself will also include physical activity which has health benefits in itself.

**10 How will my taking part in this study be kept confidential?**

Recordings will be anonymised immediately Audio Recordings will be securely stored on a password protected cloud based system which only the research team will have access to. Once these have been transcribed they will be deleted. Any identifiable characteristics or data will be anonymized from the transcripts. Information may be omitted or changed in order to protect your anonymity.

**11 Audio-visual material**

We are not creating visual material, we will be audio recording interviews. Conversations will be recorded and then annotated and anonymised securely.

**12 What will happen to the data collected within this study?**

- The data collected will be stored electronically, in a password-protected environment, for up to 12 months, after which time it will be destroyed under secure conditions
- The data will be anonymized prior to storage.

**13 Will the data be required for use in further studies?**

- The data will not be used in any further studies.

**14 Who has reviewed this study?**

This study has been reviewed by:

- The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority

The UH protocol number is <enter>

**15 Factors that might put others at risk**

Please note that if, during the study, any medical conditions or non-medical circumstances such as unlawful activity become apparent that might or had put others at risk, the University may refer the matter to the appropriate authorities and, under such circumstances, you will be withdrawn from the study.

**16 Who can I contact if I have any questions?**

If you would like further information or would like to discuss any details personally, please get in touch with me by email: *i.avery@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  
Herts  
AL10 9AB

**Thank you very much for reading this information and giving consideration to taking part in this study.**

## Appendix D: Consent form



UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS

(‘ETHICS COMMITTEE’)

FORM EC3

CONSENT FORM FOR STUDIES INVOLVING HUMAN PARTICIPANTS

I, the undersigned

.....

of *[please give contact details here, sufficient to enable the investigator to get in touch with you, such as a postal or email address]*

.....

hereby freely agree to take part in the study entitled *[Walking with Wolves: A study of low mood and anxiety in a clinical population of dog owners using mobile methods]*

.....

(UH Protocol number .....)

**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 aim(s), methods and design, 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, and any plans for follow-up studies that might involve further approaches to participants. I have also been informed of how my personal information on this form will be stored and for how long. I have been given details of my involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent to participate in it.

**2** I have been assured that I may withdraw from the study at any time without disadvantage or having to give a reason.

**3** In giving my consent to participate in this study, I understand that voice, video or photo-recording will take place and I have been informed of how/whether this recording will be transmitted/displayed.

**4** I have been given information about the risks of my suffering harm or adverse effects and I agree to complete any required health screening questionnaire in advance of the study. I have been told about the aftercare and support that will be offered to me in the event of this happening, and I have been assured that all such aftercare or support would be provided at no cost to myself. In signing this consent form I accept that medical attention might be sought for me, should circumstances require this.

**5** 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 or may be used, including the possibility of anonymised data being deposited in a repository with open access (freely available).

**6** I understand that if there is any revelation of unlawful activity or any indication of non-medical circumstances that would or has put others at risk, the University may refer the matter to the appropriate authorities.

**7** I have been told that I may at some time in the future be contacted again in connection with this or another study.

Signature of participant.....Date.....

Signature of (principal) investigator.....Date.....

Name of (principal) investigator : ISABEL AVERY



## Appendix E: Debrief sheet

### *Study Debriefing Sheet*



This study is concerned with the experiences of individuals with anxiety who have pet dogs.

#### **How was this investigated?**

In this study, you were asked to take part in a semi-structured, walk along interview whilst on your usual dog walk. All the conversations were recorded, transcribed and anonymised so that your identity would be kept private (which means some of your information may have been omitted or changed to protect your anonymity).

#### **Main questions:**

What are individuals experiences of dog ownership?

What are individuals experiences of depression and/or anxiety in the context of dog ownership?

Does having a dog impact this? How?

#### **Why is this important to study?**

Rising levels of mental health difficulties and increased demand on healthcare systems to support these presents a need and opportunity for us to consider other resources available to individuals in terms of their environments and relationships. One such resource is potentially our relationship with our pets. This has been investigated by previous studies but our understanding about dog ownership and mental health still has room to be understood further. We asked for interviews to take place whilst on your daily dog walk so that we could gain deeper understanding and information about what this experience is like for you. We wanted to learn more about what is helpful but also what is unhelpful about owning a dog in this context in your own opinion and words.

#### **What if I want to know more?**

If you have any questions or concerns please contact: [i.avery@herts.ac.uk](mailto:i.avery@herts.ac.uk)

Thank you again for your participation.

