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Promoting the mental health, wellbeing, and resilience of postgraduate researchers: An institutional perspective

Chloe Casey

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Abstract

The mental health and wellbeing of postgraduate researchers (PGRs) is a priority in the UK, with a recent increase in research interest. A review of existing literature revealed various multi-faceted factors underpinning the issue. This literature review also identified multiple survey-based studies which reported diverse prevalence rates. Several small-scale interventions promoting positive mental health have been conducted within universities nationally. However, these interventions tend not to be grounded in psychological theory, seldom involve students in their production, and often lack comprehensive mixed methods evaluation, leading to varying success. Therefore, there remains a need for evidence-based, co-produced interventions for PGR mental health and wellbeing.

A multi-phase study was conducted at a single post-92 university in South England between 2018-2021. This mixed methods research was a collaborative, iterative, and dynamic process, with student engagement throughout. In the first phase, PGRs from the institution participated in an online survey and follow-up interviews, exploring the factors that affect their mental health, producing an evidence base. The findings highlighted that PGRs had significantly lower wellbeing and resilience in comparison to general population averages. Qualitative analysis identified three key themes underpinning this: Control, Balance, and Coping.

Based on these findings, three discrete four–six-week online pilot interventions were co-created with PGR focus groups: project planning, mindfulness, and mentoring. A fourth intervention was embedded across campus within the existing virtual learning environment (VLE), creating a peer support area. These interventions aimed to promote mental health, wellbeing, and resilience through increasing adaptive coping. The final phase of the project involved implementing and evaluating these interventions within a feasibility study.

This thesis makes an original contribution to knowledge by furthering the understanding of the specific experiences of PGRs studying in the UK and how these interact with mental health, wellbeing, and resilience. By disseminating the challenges, limitations, and feasibility of four co-produced novel interventions, this thesis provides evidence to support the development of larger-scale interventions to promote positive mental health in PGRs nationally. It also provides considerations and recommendations for supervisors, doctoral schools, and universities to support mentally healthy and successful postgraduate research communities within UK higher education and beyond.

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Chapter 1 Prologue

"Alone we can do so little; together we can do so much." – Helen Keller

1.1   Chapter Overview

As the subject of my thesis is the mental health, wellbeing, and resilience of PGRs, I would like to begin by explaining my own position as a PGR. This prologue provides important context and explains my personal journey and the journey of my research. This chapter provides a chronological overview of the process of discovery of the research area and of my own experience; as my story was unfolding, so was the narrative around PGR mental health and wellbeing. This chapter began as a reflexive journal, recording my thoughts and the influences of my own biases throughout my qualitative data collection. In this prologue, I begin with "Where I started", documenting why I started my research degree and how my ideas and research developed. I will revisit this personal reflection at the end of my thesis in Chapter 9 in the Epilogue: "Where I Am Now" where I reflect on my experience and how this shaped me as a researcher. These two self-reflective chapters that serve as bookends for this thesis began as an unstructured journal of my thoughts throughout the research process. I later organised my thoughts chronologically into this timeline of my five-year PhD experience.

1.2   Where I started

In 2017, the landmark paper by Levecque et al. (2017) was published, providing stark statistics about the high prevalence of psychological distress and psychiatric disorders in PGRs studying in Europe. This research was the catalyst for further investigations into PGR mental health and wellbeing. In the months that followed, increasingly negative accounts were circling in the media and social networking sites about the poor mental health PGRs were experiencing internationally. At that time, I was considering undertaking a postgraduate research degree myself.

I returned to higher education after having my first child to study for my master's degree. Before I began my postgraduate taught degree, I did not know where to go next, career-wise. Unfortunately, my 10-year career in retail management came to an end after my maternity leave when I was not offered a suitable role that would work around my new family. After enjoying the challenge and excitement of studying again, I began exploring whether postgraduate research could be for me. However, postgraduate research seemed like an elite club. As a first-generation student, I did not know any members.

Despite policy interventions to widen participation and encourage young people from working-class backgrounds to enter higher education, inequity remains at postgraduate level and above

(Higher Education Statistics Agency 2021). Having no friends and family who had completed a postgraduate research degree, I had no road map, only a worsening negative rhetoric about mental health in academia. I read about the high workload of postgraduate research, poor work-life balance, and experiences of burnout and emotional exhaustion. I wondered whether I would be able to cope with this transition from a postgraduate taught to a postgraduate research programme with a one-year-old child. I also doubted my own capability to complete the research. As a first-generation student and academic, there is always the underlying doubt: "Am I good enough to be here? Do I belong here?"

I decided to be pragmatic, calculating whether I could afford to continue my studies. I knew that the qualifications gained are necessary pre-requisites for continuing research within academia and becoming a lecturer. That coming academic year, the UK government launched the Doctoral Loan, allowing students to borrow money to cover tuition and living costs during their doctoral degree. Despite this new scheme, I calculated that, after tuition fees, only a small amount of money remained for living expenses. I came to the realisation that self-funding a postgraduate research degree would not be attainable with the childcare expenses I would need to pay to study. This responsibility usually falls upon the female, especially in a military family, where the serving partner is often unable to support with childcare. The inability to share childcare responsibilities is reported to be a leading factor impacting non-serving partners' mental health and wellbeing (Naval Families Federation 2018). This also presents barriers to career progression (Gribble et al. 2019).

Postgraduate research remains more accessible to the privileged, as evidenced by the socioeconomic gaps in enrolment rates (Boneva et al. 2022). With the rising cost of living in the UK, the rising levels of wage inequality, and the intergenerational persistence in earnings, it is unsurprising that first generation university students are less likely to enter postgraduate education than continuing-generation students (Boneva et al. 2022). Professor Jason Arday disseminates the specific challenges facing Black, Asian, and Minority Ethnic PGRs pursuing a career in academia (Arday 2021). I imagined how much more difficult it would be for others who experience multiple, overlapping factors of disadvantage (Crenshaw 1989).

In May 2018, the lens turned towards the experience of PGRs in the UK. In reaction to Dr Katia Levecque's research, Vitae published a report that was funded by the Higher Education Funding Council for England (HEFCE): Exploring wellbeing, mental health, and associated support services for PGRs (Metcalfe 2018). This report outlined the key issues affecting PGRs in the UK including supervision, financial concerns, and workload. As a result of this, Research England and the Office for Students (OfS) launched a Catalyst Fund call. This provided funding for 17 projects led by research teams within UK universities to explore mental health and wellbeing and to begin

to implement interventions to negate the challenges of postgraduate research (Metcalfe et al. 2020). My supervisory team were one of the recipients of this funding.

In the month after, the ripple effect continued, and the Doctoral College at my university posted their advertisement for a PhD studentship entitled: Promoting mental health and wellbeing to build the resilience, capability, and capacity of PGRs. This research was funded by the university in reaction to concerns about the wellbeing of their PGRs. After getting to know the executive team at the Doctoral College, Dr Julia Taylor and Dr Fiona Knight, as a master's student, I was encouraged to apply. I thought it was admirable that our university were ahead of the curve in recognising the need to further support their PGRs, with genuine concern for their mental health and wellbeing. With literature increasingly positioning the supervisor as central to PGR mental health (Levecque et al. 2017), I knew the importance of a supportive and caring supervisory team. With mental health expert, Dr Steven Trenoweth, completing the supervisory team, I knew that I (and my mental health) would be in good hands. I could not believe how was lucky I was to be awarded this fully-funded studentship and commence my postgraduate research in September 2018. I was delighted that this studentship gave me the platform to start my career in academia.

Concerns about the mental health and wellbeing of PGRs continued to be discussed across the sector. Excited to make a difference, I began my research by interviewing my peers about their experiences of postgraduate research. I believe that being an insider had many benefits (Breen 2007), I was someone that was a part of their group and embedded within the experience and I was in it with them. Therefore, my research was embraced more than it would have been if an outsider had parachuted into their lives, as Gerrard (1995) describes. The participants opened up to me and felt that their voices were heard.

I knew that my project would be a team effort, I was at the beginning of my research, and I needed the advice and knowledge of my more experienced peers. It was clear from the beginning that their voices should be at the heart of every decision I make. Therefore, you will see their quotes laced throughout this thesis. I purposefully used pseudonyms for my fellow PGRs not to dehumanise them (Josselson and Lieblich 2001) but to be true to their culture and gender identity (Allen and Wiles 2016). This is especially important as these intersectional factors are central to their experience as students (Arday 2018; McManus and Gunnell 2020).

As the project developed, I believe my fellow PGRs began to feel a part of my "team". Co-production was key to the success of my research. Each participant was passionate about making a difference and improving the experiences of those following in their footsteps. You will see throughout the phases of my research that some of the same pseudonyms appear. These

individuals continued to support me and my research through the years. They gave me their time and their personal stories. They perceptively articulated their deeply personal experiences of shifting identities, disabilities, discrimination, grief, loss, mental illness, courage, and resilience. Some mentioned how speaking to me was cathartic or therapeutic for them, however, I feel I reaped the benefits. At the start of my research, it was invaluable for me to hear from those at the end of theirs, narrating their experiences, sharing their challenges, and how they overcame them. This helped me to understand what to expect from the PhD and how to manage the uncertainty and setbacks.

You hear that every postgraduate research degree is different. I learnt that we, as PGRs, from widely different backgrounds, researching vastly different topics, can travel together and help each other navigate the journey (Miller and Brimicombe 2004). The support that I received from my peers was key not just to the success of my research, but to my own success as a PGR. I have encountered many delays and detours on my way to PhD. During this five-year process I have experienced two house moves, two lock downs, the loss of two close friends to breast cancer, and the pregnancy and birth of my second child. As a military wife, I had the added pressure of going through most of this alone. Although each of our experiences were different, with unique challenges, I identified one similarity: none of us have made it through the journey without roadblocks.

We all manage stress in different ways; theories of coping are fundamental in understanding this. Coping is something that is difficult to measure and conceptualise, and often we have poor insight into the coping responses we rely on. As I analysed the conversations with my fellow PGRs and realised the protective or adverse effects of coping and how it can reduce or amplify their problems (Skinner et al. 2003). Coping appeared to be key. Those who discussed addressing problems head on, problem-solving, or seeking social and practical support seemed to be resilient to any challenge their postgraduate research presented. Those who reported withdrawing socially or isolating themselves when facing stressful periods discussed hopelessness and feeling like giving up. I explored how my peers coped with the stress of the PhD: knitting, hockey, cooking, crafts, making jewellery, singing, yoga, or walking by the beach. Subsequently, the interventions I developed focused on enhancing PGRs coping resources, knowing what an important role coping plays in academic success (Neitzel and Stright 2003), and academic self-efficacy (Freire et al. 2020).

I discovered through this study that the most frequently used coping resource was the support of peers, and it was through these interviews with my peers, I developed my own support network. The encouragement from peers who were travelling through this with me was instrumental in keeping me on track. When things felt hard, I turned to them for support. They

have been there for me every step of the way, whether that involved listening to my problems and offering solutions or helping my daughter with her homework. I wonder how different my path would have been if I did not have these strong networks of support within my academic community.

The levels of attrition in postgraduate research are alarmingly high (Devos et al. 2017). Research is beginning to highlight the important role mental health and wellbeing plays in staying in postgraduate research (Berry et al. 2022). Not only does the work of PGRs generate scientific advancement and societal benefits, but PGRs represent future leaders of research and education. It is important that the loss of talent from academia at postgraduate research level is taken seriously by universities. It is vital that social support for PGRs is strengthened so that the knowledge, innovation, and research outputs of the next generation of PGRs are not lost.

As my research grew, so did the wider interest around PGR mental health and wellbeing. In May 2019, the UK Council of Graduate Education (UKCGE) launched their first International Conference on the Mental Health and Wellbeing of Postgraduate Researchers, gathering hundreds of researchers and education professionals to discuss this increasingly pertinent issue. The conference saw a key-note speech from Katia Levecque and preliminary data being shared from the recipients of the HEFCE funding. This early research included work from then master's student Jelena Millicev, who has since continued her research to PhD (Milicev et al. 2021). Dr Patricia Jackman and Dr Kelly Sisson presented their work on early stage PGRs and creating a person-centred induction (Jackman et al. 2022a) and Dr Clio Berry and Dr Cassie Hazell from the University of Sussex presented their U-DOC study, which delivered many outputs (Hazell et al. 2021b). Multi-disciplinary research teams from across the UK were helping to further understand the issue. I remember feeling so excited to be a small part of the rapid expansion of research interest.

The years that followed led to a steady stream of publications from the UK research teams that were spearheading this issue. The work of these female academics that I met at the start of my PhD created the body of evidence on which I based my research questions, but more importantly, their discussions and thoughts shaped and inspired my ideas. From this, I made links with the Smarten Network (SMaRteN), who were conducting research and providing funding for studies concerned student mental health, including postgraduate students. This provided me a wider support network of like-minded researchers. They launched a weekly virtual lab group for early career researchers and PhD students. Again, I found solace and inspiration from connecting with others in the academic community.

In the following year, the outbreak of COVID-19 led to national lockdowns across the UK and campus closures for the remainder of the academic year for many universities. The pandemic hit PGRs hard (Byrom 2020) and presented the ultimate test to coping resources. I was lucky to be able to continue my work as planned, transferring my research online. From what I was hearing and reading, the main problems my first study had highlighted pre-COVID remained but were exacerbated. The inevitable uncertainty of postgraduate research had increased, work-life balance worsened, financial concerns were amplified, and the tools and activities PGRs usually used to cope with stress were taken away. The ability to engage with peers and supervisors were limited, increasing isolation and loneliness.

The extent that intersectional factors affected the PGR journey was also intensified by the national lockdown that commenced in March 2020. The primary effects of COVID-19, including death and critical illness, affected everyone across the world. However, there were secondary effects that disproportionately affected certain groups in society including those from low socioeconomic status groups and women. These included negative impacts on education, employment, and mental health. The issue of digital poverty came to the fore (Falter et al. 2022), and with the largest burden of childcare being placed on women, this began to affect the work output and career trajectories of females.

Research began to highlight how female academics were submitting fewer manuscripts than their male counterparts during the pandemic, where women were carrying the larger burden of home-schooling and caring for children (Ribarovska et al. 2021). It was documented that this gender inequality in our society was having a detrimental impact on female academics' work capacity. It was evident from pre-pandemic data that female PGRs tend to report poorer mental health during postgraduate research than their male counterparts (Levecque et al. 2017; Hazell et al. 2020); this was an increasing concern during the pandemic (Byrom and Metcalfe 2020; Jackman et al. 2022b), with female students experiencing higher levels of anxiety and depression in comparison to males during this period (Chen and Lucock 2022).

The start of the pandemic coincided with the start of my second study, developing and co-producing interventions to support the wellbeing and resilience of PGRs at my university. At the same time, I was carrying the full burden of childcare in my household as my husband continued to work as a key worker and was sent on deployments despite the pandemic. Having a deployed partner and parenting alone was isolating before lockdowns, but the negative impact was exacerbated during COVID-19. Seeking support from my peers and focusing on progressing my research was how I continued to cope during this stressful time in all our lives. Despite the national lockdown, I worked with my team of PGRs and continued with my work, usually while balancing a 3-year-old on my lap with a colouring book. We created innovative and original

approaches to support others to cope with the fresh challenges the pandemic bought to postgraduate research. Looking back, it is ironic how continuing working to help other PGRs was what helped me stay motivated, gave me a purpose, and supported my own wellbeing during this time.

1.3   Conclusion

Here, I pause my personal reflection, ending the Prologue and beginning the discussion of my research findings. I will revisit my personal reflection in the final chapter, the Epilogue, where I will share my closing thoughts on my individual research journey. In this chapter I will further discuss how my research developed, and how I grew as a researcher, transitioning from student to academic.

Chapter 2 Introduction

2.1   Chapter Overview

The Prologue provided key context about where this research began and the position of the researcher. The researcher's personal reflections will be revisited in Chapter 9, the Epilogue. This introductory chapter continues to set the scene and introduces the research around the mental health and wellbeing of PGRs and explains the emergence of this area of research and begins to outline the underlying factors. This chapter will conclude by providing an overview of the thesis structure and the contents of each chapter.

2.2   Background

Concerns about the rates of poor mental health, suicide, and demand for counselling in students in higher education have increased in recent years (Eisenberg et al. 2007; Macaskill 2013; Williams et al. 2015). Most mental health problems first develop in adolescence or young adulthood (Kessler et al. 2005). The transition to university coincides with a period of critical development in adolescence (Duffy et al. 2019). During this transition, university students often move away from home for the first time and forge new social connections away from their usual support networks (Duffy et al. 2019). University students encounter significant psychological stressors and sleep disruption during this transition, that can result in maladaptive coping such as alcohol binging, drug use, and self-harm (Duffy et al. 2019). The mental health crisis in higher education appears to have been worsened by economic changes, restructuring in universities, and increasingly competitive job markets (Kotouza et al. 2022).

As applicant numbers to HE institutions in the UK reached record highs in 2020, 2021, and 2022 (Bolton 2023), the numbers of young people entering higher education continues to increase. The levels of mental illness, mental distress, and low wellbeing in UK higher education are high relative to other sections of the population (Thorley 2017). Therefore, supporting positive mental health and wellbeing of this growing population is a pressing concern. In response, the UK HE sector has undergone substantial strategy development to position student mental health and wellbeing as a core priority (Broglia et al. 2021b). This is demonstrated through the development of the University Mental Health Charter in 2019, advocating a whole-university approach to promoting good wellbeing (Hughes and Spanner 2019, 2020).

Despite the increased attention on the issue of student mental health, few studies have presented large-sample data about the prevalence in UK students (Bewick et al. 2010; Macaskill 2013). Yet, survey-based studies indicate that the levels of mental health problems and demand for counselling services are increasing (Thorley 2017). Further, research indicates that the

restrictions and increased stress during the COVID-19 pandemic put university students in the UK at an increased risk of developing mental health problems (Chen and Lucock 2022) and appears to be having a sustained negative impact (Savage et al. 2021). Lower resilience and poorer coping strategies, such as lower engagement in exercise, poorer sleep quality, and increased tobacco use were identified in UK students during this time (Evans et al. 2021).

As the rates of poor mental health and demand for counselling in HE students continues to increase (Thorley 2017), further research to understand the prevalence of student mental health and the underpinning causes is essential to inform policy and practice (Broglia et al. 2021a). There is a need for a combination of both large-scale prevalence data and detailed, nuanced, personal accounts of lived experience. Both forms of research, quantitative and qualitative, are needed for universities to respond effectively to the changing needs of students (Broglia et al. 2021a). Preventing poor mental health in HE has both personal and professional benefits for students, improving wellbeing and bolstering their academic success.

Until recently, most research around student mental health focused on undergraduate students. Yet, recent evidence suggests that depression and anxiety are just as prevalent among PGRs (Barton and Bulmer 2017), and psychological distress may be higher (Moss et al. 2022). PGR degrees in the UK include Doctor of Philosophy (PhD), Master of Philosophy (MPhil), Master's by Research (MRes), Engineering Doctorate (EngD), and other professional doctorates such as Doctor of Education (EdD) or Doctor of Clinical Psychology (DClinPsy). The term PGR indicates any student undertaking any one of these postgraduate research degrees. Unlike undergraduate or postgraduate taught students, postgraduate research focuses upon a single, autonomous piece of research. International research indicates a high occurrence of mental health problems, mental distress, and symptoms of anxiety or depression in PGRs (Pranger et al. 2014; Rummell 2015; Lipson et al. 2016; Levecque et al. 2017; Evans et al. 2018; Guthrie et al. 2018). Additionally, there is concern that PGRs may be less likely to disclose existing mental health problems (Thorley 2017) or access support services, believing that they are not entitled to or would not benefit from the provisions available for other students (Waight and Giordano 2018). Research has also identified the stigma that remains around accessing university mental health support, especially for international students (Maeshima and Parent 2022).

Concerns about attrition rates in postgraduate research have also been addressed in research (Hunter and Devine 2016; Devos et al. 2017; Spronken-Smith et al. 2018). Although there is a lack of investigation on the determinants of attrition in postgraduate research, research is beginning to highlight that mental health problems may predict attendance problems (Berry et al. 2022). PGRs that experience poor mental health are more likely to be absent during their postgraduate research degree programme (Berry et al. 2021), discontinue their research

(Hunter and Devine 2016), or interrupt their studies (Berry et al. 2022). A survey of PGRs studying in the UK indicated that up to a third had considered interrupting their studies due to poor mental health (Hazell et al. 2021b). It is evident that the working environment of postgraduate research is implicated in the development or exacerbation of mental health problems (Levecque et al. 2017). This is of pressing concern to PGRs personally, and to the wider society. (Berry et al. 2021)

There are significant personal costs of attrition, including limitations to career trajectory and opportunities to succeed in research, and a loss of future leaders in academia. In addition, there are great societal costs of PGRs not completing their research. Postgraduate research is a major source of scientific advancement and societal benefit in the UK, contributing to the position of the UK as a leader in research and innovation. The continued success of PGRs is especially pertinent in the wake of its exit from the European Union, as the UK aims to position itself as an independent global powerhouse of research with demonstrable societal impact (Sousa and Brennan 2013). A loss of productivity, research findings, and innovation in HE results in a loss of advances in science, health and social care, business, engineering, and technology in the UK, Europe, and beyond (Zhan 2022). For the PGRs who continue a career in academia, they become the future educators and supporters of university students. Therefore, investing in PGR mental health is investing in the experience of future students in higher education.

It is increasingly important that universities have strategies for embedding support for those undertaking postgraduate research. Loneliness and poor supervisory support have been found to be mediating factors in attrition intentions, predicting mental-health related intermission of postgraduate research studies (Berry et al. 2022). Therefore, increasing social support may be an avenue to improve wellbeing, reduce attrition, and therefore increase success in postgraduate communities.

In reaction to these concerns being raised by researchers, HE institutions, funders, charities, and the media in the UK have become increasingly focused on the issue of PGR mental health and wellbeing. In 2018, Vitae published a report that was funded by the Higher Education Funding Council for England (HEFCE): Exploring wellbeing and mental health and associated support services for postgraduate researchers (Metcalfe 2018). This report outlined the key issues affecting PGRs in the UK including supervision, financial concerns, and workload. As a result of this, Research England and the OfS launched a Catalyst Fund call. This provided funding for 17 projects led by research teams within UK universities, of which the researchers' university was a recipient. The funding was used to explore PGR mental health and wellbeing and begin to implement interventions to negate the challenges of postgraduate research (Metcalfe et al. 2020). Since this rapid increase in research, charities have launched events and resources for

universities and PGRs, such as the UKCGE annual international conference: the Mental Health & Wellbeing of Postgraduate Researchers and Student Minds' The Wellbeing Thesis (Student Minds 2020). Also, the annual UK Postgraduate Research Experience Survey (PRES) introduced new questions in 2017 about wellbeing, beginning to track data relating to perceptions of work-life balance and satisfaction with life.

The rise in research interest and the acknowledgement and discussion of PGR mental health and wellbeing is a positive step forward. The view that struggle, stress, and poor wellbeing are a normal part of postgraduate research is now being challenged (Metcalfe 2018; Metcalfe et al. 2020). Many survey-based studies have been conducted, further exploring the mental health challenges affecting PGRs. However, there remains a lack of evidence-based, theory-driven interventions addressing the issue within the UK HE context. This research project is concerned with developing and trialling new interventions, that are grounded in the research evidence and psychological theory, to support the mental health, wellbeing, and resilience of PGRs studying at one UK university. Prior to developing new interventions, understanding the prevalence and factors underlying the mental health and wellbeing of PGRs is imperative. Previous interventions that have been implemented in this context should also be reviewed, to identify the limitations of the current research evidence. From these findings, evidence-based interventions can begin to be designed to mitigate the negative experiences and promote wellbeing, resilience, and coping in PGRs, supporting a mentally healthy and successful postgraduate research community.

2.3   Outline of the thesis

Earlier conceptualisations of mental health position good mental health and mental illness at the opposite ends of one spectrum. Bipolar models of mental health infer that individuals fall into dichotomous categories: mentally healthy or mentally ill. However, there is growing consensus that good mental health is not just the absence of a mental illness, such as depression or anxiety (Westerhof and Keyes 2010). Dual-continua models provide an alternative to bipolar models of mental health and mental ill health, viewing mental health and mental illness on two distinct continua (Keyes 2002). This way of viewing mental health and mental ill health view the concepts as related but distinct. This understanding allows the belief that positive mental health can be built in those who have a diagnosed mental health problem (Seligman et al. 2005).

Recent consensus is that there are several different facets or concepts relating to mental health and mental illness that can be tested and measured independently (Iasiello and Van Agteren 2020). This shift in thinking bought about the study of positive mental health and psychological wellbeing to the fore. Psychological wellbeing encompasses several factors such as self-acceptance, autonomy, meaning in life, environmental mastery, healthy relationships with

others, and personal growth (Ryff and Keyes 1995). More recently, Seligman's positive psychology movement includes the PERMA theory of wellbeing (2011), presenting a range of dimensions that contribute to the experience of wellbeing: positive emotion, engagement, relationships, meaning and accomplishment.

With this theoretical paradigm shift, the research focus has also shifted from the study of mental illness to the study of good mental health (Huppert 2009). Likewise, many charity, sector, or university-funded initiatives have focused on promoting wellbeing: population-based strategies to promote self-care. This provides new avenues for intervention development, designing proactive, preventative interventions (Iasiello and Van Agteren 2020). The current study was concerned with the development of such preventative interventions specifically for the target population of those undertaking postgraduate research. This current study sought to identify remedial factors to promote mental health and wellbeing and test them on a small scale.

The thesis outlines a multi-phase, mixed methods study aiming to improve the mental health and wellbeing of PGR students at one UK university through the development of new interventions that are evidence-based and theory-driven. Firstly, this project was concerned with understanding the specific issues facing PGRs at the institution, producing an evidence base. Secondly, the research focused on exploring how these factors could be mitigated through interventions by developing and piloting a range of novel initiatives, based on theories of coping. These new interventions were designed and piloted as part of a feasibility study. Feasibility studies are relied upon to produce initial findings that determine whether an intervention can be recommended for further implementation on a larger scale (Bowen et al. 2009). As part of this iterative process, these co-produced interventions were then evaluated with the participants. The outcomes of this extensive evaluation provide considerations and recommendations for supervisors, doctoral schools, and universities to support mentally healthy and successful postgraduate research communities within UK HE and beyond.

To begin the process of designing these new interventions, the current literature was reviewed to integrate and amalgamate the existing research evidence. This literature review chapter had three main focuses. The focus of the first search of the literature was to establish the current national prevalence rates of poor mental health in PGRs. The second review sought to identify the known factors affecting PGR mental health and wellbeing that have been explored through research in the UK. The third review located interventions that have been undertaken in the UK to address the issue of PGR mental health and wellbeing. The subsequent chapter, Chapter 3, outlines the findings of the literature reviews. These findings allowed the researcher to establish gaps in the current understanding of PGR mental health and wellbeing, and the aims and research questions for the research were derived from these.

In Chapter 4, Methodology, the research methods and over-arching methodological assumptions are discussed at length. This focuses on the mixed methods paradigm and where the research is situated on the spectrum between qualitative and quantitative methods, and how these were combined optimally. This chapter also explores the theories around co-production in research, especially in student mental health, ensuring the student is at the heart of decision making in the design of interventions to support their mental health and wellbeing. In addition, it provides justification of the use of a feasibility study design, and why this was most appropriate for this research. Finally, ethical considerations are outlined, particularly focusing on insider research, researching student mental health and wellbeing, and the conflict between humanisation and confidentiality.

In Chapter 5, the results from the primary research begin to be discussed. The first step in the development of new interventions is to understand the problem and establish the causal factors with the greatest scope for change. In the first phase of the research, named Phase 1: Assessment Phase, PGRs from the institution participated in an online survey and follow-up interviews. This discrete mixed methods study aimed to explore the factors that affect the mental health, wellbeing, and resilience of PGRs from the institution. The purpose for this phase of the research was to identify the key factors underlying the mental health and wellbeing of these individuals, providing an evidence base for the subsequent intervention design. The survey findings pinpointed the key casual factors affecting PGR wellbeing. In addition, the qualitative results were used to explain the quantitative findings, providing the researcher personal, nuanced accounts of individual experiences. The overview of the methodology, findings, and discussion of this study's results are found within this Chapter.

The researcher then moved to the second phase of the research: Phase 2: The Development Phase. The process of developing these interventions is discussed in Chapter 6. The purpose of this phase of the research was to identify how the wellbeing of PGRs may be promoted, and the best way to deliver this. The outcomes from the Assessment Phase were shared with a group of PGRs who volunteered to support the development of the interventions. The researcher conducted and recorded focus groups to generate these initial ideas. From the analysis of these conversations, and further discussions with the study supervisors, the researcher identified four intervention ideas: project planning, mindfulness, mentoring, and a peer forum. With the help of two PGRs and the lead project supervisor, the four interventions were designed and piloted.

The final phase of the project involved implementing and evaluating these four novel wellbeing interventions within a feasibility study. The four interventions were based on coping theory, targeting adaptive ways of coping such as problem solving, support seeking, and self-reliance. The goal of this phase of the research was to test, refine, and evaluate the intervention ideas to

collect evidence to support wider implementation of these initiatives. The methodology and mixed methods findings are disseminated in Chapter 7, where the recruitment, engagement, adherence, and perceived benefits of the interventions were evaluated.

Chapter 8 reflects on each phase of the research and provides a discussion of the challenges, limitations, and feasibility of the four co-produced novel interventions, and recommendations for further national research. It also provides considerations and recommendations for supervisors, doctoral schools, and universities to support mentally healthy and successful postgraduate research communities within UK HE and beyond. Finally, Chapter 9 revisits the researcher's reflection on their research journey, before concluding the thesis.

Chapter 3 Literature Review

3.1   Chapter Overview

The previous chapter provided an overview of the current understanding of HE student mental health and the increasing concerns around the wellbeing of those undertaking postgraduate research. The chapter also described the outline of the thesis and the iterative process of developing and piloting new interventions to promote the wellbeing and resilience of PGRs. The first step in intervention development is to clarify the problem by examining the existing literature. Integrating a body of studies relating to the chosen research area allowed the researcher to draw conclusions about issues and identify gaps in the evidence to inform the next steps of the research (Siddaway et al. 2019). The Medical Research Council (MRC) advocate that a substantial evaluation of the existing evidence should be undertaken before an intervention can be developed (Craig et al. 2008).

As the HE sector is increasingly looking for policy and practice initiatives to tackle poor mental health (Dodd et al. 2021), it is important to first establish the scale of the problem and the underlying causes. Since research has shed light on the mental health and wellbeing of PGRs, there has been a rush to action by universities. Consequently, there is a risk of implementing interventions to tackle the development of mental health problems in the absence of robust prevalence rates or complete understanding of the issue (Barkham et al. 2019).

Therefore, this chapter is focused on systematically gathering research that has measured PGR mental health, has explored the underpinning causes, or has implemented remedial strategies. This comprehensive overview of the existing literature will help to identify the gaps in the research and guide the focus of the new interventions. The findings of these literature reviews provide a strong understanding and an evidence-based rationale for the current research. This chapter will uncover and amalgamate the current understanding of the mental health and wellbeing of PGRs studying in the UK. This literature review strategy aimed to answer the following three questions:

1.   How has the mental health and wellbeing of PGRs studying in the UK been measured in research?

2.   What are the factors affecting the mental health and wellbeing of PGRs studying in the UK?

3.   What existing interventions have been implemented to promote the positive mental health and wellbeing of PGRs in the UK?

3.2   Methodology

To consolidate the evidence needed to provide the rationale for the current research and shape the research questions, three focused literature reviews were conducted. Each review provides a piece of the puzzle, creating a comprehensive overview of the research surrounding PGR mental health and wellbeing. The researcher used a range of methods, including scoping and narrative reviews, gathering data from qualitative, observational, and experimental research.

The decision was made to focus the reviews on PGRs studying in the UK only. It is important to consider the difference in HE landscapes between countries when applying the findings from international research. For instance, Levecque et al. (2017) highlight several differences between European and North American postgraduate research programmes, including fee structures, funding, publication requirements, and course length. Although Levecque et al conclude that the experience of PGRs is likely to be comparable across countries due to globalisation and the high mobility of academic researchers internationally, only studies conducted in the UK were included in these reviews. This was completed by reviewing the titles and abstracts of located articles and disregarding primary research that was conducted outside of the UK context. Studies that included PGRs studying in the UK within a larger sample of students across other countries were also excluded from the literature reviews. This develops an evidence-base that best represents the context in which this research project was conducted.

Figure 3-1 demonstrates the process of the literature searches and the aim of each element of the literature review.
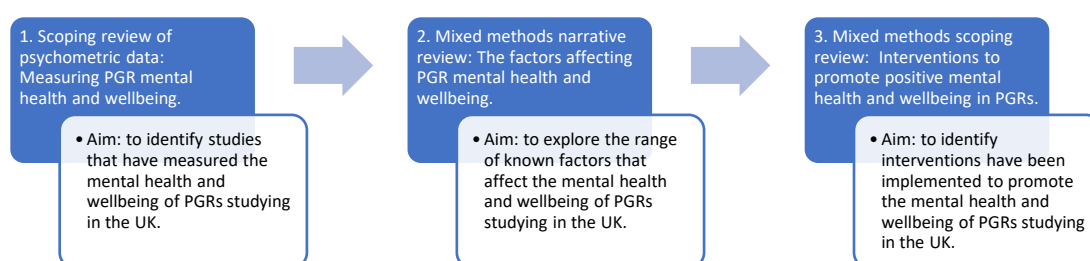
Figure 3-1   Literature review methodology and aims

Firstly, to begin to consider remedial strategies to promote PGR mental health and wellbeing, it was essential to identify how it is measured and conceptualised within existing literature. The first review searched for peer-reviewed original research that has measured the mental health

or wellbeing of PGRs studying in the UK. This search provided an in-depth coverage of the available literature that focuses on the UK postgraduate research context. The first review used a scoping review methodology. Scoping reviews are a form of literature synthesis used to identify all available information on a given topic, and how this is measured in the current research (Colquhoun et al. 2014), to draw conclusions of the overall state of research activity (Arksey and O'Malley 2005).

Scoping reviews are a descriptive approach, designed to chart or map the volume of existing literature on a topic to identify gaps in the body of evidence. The Arksey and O'Malley (2005) methodological framework for scoping studies was adhered to, ensuring that the review was conducted in a rigorous and transparent way. The stages of Arksey and O'Malley's framework are outlined in Figure 3-2. The scoping review is structured within the framework, allowing transparency of decision making during the process of the review.

Stage 1: Identifying the research question

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Stage 2: Identifying relevant studies

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Stage 3: Selection of studies

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Stage 4: Charting the data

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Stage 5: Collating, summarising, and reporting the results
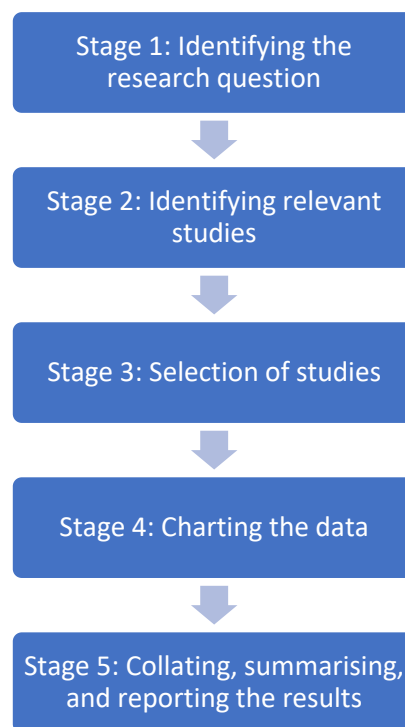
Figure 3-2   Arksey and O'Malley's Framework for Scoping Studies (2005)

Once all literature that had measured the rates of mental health and wellbeing of PGRs studying in the UK had been consolidated and summarised, the second literature search focused on the factors that may predict poor mental health and wellbeing. This review took the approach of a mixed methods narrative review. A narrative review is an appropriate method when the studies of concern have adopted diverse methodologies and have examined different constructs (Siddaway et al. 2019). Narrative literature reviews synthesize the results of quantitative and qualitative studies with no reference to the statistical significance of the findings (Siddaway et

al. 2019). A narrative approach is useful to provide a historical account of the development of research on a topic (Baumeister and Leary 1997). The researcher deemed this an appropriate method to collate and describe the rapidly emerging research interest in the factors affecting the mental health and wellbeing of PGRs.

The third literature search focused on locating published research that had implemented and evaluated remedial strategies to promote good mental health in PGRs. This search aimed to identify gaps in the existing literature, and summarise the research activity in this area to date (Arksey and O'Malley 2005). Again, this review focused solely on interventions that were conducted within UK higher education, to focus on the most relevant approaches undertaken in the same education context. A scoping review framework was adopted for this review, adhering to the steps outlined by (Arksey and O'Malley 2005).

These three focused searches assemble and synthesize the evidence from methodologically diverse research on the mental health and wellbeing of PGRs. This collation of evidence helped the researcher understand the current gaps and limitations of the research area, shaping the current research questions, and future opportunities for interventions. An overview of the literature review process and findings are presented within Figure 3-3.
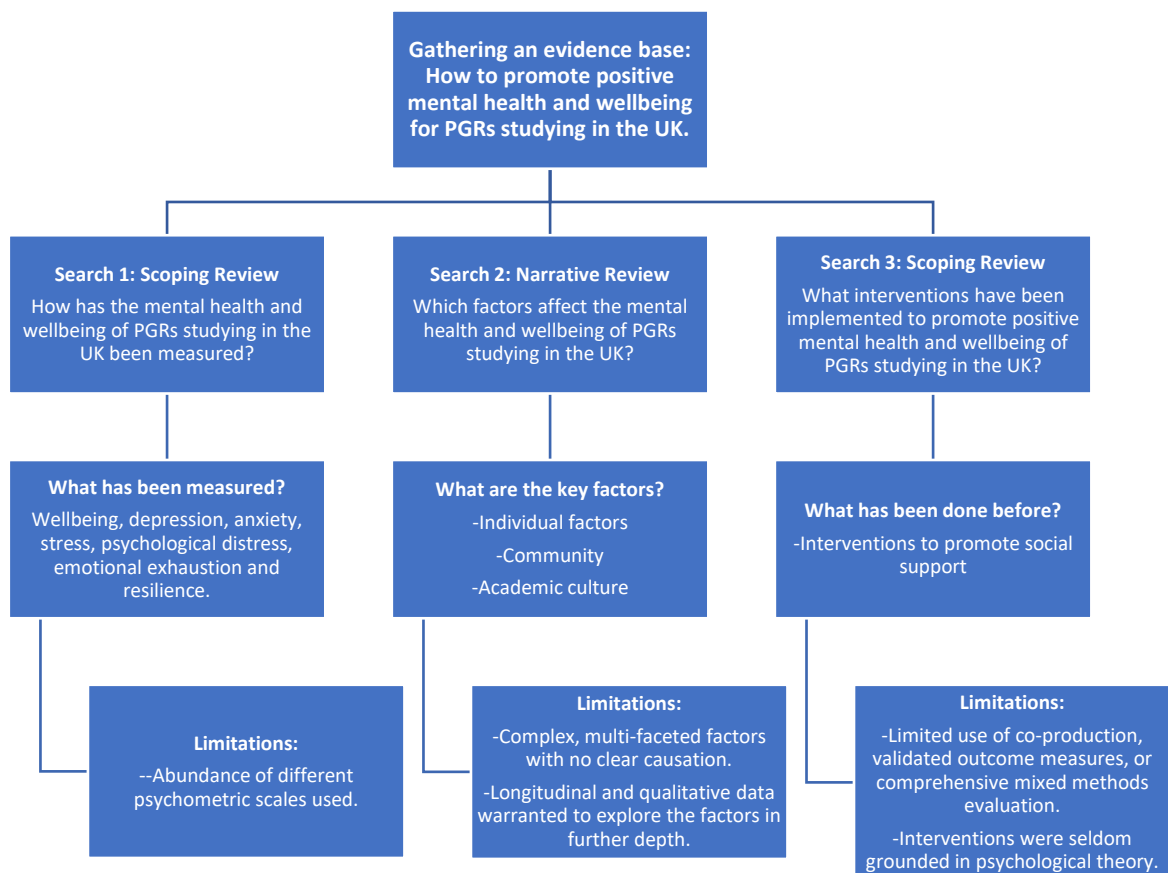
Figure 3-3   Literature review overview

3.3 Search 1: Measuring PGR Mental Health and Wellbeing

3.3.1 Introduction

To date, much of the research around university student mental health and wellbeing focuses on undergraduate students. However, more recently, both academic research and the media have begun to identify high rates of psychological distress and mental health problems in PGRs (Hazell et al. 2020). These concerning rates of mental health problems pose a significant threat to academic engagement, success, and research degree completion (Berry et al. 2022). This has consequences for PGRs and their institutions, as postgraduate research makes up a large proportion of university research outputs in the UK. Therefore, it is imperative to understand the rates of poor mental health and wellbeing in this group, and the contributing factors.

One of the first group of researchers to disseminate this growing concern around PGR mental health was Levecque et al. (2017) in their study of 3695 PGRs in Belgium. They reported that up to a third were at risk of developing a mental health disorder. Reports from the US indicate an even higher prevalence (Pranger et al. 2014), and data from multiple countries internationally suggest that up to 40% of PGRs were at risk of anxiety (Evans et al. 2018). Robust evidence from a recent meta-analysis including 1261 PGRs demonstrated high rates of stress in comparison to the general population (Hazell et al. 2020). In recent years, researchers from the UK have begun to measure the mental health of PGRs studying in the region, with concerning prevalence rates identified (Hazell et al. 2021b; Milicev et al. 2021; Moss et al. 2022).

Often, data tends to combine postgraduate taught students with PGRs (Scott and Takarangi 2019), making it difficult to understand the true scale of the issue. Also, there is a large discrepancy between institutional figures and data obtained from survey-based studies; it is evident that PGRs may not be disclosing their mental health problems to their universities (Thorley 2017). Therefore, it is difficult to gauge the magnitude of the issue. Universities have a duty of care to all their staff and students and have rushed to implement remedial action in reaction to the stark statistics regarding PGR mental health and wellbeing. However, this may have led institutions to implement actions with the absence of robust evidence and prevalence data (Barkham et al. 2019).

To develop effective interventions for this group, a strong evidence-base of empirical research using high quality measures is needed, that pertains to the specific group. Only then can relevant, evidence-based remedial factors be implemented. Therefore, the aim of this review was to identify research that has measured the mental health and wellbeing of PGRs studying in the UK using psychometric scales. The purpose of this review is to draw clear conclusions of the scale of the research area and identify gaps or inconsistencies in the literature.

3.3.2   Methodology

A scoping review methodology was selected to conduct this review. A scoping review is a type of knowledge synthesis to map all available evidence on a topic and identify knowledge gaps. Unlike systematic reviews that aim to answer specific questions, scoping reviews are useful for broader questions of this kind. They can be used to examine the extent, range, and nature of the evidence relating to a research area (Tricco et al. 2018). The review question lends itself to a scoping review methodology as they are used to identify gaps in the literature to determine the planning of future research (Tricco et al. 2018). To ensure transparent reporting of results, the methodological framework produced by Arksey and O'Malley (2005) was followed. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist was used to aid decision making and enhance methodological rigour.

Framework Stage 1: Identifying the Research Question

It is important that a scoping review has a clearly defined research question (Levac et al. 2010), however, a wide approach is advocated in order to generate a breadth of coverage (Arksey and O'Malley 2005). The research question that was formulated for this search was: how has the mental health and wellbeing of PGRs studying in the UK been measured? This research question clearly focused on the UK HE context but was left deliberately broad to encompass studies that measure mental health (and related terms such as anxiety, depression, and psychological distress), wellbeing, and any other psychological resource such as coping or resilience.

Framework Stage 2: Identifying the Relevant Studies

A comprehensive search strategy was adopted to identify as many published primary studies as possible, providing a wide-reaching map of the research area central to the search question. Firstly, relevant articles were searched for through electronic databases. The university's EBSCO library database was used, which searches a range of relevant databases such as APA PsycArticles, APA PsycInfo, Education Source, ERIC and others. The researcher decided to search within a chosen timespan, including only studies published since 2010. Since this time, major policy and financial changes have occurred in the UK HE sector, affecting the student experience. Searching within this timespan ensured the most current context was reflected.

The search strategy for electronic databases was developed, with the support from library professionals, relevant to the research question and definitions of key concepts. The scoping review was part of an ongoing process of reviewing, with the databases first searched in 2019, and continually updated throughout the process of thesis writing, repeating steps to ensure that the most up-to-date literature was included. To this end, the researcher did not place strict

limitations on search terms at the outset. Database searching was an iterative process over several years; the researcher adapted the search terms in a reflexive way.

Additional hand searches were conducted on reference lists and citations of relevant studies to identify other eligible articles that were not captured within the searches. This was a valuable exercise, locating additional relevant sources that were included in the scoping review. Existing knowledge of networks and conferences relevant to the research area also generated information about new or upcoming publications. Engaging in the SMaRteN Network and annual UKCGE International Conferences on the Mental Health and Wellbeing of Postgraduate Researchers allowed the researcher to stay abreast of the newest research throughout the writing of this thesis.

Framework Stage 3: Study Selection

After the initial database search included several irrelevant studies, the researcher developed inclusion and exclusion criteria based on the research question to refine the articles to be included in the review. After the initial search of electronic databases, articles were imported into EndNote for de-duplication and abstract screening. The abstracts were reviewed in line with the inclusion and exclusion criteria outlined in Figure 3-4.

Inclusion criteria	Exclusion criteria
Peer-reviewed articles written in English	Articles that include PGRs combined with other student samples, such as postgraduate taught students
Samples including students from any postgraduate research degree at a UK university	Articles that include PGRs combined with other academic staff, such as early career researchers.
Cross-sectional quantitative survey design including a psychometric scale to measure mental health or wellbeing	

Figure 3-4   Inclusion and exclusion criteria

Framework Stage 4: Charting the Data

Often termed "data extraction" in a systematic review, charting the data involves organising the knowledge obtained through the scoping review into themes (Arksey and O'Malley 2005). Details were extrapolated from the studies based on the research question, forming the basis of the analysis, presented in Table 3-1.

The scoping review presents a collated summary of the breadth of research within the area of question, summarising the key characteristics of the evidence and analysing them in line with the research question. In relation to this search question, the ways in which mental health and wellbeing of PGRs studying in the UK had been measured were discussed within the results section. The overall weaknesses in study designs were identified, and what remains under researched was highlighted and explored in more depth in the discussion.

3.3.3 Results

From the scoping review of the literature, seven studies that measured mental health or wellbeing in samples of PGR studying in the UK were identified. These were observational, measuring mental health or wellbeing via self-reported psychometric scales, conducted via online survey. All surveys were performed cross-sectionally at one time point, with one exception that measured mental health and wellbeing at repeated timepoints (Gooding et al. 2023). Apart from one study conducted in 2012, all other included studies were published since 2020, indicating the recent rapid increase in interest in this research area.

Table 3-1 Study characteristics of included articles

Wellbeing				
Authors	Year	Location	Sample size	Psychometric scale
Byrom et al	2020	UK	431	Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)
Casey et al	2022	UK	50	WEMWBS
Moss et al	2022	UK	241	WEMWBS
Gooding et al	2023	UK	155	WEMWBS
Crook et al	2021	UK	585	WEMWBS
Juniper et al	2012	UK	1202	Juniper PhD Wellbeing Scale (JPWBS)
Casey et al	2022	UK	50	JPWBS
Depression				
Authors	Year	Location	Sample size	Psychometric scale
Berry et al	2021	UK	3033	Patient Health Questionnaire (PHQ)
Gooding et al	2023	UK	155	PHQ
Crook et al	2021	UK	585	PHQ
Anxiety				
Authors	Year	Location	Sample Size	Psychometric scale
Berry et al	2021	UK	3033	Generalized Anxiety Disorder Scale (GAD)
Gooding et al	2023	UK	155	GAD
Crook et al	2021	UK	585	GAD
Stress				
Authors	Year	Location	Sample size	Psychometric scale
Byrom et al	2020	UK	431	Perceived Stress Scale
Psychological Distress				
Authors	Year	Location	Sample Size	Psychometric scale
Moss et al	2022	UK	241	Kessler Psychological Distress Scale
Resilience				
Authors	Year	Location	Sample Size	Psychometric scale
Milicev et al	2021	UK	479	Brief Resilience Scale
Casey et al	2022	UK	50	Connor-Davidson Resilience Scale
Gooding et al	2023	UK	155	Resilience Appraisals Scale

Mental health and wellbeing were measured in PGRs studying in the UK using a spectrum of psychometric measures. Concepts that were measured included wellbeing, depression, anxiety, stress, psychological distress, and resilience.

The scoping review of the literature located five studies that measured the wellbeing using The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) (Tennant et al. 2007). The WEMWBS is widely utilised across disciplines and is said to be the most frequently used scale to measure the wellbeing of student samples (Barkham et al. 2019; Dodd et al. 2021). Dodd et al (2020) have disseminated, through academic journals and engagement in the SMaRteN network, the need for consistency in wellbeing measurement within student populations. Dodd and team advocate the use of the WEMWBS in student samples to standardise the approach. This may explain why the research groups in this area have adopted this standard approach to wellbeing measurement. Within PGRs studying in the UK, wellbeing was consistently reported to be low (Moss et al. 2022); significantly lower than population averages (Byrom et al. 2020; Crook et al. 2021; Casey et al. 2022). This was also reported in the longitudinal study to significantly decline over time (Gooding et al. 2023). Using the same method of measurement allows meaningful comparisons to be made between studies and presents the potential to amalgamate data in future research.

Other researchers opted to design or utilise wellbeing scales that specifically focus on the experience of PGRs. Juniper et al. (2012) presented a new instrument to assess the wellbeing of PhD students: The Juniper PhD Wellbeing Scale (JPWBS). Despite the scale's satisfactory internal reliability, the reproducibility and responsiveness has yet to be established (Juniper et al. 2012). The scale has seldom been utilised in academic research since its conception, although some UK universities, such as Imperial College London, have adopted it to track the wellbeing of their PGR students (Hargreaves et al. 2017).

Only one research team have since used the JPWBS in research into the mental health and wellbeing of PGRs in the UK (Casey et al. 2022). Rather than to establish one indication of wellbeing levels, the scale is designed to pinpoint which factors of the postgraduate research experience most affect wellbeing. The scale presents seven domains: Health and Home, Social, Supervisor, Research, Facilities, University, Development. Both Casey et al. (2022) and Juniper et al. (2012) that employed this scale in samples of PGRs studying in the UK, found Health and Home and Research were the top-rated domains affecting wellbeing, indicating homogeneity.

Three research teams investigated the prevalence of depression and anxiety in PGRs studying in the UK (Crook et al. 2021; Hazell et al. 2021b; Gooding et al. 2023). The Patient Health Questionnaire-9 (PHQ-9) was used to measure depression prevalence in all studies. (Spitzer et

al. 1999). The PHQ-9 is a widely used clinical assessment of the symptoms of depression including mood, sleep, interest, guilt, energy, concentration, attention, psychomotor slowing, and suicidality. Again, there was consistency in the measurement of anxiety, with all studies utilising the Generalised Anxiety Disorder 7-item scale (GAD-7) (Spitzer et al. 2006). The GAD-7 is scored between 0-21, respondents are coded as screening positive for generalised anxiety disorder if they score 10 or greater. Hazell et al (2021) and Crook et al. (2021) reported moderate to severe depression and anxiety in PGRs studying in the UK; significantly greater rates in comparison to a control group of educated working people (Hazell et al. 2021b). Similarly, Gooding et al (2023) reported that over a third of PGRs surveyed reached the clinical threshold for depression and anxiety.

One study measured stress in PGRs studying in the UK, using the Perceived Stress Scale (PSS) (Cohen et al. 1983). This scale is said to be validated in student populations (Warttig et al. 2013). Other researchers measured psychological distress in samples of PGRs. Moss et al. (2022) used the Kessler Psychological Distress Scale (Kessler et al. 2002) within their survey. This scale has demonstrably good internal consistency in higher education students (Sullivan et al. 2019). The findings from Moss et al. (2022) indicated that 70% of PGRs were experiencing mild-severe psychological distress, and significantly higher psychological distress in comparison to undergraduate students.

More recently, Casey et al. (2022), Milicev et al. (2021), and Gooding et al. (2023) have measured the concept of resilience: the ability to bounce back after adversity. Resilience has increasingly become a focus of mental health and wellbeing interventions in HE in recent years (Worsley et al. 2020), with research linking resilience to student mental health and wellbeing (Brewer et al. 2019). The three studies that measured resilience in PGRs studying in the UK used different measures. These included the Connor-Davidson Resilience Scale (Connor and Davidson 2003), the Resilience Appraisals Scale (Johnson et al. 2010), and The Brief Resilience Scale (Smith et al. 2008). In PGRs, Casey et al. (2022) identified low resilience in comparison to the general population. The purpose of the studies by Milicev et al. (2021) and Gooding et al. (2023) was to report the extent to which resilience, among other psychological factors, predict mental health outcomes. Their results confirmed that resilience was linked to several mental health outcomes in PGRs. In summary, there is an indication that resilience within this population is low and may be a contributing factor to poor mental health and wellbeing. However, there is a lack of a standard measure for resilience, with several different scales used.