## Appendix F: Reflective Diary Extracts

### 28.01.24 - Extract from reflective diary after post pilot study discussion with expert by experience

She reflected that we noticed was that it felt difficult and uncomfortable to speak about challenging topics when others were walking along close by e.g. mental health experiences. We agreed that perhaps it is easier to discuss with participants before starting the interviews that we can stop, pause speaking anytime without completely ending the interview if they like when there are other people present (in addition to telling them they can completely end the interview whenever they like). We also noted it could be helpful to say that they could speak about dog ownership and mental health less directly than specifically speaking about mental health if they wanted to. Otherwise she reflected that she liked how comprehensive the prompts were, she commented that she felt she could speak about things she may not otherwise have brought up like enjoying the tactile interactions with her dog and how these made her feel. Length of interview was agreed to be appropriate.

### 27.04.24 – Reflective diary of researcher Extract following interview

Interviewed a teacher who is hard of hearing, we discussed adjustments required for the interview, he said only that I stood next to his left side and we could stop if he couldn't hear me. He informed me that he was keen to discuss this with me because of how important his dog had been to him, same with previous participants and I wondered if people with these experiences were more likely to put themselves forward for interview, similarly people I have spoken to all seemed to have had some intervention with mental health professional – I wondered how they saw me and if they felt comfortable speaking to mental health professionals due to these past experiences. He did not ask me if I had a dog or very much about my study, I struggled internally with the feeling that I was situated as a quiet interviewer rather than being more conversational and how this could create a power dynamic in the interview or feel slightly cold when he had discussed difficult experiences, it felt hard to convey my empathy and resonance with his experience in what felt like a usual way, but the motion of walking together did definitely feel less clinical. I was struck by how well his dog behaved. He didn't seem stressed at all by his dogs behaviour in ways others had been on their interviews and he didn't have to call the dog back once, he stayed close. I wonder how that impacted his levels of stress during the walk. Does having a better trained dog mitigate some of the challenges of dog ownership? Is it an additional effort to have to train the dog yourself? He described being active and how the dog fit into this role, I wonder about how this works for individuals who are or aren't active already, what potential impacts this may have? The role of routine and parenting seem to come up regularly, I hadn't considered this and wondered how having children may impact this. Would having a routine already due to having a child mean that the potentially beneficial impacts of pet ownership were not as effective? Is it an added burden? Is it still perceived to be helpful for reasons like it helps to get out of the house and participate in activities? I was touched by his accounts of having his dog feel as though he were 'his ears', a true part of him and something he relied on to protect him. Social anxiety and connection seemed all the more important due to hearing difficulties, I wonder if this is how more individuals who are differently abled and experience mental health difficulties may perceive this? His affection for his dog was communicated very effectively verbally and he spoke about enjoying tactile interactions with his dog but he didn't stroke or touch his dog at all during the interactions.

### 1.05.24 - Extract from Diary During Transcribing and Coding

I felt surprised to read that people aren't engaging in other forms of exercise now they are walking their dogs, I wondered how people experience this and whether I should have asked more about whether they missed other forms of exercise or whether this felt quite 'mindful' and helpful to get them out the house as some had said for something that wasn't for just themselves.

I felt so moved going through people's accounts of how they discovered or rediscovered parts of themselves through owning a dog and how this added to their felt sense of identity, this reminds me of

Internal Family Systems where people can access a more executive part of themselves. I wonder about felt attachment to dogs as a potential mediating factor in benefits?

Separation anxiety and worries about being apart was interesting, I wonder if this could be a particular risk given how one participant had spoken about self-harming when they were apart from their dogs, but potentially having the dogs could also be a protective factor for self-harm? Perhaps I should have explored self-harm and suicidal ideation in more detail.

Parenting has come up again and again, whether it is in relation to feeling like they are parenting their dog or how their dog fits into and adds to their family if they are a parent, and how dogs can actually help their children with things like social anxiety, I wonder if this is an area for potential future research.

## Appendix G: Interview Schedule

- Can you tell me about when you decided to get a dog?
  - How long have you had your dog for?
  - Could you tell me about your routine with your dog?
    - Do you see other people on your dog walks?
    - How far do you tend to walk?
    - Do you do other forms of exercise or is this the main form?
  - Take to work?
  - Dog sitter?

How do you make sense of this in the context of anxiety/low mood/mental health?