3.3.4   Discussion

This scoping review summarises a range of recent studies that have measured the mental health and wellbeing of PGRs studying in the UK using psychometric scales. Most of the studies were cross-sectional, only measuring mental health and wellbeing at one timepoint, meaning the researchers are unable to make estimations of incidence, especially as several studies used small sample sizes. However, the study conducted by Gooding et al. (2023) offered a longitudinal overview of wellbeing, depression, anxiety, and resilience levels. Although the 6-month period was relatively short, the results indicated a time-related decline in wellbeing.

Methodological strengths of the surveys included in this review are that they measured multiple outcomes, often measuring different facets on the spectrum of mental health. These included depression and anxiety, but also wellbeing and resilience, which are said to be contributing factors to mental health. In particular, the results provided in the study by Hazell et al. (2021b) were compared to a control group of educated working people, providing greater comparability and a bench mark to compare results. However, it is imperative to consider selection bias within these studies. The prevalence rate of mental health difficulties identified in this group of studies far exceed national estimations, with only 3% disclosing mental health problems to their institutions in 2018/19 (Higher Education Statistics Agency 2021). It is possible that the surveys may have disproportionately attracted PGRs who were struggling with their mental health in comparison to those experiencing good wellbeing. It should be noted that females are more likely to experience poorer mental health at university, (McManus and Gunnell 2020), with many of the included studies reporting female-biased sample, this may have also skewed the findings.

The aim of this review was to identify research that has measured the mental health and wellbeing of PGRs studying in the UK. The review found a multitude of survey-based studies that have used psychometric scales measuring mental health and wellbeing. Except for resilience, the research groups that have investigated this issue were often in agreement of the best suited scale to measure each concept. The WEMWBS was commonly used to measure wellbeing, the GAD-7 for anxiety and the PHQ-9 for depression, and Kessler Psychological Distress Scale for psychological distress. This is likely due the sustained efforts of Dodd, Barkham, Broglia, and colleagues, who have been working towards standardising the measurement of student mental health in the UK (Barkham et al. 2019; Dodd 2020; Broglia et al. 2021b; Dodd et al. 2021). These researchers have made efforts to disseminate the need to standardise these measurements in university mental health services and academic research, to work towards a large data base that can be shared to inform best practice across the sector. Their continued engagement with the SMaRteN network is likely to have informed the choices and justification of measures used by

researchers in the area. Using the same method of measurement allows meaningful comparisons to be made between studies.

When looking at the body of research measuring the mental health and wellbeing of PGRs internationally, there is far more variation in the measures used to gauge mental health prevalence. This makes understanding of mental health problems and poor wellbeing in PGRs more difficult (Schmidt and Hansson 2018; Scott and Takarangi 2019; Jackman et al. 2021a). It has been reported that the huge variable number of scales used to measure the concept used meant that typical meta-analysis procedures could not be used to aggregate the results of existing literature due to the heterogeneity of how wellbeing was defined (Hazell et al. 2020). The results of this scoping review show promise that the growing body of research focusing on the UK postgraduate research context is moving towards a standardised approach to mental health and wellbeing measurement and that meta-analyses would be possible in the future.

However, when looking at resilience, there were range of different psychometric measures used. There is a need for more consistency. A standardised approach has clear benefits, enabling researchers and universities to compare results to identify the level of resilience and track longitudinal trends. With the growing interest in interventions in higher education settings to boost individual resilience (Worsley et al. 2020), it is important that consistent measures are used to evaluate interventions to enable comparisons and share best practice with others (Dodd et al. 2021). When Vitae released their programme evaluation report which summarises the findings of the 2018 UK-wide Catalyst Fund initiative for the mental health and wellbeing of PGRs (Metcalfe et al. 2020), they expressed that it was not possible to judge the effectiveness of remedial strategies as different measures were used to evaluate the work. Due to the different evaluation methods, the data could not be easily consolidated. If standardisation was achieved, data from different researchers, countries or educational contexts could be easily aggregated. From this, universities can implement evidence-based, tailored interventions and support provisions to improve the resilience of PGRs, thought to be a determinant of mental health and wellbeing.

Another observation about the body of existing research is the number of different concepts measured in relation to the mental health and wellbeing of PGRs. Six distinct concepts were measured: wellbeing, depression, anxiety, stress, psychological distress, and resilience. Measuring student mental health and wellbeing is complex due to the range of terminology used to describe similar, overlapping concepts. Imprecise terminology could hamper the field of student mental health research (Barkham et al. 2019). Previous literature reviews have highlighted the issue of differing, inconsistent concepts of wellbeing (for example subjective wellbeing, emotional wellbeing, psychological wellbeing etc) (Hazell et al. 2020). In addition, the

conflation of the terms wellbeing and mental health in student mental health research has been debated, many believing that wellbeing and mental health are independent constructs (Dodd et al. 2021). However, The World Health Organization (2005) describe positive mental health as the foundation for wellbeing, relating the two terms. Not clearly differentiating between wellbeing and mental health risks medicalising normal stress, specifically academic stress, clouding the distinction between everyday problems and serious mental health issues.

Most of the included studies gave a comprehensive explanation the concept they chose to measure, be it wellbeing or resilience, justifying and clarifying their choices (Byrom et al. 2020; Milicev et al. 2021; Casey et al. 2022). However, others did not provide a strong rationale for their choice. Previous literature reviews have highlighted the issue of conflating mental health terminology and the ambiguity this may create (Scott and Takarangi 2019). To draw clear conclusions from the literature, mental health and wellbeing needs to be clearly conceptualised using consistent terminology (Scott and Takarangi 2019). This also ensures that support resources are directed appropriately by universities (Barkham et al. 2019). For example, initiatives to boost resilience will be different than those designed to reduce psychological distress. Researchers should provide strong justification for why they are measuring a certain concept and not another, and these choices should align with psychological theories. Researchers seldom discussed the theoretical orientation of their research, such as an ecological perspective of health (Milicev et al. 2021). This is especially important when evaluating interventions, providing a clear justification for outcome measures and the underpinning theories on which initiatives were based. Theory-driven, heterogenous approaches to operationalising these concepts extends understanding.

Limitations

This review has several limitations. The scoping method of reviewing literature does not formally appraise the quality of research evidence. Consequently, scoping studies provide a descriptive summary of available research. However, this review does map volume of published articles focusing on the mental health and wellbeing of PGRs studying within the UK, providing a succinct summary of the body of research. Namely, this review highlighted the emergence of an evidence base for PGR mental health and wellbeing in the UK, with researchers using consistent measures for wellbeing, depression, and anxiety. This highlights the opportunity for future researchers to conduct systematic reviews or meta-analyses to amalgamate prevalence rates that could be useful in practice or for the design of future research.

This review also identified gaps in the evidence base highlighting other future directions for research. One recommendation is the need for a higher education-specific, shared definition of resilience and a standardised approach to measuring this (Brewer et al. 2019). Future

researchers should also ensure they provide a clear definition, conceptualisation, and theoretical underpinning of the psychological concepts they chose to measure to advance knowledge.

Conclusion

The aim of this literature review was to identify research that has measured the mental health and wellbeing of PGRs studying in the UK. This summary of the relevant literature demonstrates the homogeneity of measures used to investigate wellbeing, but disparity in the conceptualisation of other concepts, such as resilience. This provides further evidence of the abundance and diversity of psychometric scales used within this research area (Mackie and Bates 2019; Hazell et al. 2020), further endorsing the call for a standardised approach. This means that reviews can be conducted in the future using more systematic processes and meta-analyses that can statistically explore and aggregate the data from different PGR samples to provide more robust prevalence rates.

All papers included in this review reported concerns about the mental health and wellbeing of PGRs studying in the UK. However, it is important to highlight that most of these studies were cross-sectional, providing a snapshot of one time-point. Also, the use of self-report tools, although validated measures, do not equate to clinical diagnoses and are subject to bias. Overall, the evidence is young, with an abundance of research being published since 2020, where beforehand much of the prevalence data came from the US (Pranger et al. 2014), Europe (Levecque et al. 2017), or from international research (Evans et al. 2018). In this emerging research area, as more studies investigate mental health and wellbeing in PGRs, larger scale studies that use consistent terminology and measures and include comparison groups are required. There remains opportunities for researchers to work with universities across the UK to create larger data sets to benefit future research and practice (Barkham et al. 2019).

Future researchers should continue to take a theory-driven approach to this issue, providing rationale, justification, and aligning psychological theories with their methodological approaches and selection of outcome measures. Vitally, further research is needed to understand the factors contributing to the poor mental health and wellbeing of PGRs studying in the UK. The challenges that underpin this should be explored through qualitative and quantitative analysis at different timepoints to develop beneficial interventions that are more aligned to the specific needs of PGRs.

3.4   Search 2: The factors affecting PGR mental health and wellbeing

3.4.1   Introduction

Until the beginning of 2018 there was a paucity of research evidence relating to the mental health and wellbeing of PGRs studying in the UK, with few exceptions (Juniper et al. 2012). However, since the national report by Metcalfe (2018) and subsequent funding call, there has been a growing body of research on the postgraduate research experience in the UK, as outlined in the previous scoping review.

This emerging evidence documents high levels of psychological distress (Moss et al. 2022), stress (Byrom et al. 2020), and depression and anxiety (Hazell et al. 2021b; Gooding et al. 2023) in this population. Research also highlights poor wellbeing (Byrom et al. 2020; Casey et al. 2022; Moss et al. 2022; Gooding et al. 2023), and low resilience (Milicev et al. 2021; Casey et al. 2022; Gooding et al. 2023); considered to be determinants of mental ill health. Despite this growing body of evidence that highlights a crisis of mental health in UK postgraduate research, the origins or contributing factors are unsubstantiated. It is understood that poor mental health during postgraduate research has significant personal consequences and contributes to study disengagement and attrition (Berry et al. 2022).

The report that was published by Vitae: "Exploring wellbeing and mental health and associated support services for postgraduate researchers", began to identify the factors affecting PGR mental health and wellbeing in the UK (Metcalfe 2018). The reported listed academic pressures, the supervisory relationship, finances, workload, and isolation as key factors contributing to poor mental health. It also identified groups of PGRs studying in the UK that may be more susceptible to mental health challenges: international researchers, those that study part-time, those with disabilities, and those with family responsibilities. Results from a recent systematic review and meta-analysis also indicate that female PGRs may be more at risk (Hazell et al. 2020). However, the causal factors remain contested, with literature highlighting a magnitude of complex and intertwined contributing variables.

Understanding the risk factors for poor mental health and wellbeing in PGRs can help to develop preventative interventions. It is important that the factors that pertain specifically to the UK postgraduate research experience are explored to ensure relevancy to the context of this research project. Therefore, the decision was made to focus solely on research that includes PGRs studying in the UK, due to international differences in course structure, funding, and fees (Levecque et al. 2017). Therefore, the aim of this narrative review was to explore the range of known factors that affect the mental health and wellbeing of PGRs studying in the UK. For this reason, studies that included PGRs from outside of the UK were excluded.

3.4.2   Methodology

Narrative reviews are a form on non-systematic review that describe and discuss the state of the research evidence in relation to a specific topic (Greenhalgh et al. 2018). However, such reviews may still take a systematic approach to data base searching, including a focused research question and inclusion and exclusion criteria. A narrative review is an effective method where there are diverse methodologies that have examined different constructs (Siddaway et al. 2019). The aim of a narrative review is to deepen understanding and expand knowledge by judiciously and purposively selecting research relevant to the search question to explore (Greenhalgh et al. 2018), providing the researcher's interpretation and critique.

To represent the underpinning evidence, an integrative and critical approach was taken to collating the known factors that affect the mental health and wellbeing of PGRs studying in the UK. This review aims to highlight the current state of knowledge including qualitative and quantitative data, using appropriate critical appraisal tools for quantitative work and quality indicators for qualitative research (Tracy 2010). The most up to date research was reviewed to identify gaps, uncertainties, or unanswered questions (Baumeister and Leary 1997; Greenhalgh et al. 2018).

3.4.3   Results

Overview of Literature

A literature search located 20 relevant papers that explored the factors that contribute to the mental health and wellbeing of PGRs in the UK. With one exception, most of the research has been published since 2020, in the wake of the catalyst funding and sector-wide focus on PGR mental health and wellbeing (Metcalfe 2018). The body of evidence consists mostly of cross-sectional, survey-based studies that explore a range of contributing factors to PGR mental health and wellbeing. Sample sizes of these surveys ranged from 50 to 3352 PGRs studying in the UK. Most studies used samples of PGRs from across the UK, others used samples from single institutions. Two studies collected data longitudinally (Morris 2021; Gooding et al. 2023). Five studies adopted a fully qualitative approach, and three used mixed methods that combined qualitative and quantitative data. The included studies highlight a diverse range of multi-faceted, intertwined, and complex factors.

The literature review is discussed thematically, based on Ecological Systems Theory (Bronfenbrenner 1992) which offers a conceptual framework that structures the influence each element of an individual's social environment. Bronfenbrenner's theory divides an individual's social environment into five layers: the micro-system, the meso-system, the exo-system, the macro-system, and the chrono-system, with the individual at the centre of the model. The micro-

system refers to one's immediate social circle, such as family and closest relationships. The meso-system is interconnected, involving peers and colleagues, for example. The Exo-system encompasses formal or informal social structures that influence the other layers. The macro-system includes the ideologies of culture, such as socioeconomic status, geographic locations, and ethnicity. Finally, the outermost layer, the chrono-system represents normative life transitions and historical events. The model is illustrated in Figure 3-5.
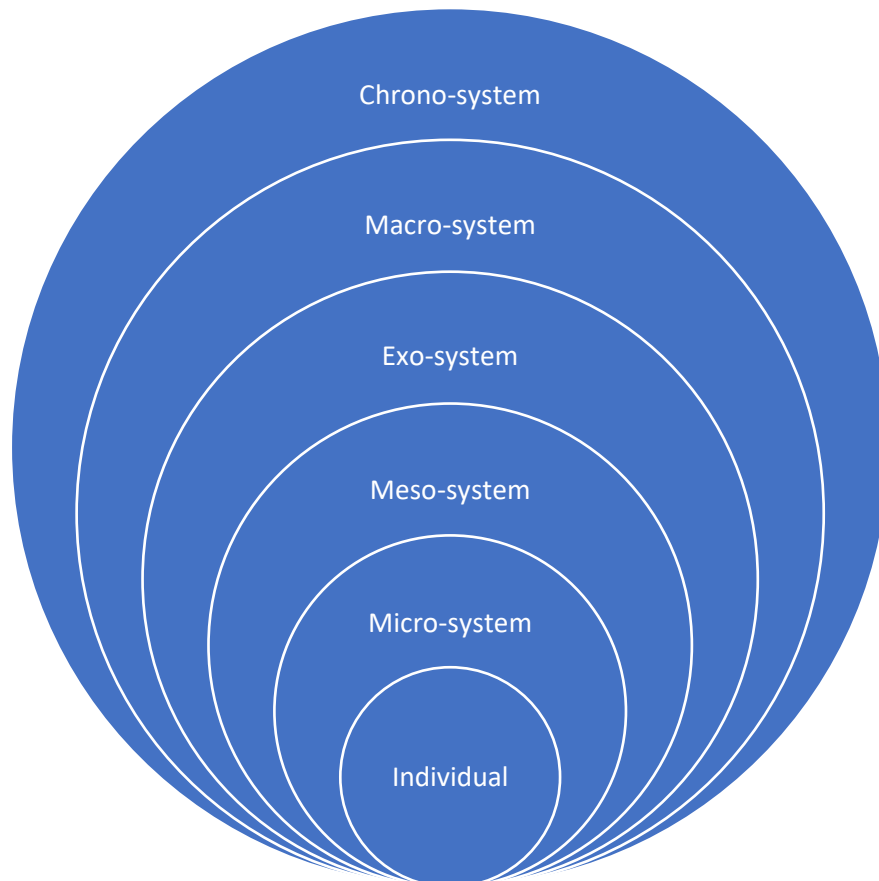
Figure 3-5   Bronfenrenner's Ecological Systems Theory (1992)

In relation to this review, individual factors refer to the personal and psychological factors individuals possess, and how these may predict their susceptibility to mental health problems. These include psychological resources such as personal resilience, self-efficacy, perfectionism, workaholism, and ways of coping. Psychological resources are defined as the mental dispositions or cognitive habits that may increase or hinder wellbeing (Hobfoll 2002). A PGR's immediate academic community, such as peers and supervisors, were also integral in shaping the postgraduate research experience; social support appears to be a predicting factor of good mental health and wellbeing. Bronfenbrenner (1992) describe these relationships as an individual's exo-system. Finally, the wider working conditions of higher education and academic culture have been extensively explored within this body of research. This is described as the macro-system (Bronfenbrenner 1992): the ideologies of the culture the individual is situated

within. This review will provide an overview of this evidence base, critically presenting the literature surrounding individual factors, community, and academic culture and how these interact to shape PGR mental health and wellbeing.

Individual Factors

Many studies explored individual factors that may determine the mental health and wellbeing of PGRs studying in the UK. These were often investigated within surveys that tested a multitude of factors. Certain psychological resources were found to be strong predictors of poorer mental health outcomes. Firstly, imposter syndrome and low self-belief were commonly explored constructs. There is strong evidence of the association between imposter thoughts and greater depression and anxiety, as documented in the U-DOC survey, the largest study of 3352 PGRs studying in the UK by Berry et al. (2021). The extent of imposter thoughts was one of the strongest and consistent predictors of mental health symptoms. Similarly, Byrom et al. (2020) concluded that self-depreciation was significantly related to mental wellbeing and perceived stress. Byrom describes self-depreciation as the criticism of oneself. However, the surveys that explored these similar concepts were cross-sectional, meaning the direction of these relationships cannot be deciphered. It could be that self-depreciation or imposter thoughts could predict mental health and wellbeing, but equally, experiencing poorer mental health may be predictive of the amount of imposter thoughts. Causality cannot be determined from the available evidence to date.

Further survey data documents this association, as self-belief has been found to be a key determinant of coping well with the demands of postgraduate research (McCray and Joseph-Richard 2021), and negative appraisals of academic challenges being found to predict anxiety in PGRs studying in the UK (Gooding et al. 2023). The survey conducted by the author (Casey et al. 2022) used the scale developed by Juniper et al. (2012) to explore the factors underpinning PGR wellbeing. The results from the small sample from UK universities revealed that items relating to confidence in one's own ability as a researcher and disappointment in their ability were some of the highest rated, indicating a potential relationship with wellbeing.

It could be assumed that self-efficacy may play a role in PGR mental health and wellbeing, however, no researcher has used a validated measure of self-efficacy within a sample of PGRs studying in the UK. Themes of self-efficacy and imposter thoughts were also highlighted within qualitative studies, elucidating the relationship between self-belief and mental health outcomes. Worries about one's capability and self-depreciation were prevalent issues discussed by samples of PGRs in interviews (Jackman et al. 2022a), and focus groups (Crook et al. 2021), with imposter syndrome thought to exacerbate existing wellbeing difficulties (Crook et al. 2021). The qualitative research illuminates this emerging concept, positioning this as a worthy topic.

Further investigation over longer time periods is warranted to further explore the experience of imposter thoughts and low self-efficacy during postgraduate research.

Perfectionism is another maladaptive individual trait that has been hypothesised to be a contributing factor to poor mental health and wellbeing of PGRs studying in UK higher education. Jackman et al. (2022a) highlighted in their qualitative study how perfectionism can be an unhelpful trait that may amplify perceived pressure during postgraduate research, presenting a variety of evocative experiences that resonate with the reader. Two survey-based studies have investigated perfectionism as a variable using regression models to provide robust evidence about the role of maladaptive perfectionism in PGR mental health. Measuring perfectionism using the same validated scale (Short Almost Perfect Scale (Rice et al. 2014)), Milicev et al. (2021) and Berry et al. (2021) found perfectionism to be a strong predictor of depression, anxiety, and suicidality. These relationships were confirmed by analyses conducted in large samples of 479 and 3352 PGRs respectively. However, despite perfectionism being a strong, consistent predictor of mental health outcomes within these studies, further research is needed to confirm this relationship.

Alternatively, three studies explored the psychological resource, resilience, thought to be protective of mental health. Casey et al. (2022) identified low resilience in a small sample of PGRs and triangulated this data with qualitative comments that discussed psychological strength and persevering in times of stress. This crystallization portrays more complexity, providing further understanding of the issue (Tracy 2010). Milicev et al. (2021) investigated resilience using a psychometric scale within a cross-sectional survey, linking personal resilience to several positive psychological outcomes within this study. Higher resilience was predictive of lower anxiety and depression, better sleep and wellbeing, and reduced suicidal behaviours. Gooding et al. (2023) conducted a longitudinal analysis which supported these findings. Their findings indicate that baseline resilience buffers against academic challenges during postgraduate research. PGRs who reported higher resilience felt more supported socially and experienced less anxiety when facing challenges during their research. Although this longitudinal analysis was conducted over a short period, the emerging evidence from these studies suggests that nurturing resilience may be an effective avenue of intervention.

Community

Consideration of the wider environment beyond the individual is imperative when investigating PGR mental health and wellbeing. A PGR's experience is shaped by close relationships with those in the communities they are situated in. Several studies have explored the effects of interpersonal relationships within the researchers' micro- and meso-system, as described by Bronfenbrenner (1992) as an individual's immediate surroundings. In the context of

postgraduate research, this refers to supervisory relationships and connections with peers and research communities. These relationships are thought to be the most influential factors affecting the mental health and wellbeing of PGRs, especially the relationship with their supervisory team.

Most of the studies located in this review investigated the extent to which the supervisory relationship affected the mental health and wellbeing of PGRs studying in the UK. Several studies quantified the role the supervisor can play in mental health, namely how the relationship can be preventative of the development of mental health problems or may exacerbate wellbeing issues. Evidence from large sample surveys indicate that poor supervisory relationships or reduced supervisory agency predicted greater absenteeism, attrition intention, depression, and anxiety during postgraduate research (Berry et al. 2021; Milicev et al. 2021; Berry et al. 2022). Of all predictive factors, including individual, relational, or social predictors of PGR mental health and wellbeing, supervisory relationship agency was one of the strongest predicting factors identified in the U-DOC study (Berry et al. 2021).

However, much of the evidence from research conducted in the UK highlights the protective role the supervisory relationship plays in PGR mental health and wellbeing. Wellbeing has been shown to have been positively affected by these supportive professional relationships (Crook et al. 2021), associated to lower ratings of stress (Byrom et al. 2020). Byrom et al. (2020) identified many positive ratings of supervisory support, highlighting positive experiences across UK postgraduate research. Likewise, respondents from the studies by Casey et al. (2022) and (Juniper et al. 2012) indicated on self-report scales that the supervisory relationship had the least impact on their wellbeing of all factors including social, university, research, and home-life. Results from Jackman and Sisson (2022) also evidenced positive experiences, with highs in personal wellbeing being underpinned by high support from supervisors. However, this study used a life-grid methodology, asking participant to self-report highs in their wellbeing during their degree retrospectively, so these findings are limited by recall bias.

Qualitative findings illuminate this delicate balance between supervisory relationships that exacerbate wellbeing problems and those that are protective. Qualitative studies investigate the nuances in these relationships and the importance of balance. Berry et al. (2020) highlight the importance of balancing supervisory support and encouraging researcher agency through the analysis of focus group data, and White et al. (2022) explore power imbalances in supervisory relationship and the role this may play in mental health and wellbeing of PGRs. These findings speak to the complexity of the supervisory relationship, potentially indicating that existing scales, such as the Juniper PhD Wellbeing scale that was utilised by Juniper et al. (2012) and Casey et al. (2022), may not have been able to capture the more subtle nuances of the

relationship and the power dynamics that may interplay with wellbeing. The qualitative explorations of the supervisory experience shed light on this complex relationship, providing a significant contribution by bringing clarity to the contradictions (Tracy 2010). This work presents a novel concept that can be further questioned and explored in future work.

Despite the contrasting findings about the role of the supervisor in PGR wellbeing, there is consensus of the centrality of supervisor support in the postgraduate research experience. McCray and Joseph-Richard (2021) reported that 71% of PGRs studying in the UK claim that their supervisor is their main source of support. Qualitative evidence highlights the important role supervisors have in facilitating belonging (Morris 2021) and positive experiences of postgraduate research overall (White et al. 2022). These studies provide thick descriptions of the importance of the supervisory relationship in helping PGRs to identify with their academic communities.

However, the supervisory relationship is just one pillar of a PGR's support network during their studies. A PGR's immediate academic community involves other academics and peers, these relationships also contribute to feelings of belonging. Several studies located in this review address the concept of belonging and its importance to mental health during postgraduate research. Existing data indicates that social connection to the immediate academic community is one of the most influential factors affecting the wellbeing of PGRs (Dutta et al. 2022). Likewise, survey data indicates that social support from academic peers reduces stress (Berry et al. 2021) and negative perceptions of academic challenges (Gooding et al. 2023). Specifically, relationships with peers appear to be particularly pertinent to wellbeing (Crook et al. 2021). Qualitative findings reveal the importance of support from peers and how this may combat isolation (Jackman and Sisson 2022), and negate loneliness (Casey et al. 2022) by presenting the emotional experiences of the participants.

Alternatively, qualitative studies have explored feelings of not belonging and the psychological impact this can have (Crook et al. 2021; Morris 2021), with PGRs often reporting feeling like outsiders. Reduced social contact during the COVID-19 pandemic appeared to exacerbate these feelings (Byrom 2020; Jackman et al. 2022b), making isolation more of a concern for PGRs. The U-DOC study (n=3352) provides robust evidence that feelings of isolation from academic communities is the strongest predictor of mental health symptoms (Berry et al. 2021) and attrition intentions (Berry et al. 2022). However, this body of studies reported, mostly comprising of survey data, used a diversity of terms to describe the notion of belonging or not belonging. Terminology ranged from social connection and social support to loneliness and isolation. The multitude of terms and lack of consensus of scales used to measure these feelings creates a complex picture. There is a strong indication of the important role that belonging

within academic communities plays in the mental health and wellbeing of PGRs, however, this requires further exploration using standardised measures. Currently, it is difficult to collate or amalgamate the evidence due to this disparity. Further thick, in-depth descriptions of the experiences of loneliness during postgraduate research would provide a significant contribution and expand understanding.

Academic Culture

The final layer of the Ecological Systems Theory (Bronfenbrenner 1992) is the macro-system. This refers to the outer layer of the postgraduate research context, which encapsulates the wider culture and attitudes of academia within the UK and how this permeates the other layers within the system. This describes the context that the PGR is situated within and the norms that they may internalise. The existing literature highlights systemic issues of overwork and workaholism in PGRs, due to the pressures of academia. Milicev et al. (2021) provide robust evidence from regression analyses that workaholism predicts anxiety, depression, poor sleep, poor wellbeing, and suicidal behaviours in PGRs. Self-reported workaholism was a predictor of more adverse mental health outcomes than any other variable. Qualitative data further elucidate these findings, explaining how there is guilt associated with dedicating time to self-care or activities that may promote wellbeing, due to the perceived pressure of academic work (Casey et al. 2022; Jackman et al. 2022a; White et al. 2022). This research is timely, illuminating the lived experience of those situated within this culture of over-work. Yet, it is important to consider that these studies were likely undertaken in the COVID-19 period, where stressors were exacerbated and homeworking during lockdown likely affected perceptions of work-life balance (Jackman et al. 2022b).

Results from the U-DOC study raised concerns about how struggles with mental wellbeing were normalised within peer groups and academic communities (Hazell et al. 2021b). Qualitative comments suggest how this perception may be perpetuated by social media (Casey et al. 2022), presenting compelling insights. Survey-based research located in this review also revealed a reluctance to seek mental health support in PGRs (McCray and Joseph-Richard 2021) and low mental health literacy, exacerbating psychological distress (Moss et al. 2022). In their analysis of suicidal ideation within the U-DOC cohort, Hazell et al. (2021a) revealed a reticence to discuss suicidal thoughts within universities, despite the quantitative findings indicating 20-35% of PGRs may be at risk of suicide. However, the researchers identify how self-selection bias may play a role in the overestimation of psychological distress in this sample (Hazell et al. 2021b). Also, it could be likely that the participants may have been primed to discuss suicidal ideation within the free-text comments due to the content of the suicidal behaviour scale.

Several studies that have explored the underpinning of mental health and wellbeing in PGRs studying in the UK have identified inequalities in academia and how these may contribute. For example, a large sample survey by Crook et al. (2021) identified that PGRs from a low childhood socioeconomic status and those who have a disability had significantly lower wellbeing and anxiety scores than their counterparts, highlighting the predictive role of intersectionality in PGR mental health. Likewise, the U-DOC study data reported that absenteeism, interrupting studies due to mental health, and attrition due to mental health were significantly associated with having a disability (Berry et al. 2022).

Data from qualitative studies expand these findings. Nuanced accounts from PGRs describe the experience of minoritized groups within non-diverse academic environments exacerbating feelings of being an outsider (Morris 2021). This qualitative research provides evocative narratives from under-represented PGRs. Qualitative survey responses revealed how current systems did not adapt well to PGRs with diverse needs (White et al. 2022), highlighting the elitist aspects of academia. These issues also came to the fore within the study by SMaRteN that focused on the experiences of PGRs during lockdown (Byrom 2020; Jackman et al. 2022b). Those with caring responsibilities reported falling behind and being less able to access career-enhancing opportunities (Jackman et al. 2022b). On the other hand, digital advances during this period were said to have made it easier for PGRs with certain disabilities to engage flexibly and equitably with their academic communities (Jackman et al. 2022b). Further longitudinal research is warranted to understand the unique experiences of PGRs from diverse or under-represented groups, especially BAME groups that have been under-represented in this body of research. Qualitative research would likely provide significant contribution. The findings discussed here should be further explored post-COVID to understand which factors remain pertinent.

3.4.4   Discussion

The results of this narrative review were discussed thematically within Bronfenbrenner (1992) Ecological Systems Framework, addressing the individual factors, the micro-system (the PGRs immediate community), and the macro-system (the wider academic culture in the UK) and how these layers of one's social environment interact. The theory provides a conceptual tool that has been embedded in mental health policy, practice, and interventions (Eriksson et al. 2018), helping to understand mental health from a social perspective. It offers a way to simultaneously focus on individual behaviours, personal attributes, and environmental factors and the dynamic interplay between them. The results of this review critically present how these diverse and complex factors intersect to shape PGR mental health and wellbeing.

Firstly, addressing individual factors, several studies identified in this review investigated the role of one's own psychological resources and how this underpins mental wellbeing during postgraduate research. Imposter thoughts, self-depreciation, and maladaptive perfectionism had several measurable negative impacts on mental health (Byrom et al. 2020; Berry et al. 2021; Milicev et al. 2021). The qualitative findings presented in this review begin to identify self-belief as a potential protective factor. However, the concept of self- efficacy in PGRs has yet to be measured by UK research teams using a validated scale. Despite this, there is robust research conducted in Australian PGRs that confirms self-efficacy as a contributing factor to mental health (Barry et al. 2018). Byrom et al. (2020) proposed that increased support from peers has the potential to negate feelings of self-depreciation and imposter syndrome (Byrom et al. 2020). However, due to the solitary nature of postgraduate research, there are few opportunities to validate and verify one's performance with peers and to normalise academic challenges or failures (Casey et al. 2022; Gooding et al. 2023). Universities and doctoral schools could provide further opportunities for PGRs to discuss overcoming failures and celebrating successes with their peers and academic communities to negate imposter feelings and foster self-belief.

More recently, the concept of resilience has been measured in PGRs studying in the UK (Milicev et al. 2021; Casey et al. 2022; Gooding et al. 2023). Resilience is understood to be an important determinant of wellbeing (Ryff and Singer 2003). A recent literature review highlighted the role that resilience can play in good mental health, coping and success at university (Brewer et al. 2019). Therefore, interest in resilience in student groups is increasing, with many interventions focusing on promoting resilience (Worsley et al. 2020). Promoting this capacity to cope and react adaptively when facing adversity may be an avenue for intervention in PGRs. To date, no research conducted in the UK has analysed or measured ways of coping with psychometric scales and how these may interplay with resilience. Resilience and theories of coping within the postgraduate research context offer a new opportunity of exploration for researchers. However, due to the complex effects each level of the ecological system has on a PGR's mental health and wellbeing, it can be assumed that targeting just individual factors is unlikely to be successful.

Beyond the individual factors, many studies explored the PGRs' relationships within their micro-system that contribute to mental health and wellbeing. Firstly, a PGR's relationship with their supervisor appears to be the most influential on mental health and wellbeing, as confirmed by previous reviews (Leonard et al. 2006; Mackie and Bates 2019). Interactions with academic supervisors appear to shape the experiences of PGRs; supervisors are frequently identified as the central source of support. This body of evidence identified the supervisor relationship as one of the strongest predictors of PGR mental health and wellbeing in the UK (Berry et al. 2021), supporting previous international research (Levecque et al. 2017). However, the findings within

the UK postgraduate research context mostly reported positive experiences (Byrom et al. 2020; Crook et al. 2021; Casey et al. 2022; Jackman and Sisson 2022), indicating many examples of good practice. This may reflect the advances in institutional training of postgraduate research supervisors in the UK, driven by the roll-out of the UKCGE Good Supervisory Practice Framework (Taylor 2019), providing competencies and training, encompassing psychosocial support beyond academic guidance. The UKCGE framework offers a ready-made, effective, and widely recognised resource that may be utilised in practice or research.

Despite the research indicating positive experiences with supervision in the UK, the supervisor relationship is an essential element to address within a multi-level approach to PGR mental health and wellbeing. There is robust evidence that poor supervisory relationships can have significant adverse outcomes (Berry et al. 2021), and contribute to attrition intentions (Berry et al. 2022). It is important to consider that cross-sectional research including PGRs has not included those who have left postgraduate research. As attrition intention is documented to be associated with poor supervision, it may be that those with adverse experience have not been captured within the existing evidence. Scope remains for research that focuses on those who failed to complete their research, investigating the most pertinent causes of attrition. In addition, research teams or doctoral colleges that seek to evaluate or improve supervisory practice could also consider workload for academics. The ability of the supervisor to engage with initiatives is limited by perceived capacity, acknowledging the pressures of academic workload and the pinch points in the academic year.

Within the PGR's micro-system, connections to peers and belonging to the immediate academic community have also been highlighted as important predictors of wellbeing (Dutta et al. 2022). Although, conceptualisations and definitions of belonging or social connectedness have varied in the literature. UK research also identified how isolation from the academic community is a risk factor for poor mental health outcomes (Metcalfe 2018; Berry et al. 2021). Stronger identification with peers is related to positive psychological outcomes (Jackman et al. 2022c), and buffers against mental ill health (Byrom et al. 2020). Therefore, increasing peer contact and peer networks may be effective in promoting wellbeing.

Several authors make recommendations around developing supportive networks involving peers to promote mental health and wellbeing of PGRs studying in the UK (Crook et al. 2021; Casey et al. 2022; Jackman et al. 2022c; Gooding et al. 2023). However, it is important to consider the potential risks of asking a group of individuals who are at heightened risk of experiencing or developing mental health problems (Hazell et al. 2021b) to support the mental health of others (Jackman et al. 2022c). This could have perilous consequences if not managed effectively. Also, it could be considered that not all PGRs have equal access to peer support and

face further barriers, such as part-time PGRs, international students, those working remotely, those with chronic illnesses or those with caring responsibilities (Cornwall et al. 2019; Jackman et al. 2022c). It is important that opportunities to engage with peers within an institution's postgraduate research culture are equally accessible to all students.

Finally, research that explored the underpinning of the mental health and wellbeing of PGRs studying in the UK looked at the wider systemic factors, the macro-system. Data from the UK suggests that the average PGR works 47 hours per week; this is over 50% more than the average undergraduate student (Cornell 2020), leading to conflicts between work and personal time (Metcalfe 2018). International research provides evidence that greater weekly hours worked is a significant predictor of depression symptoms in PGRs (Peluso et al. 2011). Working excessive hours during postgraduate research has also been associated to poorer wellbeing (Caesens et al. 2014), and psychological distress (Levecque et al. 2017).

These norms and expectations seep into the other layers of the ecological system. Exposure to this culture can trigger imposter feelings and discourage help-seeking behaviours (Metcalfe et al., 2018). The pressures faced by academics in terms of pressure to publish, high workload, and unfavourable work-life balance could filter down the hierarchy (Fontinha et al. 2018). This can be experienced more acutely by those from diverse groups within non-diverse academic environments (White et al. 2022). The findings of this review highlight the heterogeneity of the postgraduate research experience in the UK, and the need to foster inclusive communities where all members receive equitable treatment. The culture of high achievement and long working hours in academia should continue to be challenged (Metcalfe 2018). For those considering interventions that target individual factors, this context should not be ignored, these wider cultural influences and how they interact with the other levels could be considered.

Limitations

It is important to outline the limitations of the current research evidence gathered in this review. Much of the research that has been conducted looking at the mental health and wellbeing of PGRs studying in the UK uses cross sectional methodology conducted at one time-point, revealing a snapshot in time. This limits the ability to draw conclusions of the directions of the relationships established and limits causal interpretations about the factors affecting mental health and wellbeing. Further longitudinal data collection is warranted, following the same sample across their postgraduate research degree. Longitudinal designs with longer time-periods are needed to better understand the direction of relationships and could establish pinch points during the research journey. This is especially important as some research within this body of evidence focused on the early stages of postgraduate research only (Jackman et al. 2022a). Further robust data collection using validated measures across several timepoints would

provide valuable insights. This would allow researchers to assess the stability of mental health across time in postgraduate research and appropriately direct further research and interventions.

As many of the authors discussed, self-selection bias is an issue with the use of convenience sampling. None of the included studies used random sampling methods but recruited self-selecting samples. This creates explicit issues in studies about mental health and wellbeing, as this creates the tendency to disproportionately attract those concerned about mental health problems; those experiencing poor wellbeing at the time were likely more motivated to take part. Specifically, those that participated in these surveys scored highly on several clinical measures of distress or mental health symptomology. Many of the studies report alarmingly high prevalence rates of mental health problems, far exceeding sector data. However, it is important to consider that the non-clinical scales used, although validated and considered reliable, do not equate to a clinical diagnosis of mental ill-health. This is to be considered, especially when researchers have used shorted versions of the scales to reduce participant burden. Although, it is understood that disclosure of mental health problems is a pertinent concern (Thorley 2017). It is surmised that an overestimation of distress in these self-selecting samples may have elevated the prevalence rates (Moss et al. 2022).

This is also a limitation of studies that collected qualitative data via open-ended survey. The questions that are asked within the scales measuring psychological distress, anxiety, or suicidal thoughts may prime participants' further responses to focus on adverse psychological experiences. Likewise, with interviews and focus groups, recruitment advertisements that discuss mental health and wellbeing may elicit discussions of poor mental health and suicidal behaviour (Hazell et al. 2021a). Using more neutral terminology within recruitment posters, participant information, and survey wording may be a way to negate this priming bias. The use of scales with more neutral terminology, such as the WEMWBS (Dodd 2020), may be a way to assess the likelihood of an individual developing a mental health problem, without explicitly asking them about pathological symptomology.

One key issue identified in this body of work is the over representations of women in the samples, as many of the research teams highlighted. This is of particular importance as women tend to have poorer mental health while at university; suicidal ideation and mental health problems are more prevalent in young females (McManus and Gunnell 2020). It is imperative to consider how this may have skewed the findings. Although understanding the experience of women is important, especially in the wake of the pandemic where female academics' work was more adversely affected (Ribarovska et al. 2021), efforts should be made by researchers to engage more male participants and those who do not identify as male or female to create a

balanced view. It could be argued that, due to the mental health connotations, more women were inclined to take part. However, this may be another explanation for the inflation in poor mental health prevalence in this body of data.

Despite inequalities in postgraduate research being alluded to within this body of evidence, it was acknowledged by several research groups that their surveys garnered responses from mostly white, domestic students. Those from Black, Asian and minority ethnic groups and those who were not UK citizens were under-represented in the located research (Byrom et al. 2020; Crook et al. 2021; Jackman et al. 2022c; Moss et al. 2022). This may speak to under-representation in wider academia and is a concern as voices that are seldom heard may not have been reflected within this review. As experiences are culturally bound, researchers need to address this imbalance and could make efforts to engage in these groups and understand their unique challenges. In intervention or policy development, co-production with PGRs from under-represented cultural groups will add significant value and relevance (Crook et al. 2021; Moss et al. 2022).

Recommendations

Although there has been an evident, rapid increase in research in this field, further understanding into the specific experience PGRs studying in UK universities is needed to inform remedial strategies. There remains the risk of implementing strategies or directing funding that may be ineffective without a more detailed understanding of the complex, nuanced, and multi-faceted underpinning of PGR mental health and wellbeing. Self-selecting convenience samples introduced several biases. Work that recruits larger, random samples of PGRs is vital. There are opportunities that could be forged between research teams and university counselling services to implement large-scale data collection of consistent, longitudinal data (Barkham et al. 2019). Collaborations of this kind could reap many benefits for practice and research, working towards a strong evidence base to further understand PGR mental health and to direct funding, training, and resources most appropriately and effectively (Broglia et al. 2021b).

As well as large, robust, continuous data sets, there remains a need for further qualitative exploration. Survey-based studies, even when collecting qualitative data, are limited as they are unable to probe for clarification or further detail. Especially when quantitative findings are contested, or causal factors are unclear, qualitative allows rich description, further interpretation, and evocative narratives that resonate with readers (Tracy 2010). Future exploration of the known factors that affect PGR mental health and wellbeing highlighted in this review will be useful to further understand the complex, nuanced, emotional experience. Co-production presents an opportunity to use the voices of PGRs to guide further research. To involve PGRs, especially those who have not been represented within this body of evidence, in

the creation of future research and interventions to promote the mental health and wellbeing of PGRs has many likely benefits. It is important to involve those from every stage of study and from every demographic group. Understanding of minority groups or those with chronic illnesses and disabilities is warranted, especially as these individuals may be at higher risk of compromised mental health. The heterogeneity of this group, particularly in comparison to undergraduate student body, should be recognised to support the unique needs of PGRs across spectrums. Institutions need to embrace the diversity of experiences of postgraduate research and personal circumstances; a one size fits all approach to interventions is unlikely to be effective.

Conclusion

The aim of this literature review was to critically present the range of known factors that affect the mental health and wellbeing of PGRs studying in the UK. The findings display a range of complex, intertwined influencing factors. The multitude of factors identified within different layers of a PGR's social context makes it difficult to separate them and identify which are more salient. It is recommended, therefore, that potential interventions should target multiple levels, not just the individual PGR, but their immediate social circles and wider communities. Initiatives should be reimagined to focus simultaneously on multiple layers of the ecological systems to support PGR mental health (Jackman et al. 2022a). Further research should investigate the ways in which these individual, community, and institutional factors interact, and consider ways to target multiple layers. If an intervention were to focus on promoting resilience or supporting healthy work-life balance, for example, it could be done in group settings to also improve social support and feelings of belonging. There needs to be an emphasis on the wider systems in which the PGR is active, beyond the discourse of personal deficits of psychological resources. Interventions that solely focus on the individual to change their behaviour will not permeate the other layers of the social environment that are also contributing to poorer mental health and wellbeing.

3.5 Search 3: Interventions to promote positive mental health and wellbeing in PGRs

3.5.1 Introduction

So far, this wide review of the literature has highlighted the increasing importance of supporting PGR mental health and wellbeing in UK HE and the ways researchers have measured and conceptualised the issue. The literature to date presents a variety of complex factors that contribute to poorer mental health amongst PGRs. These range from factors that are attributed to the individual, such as resilience, imposter thoughts, and maladaptive perfectionism (Byrom et al. 2020; Milicev et al. 2021; Gooding et al. 2023) to wider factors that pertain to a PGR's immediate support networks, including supervisors and peers and how these may contribute belonging and wellbeing (Berry et al. 2021; Jackman et al. 2022c). Finally, systemic factors within academia including workload, workaholism, inequalities, and academic culture and the ways these pressures affect wellbeing were explored (Milicev et al. 2021; Jackman and Sisson 2022).

PGRs represent a relatively small proportion of the student body in the UK. For this reason, university mental health provisions are primarily directed towards undergraduate students. Moreover, PGRs are often reluctant to access mental health support services (Thorley 2017; McCray and Joseph-Richard 2021), believing that services would not benefit them (Waight and Giordano 2018). Support for student mental health is also variable across institutions. A large scale evaluation of existing literature reviews conducted by Worsley et al. (2020) highlighted that there has been considerable research into interventions for student mental health and wellbeing. These include cognitive behavioural therapy, mindfulness, yoga, Tai Chi, and exercise-based interventions.

Yet, until the increase in research interest regarding the wellbeing of PGRs, there was the assumption that what works for undergraduate students would also work for them (Mackie and Bates 2019). Only recently have research teams began to conduct interventions tailored for this population. It is acknowledged that PGR mental health wellbeing is intrinsically linked to completion and attrition (Berry et al. 2022). With the significant personal, financial, institutional, and societal costs of attrition in postgraduate research, it is imperative that the sector invests in interventions to promote PGR mental health and wellbeing. However, a rushed reaction to the increasing concerns about PGR mental health risks implementing ineffective interventions that may waste time and resources. Therefore, understanding the scope of evaluated interventions and exploring the effectiveness of these existing initiatives is necessary.

Mackie and Bates (2019) conducted a review of international literature, locating 5 mental health interventions that had been conducted in samples of PGRs up to April 2018. Another systematic

review of international research was recently conducted: "Interventions, practices and institutional arrangements for supporting PGR mental health and wellbeing: reviewing effectiveness and addressing barriers", (Watson and Turnpenny 2022). This review investigated interventions conducted by institutions beyond those published in academic journals. This research identified 22 eligible initiatives, demonstrating the growing body of evidence. However, this review indicated only a small number of interventions that have been implemented in UK higher education. This review also revealed that whilst there are many examples of excellent practice, these are not always formally evaluated or disseminated.

This mixed method scoping review aims to explore what initiatives have been trialled, evaluated, and published in academic journals, presenting the scope of evaluated interventions and the effectiveness of these initiatives. This search had the specific research question: what interventions have been implemented to promote positive mental health and wellbeing of PGRs studying in the UK? This review presents the scope of this research and the limitations of the current evidence. As demonstrated throughout this chapter, there is a growing body of work providing a good understanding of the mental health and wellbeing of PGRs studying in the UK and the contributing factors. From the findings of the three focused literature searches presented in this chapter, evidence-based interventions can begin to be designed, supporting mentally healthy and successful postgraduate research communities.

3.5.2   Methodology

A mixed methods scoping review methodology was selected as the most appropriate way to conduct this literature search. Scoping reviews are an effective way to summarise findings from a body of research that is heterogeneous in methods, providing a descriptive map of existing literature. The review question lends itself to a scoping review methodology to identify gaps and to inform the planning of future research (Tricco et al. 2018). To ensure transparent reporting of results, the methodological framework produced by Arksey and O'Malley (2005) was followed, using the PRISMA-ScR (Tricco et al. 2018) checklist to assist the screening and organising of studies. These tools provide a useful guide for researchers conducting scoping reviews as an alternative to a systematic review, giving structure and clarity of methods (Colquhoun et al. 2014).

Framework Stage 1: Identifying the Research Question

A broad research question was used to ensure a breadth of coverage (Arksey and O'Malley 2005). The research question that was formulated for this search was: what interventions have been implemented to promote positive mental health and wellbeing of PGRs in the UK? The question was deliberately broad to encompass all interventions, including non-randomised,

pilot, or feasibility trials, due to the absence of randomised controlled trials in this population. Acknowledging the problematic conflation of terminology relating to mental health and wellbeing, the search terms did not apply a specific definition to restrict the search, a broad conceptualisation including several search terms was used to ensure the researcher captured a wide scope of work.

Framework Stage 2: Identifying the Relevant Studies

A comprehensive search strategy was adopted to identify as many published primary studies as possible, providing a wide-reaching map of the research area central to the search question. Firstly, relevant articles were searched for through electronic databases. The university's EBSCO library database was used, which searches a range of relevant databases such as APA PsycArticles, APA PsycInfo, Education Source, ERIC and others. Additional hand searches were conducted on reference lists and citations of relevant studies to identify other eligible articles. The researcher also attended relevant conferences, webinars, and events to stay abreast of the most up-to-date work.

To maximise the amount of literature gathered in this review, a multitude of terms were included to cover the spectrum of mental health and wellbeing, including population-based preventative interventions and those that address individuals with mental health problems (Barkham et al. 2019). The researcher decided to search within a chosen timespan, including only studies published since major UK HE policy, fees, and funding changes in 2010. However, this was extended to increase the number of included studies, therefore this review includes one study conducted in 2006. These less recent findings should be considered within the changes in the HE landscape in previous decades.

Framework Stage 3: Study Selection

After the initial search of electronic databases, articles were imported into EndNote for de-duplication and abstract screening. Figure 3-6 displays the inclusion and exclusion criteria designed to aid the screening and decision-making process.

Inclusion criteria	Exclusion criteria
• Peer-reviewed articles written in English, published since 2000.	• Articles that include PGRs combined with other student samples, such as postgraduate taught students.
• PGRs studying any postgraduate research degree in a UK university.	• Articles that include PGRs combined with other academic staff, such as early career researchers.
• Includes an intervention to promote PGR mental health or wellbeing.	
• Includes qualitative or quantitative evaluation.	

Figure 3-6   Inclusion and exclusion criteria

Framework Stage 4: Charting the Data

The studies were organised thematically based on their intervention, as outlined in the guidance by Arksey and O'Malley (2005). Data relevant to the research question were extrapolated from the studies and displayed in Table 3-2, presenting a summary of relevant work.

Table 3-2   Summary of included studies

Study	Location	Sample size	Intervention	Duration	Qualitative evaluation	Psychometric scale	Pre- and post-test changes
Homer et al 2021	UK	47	**Support from peers:** Workshops	1 year	Y	N	N/A
Lane and De Wilde 2018	UK	5	**Support from peers:** Coaching from alumni	1 session	Y	N	N/A
Mason and Hickman 2017	UK	23	**Support from peers:** Peer mentoring	1 year	Y	N	N/A
Panayidou and Priest 2021	UK	56	**Support from peers:** Support groups	2 years	Y	Warwick Edinburgh Mental Wellbeing Scale	Improvements in wellbeing
Hutchings 2017	UK	14	**Support from academic staff:** Group supervision	1 year	Y	N	N/A
Lech et al 2018	UK	6	**Support from academic staff:** Coaching	4 sessions	Y	N	N/A
Marchland et al 2017	UK	6	**Support from academic staff**: Action learning	1 year	Y	N	N/A
Wright 2006	UK	12	**Support from counsellors:** Time-conscious Psychological Therapy	8 sessions	N	Clinical Outcomes for Routine Evaluation	Significant reductions in psychological distress

Framework Stage 5: Collating, Summarising, and Reporting the Results

The scoping review presents a descriptive summary of the breadth of interventions that have been conducted within this population. The overall weaknesses in study designs were identified, and what remains under-researched was highlighted. Appropriate critical appraisal tools were used to assess the quality of the quantitative and qualitative studies.

3.5.3   Results

This review located eight studies that have implemented interventions to promote the mental health and wellbeing of PGRs studying at universities in the UK. Most interventions were designed to be preventative, with only one aimed at PGRs who were already experiencing poor mental health (Wright 2006). All the studies used social support as the change mechanism in their interventions, targeting the micro-level of the PGRs' social environments (Bronfenbrenner 1992).These ranged from peer support, support from faculty staff, or support from counsellors. However, the interventions were seldom based on psychological theory or aligned to a conceptual framework. Most took an atheoretical approach, with few exceptions. Those who discussed the conceptual underpinning of their intervention linked their decisions to theories of peer support or support groups (Homer et al. 2021; Panayidou and Priest 2021), or developmental psychology theorists (Wright 2006). In addition, to the researcher's knowledge, none of the authors presented preliminary investigations of the situated experiences of their specific population before implementing the interventions.