- What are the benefits of having a dog?
  - Physical?
  - Psychological?
  - Watching dogs behaviour?
  - Shared activity?
  - Tactile interaction?
  - Learning/teaching?
  - Routine?
  - Pictures?
  - Grooming?
  - Exercise?
- What are the challenges?
  - Physical?
  - Psychological?
  - Financial?
  - Unwanted behaviours?
  - Teaching/learning?
  - Routine?
  - Meeting dogs needs?
  - Grooming?
  - Exercise?
- Briefly, what is your current experience of anxiety and/or low mood?
  - Diagnosis?
  - Current/historical?
    - duration?
  - Intervention (e.g. medication/CBT)
  - Any other MH difficulties?
- Does having a dog impact this?

A study of low mood and anxiety in a clinical population of dog owners using mobile methods

- How?
- Is there anything we haven't discussed that you would like to bring?

**Appendix H: Example of coding according to A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research (Naeem et al., 2023)**

<i>Higher order themes</i>	<i>Lower order themes</i>	<i>Codes</i>	<i>Key words</i>	<i>Selection of statements</i>
Behavioural Interactions	Human-animal interactions	Getting you out of the house	he just physically got me out the house	He changed my life because like I said he just physically got me out the house.
		Exercise	A source of exercise	I definitely enjoy going on walks and that for me is a source of exercise
		Tactile interactions	The physical side	The physical side of having like actually a dog like to cuddle when you're feeling a bit low
	Animal behaviours	Observing them	Adorable	I find him extremely adorable
		Soothing behaviours	Exhibit certain behaviours when you are sad or upset	They do seem to sort of exhibit certain behaviours when you are sad or

				upset that sort of tend to almost, not mirror your image, but you know, they'll be quiet, they'll be calm
Challenging behaviours	Challenging behaviours	reactive	Sometimes he can be reactive, so there is that worry	
Social connection	Providing companionship	your companion	They are your friends, your buddy, your companion	
	Facilitating interactions with others	social connection	The social connection was helpful for mood	
	family	A family member	It would be like missing a family member	
Spiritual Companion	Psychological safety	Felt sense of physical safety	feel safer	The anxiety side of things I guess in terms of being home alone, which is one of the main reasons I got Jamie to

---

				enable myself to feel safer
Mortality	Mortality of animal	it can set you up to a lot of heartache	I also do think that if you are an emotional human then the emotional tie to the dog is quite powerful and therefore it can set you up to a lot of heartache	
Unconditional love	Love and acceptance	unconditional love	I just fell in love, this sort of unconditional love which I never thought existed like I could be a really horrible person but you are still gonna be nice to me	

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Therapeutic Impact	Managing challenges in life	Comfort through challenges	Maybe it's a blessing, maybe I was gifted other	We had a scare that my mum was gonna die then, so I was like, is
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people or there something  
creatures to about me  
think about so bringing new  
that I didn't creatures into the  
collapse world and the  
world being like,  
you've got  
another thing, and  
then when she  
came along I sort  
of thought maybe  
it's a blessing,  
maybe I was  
gifted other  
people or  
creatures to think  
about so that I  
didn't collapse  
because you have  
to pick yourself  
up

Protective from mental health symptoms	Therapeutic presence	A nice sort of therapy	Having Jamie was a nice sort of therapy
	Protective from self-harm/suicide	I couldn't face the thought of not being with him	I couldn't ultimately go through with it... I just couldn't face the thought

of not being with  
him

Mood  
enhancement

That kind of  
positivity and  
happiness sort  
of rubs off on  
you

You associate  
your dog with  
good and happy,  
positive, so  
therefore, you  
know, spending  
time with them,  
that kind of  
positivity and  
happiness sort of  
rubs off on you  
because you  
don't associate  
them with a bad  
thing

Social anxiety

Reduction of  
social anxiety

drastically  
improved the  
social anxiety

He has drastically  
improved the  
social anxiety I  
had

Mindfulness

Mindful

It's quite  
mindful

Almost like a  
way to recentre  
cause you're  
having to pause  
because you can't  
be moving  
around while

you're cuddling  
 him and you just  
 have to stop. It's  
 quite mindful.  
 Yeah, that's  
 exactly it and you  
 know, rather than  
 just carry on,  
 keep charging  
 around, being  
 like, I need to do  
 this and this it  
 just makes you  
 stop and just like  
 take a moment

Self-identity

Self-esteem

A sense of  
 achievement

Do think it's  
 helpful and it  
 gives you like a  
 feel, a sense of  
 achievement of  
 something

Embracing one's softer  
 side

A soft side to me

Its almost like  
 he brought  
 out that soft  
 side to me  
 that I think  
 was always  
 there

Embracing one's  
 softer side

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