In terms of methodology, most studies included relatively small samples, ranging from 5-56 participants One intervention was aimed at international students (Mason and Hickman 2019), and another solely recruited students from professional doctorates (Lech et al. 2018). Piloting, participant engagement, and co-production were rarely discussed. All research teams recruited participants from a single institution and none of the interventions included a control group. Only two studies used validated psychometric scales to evaluate mental health outcomes pre- and post-intervention. Most studies used qualitative methods to evaluate their interventions; only one implemented a mixed methods evaluation combining qualitative feedback with validated psychological outcome measures (Panayidou and Priest 2021). Figure 3-7 is a thematic representation of the included interventions.
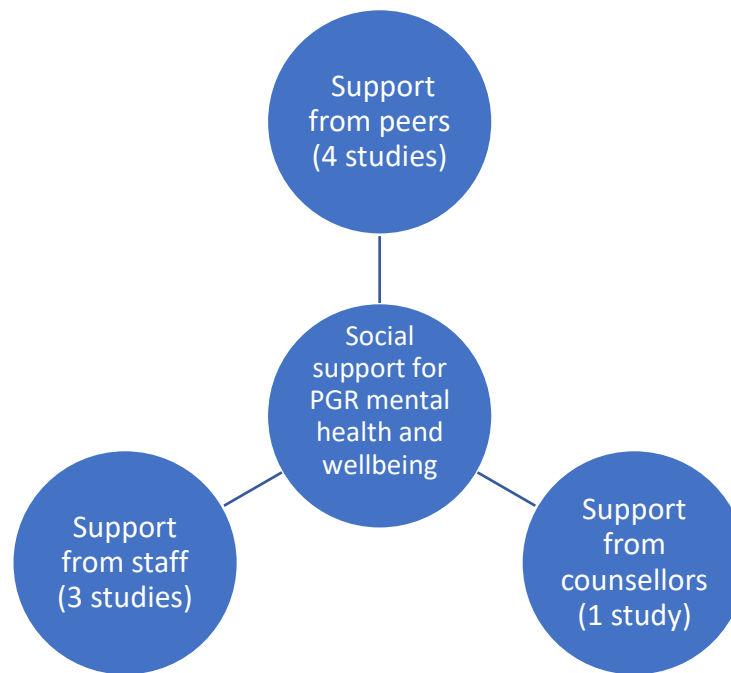
Figure 3-7   Social support interventions for PGR mental health

Support from Peers

Four studies implemented peer support interventions to promote the mental health and wellbeing of PGRs studying in the UK. Most utilised current PGR students to deliver the interventions, except one study that used alumni to deliver the peer support intervention (Lane and De Wilde 2018). The research teams tended to formalise the organic support one may receive from peers by organising arranged activities. These activities included workshops, coaching, mentoring, and group support sessions. These ranged from interventions that included one session (Lane and De Wilde 2018), to a support group scheme that embedded 8 sessions that spanned over a 2-year period (Panayidou and Priest 2021).

The evaluations of these interventions were mostly qualitative in nature, assessing effectiveness at the end of the activities, and narrating the experiences of the participants, providing rich descriptions. One exception was Homer et al. (2021), who included quantitative ratings of success, yet only 30% of participants responded to this request for feedback, indicating a low follow-up response rate. The most rigorous quantitative evaluation was conducted by Panayidou and Priest (2021), including pre-and post-intervention surveys that utilised a validated measure of wellbeing, the WEMWBS. This study identified improvements in wellbeing after the intervention. However, only a subset of participants completed the post-test survey (*n*=44), another example of a low response rate. It is important to note that the initial wellbeing of the sample was low, with 75% of the PGRs within WEMWBS ranges that indicate an increased risk of depression. It could be argued that those concerned about their wellbeing were attracted

to take part. Due to this self-selection bias, the findings are unlikely to have been representative of the broader PGR population.

Qualitative feedback from the participants who were involved in these peer support interventions was overwhelmingly positive, eliciting positive outcomes such as increased motivation and confidence (Homer et al. 2021), reduced isolation and anxiety (Panayidou and Priest 2021), and improved sense of community (Lane and De Wilde 2018). However, often the researchers or intervention facilitators were involved in collecting qualitative feedback, introducing social desirability bias. Efforts should be made in future research for interviewers outside of the research teams to be involved in the evaluation to negate this.

Despite the lack of quantitative evidence of improvement, findings from this body of work provide promising preliminary evidence for the effectiveness of peer support interventions for the promotion of mental health and wellbeing within PGRs studying in the UK. However, the burden on those responsible for delivering these interventions should be considered. Mason and Hickman (2019) highlight that the study participants gain most of the benefits in comparison to the PGRs that volunteer their time to support their peers. This raises the issue of relying on fellow students to provide support, rather than paid employees within the institution; a finding that requires further investigation and consideration.

Support from Academic Staff

Of the located studies, three employed social support interventions that were delivered by academic staff. The faculty members that were involved in delivering these interventions included project supervisors (Hutchings 2017), and academics outside of supervisory teams (Marchand 2017; Lech et al. 2018). These interventions used a selection of approaches to deliver this additional support such as group supervision (Hutchings 2017), coaching (Lech et al. 2018), and action learning interventions (Marchand 2017). These interventions varied from four sessions to a year-long programme. The disparity in course length makes comparison of these studies difficult.

All the studies used qualitative analysis to evaluate the success of the initiatives, including small numbers of participants (6-14), but providing detailed descriptions of the experience of taking part. The use of qualitative evaluation was an appropriate method for achieving the goal of these preliminary studies, designed to test these emerging intervention ideas on a small scale. Benefits reported by the participants included decreased isolation, and increased motivation, self-confidence, and productivity (Hutchings 2017; Marchand 2017; Lech et al. 2018). Increased social support from academic staff members complemented conventional academic supervision (Hutchings 2017), allowing PGRs to express issues to faculty members outside of their

supervisory team without fear of repercussions (Lech et al. 2018). This presents a promising avenue for bolstering the support already delivered by the project supervisors.

A finding that resonated across two studies (Hutchings 2017; Marchand 2017) was the additional benefit of the peer support from other PGRs within the group delivery of the intervention. As Marchand (2017) articulates, the participants reported reduced anxiety and increased wellbeing due to the social cohesion and feeling a part of a supportive group of peers. Likewise, Hutchings (2017) identified the value of the peer group communication and connectedness for increasing the feeling of belonging. Therefore, it is difficult to establish how much of the perceived benefits can be attributed to the support from the academic staff member or from the other PGRs within the group; this requires further investigation.

Support from Counsellors

The final study, conducted by Wright (2006), offered individual brief counselling sessions to PGRs at one university, based on Time-Conscious Psychological Therapy. The authors reported significant benefits post-intervention including psychological distress which was measured via the Clinical Outcomes for Routine Evaluation-Outcome Measure (CORE-OM), a validated psychometric scale. However, it is important consider that the PGRs taking part in the study had self-referred to the university's counselling services due to concerns about their mental health and wellbeing, therefore experiencing elevated psychological distress. The significant improvements in the outcome measure should be considered in this context; improvements may have been more modest in those with psychological distress that was in moderate ranges.

3.5.4   Discussion

The aim of this scoping review was to identify existing interventions that had been implemented in UK universities to support the mental health and wellbeing of PGRs. Many of the findings have been published since the OfS Catalyst Funding in 2018 (Metcalfe 2018), again highlighting the increase in research interest in the UK. The studies located provide quantitative and qualitative results from small, non-randomised samples within single institutions. These preliminary findings indicate that interventions that aim to increase social support for PGRs have many benefits increasing perceived support, socialisation, and wellbeing. However, the body of research to date focuses on the micro-level of a PGRs' social environment. None of the studies focused specifically on building an individual's psychological resources, such as resilience and self-efficacy. Nor were wider systemic issues and culture within academia addressed. Recent work advocates interventions that target these levels of a PGRs' social environment in order to deliver change (Jackman et al. 2022a).

Many of the included interventions focused on peer support. Peer support is a cost-effective and sustainable solution for universities, found to be effective in supporting the good mental health and wellbeing of PGRs (Byrom et al. 2020; Casey et al. 2022; Jackman et al. 2022c). However, these interventions tended to be longer in duration, which could be potentially burdensome on PGRs who act as mentors. Research suggests that offering peer support can be time-intensive and can have negative impacts on the private life and wellbeing of PGRs (Loissel et al. 2020). Therefore, it is recommended that researchers and their institutions consider this and provide instrumental and financial support for PGRs if they are asked to act as formal mentors to their peers. Additionally, protecting the mental health of mentors is also important, especially as PGRs are a population known to be at heightened risk of poor wellbeing.

It is important to consider that although there were a small number of interventions that had been evaluated published in the academic literature, this does not mean that universities have not implemented similar interventions within their institutions. There may be further initiatives that have not been disseminated in an academic publication. For example, Metcalfe et al. (2020) report on the findings of the previously mentioned Catalyst Fund targeted at PGRs' mental health and wellbeing, including six projects that delivered some kind of wellbeing intervention for PGRs from institutions across the UK. Many of the study findings from these research projects that started in 2018 have not yet been published in academic journals, with the exception of Homer et al. (2021).

Limitations

To appraise the quality of this body of evidence, a further systematic review is warranted. However, due to the methodological rigour and quality of the qauntitative evidence to date, meta-analyses are not yet possible. None of the included studies were randomised or controlled, nor used standardised measures of mental health and wellbeing, therefore this type of analysis could not be conducted at this time. Consequently, this scoping review gives a narrative, descriptive account of available research, discussing qualitative and quantitative evaluations thematically.

To advance this body of literature, sustained efforts could be made to drive consensus of outcome measures. This would allow meta-analysis techniques to be used in future, and a critical appraisal of outcomes. Few studies included in this review used validated psychometric measures before and after the intervention to assess the effectiveness. Further, those that did include validated measures chose different psychometric scales. Metcalfe et al. (2020) report similar limitations in their summary of the Catalyst funded projects. Although the WEMWBS or

the GHQ were frequently implemented, the body of funded projects used a wide range of wellbeing scales and measures. Metcalfe et al. (2020) encourages the use of appropriate common measures to aid easier comparison and aggregation of data from future research.

The included studies were preliminary and conducted within small samples, introducing biases. All studies recruited samples from one UK institution, affecting the generalisability of their results, aside from two exceptions (Wright 2006; Panayidou and Priest 2021). In addition, there was a lack of co-production within the included studies, with only one study involving PGRs in their decision making (Homer et al. 2021). Consulting with the study participants is increasingly important to funding bodies. Likewise, a student-centred approach is advocated in the design of HE policy, strategy, and research (Piper 2019). Active involvement of students within the design of research is beneficial to the researcher and to the student (Burstow et al. 2018), and should be focal in the design of support for PGRs (Jackman et al. 2021b).

Most studies did not include pre-and post-test measures within their evaluations, nor follow-up measures. Therefore, the research teams were unable to detect short or long-term changes attributable to their interventions. As mentioned, validated psychometric measures were seldom included, many focused on collecting in-depth qualitative feedback. Only one research team used mixed methods to evaluate their interventions (Panayidou and Priest 2021). A mixed methods approach provides optimal opportunities to answer the research question (Creswell 2010), and the triangulation of both types of data enhances the credibility of the research findings.

Although validated outcome measures are important in measuring the differences in psychological outcomes, qualitative data collection is advocated in pilot or feasibility studies, establishing the acceptability, and value of an initiative (Eldridge et al. 2016), and improving future recruitment and adherence (O'Cathain et al. 2008). This research area is in its infancy. The current body of evidence is preliminary; therefore, it would be expected that interventions would be piloted on a small scale and evaluated qualitatively. The qualitative data provided rich descriptions of the experience of taking part in such interventions, providing contextual details and practical recommendations for future work. Further research can build upon these initial findings, and as the understanding of the mental health and wellbeing of PGRs studying in the UK grows, there are opportunities for these interventions to be expanded and extended to larger samples across institutions.

Conclusion

This scoping review of the literature identified a small number of social support interventions that had been implemented in UK universities to support the mental health and wellbeing of

PGRs. Many of the findings have been published since the Catalyst Funding in 2018 (Metcalfe 2018), again highlighting the increase in research interest in the UK. The body of evidence included preliminary research conducted in small samples from single institutions. However, the studies present emerging evidence for the potential effectiveness of social support interventions to bolster existing support through supervision. Reported benefits included increased perceived support, socialisation, and wellbeing, but most of the evaluations involved collecting qualitative data. There is an opportunity for future research to build upon this research evidence, developing larger scale interventions with further rigorous evaluation. However, it is important that co-production is utilised in future research, to capitalise on the situated knowledge of PGRs who are going through or have been through the postgraduate research journey. In addition, it is imperative that efforts are made to standardise the pre-and post-intervention outcome measures used in future work. Validated, standardised approaches to measuring mental health and wellbeing before and after is a step towards an evidence base that can be amalgamated within future systematic reviews and meta-analyses as the body of literature grows. This is vital to inform future research and for practice, so universities may implement the most effective support for their postgraduate research communities.

3.7   Overall Conclusion

Prior to developing new interventions to support the mental health and wellbeing of individuals within this under researched group of students, the prevalence of the issue and the contributing factors needs to be fully understood. In addition, the initiatives that have been tested and evaluated to date provide an oversight of potential barriers and key opportunities. This chapter reviewed, assembled, synthesised, and critically presented the evidence from methodologically diverse research that focuses on the mental health and wellbeing of PGRs studying in the UK. Each of the three elements of this literature review provides a piece of the puzzle that, in combination, illuminates the situated experiences of the PGRs that are active within this HE landscape. This overview of the breadth and scope of research evidence shaped the aims and research questions of the research project presented in this thesis.

In conclusion, the literature exploring the mental health and wellbeing of PGRs studying in the UK is emergent but rapidly increasing. There is a growing body of UK research that has investigated the prevalence of this issue. There has been uniformity between UK research teams in their approach to measuring wellbeing and symptomology of depression, or anxiety but disparity in the measurements of other concepts, such as resilience. Sustained efforts should be made to standardise the conceptualisation and measurement of these psychological outcomes to aid future systematic amalgamation of data.

There has been an abundance of research that has been published in recent years exploring the underlying causes and contributing factors of mental health within this population. A range of interconnected factors have been identified. These pertain to different layers of an individual's social environment, from the PGR's immediate social circle to the wider systemic factors of academia that can permeate the other layers. Researchers advocate for interventions that may target multiple layers to impact the mental health and wellbeing of PGRs most positively (Jackman et al. 2022a).

Mental health and wellbeing interventions designed for PGRs are beginning to be tested and evaluated. However, the methodological rigour of the existing experimental evidence is variable. This is an emerging research area, with initial findings indicating the effectiveness of boosting social support for PGRs to tackle loneliness and increase feelings of belonging. However, the evidence base is limited. The interventions have used small samples from single institutions and few studies used validated psychometric tests to measure the effectiveness of their intervention in comparison to pre-test data. However, the amalgamated findings present a wealth of qualitative data that significantly contributes to knowledge. Future research can build upon these findings, using the growing body of research to design evidence-based, larger scale

interventions. Efforts could be made to base these interventions on psychological theories, providing a robust rationale for their change mechanism that aligns with chosen outcome measures.

The located research ranged from observational to experimental designs, collecting qualitative, quantitative, and mixed methods data. The aims and objectives were derived from this amalgamation of the methodologically diverse evidence base. The map of existing literature that this chapter presents identified the knowledge gaps and opportunities for this research to explore. In conclusion, this thesis will build upon the identified limitations of the evidence base by:

1. Conducting an in-depth, mixed methods exploration of the experience of mental health and wellbeing of PGRs within the chosen institution. Gathering this positioned knowledge from the target sample will create a sound rationale for intervention design.

2. Producing wellbeing interventions with members of the target sample, involving PGRs from the university in the intervention design and implementation. This allows the researcher to embed the situated knowledge and personal experiences of the participant group within every research stage, increasing the relevance of the interventions.

3. Conducting a feasibility study, piloting the interventions before larger-scale implementation. This will involve a mixed methods evaluation including feasibility data and in-depth qualitative critique, optimising the use of time, resources, and funding in further experimental studies.

This chapter has integrated and synthesised the existing research evidence surrounding the mental health and wellbeing of PGRs studying in the UK. By mapping and reviewing the research findings and considering the methodological limitations the aims and objectives of this research were developed. The next chapter, Chapter 4, outlines the research methods employed in this project to achieve these overarching aims. This chapter describes the position of the research as an insider and the ethical and moral considerations that stem from this positionality. It also outlines the philosophical standpoint of the researcher and the mixed methods approach. Taking the limitations of the existing evidence base into account, a justification for designing a multi-phased feasibility study is presented.

Chapter 4 Methodology

4.1 Chapter Overview

Building on the findings identified in the literature reviews in Chapter 2 and the work of the Catalyst funded researchers (Metcalfe et al. 2020), this chapter presents the methodological approach of the current research project. It begins by presenting the context of this case study, the position of the institution geographically and economically, and details of this project's funding. The theoretical underpinning of the research project is then described Next, an overview of the aims, research questions, and the methods used to answer them are outlined. The chapter moves on to discuss the over-arching methodological assumptions of this research. It describes the worldview, research approaches, research design, and research methods used within this multi-phase study as they align to the philosophy of mixed methods research. More specific details of methodology, design, materials, recruitment, participants, data analysis, and ethical concerns relating to each of the research phases can be found within the methodology section of each chapter.

This overarching methodology chapter presents the researcher's rationale of study design choices and the development of this multi-phase study. The importance of co-production, especially how this pertains to higher education students, is argued. Finally, the key ethical considerations, including the researcher's positionality and the protection of the mental health and wellbeing of all participants, are discussed, introducing remedial initiatives, such as signposting to services and reflexivity.

4.2 Introduction

The study set out to produce novel positive mental health interventions for PGRs from one UK institution. As this study focuses on one UK institution, the findings are context-bound and do not seek generalisability beyond the university studied. However, this research provides a novel contribution to the literature by presenting a collaborative approach to developing preventative interventions that are tailored to the experience of PGRs studying at UK universities. The development of the interventions was grounded in theories of coping and the situated data collected during the first research phase. This project sought to contribute to the existing knowledge by presenting the barriers and challenges of implementing such interventions, informing the development of larger scale experimental research.

This multi-phase study took place in one post-92 university located in South England. The research was funded by the university through a fully-funded PhD studentship. This funding was provided by the university due to the concerns the Doctoral College voiced about the mental

health and wellbeing of PGRs at the institution and how this was affecting the students' health, academic performance, and completion rates. As outlined in the previous chapters, the issue of PGR mental health and wellbeing was gaining significant attention in the UK at the time this study began (Metcalfe 2018). The Doctoral College and the university had an avid interest in learning more about the specific experience of their PGRs and how they can further support their postgraduate community.

Although the supervisory team applied for the studentship funding and selected and recruited the candidate to undertake the research, they gave the research student the autonomy to design the study. Although the overarching aim for the project was provided by the supervisors, the researcher had the freedom to set the research questions for each phase and took full responsibility for the design, implementation, and delivery of the research project. Although the timeframe of the project was bound by the institutional milestones and expectations, the researcher was able to design the research autonomously within these parameters.

4.2.1 Theoretical Underpinning

As discussed in the Introduction chapter, there has been a paradigm shift towards the promotion of mental health separate to mental illness (Iasiello and Van Agteren 2020). The field of positive psychology studies mental health separately from mental illness. This is underpinned by dual-continua models that view positive mental health and mental ill health as distinct constructs existing on two spectrums (Keyes 2002). With this in mind, it is believed that those who are diagnosed with mental illness can still experience high levels of mental health (Goodman et al. 2018), and that positive mental health can be built in those with mental illnesses (Seligman et al. 2005). Likewise, the absence of mental illness does not guarantee good mental health (Slade 2010).

The World Health Organization (WHO) defines mental health as a state in which an individual realises their abilities, copes well, works productively, and has a sense of belonging and purpose in their community (World Health Organization 2005). Positive mental health can be measured using scales that measure different constructs such as psychological wellbeing. Other psychological resources are also drivers of mental health. For example, in this study wellbeing, resilience, coping, and self-efficacy are considered important resources contributing to the positive mental health of PGRs. The conceptualisation of each of these psychological resources are outlined below:

Wellbeing

Mental wellbeing is the positive aspect of mental health, beyond the absence of a mental illness. Wellbeing is holistically linked to physical wellbeing, social wellbeing, and one's relationships

with others (Tennant et al. 2007). Wellbeing is a complex construct that comprises of hedonic aspects, including pleasure, happiness, and satisfaction of life, and eudaimonic aspects, such as self-realisation, meaning, and functioning (Ryan and Deci 2001).

Psychological wellbeing was first operationalised by Ryff (1989) into dimensions including self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. In combination, these elements of wellbeing contribute to good mental health. Individuals that score highly for each of these essential features of wellbeing are self-determining and independent, competent, open to self-development, have trusting and fulfilling relationships, have goals in life, and a positive attitude towards themselves (Ryff 1989, 2013). Keyes (2002) identified that the risk of developing a mental illness was significantly higher among individuals who lacked some aspects of wellbeing. This was confirmed by further longitudinal research, identifying that gains in mental health and wellbeing over time resulted in declines in mental illness (Keyes et al. 2010). This highlights the need for further attention on promoting mental health and wellbeing through interventions.

The WEMWBS aligns with dual-continua models of mental health and mental illness, providing a positively worded, short scale that captures and evaluates wide range of dimensions of wellbeing (Tennant et al. 2007). The scale covers a range of concepts associated with positive mental health, including both hedonic and eudaimonic aspects. As identified within the literature review, the WEMWBS widely used in the field of student mental health.

Resilience

The study of resilience addresses the juxtaposition of maintaining wellbeing in the face of adversity (Ryff and Singer 2003). Resilience embodies the psychological qualities that enable an individual to face challenges effectively (Connor and Davidson 2003). Resilience is dynamic and is shaped by adaptions to previous experiences. The avoidance of negative life experiences or illness does not guarantee good mental health and wellbeing. This observation highlights the importance of studying resilience as separate to wellbeing (Ryff and Singer 2003). However, there is robust evidence that resilience is positively correlated with good mental health and wellbeing (Hu et al. 2015).

The study of resilience has gained popularity with the growing focus on mental health promotion and wellbeing. Brewer et al. (2019) highlights the need for a shared definition of resilience in HE, proposing that it should be conceptualised as a process of positive adaptation to adversity and the capacity to draw upon social support. Emerging evidence suggests that resilience may be a contributing factor to wellbeing in PGRs studying in the UK (Milicev et al. 2021; Casey et al. 2022; Gooding et al. 2023).

The first scoping review in Chapter 2 highlighted the need for consistency in the measure of resilience in PGRs. The lack of a universally accepted definition of resilience is an issue (Sanderson and Brewer 2017). For example, Meredith and colleagues found 122 definitions of resilience across 187 documents (Meredith et al. 2011).The CD-RISC offers a clear conceptualisation of resilience and presents a brief self-report scale that can quantify resilience.

Coping

Coping is defined by the behaviours individuals use to control the stressful experiences in their lives. Ways of coping determine how one copes with stress; these are usually stable over time and across situations (Skinner et al. 2003). The study of coping is fundamental to understanding how stress and adverse life events affect people differently. Coping is also a concept related to good mental health and wellbeing. The way that an individual deals with life stressors can either reduce or amplify stress and contribute to the development of mental health problems (Skinner et al. 2003). There is evidence to support the association between maladaptive ways of coping and poorer mental health outcomes (Compas et al. 2017)

Coping responses documented in previous literature have amalgamated into a framework by Skinner et al. (2003), providing a systematic map of the ways of coping. These include problem-solving, support seeking, rumination, distraction, and avoidance. Researchers have argued the important role coping responses play in academic success (Neitzel and Stright 2003), and academic self-efficacy (Freire et al. 2020). Skinner's theoretical framework of coping theory can be applied to the HE context, studying how individuals cope when facing academic challenges (Sagone and De Caroli 2014).

Self-efficacy

Bandura (1977) argued that self-efficacy determines how much effort will be expended, whether efforts will be sustained in the face of adversity, and one's coping behaviour. Self-efficacy is task specific. However, general self-efficacy can be applied to a variety of situations. For example, an individual with high general self-efficacy views challenges positively, may overcome failure more successfully, and perceive that they have control over the challenges or threats they face on the path to their goals (Jerusalem and Schwarzer 2010). General self-efficacy is developed through past successes, positive vicarious experiences, and encouragement from others. The concept of self-efficacy has often been applied to the academic context within education research (Freire et al. 2020).

4.3   Aims and Objectives

Considering the existing evidence relating to the poor mental health of PGRs in the UK and the knowledge gaps outlined in the literature reviews, there remains a need for low-resource

preventative interventions. The inclusion of positive mental health initiatives for PGRs would complement existing academic support and provisions of mental health services at the university. This thesis discusses the results of a three-phase process of developing such interventions. The purpose of this study was to develop and evaluate these evidence-based interventions in a feasibility study. These interventions were based on the situated knowledge obtained from those with lived experience within this specific context, collected throughout this multi-phase study.

The first phase of the study, The Assessment Phase, sought to further understand the experience of PGRs belonging to this UK university by exploring the factors that may affect their wellbeing and resilience. This was an in-depth mixed methods investigation, ensuring that the researcher gained a nuanced, rich insight into their experience. Within this study, a survey was circulated to collect quantitative data about the wellbeing and resilience of PGRs studying at the university. Follow-up interviews were conducted, providing qualitative data that was triangulated with the survey findings to create a holistic, detailed overview of the experiences of this group. The quantitative provides the direction of travel, the qualitative data gives details of the route. In combination, the triangulated findings provided more granular results than either qualitative or quantitative data alone, and a clearer understanding. The subsequent interventions were designed based on the data collected in the first phases of the research, producing relevant interventions that were tailored to the specific experiences of the individuals.

The second phase of the research, The Development Phase, marked the start of the co-production process of the pilot interventions. Two groups of PGRs from the university engaged in focus groups to discuss their ideas for interventions. The researcher presented to the groups the findings of the first phase of the study, and the premise of adaptive coping and how this could be utilised as a change mechanism. Through these discussions, some of the researcher's initial ideas were dispelled, and others were built upon. New ideas were also generated, which were taken forward to the next phase.

In the final phase, The Intervention Phase, several emerging intervention ideas were implemented on a small scale and evaluated with PGRs and the facilitators. Again, the voices and opinions of the PGRs at the institution were central to the process. The interventions that were trialled were mindfulness, project planning, mentoring, and a peer forum. These interventions were designed to support individual psychological resources, such as coping and resilience, and the individual's social environment (Bronfenbrenner 1992). An overview of this three-phase study is outlined in Figure 4-1, including the main aims, research questions, and methods used to address these.

Research Phase	Aims	Research Questions	Objectives	Research Methods
Phase 1: Assessment Phase	1) To explore the factors that affect PGR wellbeing and resilience.	a) What are the main factors affecting the wellbeing and resilience of PGRs at the university? b) How does the wellbeing and resilience of PGRs compare to the general population?	i) Define and understand the problem and its causes. ii) Clarify which factors have the greatest scope for change.	- Psychometric scales - Semi-structured interviews
Phase 2: Development Phase	2) To co-produce preventative interventions to promote PGR wellbeing and resilience.	a) What are the most effective ways to increase PGRs' wellbeing and resilience?	i) Identify how to bring about change: what is the change mechanism? ii) Identify how to deliver the change via interventions.	- Focus groups
Phase 3: Intervention Phase	3) To test and evaluate interventions to promote PGR wellbeing and resilience.	a) What are the factors influencing the acceptability and implementation of the interventions to promote wellbeing and resilience?	i) Test, refine and evaluate the interventions on a small scale. ii) Collect sufficient evidence of effectiveness.	- Psychometric scales - Feasibility data - Focus groups - Semi-structured interviews

Figure 4-1   Research questions, aims, objectives and methods

4.4 Research Philosophy

Before presenting the methodological approach of this thesis, it is important to highlight the philosophical standpoint of the research. The philosophical assumptions a researcher brings to their research informs the approach, design, methods, analysis, and interpretation. Figure 4-2 demonstrates the four elements of Creswell's research methods framework (Creswell 2010) that underpin this study's research philosophy: worldviews, research approaches, research designs, and research methods.

Worldviews: positivism, constructivism, pragmatism etc

Research Approaches: qualitative, quantitative or mixed methods

Research Designs: exploratory sequential, convergent etc

Research Methods: surveys, interviews, focus groups etc

Figure 4-2   Creswell's research methods framework (2010)

4.4.1 Worldviews

Worldview is the term usually used by mixed methods researchers to describe a general philosophical approach but can often be used interchangeably with paradigm, epistemology, or ontology (Lincoln et al. 2011). These philosophical assumptions are seldom addressed in research papers but should be explicitly identified as worldviews inform a researcher's choices (Creswell 2010; Saunders et al. 2015).

This research adopted a mixed methods approach, viewed from a pragmatic stance. Pragmatism provides a middle ground for researchers, philosophically and methodologically, allowing them to build bridges between conflicting worldviews (Johnson and Onwuegbuzie 2004). The pragmatism worldview is the philosophical partner of mixed methods research (Creswell 2013), it provides a framework for appropriate research design. Pragmatism values both objective and subjective knowledge, encouraging researchers to combine qualitative and quantitative methods into a workable solution. This methodological eclecticism allows a needs-based approach to answering a research question in comparison to mono-method studies (Johnson and Onwuegbuzie 2004).

Pragmatist researchers consider the research question as more important than the underlying philosophical paradigm (Punch 2013). Pragmatists value the epistemological underpinning of

quantitative and qualitative approaches; however, do not see them as dichotomous or irreconcilable. Rather, pragmatism is viewed on the middle of the spectrum between subjectivity and objectivity.

However, the pragmatist stance has been criticised for not addressing the underlying assumptions of qualitative and qualitative paradigms. It is important that mixed methods researchers address their philosophical and paradigmatic approaches within their research to justify their switching between two opposing ontological positions and two different perceptions of reality (Maarouf 2019). Maarouf (2019) conceptualises the pragmatic stance of reality as the reality cycle. This cycle proposes that changing the context means changing the reality. Adopting a practical, pragmatic position, the researchers argue that reality is stable most of time and changes periodically as the context changes. This conceptualisation allows a pragmatist researcher to switch between ontological standpoints, understanding that something that was measured at a certain time will become outdated when the context changes (Maarouf 2019).

When applying this to the study of mental health and wellbeing, the reality cycle supports the use of quantitative data to quantify wellbeing, and qualitative data to explore contextual factors and lived experiences. Collecting averages of wellbeing through quantitative scales alone would ignore the contextual determinants of wellbeing such as time, current events, geographical locations, and environments (Smith and Reid 2018). The pragmatist stance respects that every research approach has a role in uncovering reality, with quantitative providing a simplified version, and qualitative uncovering the complexity of context and participants perceptions of reality. This pluralistic position encourages a combination of approaches to be triangulated, to create a fuller understanding of the phenomenon in question (Saunders et al. 2015).

4.4.2   Research Approaches

There are three types of research approaches: qualitative, quantitative, and mixed methods. Quantitative is focused on testing objective theories, whereas qualitative is concerned with how individuals ascribe meaning to their experiences (Creswell 2009). However, since the emergence of mixed methods research, these approaches are no longer considered discrete, they can be effectively mixed within one research study.

Kidder and Fine (1987) and Braun and Clarke (2013) differentiate approaches that incorporate qualitative elements as either "small Q", using qualitative in a limited way within a positivist paradigm, or "big Q", a true qualitative approach. However, mixed methods theorists view qualitative and quantitative approaches as a continuum rather than dichotomous categories, with mixed methods somewhere in the middle of the scale, incorporating both approaches

(Tashakkori and Creswell 2007, 2008). Tashakkori and Creswell (2008) argue that researchers can situate their research more at the qualitative end of the spectrum or *vice versa* depending on what best fits the specific research problem.

4.4.3 Research Designs

Once a researcher has chosen their research approach, they also decide on a study design within the three choices. Classic quantitative research designs include experimental, cross-sectional, or longitudinal studies, for example. In a qualitative approach, a researcher may choose an ethnographic or phenomenological design. In mixed methods research, study designs are based on the sequence of data collection and the way that the researcher integrates or triangulates the qualitative and quantitative elements of their study (Tashakkori et al. 1998). These two types of research should be combined to provide optimal opportunities to answer the research questions (Johnson and Onwuegbuzie 2004). The three primary methods of mixed methods research are convergent mixed methods, explanatory sequential mixed methods, and exploratory sequential mixed methods.

This research adopted an overall mixed methods approach, with two phases of the research using a mixed methods design: Firstly, in Phase 1 an Explanatory Sequential approach was used (Teddlie and Tashakkori 2006) where the quantitative data was collected and analysed first, then the qualitative analysis built upon these findings and provided greater depth and knowledge about the experiences. Subsequently, case studies were presented that amalgamate the two sets of data, providing a granular overview that illuminates the PGR experience. Phase 2 was a purely qualitative investigation, but Phase 3 also adopted a mixed methods design. In Phase 3 a Convergent approach was used, with integration of the qualitative and quantitative data throughout data collection and analysis. The results were collected in tandem and analysed together to provide a comprehensive evaluation of the pilot interventions.

4.4.4 Research Methods

The third element of Creswell's framework is the selected research methods. Research methods are the tools that a researcher uses to investigate their research question, these can be qualitative, quantitative, or mixed. The researcher's worldview and approach define their chosen research methods. This research project utilised several types of qualitative and quantitative research methods including psychometric scales, semi-structured interviews, focus groups, and feasibility data (including recruitment rates, response rates, and attrition rates). Within the research phases where mixed methods were used, the researcher made inferences across both the quantitative and qualitative data. This allowed validated quantitative scales to be combined with in-depth qualitative data, to provide more complete answers to the research

questions. The inclusion of qualitative and quantitative data is advocated in the development and evaluation of new interventions (Gitlin 2013). Qualitative findings are used to address key uncertainties in feasibility studies (O'Cathain et al. 2008), especially when exploring a less researched area (Tashakkori et al. 1998).

4.5   Feasibility Study

The study presented in Phase 3 of this study is a feasibility study, a preliminary exploration of pilot interventions to determine their efficacy. Developing interventions is an iterative and evaluative process, with the aim of building a body of evidence that supports the feasibility, effectiveness, and implementations of a larger-scale study (Gitlin 2013). Feasibility studies are relied upon to produce initial findings that determine whether an intervention can be recommended for further testing (Bowen et al. 2009). They are increasingly undertaken in preparation for randomised controlled trials to explore uncertainties and enable researchers to create methodologically strong interventions. The detailed reporting of the findings from feasibility studies is essential to inform further research (Craig et al. 2011).

The Medical Research Council (MRC) provides a framework for developing and evaluating complex interventions (Craig et al. 2008). This framework recommends a comprehensive development phase, including identifying the evidence and theory development before testing and piloting the interventions within a feasibility study. They deem that it is best practice to develop interventions systematically, within a carefully phased approach (Craig et al. 2008). This framework underpins the process of intervention development in this thesis. Feasibility studies provide advance warning of any issues in the proposed methodology that could influence the results (Van Teijlingen and Hundley 2002). Neglecting the importance of conducting a feasibility study and not considering the practical issues of implementing an intervention could lead to weaker interventions or null findings that may waste time, fundings, and resources (Craig et al. 2011). Additionally, the knowledge gained from feasibility studies is crucial where there is a lack of previous experimental research within the target sample.

Feasibility studies are often not randomised. Crucially, feasibility studies do not focus on statistically significant differences in outcome measures, as that is the focus of the subsequent larger trial (Craig et al. 2011). Rather, this study looked at the acceptability and appropriateness of the selected outcome measures. This limited outcome measure testing is often conducted within a convenience sample to test efficacy and response rates (Bowen et al. 2009; O'Cathain et al. 2019). Van Teijlingen and Hundley (2002) outline the alternative objectives of pilot and feasibility phases, including testing the adequacy and acceptability of outcome measures,

establishing effective sampling techniques, determining what resources are needed, identifying logistical problems in delivery, and collecting preliminary data.

The MRC, within its guidance "Developing and evaluating complex interventions" advocate a systematic, multi-phase approach. Wight et al. (2016) produced the "Six steps in quality intervention development (6SQuID)" as a handrail for researchers, as outlined in Figure 4-3. This framework was followed throughout the three phases of this research in the production of the pilot interventions.

1	•Define and understand the problem and its causes
2	•Clarify which causal factors have the greatest scope for change
3	•Identify how to bring about change: what is the change mechanism?
4	•Identify how to deliver the change mechanism
5	•Test, refine and evaluate the intervention on a small scale
6	•Collect sufficient evidence of effectiveness to justify rigorous implementation
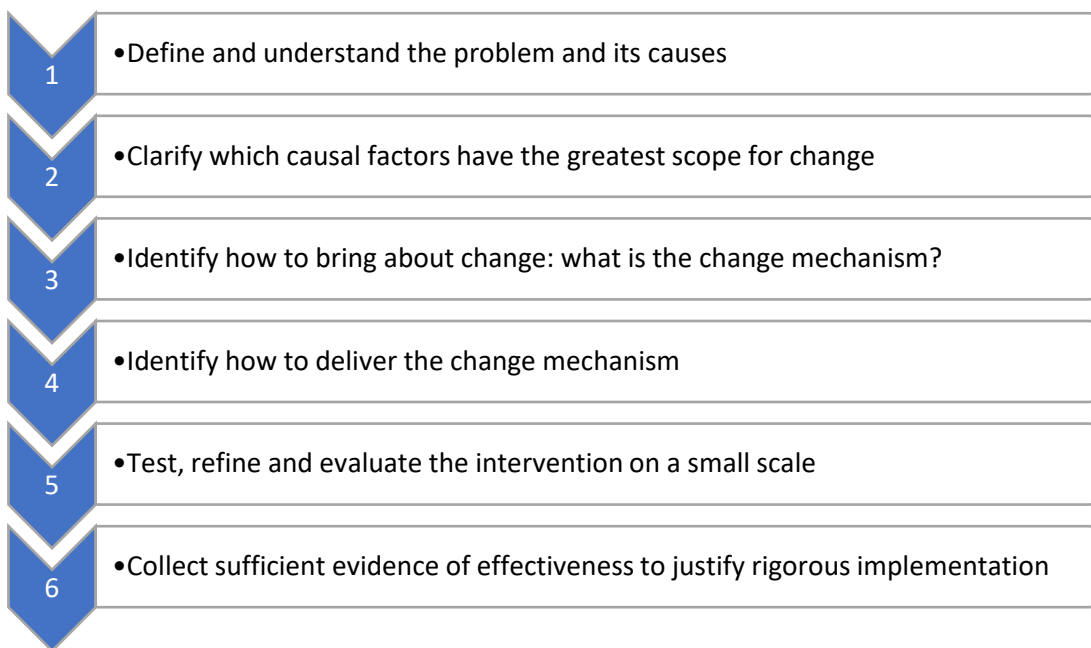
Figure 4-3   Six Steps in Quality Intervention Development by Wight et al 2006.

The Consolidated Standards of Reporting Trails (CONSORT) (Eldridge et al. 2016) provides guidance for undertaking feasibility studies, encouraging researchers to focus on evaluation and decision making. Qualitative evaluation is recommended to evaluate the perceived value, benefits, and acceptability of interventions, and how to improve the recruitment rates (O'Cathain et al. 2019). The inclusion of quantitative data is also important in this research in determining methodological issues, such as recruitment rates, response rates, and completion of outcome measures (Van Teijlingen and Hundley 2002). Therefore, a combination of qualitative and quantitative research methods was used in the evaluation of the interventions presented in this thesis.

Feasibility studies tend to focus on answering the question "can this study be done?" (Craig et al. 2011). The purpose of this research was to establish whether a future, larger trial could be feasible and effective to embed within this institution or others nationally. Therefore, the quantitative data collection focused on acceptability, compliance, recruitment, retention, and

the delivery of the intervention, in line with MRC guidance (Craig et al. 2008), rather than effect sizes and statistical significance.

The MRC recommends that the preliminary results of intervention development are disseminated as widely as possible to share best practice (Craig et al. 2008).The recommendations from this feasibility study will be disseminated to the wider academic community through peer-reviewed publications and sector conferences. These findings provide preliminary data on the effectiveness of interventions to promote the wellbeing and resilience of PGRs studying in the UK, as well as the barriers and challenges of implementing such initiatives.

4.6 Co-production

Co-production in research is where knowledge is co-produced between the participants and the researcher. The knowledge produced between the researcher and the participants is collaborative and both are considered to have co-ownership of the knowledge. Co-production within the development of interventions is said to enhance the relevance, validity, and generalisability of the research (Gitlin 2013). Co-production is an integral part of the development of the novel interventions presented in this thesis. It was important that, firstly, the initial intervention ideas were grounded in the situated knowledge collected in the first phase of the research, The Assessment Phase. This situated knowledge remained at the heart of the intervention development moving on to Phase 2, where PGR focus groups were involved in discussing and critiquing the emerging intervention ideas. Finally, in Phase 3, PGRs were involved in the qualitative evaluation of the pilot intervention.

Co-production is increasingly used within health research, with funding bodies emphasising the importance of involving participants in research (Trivedi and Wykes 2002). Within the HE sector, charities and networks such as Student Minds and SMaRteN, which the researcher was involved in, advocate the inclusion of students in the development of all research and policy relating to student mental health and wellbeing.

Student Minds developed a toolkit in 2019: "Co-producing Mental Health Strategies with Students: A Guide for the Higher Education Sector" (Piper 2019), funded by the OfS. The report sets out various levels of student engagement in research, policy, and strategy development, as displayed in Figure 4-4. Co-production is visualised at the top of the pyramid as the gold-standard, treating students as equal partners in all stages of development.
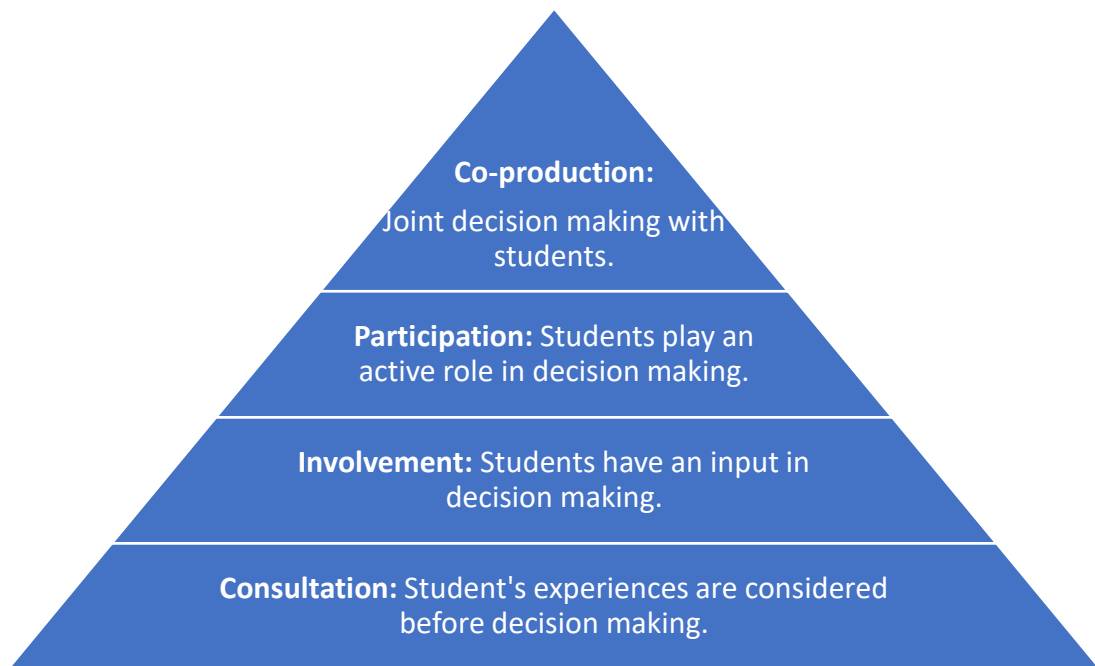
Figure 4-4   Levels of student engagement (adapted from Piper 2019)

To identify effective interventions to improve mental health and wellbeing of PGRs studying in the UK, PGRs should be actively involved at every stage of the development. All students, those with and without lived experience of mental health problems, should be included. Failing to include the perspective of PGRs could lead to the development of interventions that may be irrelevant and ineffective.

Effective co-production can have benefits for the research and the student. Research suggests that involvement in co-production can increase feelings of self-worth (Slay and Stephens 2013). Active engagement with the university and an ability to shape their own experience is expected to have a positive impact on students' experience (Burstow et al. 2018), and should be focal in the development of support provisions for PGRs (Jackman et al. 2021b).

Under the umbrella term co-production, Smith et al. (2023) provide a framework for the different types, which was developed by reviewing over 500 publications that have used the approach. Within their proposed typology, the current research aligns with the integrated knowledge translation type of co-production, where knowledge users play a role in shaping the research process with the aim of making the research more relevant and impactful. Although partnerships with the contributors to this research were fostered and maintained throughout the research journey, true equitable and experientially informed research (Smith et al. 2023) could not be achieved within the parameters of the PhD. Although the researcher could not adopt a truly co-produced position within this pre-ordained studentship project, the researcher

involved people at appropriate points throughout the research cycle and included them decision making when possible.

In this research, decision making was shared with collaborators in Phase 2, where the development of intervention ideas was conducted with participants that shared knowledge of the experience. Their conversations were recorded and analysed formally, to capture their thoughts, experiences, opinions, and ideas. In addition to this, informally, the researcher maintained a relationship with PGRs that took part in the various research phases. This allowed the researcher to share and discuss research findings with PGRs and to ask their opinions on aspects such as preliminary findings, survey content, workshop content, and recruitment materials to ensure they were relevant and reflected their experiences. Additionally, several planned opportunities were taken to share the research progress with PGRs studying at the university and gather feedback through presentations in PGR inductions, departmental events, and conferences across the research cycle.

These interactions, planned or coincidental, improved the relevancy of interventions, ensuring that the most important causal factors and remedial strategies were identified. For the PGRs that were involved in the development of the interventions, being an active part of designing the interventions was empowering and built a sense of community. PGRs reported feeling that their voices were heard and respected within the decision-making process.

4.7   Ethical Considerations

Ethical approval was obtained from the university for each of the three phases of the research. The overarching ethical concerns relating to this study were insider research, mental health and wellbeing support, online qualitative research, and the issue of humanisation in relation to confidentiality.

An ethical consideration that needs to be addressed within this research is the researcher's position as an insider. An insider researcher is a member of the group that they are studying. In the case of this study, the researcher was a PGR researching PGR mental health and wellbeing. It is uncommon for a PGR to undertake research about the experiences of PGRs, most literature or research surrounding PGR education, wellbeing, or experience has been completed by established academics (Chang Da 2016). Yet, more experienced researchers could also be considered as insiders to some extent within this context, as they likely have completed a postgraduate research degree themselves.

It is often assumed that being an insider researcher is beneficial to the research. For example, the knowledge insider researchers bring to their research gives them an ability to ask

meaningful, relevant questions (Merriam et al. 2001), and to understand the emotional context of the participant's experiences (Chavez 2008). As insider researchers are familiar with the social setting, they are able to access participants more easily (Merriam et al. 2001; Chavez 2008), without the challenge of accessing participants through gatekeepers (Spacey et al. 2020). It is also established that insider researchers are naturally more likely to be welcomed and trusted as someone who understands the experience (Breen 2007).

However, this dual identity as an insider and a researcher raises challenges and complexities. Positionality in research is where one stands in relation to their participants (Merriam et al. 2001). Insider positionality is the extent to which the insider researcher's identity is shared with their participant (Chavez 2008). Researcher bias in the context of insider research is concerned with how the researcher's personal, experiences, beliefs, and views are projected onto the participants, affecting the data collection and data analysis (Greene 2014). However, the same argument can be made for outsider researchers as knowledge is situated and inevitably shapes the practices of a researcher (Clarke and Braun 2021). Ultimately, all research is influenced by the researcher's beliefs, values, and feelings about the world (Guba and Lincoln 2005). Therefore, it important that all researchers attempt to disentangle their personal experiences or assumptions from the experiences of their participants, ensuring all themes and discussions are substantiated by the data.

However, qualitative researchers ascertain that subjectivity should be viewed as valuable rather than problematic (Clarke and Braun 2021), and key to reflexive practice. Reflexivity is a widely accepted technique used to manage the ethical issues of insider research identified (Adam 2013). The knowledge obtained through this research is heavily connected to the context in which it was collected. Reflexive practice encourages the consideration of how these contextual factors affected the data collected. It was essential for the researcher to take account how their connection with the group influenced the results and how they were interpreted (Hewitt-Taylor 2002). Reflexivity is ongoing reflection throughout the research, embedded in every stage, not an afterthought (Braun et al. 2022). It is more than just reflecting at the end of the journey, looking back. Reflexivity is a continuous, dynamic, and iterative approach to self-awareness throughout the research (Clarke and Braun 2021). Keeping a reflexive journal was a way in which this was handled by the researcher. This journal was kept as a personal record initially. However, as the research grew and progressed, the researcher made the choice to include their reflexive journal within the Prologue and Epilogue, framing the thesis and providing the reader an overview of the positionality of the researcher.

As well as the awareness of researcher biases, it was imperative to consider the potential harms that could have been induced by taking part in research relating to mental health and wellbeing.

Firstly, researchers are using the internet and social media to recruit participants to take part in research relating to mental health and wellbeing. Therefore, the potential sample biases are recognised. For example, research has suggested that online recruitment strategies can result in an over-representation of people with mental health problems; those with mental health problems are more likely to complete surveys relating to mental health than those without (Batterham 2014).

Likewise, Choi et al. (2017) identify that participants who responded to recruitment adverts with mental health connotations had significantly worse outcomes on mental health measures than those who were attracted to advertisements that used the words "happy", "strength", and "mental fitness". It is important that the motivation of the researcher and the purpose of the study is shared transparently with the respondents within recruitment adverts and within participant information. However, as these studies portray, this has the potential to skew the sample's representativeness and may be a potential limitation in the reporting of the results. More importantly, it means that individuals with poor mental health may be likely to take part in the research. The researcher has a duty of care for these individuals, therefore, signposting information for local or online services should be built into online surveys.

With this in mind, and with the understanding from the literature about the poor mental health and wellbeing of PGRs at the time of the research (Levecque et al. 2017; Evans et al. 2018), it was imperative that this research was approached with the upmost sensitivity. It was considered likely that PGRs could be experiencing poor mental health at the time of taking part in the research. It was also expected, from the evidence, that those experiencing the poorest mental health within this group would be more likely to take part in the surveys, interviews, and subsequent interventions. Therefore, the decision was made to remove the phrase "mental health" from the wording of the recruitment materials, surveys, and interview questions, with wellbeing being used in its place, focusing on positive psychological resources and coping.

The survey and interview questions were designed with this in mind, subjected to ethical review by the university, and accepted as low risk to the participants. It was stipulated within the ethics applications that support resources were formatted into the Participant Information Sheets, surveys, and hand-outs and were discussed verbally with the PGRs who were involved in each phase of the research. These support resources included contact details of university-specific support services and external charities such as Student Minds and Samaritans. A range of levels of need were considered, from contact details for those in mental health crisis, to links to Student Mind's The Wellbeing Thesis informational resources.

Beyond Phase 1, the research coincided with the COVID-19 pandemic, bringing unique challenges and disruption. This forced the qualitative aspects of the research to be carried out online via video call. Online qualitative research was already becoming more common and accepted (Corti and Fielding 2016), but the pandemic accelerated the shift. Online methods provide more flexibility and accessibility in terms of time and geographic location (Janghorban et al. 2014), and the population are becoming increasingly familiar with video call platforms within their daily lives. However, transferring to online video call from face-to-face methods introduces several ethical concerns.

Firstly, privacy issues are inherent in online means of communication (Lobe 2017). Therefore, it is essential that researchers take steps to mitigate the risks to privacy and confidentiality. In relation to video calls, there is the risk of intruders accessing online conversations, however, this can be reduced if invitations are shared only to invitees. To mitigate this risk, Microsoft Teams was used throughout this research. All students and staff at the university are given a personal account with password protected, multi-authenticated log in. In using this GDPR-compliant platform that is endorsed by the university, this risk was further reduced.

Data storage is another important consideration while using online video methods. Many video call platforms provide instant transcriptions of conversations and allow participants to record conversations via video or audio only. Fortunately, only the researcher who organised and hosted the video calls could record the interviews or focus groups. However, it was made explicitly clear to the participants when the recording would start and finish, and participants were afforded the opportunity to ask for the recording to be paused at any time or to continue discussions after the recording was stopped. This was also outlined in the Participant Information Sheets and Participant Agreement Forms for Phase 2 and 3. After the interview or focus groups were completed, transcripts were downloaded, and the cloud storage of the video recording and transcripts were immediately deleted. The transcripts were then anonymised, removing identifiable data such as first and last names, email addresses, and references to people and places (Anderson and Corneli 2017).

Despite researcher mitigations, anonymity is unable to be maintained in focus groups as users log in with their names and email addresses and may be able to partially view the background of other participant's surroundings (Lobe et al. 2020). With these considerations in mind, these risks were discussed verbally with participants of Phase 2 and 3 beforehand, and this was outlined within the Participant Information Sheet and Participant Agreement Forms. Research suggests that participants are likely to disclose more information than they may in face-to-face situations due to the false sense of anonymity they feel when using online video calling platforms (Eynon et al. 2008). Therefore, this too was explicitly communicated to the

participants of Phase 2 and 3 of this research to respect each other's privacy, and to be aware that their confidentiality cannot be guaranteed.

Reliance on video calls as communication in the workplace during the COVID-19 pandemic highlighted the issue of digital poverty in the UK. Successful video calls within research hinge on internet, video, and sound quality. Poor connection or audio can result in disrupted conversation or lost data (Falter et al.). More importantly, some groups of people may be excluded from research if they do not have access to or are not comfortable with the technology required to participate (Saarijärvi and Bratt 2021). In the case of this research, PGRs are expected to have a high level of digital literacy and were used to participating in video calls for supervision and institutional development opportunities at that time.

However, another concern for students within the pandemic context was inequal access to a quiet place to study or work (Sahu 2020). This presented issues of confidentiality, especially if discussing sensitive topics, as there could be a risk of personal conversations being overhead by others (Saarijärvi and Bratt 2021). Although this was something that the researcher was unable to control, it likely affected who was able to participate in the research, as those without a separate study space were unlikely to take part in this research.

In summary, the pandemic presented a challenge for researchers to maintain the highest possible standards of confidentiality and transparency. Identifying these potential issues, planning mitigations, and explicitly communicating the risks to the participants reduced the negative impacts these may have had on the research.

Another important ethical consideration, in the context of co-production and the voice of the participant as an asset to this research, is the balance between confidentiality and humanisation in anonymising research participants. The treatment of research participants as humans rather than objects of study is a longstanding ethical debate (Sieber 1982), this relates to the dimensions of humanisation (Todres et al. 2009). However, anonymity and confidentiality are the overriding concern for participants and researchers within qualitative research (Creswell 2013). It is expected that participants within research should not be identifiable in print so that they do not suffer embarrassment, stigmatisation, or harm as a consequence (Bulmer 1982).

However, qualitative research aims to understand the unique, complex, and nuanced experience of individuals (Josselson and Lieblich 2001), by collaborating and engaging with participants (Denzin and Giardina 2016). The approach to this research project was anchored in these values. With this in mind, to balance upholding confidentiality with the researcher's degree of commitment to humanisation and co-production (Guenther 2009), pseudonyms were used in this research to hide participant's identities, rather than numbers.

Creswell (2013) supports the use of aliases in research in respecting confidentiality throughout the research cycle. However, in choosing these pseudonyms there is a tension between anonymity and confidentiality, and disguising participant characteristics like gender and ethnicity that are integral to the participants' experiences (Allen and Wiles 2016). Often, maintaining anonymity is not synonymous with producing an adequately nuanced account of individual experiences (Allen and Wiles 2016). To negate this, in choosing pseudonyms, the gender, culture, and ethnic background of the participants should be reflected in the names chosen by researchers (Allen and Wiles 2016). Intersectionality relates to inequality (Damianakis and Woodford 2012); in assigning pseudonyms with no reference to intersectional factors a researcher may generalise the experience of non-disadvantaged groups to all (Walford 2005). Intersectionality is particularly pertinent within the context of student mental health and wellbeing, as women students experience poorer mental health (McManus and Gunnell 2020), and students from minority ethnic groups may lack access to culturally appropriate mental health services (Arday 2018).

Further, place anonymisation is also used within research to make participants more difficult to identify (Nespor 2000; Guenther 2009), this is standard practice in qualitative research. However, in identifying the researcher as an insider, this reveals the identity of the university where this research took place. However, there are benefits to acknowledging the geographical location of the institution in question, as the PGRs' experiences hinge on this context. The PGR population of this post-92 university in the south of England was studied at a particular moment in time; this affects the findings too. To ignore how the university is situated, geographically or in era, ignores its specific dynamic and context (Nespor 2000), and assumes it is representative of any university in the UK. Instead, the need to be transparent about how the researcher and this group of PGRs are positioned geographically and socially is prioritised.

4.8   Conclusion

This chapter presents the overarching methodological approach to this research study. Within this, the philosophical assumptions of the research were discussed and how this shaped the research design and methods. The chapter outlined the context of the institution that is being studied and the details of the project's funding. The positionality of the researcher as an insider and the complexities this brings to the research and how this was managed were also addressed. The importance of co-production throughout the research phases was demonstrated, and how this is viewed in the HE context. Finally, the overarching ethical considerations that pertain to this research project were explored, including insider research, the mental health and wellbeing of the participants, and the complexities of online research.

Following this chapter, the primary results from this research project are presented. This thesis included three phases, the findings of each phase are presented in Chapters 5, 6, and 7. Further details of methodology, study design, materials, recruitment, participants, data analysis, and ethical concerns that pertain to each phase of the research are further explored and elaborated upon within the methodology section of each chapter.

Chapter 5   Phase 1: Assessment Phase

"It feels as though I am stuck between a rock and a hard place, unsupported, and with too many demands on my time."

5.1   Chapter Overview

This thesis presents an iterative three-phase approach to developing new interventions. This chapter marks the beginning of the reporting of results from the primary research conducted within this project. The first phase of the research, The Assessment Phase, is presented within this chapter. As identified in Chapter 2, PGR mental health and wellbeing in the UK is an issue requiring intervention (Metcalfe 2018). This is based on a growing body of prevalence data, including large international studies (Levecque et al. 2017; Evans et al. 2018), systematic reviews (Hazell et al. 2020; Jackman et al. 2021a), and emerging UK research (Byrom et al. 2020; Berry et al. 2021; Milicev et al. 2021; Casey et al. 2022; Jackman et al. 2022c; Moss et al. 2022) that was identified and critiqued in Chapter 2. However, before developing interventions to address the mental health and wellbeing of the PGRs studying at this UK university, it was important to gain situated knowledge from this population.

Phase 1 of this research involved a mixed methods investigation of the mental health and wellbeing of PGRs studying at the university, and an exploration of the factors that may underpin this. Firstly, the aims, research questions, and methodological approach of this research phase are discussed. Then the quantitative, qualitative, and mixed methods results are presented in the form of case studies to provide a comprehensive understanding of the experiences and challenges of this group of PGRs. The key findings of this research phase and the methodological limitations are discussed. An in-depth discussion of the triangulated findings accumulates the initial intervention ideas that are taken forward to the next chapter.

5.2   Introduction

Until recently, undergraduate student mental health has been the focus in UK universities. However, in reaction to concerning sector reports (Metcalfe 2018) and a wave of funding for UK research (Metcalfe et al. 2020), there has been a rise of research interest in the mental health and wellbeing of PGRs studying here. This recent research evidence has begun to indicate alarmingly high rates of depression and anxiety (Berry et al. 2021; Crook et al. 2021; Gooding et al. 2023), stress (Byrom et al. 2020), and psychological distress (Jackman et al. 2022c; Moss et al. 2022). Despite the variations of the scales used and the disparity of prevalence rates reported, this research forms a body of evidence highlighting the need for concern about the mental health of this population and the requirement for intervention.

The poor mental health of PGRs studying in the UK is thought to be a significant predictor of attrition intentions (Berry et al. 2022). Attrition in postgraduate research degrees poses significant personal, institutional, and societal costs. Therefore, investing in support provisions is imperative. However, there is a risk of rushing to implement remedial activities without a full understanding of the causes and contributing factors of PGR mental health within this context. As previous chapters have highlighted, there are a range of factors that have been demonstrated to have an impact on their mental health and wellbeing. These include factors that pertain to the individual's psychological resources and personality traits. They extend to the PGRs' immediate academic community, including supervisory relationships, and the wider academic system that they are active within. These stressors permeate different levels of the PGR's social environment (Bronfenbrenner 1992). Therefore, interventions are likely to need to target multiple levels of one's social system to be effective (Jackman et al. 2022a).

To develop effective interventions for the specific context in question, the complex needs of the group could be further explored. A strong evidence base is required, in addition to an understanding of the situated experience of these individuals. This involves defining the extent of the problem within the target intervention participants, and establishing the contributing influences (Wight et al. 2016). It is only by understanding the issue and the causal factors that remedial initiatives may be identified. This phase of the research is the first step in the development of novel interventions to support the mental health and wellbeing of PGRs. The aim of this phase is to define the problem, through quantitative assessments, and to understand the problem and its causes, through in-depth qualitative exploration. The amalgamation of these two methods will provide a comprehensive understanding of the experience of PGRs at the university, and help to clarify which causal factors may have the greatest scope for change (Wight et al. 2016).

1	•Define and understand the problem and its causes
2	•Clarify which causal factors have the greatest scope for change
3	•Identify how to bring about change: what is the change mechanism?
4	•Identify how to deliver the change mechanism
5	•Test, refine and evaluate the intervention on a small scale
6	•Collect sufficient evidence of effectiveness to justify rigorous implementation
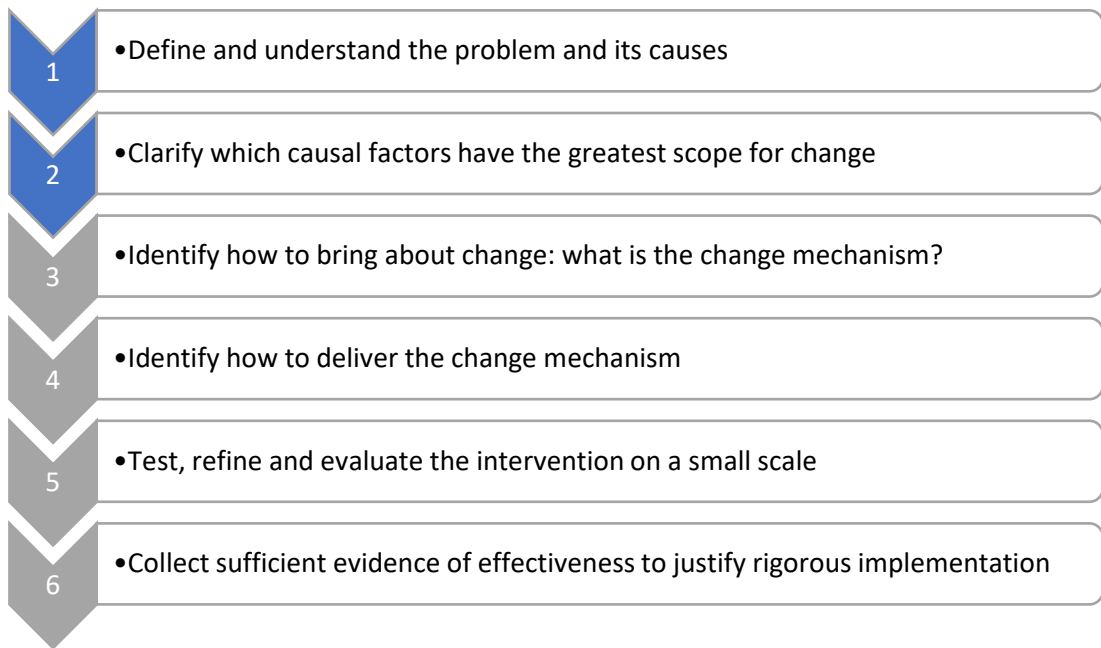
Figure 5-1   Six Steps in Quality Intervention Development by Wight et al 2006.

Hinged on the six steps of quality intervention development proposed by Wight et al. (2016) (Figure 5-1), the overarching aim of this phase of the research was to explore the factors that affect PGR wellbeing to understand the problem and its causes and to explore the remedial opportunities. This Assessment Phase had the following research questions to answer:

1. How does the wellbeing and resilience of PGRs at the university compare to the general population?

2. What are the main factors affecting the wellbeing and resilience of PGRs at the university?

5.3   Methods

5.3.1   Design

This phase of the research consisted of two distinct phases: collecting quantitative survey data followed by qualitative data from interviews, as outlined in Figure 5-2.

Online Survey	Follow-up Interviews
Convenience sampling	Recruited from online survey
Janurary- April 2019	February- July 2019
n= 164 accessed survey *n*=54 completed survey *n*= 21 included free-text comment	*n*=18
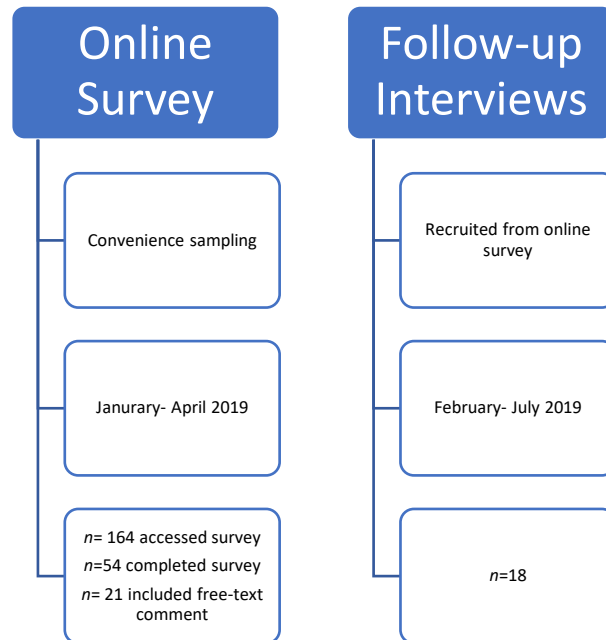
Figure 5-2   Study Design

Firstly, the online survey was disseminated via social media advertisements and word of mouth. The quantitative data collection via psychometric scales allowed the researcher to pinpoint the key issues affecting the wellbeing of the sample, and which factors were more salient.

Interviewing is an effective method for gaining further insight into individual experiences (Darlington and Scott 2020), therefore follow-up interviews were included in this phase. The participants were asked to enter their email address within the online survey if they wanted to take part in follow-up semi-structured interviews. The interviews were conducted face-to-face. The questions were pre-determined prior to the interview, based on the research questions and findings from the literature reviews, and were piloted with a PGR prior to the first interview.

5.3.2   Materials

The survey was built on the Online Surveys platform. The format of the online survey used in Phase 1 of this research is outlined in the researcher's published paper (Casey et al. 2022). There, the researchers discuss the results from the same survey as it was administered to PGR students outside of this university. Although these results provide a useful comparison, the choice was made not to include the wider PGR sample within the results of Phase 1. This thesis focuses on the specific and nuanced experiences of PGRs studying at this university. The structure of the

survey is outlined in Figure 5-3. The survey included three validated scales measuring wellbeing, resilience, and PGR wellbeing.
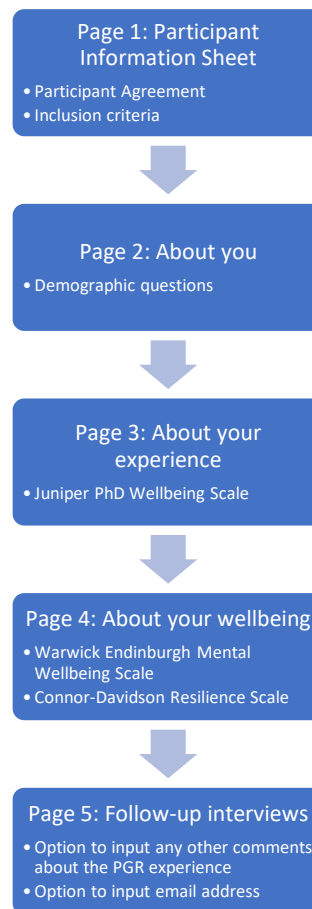
Figure 5-3   Survey layout

5.3.3   Psychometric Scales

Wellbeing

Wellbeing was measured using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS). WEMWBS was developed and validated by Tennant et al. (2007). The scale is comprised of positively worded items relating to different aspects of positive mental health (Tennant et al. 2007). The scale was developed by a panel of experts through referring to current literature and conducting focus groups. The scale was then validated within a large sample of students and with a sample reflective of the UK population. The scale has since been translated in over 25 languages and has been cited several thousand times. The scale is reported to be the most used in student mental health research (Dodd et al. 2021). The internal validity (Cronbach's alpha) values were within "good" range for the original student (n=348) and population samples (n=1749): .89 and .91 respectively.

The scale is made up of a series of statements, such as: "I've been feeling optimistic about the future", to which participants respond on a 5-point Likert scale ranging from "none of the time"

to "all of the time". Respondents are asked to select the answer that best describes their experience over the last two weeks. The 14-item scale was used within the survey, these 14 items are summed to provide a single score. The 14-item scale is said to provide a fuller picture of wellbeing in comparison to the 7-item scale (Stewart-Brown et al. 2011). The mean or median for the population sample were used for comparison to the sample averages within this research.

Resilience

The Connor-Davidson Resilience Scale (CD-RISC) offers a well-validated, widely used measure to help quantify resilience (Connor and Davidson 2003). The CD-RISC is based on Connor and Davidson's definition of resilience: one's ability to "thrive in the face of adversity" (Connor and Davidson 2003). Since its conception in 2003 the scale has been cited several thousand times and has been adapted into different versions. The scale was initially validated in a series of six samples including participants from the general population, primary care, psychiatric patients, patients with generalized anxiety disorder, and patients with post-traumatic stress disorder, therefore can be utilised in clinical practice and research (Connor and Davidson 2003).

The full 25-item CD-RISC (or CD-RISC 25) was used in this research. The CD-RISC 25 comprises of 25 items, each rated on a 5-point scale from "not at all true" to "true nearly all the time", with higher scores reflecting greater resilience. All items are positively worded, for example "I am able to adapt when changes occur". In this study, the averages from the general population sample were used in comparison to sample means. The internal consistency (Cronbach's alpha) value for the general population group (*n*=577) was .89, within the "good" range for the scale.

PGR Wellbeing

PGR wellbeing was conceptualized using the Juniper PhD Wellbeing Scale (JPWBS) (Juniper et al. 2012). The scale was designed to measure the part of a student's overall wellbeing that is primarily affected by their PhD position and which can be influenced by university-based interventions (Juniper et al. 2012). Due to the similarities of the PhD experience in comparison to other postgraduate research degrees, the scale was applied to all PGRs. The wording was edited in the scale to reflect this.

The scale operationalizes PhD wellbeing through 7 domains: Supervision, Research, University, Social, Health and Home, Facilities and Development. Few researchers have since utilised the scale to within as assessment of PGR wellbeing or to evaluate interventions in PGR samples (Hargreaves et al. 2017; Marais et al. 2018; Casey et al. 2022) and several review papers have advocated the usefulness of the scale (Schmidt and Hansson 2018; Scott and Takarangi 2019).

Therefore, the decision was made to trial the scale within this phase of the study, to pinpoint the domains of PGR study most affect wellbeing.

Each item is rated from 1 to 5 from "not at all important" to "extremely important", with 5 indicating that the item has a greater impact on wellbeing. Each domain has a different number of items within it, for example the Supervisor domain has 13 questions in comparison to the Facilities domain that has 6. Therefore, results are based on mean scores. The internal consistency (Cronbach's alpha) values ranged between "acceptable" and "excellent" levels (.79 and .91).

5.3.4   Ethical Considerations

Ethical approval was granted by the university in January 2019 (Ethics ID 24627, see Appendix 1). Ethical permission was granted to include a secondary analysis of university PRES data within the qualitative analysis. However, due to the success of the recruitment for interview participants, sufficient primary data was collected. Therefore, PRES responses were not included in this phase of the research.

The Participant Information Sheet was formatted into the online survey, the participants confirmed they had read the form before continuing to the questions. The interview participants were asked to review and sign a Participant Agreement Form before taking part in the interviews.

A key ethical consideration was the necessary collection of the interview participants' email addresses. Doing so was integral to organising the interviews and a key part of the mixed methods design as this allowed triangulation of their survey data with their interview content. To protect anonymity their names were pseudo-anonymized so that only the researcher could identify them.

With PGR wellbeing in mind, the scales were selected, and interview questions were designed to be positively worded and sensitive. The interview questions can be viewed in Appendix 2. If any participants were concerned about their wellbeing during or after partaking in the research, the details of the university's student services, The Samaritans', and other key signposting information were included in the survey and provided again during interviews via hand-outs.

5.3.5   Participants

This research recruited PGRs from one post-92 university in the south of England. PGRs studying any research degree at the university could take part in the study. The participants were recruited via convenience and snowball sampling. Secondly, participants were invited to insert their email address if they wanted to participate in follow-up interviews.

In total, 54 PGRs participated in the survey. Their demographics were compared to overall PGR demographics for the academic year to calculate the degree the sample fitted the expected distribution, see Table 5-1.

Table 5-1 Survey sample vs university PGR demographics for 2018-19 academic year.

Demographics	University Frequency	University Percentage	Sample Frequency	Sample Percentage	+/- %
N	593	100%	54	9%	-
Gender					
Male	284	48%	15	28%	-20%
Female	309	52%	39	72%	+20%
Faculty					
Health and Social Sciences	108	18%	19	35%	+17%
Management	111	19%	8	15%	-4%
Media and Communication	178	30%	7	13%	-17%
Science and Technology	196	33%	20	37%	+4%
Domicile					
Home	332	56%	34	63%	+7%
International	261	44%	19	37%	-7%
Study Mode					
Full-time	335	56%	40	74%	+18%
Part-time	258	44%	14	26%	-18%
Staff Member					
Yes	88	15%	18	33%	+18%
No	505	85%	36	67%	-18%
Programme					
PhD	469	79%	47	87%	+8%
PhD by publication	4	1%	0	0	-1%
MPhil	10	2%	0	0	-2%
MRes	42	7%	5	9%	+2%
EdD	40	6%	1	2%	-4%
EngD	22	4%	1	2%	-2%
DProf	6	1%	0	0	-1%
Funding					
Studentship	158	27%	28	52%	+25%
Other	435	73%	26	48%	-25%

Note: Table displays frequencies and percentages. *n*= number of participants.

The sample was women biased in comparison with the university's admissions data. Also, the Faculty of Media and Communication and the Faculty of Management were under-represented in the sample. This is important to keep in mind when considering the results of this phase of the research. Of those who participated in the survey, 18 took part in follow-up interviews. Participant's names were replaced by pseudonyms to protect their anonymity. The demographic information of the interview participants can be seen in Table 5-2.

Table 5-2   Interview sample demographic information.

Demographics	Frequency	Percentage
N	18	
Gender		
Male	7	39%
Female	11	61%
Faculty		
FHSS	7	39%
FM	2	11%
FMC	3	17%
FST	6	33%
Domicile		
Home	6	33%
International	12	67%
Study Mode		
Full-time	13	72%
Part-time	5	28%
Staff Member		
Yes	2	11%
No	16	89%
Programme		
PhD	15	83%
MRes	2	11%
EdD	1	6%
Funding		
Studentship	10	56%
Other	8	44%

Note: Table displays frequencies and percentages.

5.3.7 Mixed Methods Research Design

The mixed methods research design implemented in this phase was Explanatory Sequential (Teddlie and Tashakkori 2006), where the quantitative data was collected first, then the qualitative. Therefore, this phase had more of a quantitative orientation, where the quantitative results were analysed, then using the qualitative results to build upon and explain the initial findings with more detail. The integration of the results occurred during the discussion of the findings, therefore, the quantitative and qualitative results were reported separately and integrated within the case studies and the interpretation and discussion of the overall results, as illustrated in Figure 5-4. The case studies provide an opportunity for integration, combining the qualitative and quantitative data to illustrate and frame the personal experience.
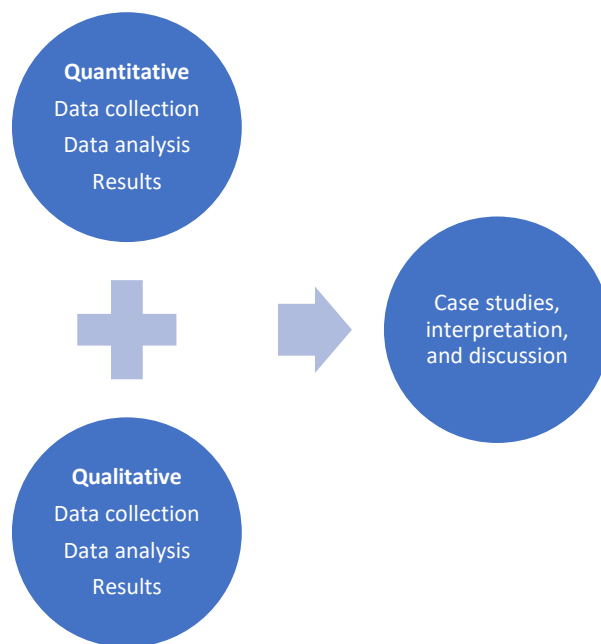
Figure 5-4   Mixed methods design

This mixed methods research design was selected to best address the research question, building on the strengths, and offsetting the weaknesses of each method (Creswell 2004; Creswell 2010). From these results, the level of wellbeing in PGRs was determined and the factors that shaped the problem were identified, meaning those with the greatest scope for change could begin to be considered for the development of the interventions.

5.3.8 Quantitative Data Analysis

The survey data was analysed using SPSS Version 25. The internal reliability of each scale used was calculated using Cronbach's Alpha. Means were calculated for the scales to provide average scores for the samples. Normality testing was conducted to analyse the distribution of the scores for each scale. One-sample t-tests were run to compare CD-RISC and WEMWBS scores to population means. Unfortunately, for the JPWBS data, a population median was not available

and could not be provided by the study researcher, therefore, the sample scores could not be compared to the population score using a non-parametric alternative.

To answer the first research question (how does the wellbeing and resilience of PGRs compare to the general population?), one-sample t-tests compared CD-RISC and WEMWBS scores to population means provided by the scale authors. Normality testing was conducted to analyse the distribution of the scores for each scale prior to analysis.

To answer the second research question (what are the main factors affecting the wellbeing and resilience of PGRs at the university?), the lowest scoring items from the CD-RISC and WEMWBS scales were identified. Means were also calculated to assess which JPWBS domains or items were rated highest for importance, therefore indicating the items which had the largest impact on wellbeing. To further explore the relationship between wellbeing and resilience, Pearson's correlation was used to assess the association between CD-RISC and WEMWBS. Spearman's Rho correlation was reported so that the JPWBS variables that were not normally distributed could be included. This also tested the convergent validity of the scales.

5.3.9   Qualitative Data Analysis

To explore Research Question 2 in more depth, the open-ended responses from the survey and the data from the 18 semi-structured interviews were integrated and analysed together. The analysis was inductive, with no pre-determined themes. The steps of Thematic Analysis, as outlined by (Braun and Clarke 2006), were followed rigorously, as outlined in Figure 5-5.
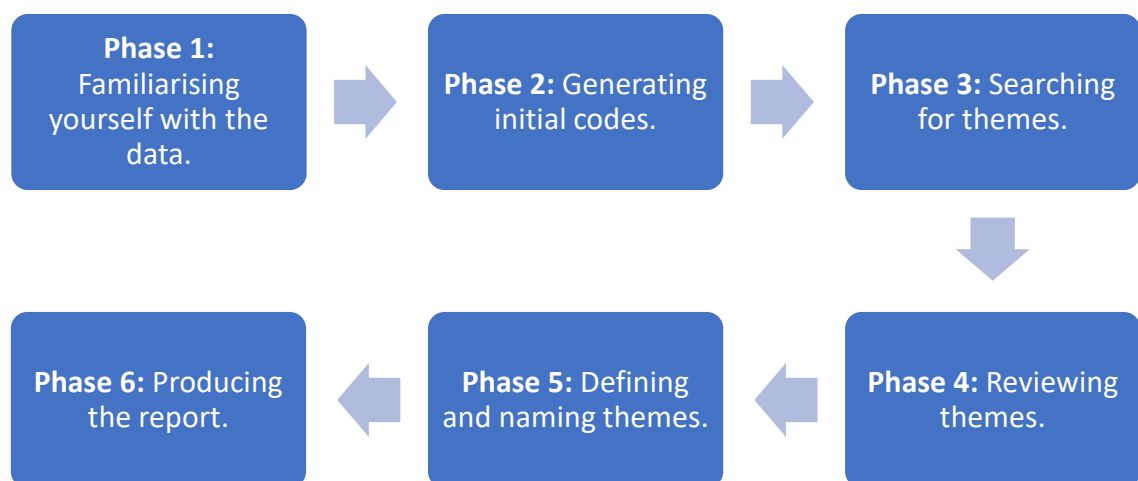
Figure 5-5   Thematic Analysis (Braun and Clarke 2006)

Phase 1 of Thematic Analysis involves familiarising oneself with the data. Firstly, the transcripts were imported into NVivo. Memos were added about the circumstances of interview including the context, non-verbal communication, and rapport with the interviewer. The lead supervisor

also read and coded a selection of transcripts. Next, initial codes were recorded that appeared to be salient. These were then organised into meaningful groups which were visualised in a mind map. This first iteration of coding was also conducted with the lead supervisor and discrepancies were discussed.

The analysis was then re-focused at a broader level and the underpinnings of the initial coding structure were considered. A new folder was created in NVivo for the third phase of the analysis as not to overwrite Phase 2 coding. The codes were combined into overarching themes; these were visually displayed in another mind map. The themes were then reviewed again by the lead supervisor.

In the fourth phase of analysis, the themes were refined. Their weighting of each theme was reviewed across the entire data set by comparing the numbers of coding references. A hierarchy chart was used to consider the weighting of each theme and some subthemes were disbanded or merged. Once the researcher felt that the thematic map reflected the experiences of the participants accurately, the themes were discussed with two research participants. The themes were then confirmed and described. Finally, a detailed description of each theme and corresponding example extracts are included in the results section.

5.3.10   Mixed Methods Data Analysis

The mixed methods data analysis is presented within case studies. Three case studies are presented within the results, amalgamating the survey and interview data, giving a narrative overview of three participants' experiences. These three case studies include one PGR who scored highly for wellbeing, one who had a wellbeing score close to the group mean, and one with a low wellbeing score.

5.4   Results

5.4.1   Quantitative

High internal reliability was calculated for all scales in comparison to acceptable levels of .70 or above (Cronbach 1951), as displayed in Table 5-3.

Table 5-3   Internal reliability of quantitative scales.

Scale	*N*	Cronbach's Alpha
JPWBS	54	.88
CD-RISC	54	.92
WEMWBS	54	.95

Note: *n*= number of participants.

The mean score for WEMWBS was 45.09 (± 11.93) The lowest rated items for the WEMWBS scale are displayed in Table 5-4.

Table 5-4   Lowest rated items from WEMWBS scale

WEMWBS Item	*N*	Mean	SD
I've been feeling relaxed	54	2.54	1.08
I've had energy to spare	54	2.56	1.07
I've been feeling good about myself	54	2.96	1.30
I've been feeling close to other people	54	3.04	1.15
I've been feeling cheerful	54	3.19	1.19

Note: *n*= number of participants, SD= standard deviation, mean score between 0-5 with a higher value indicating higher wellbeing.

The mean score for CD-RISC was 67.60 (± 16.24). The lowest rated items for the CD-RISC scale are displayed in Table 5-5.

Table 5-5   Lowest rated items from CD-RISC scale

CD-RISC Item	N	Mean	SD
I can make unpopular or difficult decisions that affect other people, if it is necessary	54	2.56	0.78
I am not easily discouraged by failure	54	2.61	0.92
When there are no clear solutions to my problems, sometimes fate or God can help	54	2.67	1.19
I am able to handle unpleasant or painful feelings like sadness, fear or anger	54	2.67	0.84
Under pressure, I stay focused and think clearly	54	2.72	0.75

Note: n= number of participants, SD= standard deviation, mean score between 0-4 with a higher value indicating higher resilience.

The mean scores for each JPWBS domain are displayed in Table 4.6. Health and Home, Research and Social domains were rated the highest for impacting wellbeing. The Supervisor domain was the lowest rated for its impact on wellbeing.

Table 5-6   JPWBS domain scores

JPWBS Domain	N	Mean	SD
Health and Home	54	2.62	1.05
Research	54	2.39	1.14
Social	54	2.29	1.22
University	54	2.19	1.11
Development	54	2.16	0.76
Facilities	54	1.84	0.92
Supervisor	54	1.59	0.87

Note: n= number of participants, SD= standard deviation, mean score between 0-5 with a higher value indicating higher impact on wellbeing.

The top-rated factors from the JPWBS, indicating the highest detrimental impact on wellbeing, are demonstrated in Table 5-7.

Table 5-7   The highest scoring items from the JPWBS

Domain	Factor	*N*	Mean	SD
Health and Home	Experiencing high levels of stress because of your research	54	3.49	1.57
Research	Feeling frustrated/demotivated by your results and apparent lack of progress	54	3.20	1.50
Health and Home	Having a high workload that impacts your private life	54	3.18	1.42
Health and Home	Making unreasonably high demands of yourself in the name of research	54	3.10	1.54
Research	Lacking confidence in your ability to conduct research to the necessary standard	54	3.04	1.54
Health and Home	Feeling constantly tired and run-down because of your workload	54	2.96	1.55
Research	Feeling disappointed in your abilities as an academic researcher	54	2.92	1.51
Development	Being unclear about the next stage of your career after your research degree	54	2.88	1.42
Social	Feeling isolated from other research colleagues in your department	54	2.86	1.72
Development	Being unclear about the required standard of work for your thesis	54	2.80	1.37

Note: *n*= number of participants, SD= standard deviation, mean score between 0-5 with a higher value indicating higher impact on wellbeing.

The scores for the CD-RISC and the WEMWBS scales were normally distributed, however, the JPWBS score and the scores for the 7 integral domains were not. In comparison to the population mean for the WEMWBS scale provided by the scale authors (51.61 ± 8.71) the sample mean was significantly lower ($t(53)=-4.02$, $p<.01$). In comparison to the population mean for the CD-RISC scale provided by the scale authors (80.40 ± 12.80) the sample mean was significantly lower ($t(53)=-5.81$, $p<.01$).

There were no significant differences found in WEMWBS and CD-RISC scores between any demographic variables. The 3 scales were significantly positively correlated with each other, as displayed in Table 5-8, indicating high convergent validity.

Table 5-8   Correlations between scales

Scale	*N*	WEMWBS	CD-RISC	JPWBS
WEMWBS	54	-	.76**	-.46**
CD-RISC	54	.76**	-	-.31*
JPWBS	54	-.46**	-.31*	-

Note: *n*= number of participants, table displays Spearman's rho correlation coefficient, *= correlation is significant at .05 level, **= correlation is significant at .01 level.

As displayed in Table 5-9, the JPWBS domains were all significantly positively correlated with each other. Also displayed in Table 5-9, CD-RISC scores were significantly negatively correlated with the Development domain and the Supervisor domain. The WEMWBS score is significantly negatively correlated with all JPWBS domains except the Social domain.

Table 5-9   Correlations between scale and JPWBS domains

	N	WEMWBS	CD-RISC	JPWBS	Development	Facilities	Health and home	Research	Social	Supervisor	University
WEMWBS	54	-	.76**	-.46**	-.40**	-.28*	-.54**	-.38**	-.24	-.31*	-.36**
CD-RISC	54	.76**	-	-.31*	-.30*	-.17	-.27	-.23	-.24	-.27*	-.28*
JPWBS	54	-.46**	-.31*	-	.82**	.71**	.82**	.78**	.69**	.74**	.80**
Development	54	-.40**	-.30*	.82**	-	.47**	.64**	.65**	.52**	.65**	.69**
Facilities	54	-.30*	-.17	.71**	.47**	-	.50**	.39**	.44**	.57**	.63**
Health and home	54	-.54**	-.27	.82**	.64**	.50**	-	.67**	.46**	.49**	.64**
Research	54	-.38**	-.23	.78**	.65**	.39**	.67**	-	.35**	.56**	.52**
Social	54	-.24	-.24	.69**	.52**	.44**	.46**	.35**	-	.46**	.44**
Supervisor	54	-.31*	-.27*	.74**	.65**	.57**	.49**	.56**	.46**	-	.57**
University	54	-.36**	-.28*	.80**	.69**	.63**	.64**	.52**	.44**	.57**	-

Note: n= number of participants, table displays Spearman's rho correlation coefficient, *= correlation is significant at .05 level, **= correlation is significant at .01 level.

5.4.2 Qualitative

The qualitative analysis combined data from face-to-face interviews with 18 participants and free-text comments from 18 online survey respondents. The names of the interviewees have been replaced with pseudonyms. To decipher between survey responses and interview participants, the survey respondents are numbered as survey respondent 1 etc.

Three main themes were identified from the thematic analysis: Balance, Control, and Coping. Figure 5-6 represents the equilibrium between stressors and coping. On one side of the scale are the pressure points underpinning the mental health and wellbeing of PGRs at the institution. The Control theme represents the factors that reducing their feelings of control over their ability to complete their degree, and their feeling of control over their lives and their projects. These factors included expectations, uncertainty, self-efficacy, power and autonomy, and identity. The Balance theme highlights the specific factors that were barriers to their abilities to maintain satisfactory work-life balance, including relationships, isolation, health problems, and responsibilities including financial or caring responsibilities. On the other side of the scale sits the protective factors, this encapsulates the ways PGRs coped with the stress of the research degree, whether these were positive or negative.
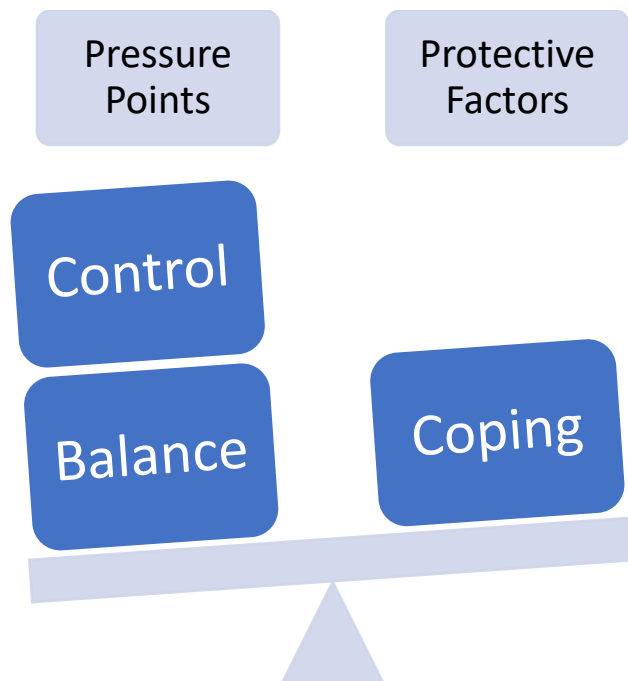
Figure 5-6   Representation of themes

Control

The subthemes within the control themes are displayed in Figure 5-7.
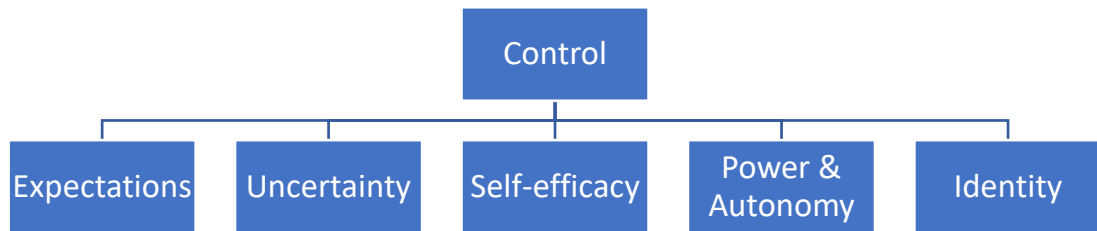
Figure 5-7   Control theme

Expectations

The disparity between expectations and reality was frequently discussed and seemed to have a large bearing on the PGR experience and satisfaction. These expectations were either pre-conceived or developed from what had been advertised to them by the university during the interview or induction phase:

> *"My initial assumptions, beliefs, expectations, had to be thoroughly fundamentally revised."* Ray

Many discussed discrepancies between their expectations and what they had been provided in terms of training and learning opportunities:

> *"They say you'll be fully trained, and all expenses will be covered for both training and analysis, which was not the case."* Cat

> *"I said in the interview, I would need help with qualitative stuff … That wasn't followed through. It was a bit frustrating."* Rebecca

In relation to supervision, for many, there was confusion about the supervisory role. Whilst academic support was deemed satisfactory by most, some PGRs expected to be meeting with their supervisors much more frequently:

> *"But I think I would expect to kind of grow more and learn more, but I didn't… But I expected like more collaboration more feedback, more of your work together."* Lucy

In addition, much dissatisfaction stemmed from expectations of supervisors taking on a pastoral role:

> *"When you started off, your supervisors could maybe give you a sense of how they can support you, what are they… in terms of their own availability and resources and*

emotional space in their lives and pressures. How much can they actually offer you? And how much do they sort of give you a sense, you need to look for that elsewhere?" Benu

There was confusion about the role of the PGR supervisor and what is expected of them in terms of pastoral care.

Uncertainty

The participants often reported feeling unsure about what was expected of them, leaving them feeling helpless. Many felt that the university policies and procedures were not made clear to them:

"Because sometimes you find out later and it's too late. Because supervisors are not necessarily up to date, because the Code of Practice changes every year. There's a lot of things we wish we had known when we started." Lydia

"The university communication has been exceptionally poor. And it just adds to the frustration of not knowing. Well, it's bad enough that I don't know what I'm doing to then have it compounded by not knowing what anybody else is doing!... I think communication really needs to be improved." Meghan

One participant even described feeling bewildered at the start of their degree:

"The beginning was truly awful …. For the first three months of the MRes I was mostly furious and /or bewildered." Survey respondent 6

Two participants used the metaphor of fighting to regain control within the uncertainty:

"It's bad enough that my project is making me feel inadequate to the task, to then have to fight just to find out some information about things that the university imposed on us makes it feel even more impossible." Molly

"On a daily basis you're just fighting all the time… not just struggling with your research but you're just struggling with administration and practical stuff." Lucy

These feelings of uncertainty and lack of clarity increased feelings of self-doubt.

Self-efficacy

The participants reported feeling like their performance was inadequate in terms of their research abilities. Many lacked self-belief in their ability to complete their postgraduate research degree, some discussed wanting to give up:

"It made me feel like I shouldn't be here… it just made me feel really sh*t about the entire situation… I just thought I should quit. I don't think they'd be that mad if I quit now like, rather than them spending more money keeping me here." Rebecca

For some, the impact of postgraduate research on their self-esteem and self-confidence has affected their mental health negatively:

"All this has had an impact on my mental health, and I feel much worse off now mentally than I did before I started my PhD. It has eroded my sense of self-confidence to the point that I question most of my own decision making." Molly

Others discussed experiencing imposter syndrome throughout their postgraduate research degree:

"I see a lot of people talking about this imposter syndrome… being or feeling inadequate, I might not be inadequate, but it's the perception that I am inadequate in some way. You're at the bottom of an academic hierarchy… And, and on top of that, you feel like you're underperforming in so many ways." Benu

A persistent inability to believe they are worthy of being an academic was reported by some, and an awareness of being at the bottom of the hierarchy in terms of their career progression. The juxtaposition that they are working towards the highest degree, yet feeling like they are at the bottom of the ladder was evident.

Power and Autonomy

Many of the PGRs enjoyed the freedom and flexibility of managing their own project:

"Freedom. I've come in from having done years of nine to five, the ability to run my own agenda… the freedom to do that: how, when, where, is absolutely amazing. That probably is one of the biggest things that I really enjoy about it." Olivia

Some felt threatened when their autonomy over their project and their ways of working was reduced. Some PGRs discussed how advice and feedback from supervisors made them feel disempowered:

"It takes it away from that really enjoyable, emancipatory journey into something that makes you feel like right; I've just got to jump through these hoops." Rob

"One of the supervisors suggested well, why don't you do that? … I was disappointed because it wasn't really what I wanted to do." Ray

While most accepted the need for annual monitoring and reviews, for many, the academic milestones were perceived as threats to their freedom or unnecessary bureaucracy:

> *"[The university] is more interested in getting people through the doors and done ... It is constantly pointed out that we must complete by the end of 4 years for university targets. It just feels like another way the university can beat us down and another worry to face."* Meghan

> *"The more sort of systemic, structural stuff at [the university] adds pressure to the work that you're doing … What am I going to put in the annual monitoring? …That sort of discursive drive to complete in a particular time frame in many ways adds pressure onto a situation that can be really problematic"* Rob

This indicates a tension between their freedom to pursue their research in their own way and institutional milestones, procedures, supervisory guidance, and feedback.

Identity

Many of the PGRs felt they had a hybrid identity of student and staff. Although many PGRs reported being involved in their faculties and taking on marking or teaching work, this often made them feel confused by their status at the university:

> *"It would just be nice to know exactly where we stand. Like are we students or are we staff? ... am I actually invited? Or Is this a mistake?"* Rebecca

Similarly, those who were completing their postgraduate research degrees while working as members of staff at the university felt this acutely:

> *"The dichotomy of being a member of staff… and on the new journey of a PhD is a tough balance of identity."* Survey respondent 4

For those from practice or professional backgrounds entering academia, the adjustment to their new role was challenging:

> *"I was totally intimidated. I've come from the NHS, and I was an expert. And I came into this educational environment, which wasn't unfamiliar. But they used a language I didn't understand."* Claire

> *"I am prone to the well-established phenomenon of imposter syndrome. Those of us who come from practice, always feel that we're one step behind those who are, you know, 'real academics'."* Ray

This highlights additional identity struggles experienced those from professional practice, as they adjust to being a student and shed their previous identity as an expert in their field.

Balance

The subthemes within the overarching Balance theme are displayed in Figure 5-8.
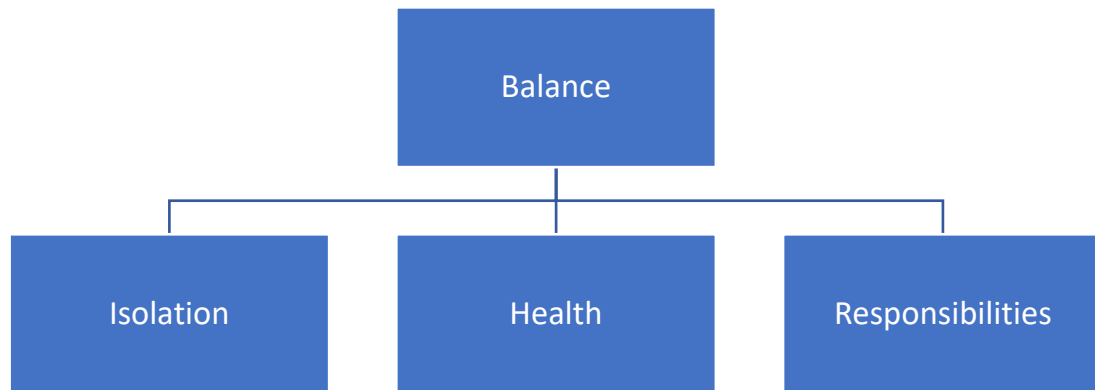
Figure 5-8   Balance theme

Isolation

Many participants appeared to feel geographically distant from their peers at university. This was experienced by those who lived away from campus or were part-time students:

> *"I have felt isolated sometimes because none of my peer PGRs live or work near me, so it has been lonely."* Survey Respondent 1

> *"As a part-time student, looking back at my years, I should have tried harder to connect with fellow students ... the lack of involvement when you are part-time leads to feeling quite isolated sometimes."* Survey Respondent 9

However, emotional distance was even reported by PGRs who were working on campus, feeling like an outsider at university:

> *"It's just the loneliness, how lonely the path is … that has been the hardest thing about my research degree."* Yusuf

Others tended to exclude themselves from social opportunities during stressful or busy periods of study, perpetuating the cycle:

> *"I kind of lost that connection because I was so much focusing on writing my thesis. So, it's difficult, it's challenging, and I think really demands a lot of extra effort to stay in touch with people and get the feeling of that culture."* Phil

> *"I don't feel a part of a PGR community … that's primarily the result of my decision not to engage more comprehensively with that community simply because between the day job and the time involved in doing the PhD, and having a life. There are there are only so many hours in the day."* Ray

Increased workload limited the PGRs' ability to engage in the academic culture at the university. Some discussed guilt when engaging in social or wellbeing events, feeling unable to take time away from research work.

Health

For some PGRs who were neurodivergent or living with a disability their ability to socialise or connect with others was limited by their condition, feeling increased isolation:

> *"I have my children to balance, and I'm disabled as well. So, some days I can't get into uni. I'll work from my bed if I have to. So, it's harder to bond with people that you're not seeing them all the time."* Fiona

Two participants discussed experiences of feeling stigmatised and discriminated against at work due to their disability or non-visible disability, causing them to further withdraw from the university community.

> *"Unfortunately, there was an incident where someone put a horrible note on my disabled chair … I came in Monday, and I found this nasty note on the back of it. Which made me feel really, really sh*t. It's like I wasn't welcome in a way."* Fiona

> *"Probably as a result of some of my mannerisms because of Asperger's. I think there are probably a number of factors that contribute to what I suspect is a reputation of being 'the weirdo'"* Ray

Many discussed mental or physical health conditions that were worsened by the stress of the research and affected their ability to perform academically:

> *"Everything about being a PGR is stress, depression, and anxiety inducing."* Survey respondent 2

> *"It's a genetic disorder, which means I'm highly susceptible to stress and anxiety. And it has quite a negative impact on the condition … It's a bit like a catch 22."* Rob

> *"Because I have Asperger's … feedback tends to have a rather significant impact on my emotional wellbeing."* Ray

However, two participants felt unable to take time off their work to recover or seek support for physical or mental illness:

> *"My supervisors are really understanding, like, they say, you know, you need to take time completely off from the research … But I have this, like overarching stress that I can't have a break, I've got to carry on"* Claire

> *"With some supervisors it's hard to ask for time off if you need it for your mental health. Supervisors should not tell PGRs that "you are a PhD student you don't deserve holidays" or "You are a PhD student you have to feel miserable" or "well take the time off if you really think you can afford it time wise".* Survey respondent 5

For one respondent, they felt that their supervisor would not allow them to take time off work for mental ill health. They perceive a culture that considers burnout is a rite of passage in academia.

Responsibilities

Frequently discussed in the interviews were familial and caring responsibilities, These factors often impacted on PGRs' wellbeing and their ability to complete their work in the expected timeframes:

> *"I had a certain level of quite difficult personal circumstances that I've had to deal with… the last two years have been particularly intense because unfortunately, my mum passed away two years ago, and my dad has a mixed dementia diagnosis."* Rob

> *"I was her full-time carer as well as full-time MRes and part-time work. I never had any advice from anywhere."* Yusuf

For those who were studying part-time, working outside of their studies, or working as university staff members, increased demands outside of work compounded the pressures of studying:

> *"As a member of the academic staff, I have felt pulled in too many directions … It feels as though I am stuck between a rock and a hard place, unsupported, and with too many demands on my time. I have to use my annual leave every year to catch up on progress … it is soul destroying and contributes to mental health issues significantly."* Survey respondent 18

Financial concerns were significant for many PGRs, causing strain in personal relationships:

"It almost ended my relationship with my partner and caused a lot of financial difficulty." Survey Respondent 18

"It's really concerning about what I'll actually be able to do financially when I finish, and we've got bills to pay." Claire

For international students, the costs of fees and relocating caused additional stress, one even discussing giving up their studies due to financial uncertainty:

"I knew it would be expensive, but I didn't realize how much money I had to outlay up front ... the cost of accommodation coming in as an international student is exorbitant... all these costs start adding up I was quite close to leaving because I thought I can't actually afford to be here right now I don't have this kind of money." Benu

Financial pressures were reported by many PGRs, but those who were international students and those with added responsibilities such as mortgage payments and children experienced this more acutely.

Coping

The coping theme summarises the way PGRs described dealing with stress and maintaining their wellbeing during their postgraduate research degree. The subthemes are displayed in Figure 5-9.
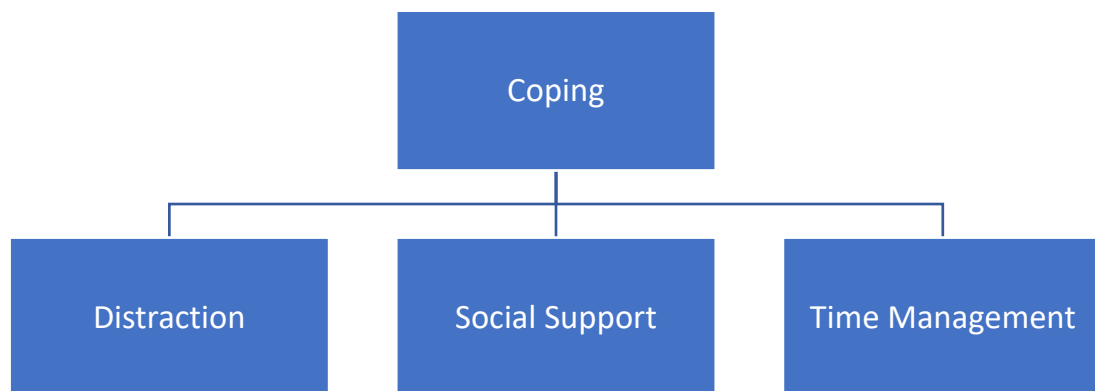
Figure 5-9   Coping theme

Distraction

PGRs often coped using distractions like hobbies, crafts, exercise, and sports to temporarily take their attention away from their work. They often engaged in these activities with others in groups:

"I think outside of my PhD … I think it is good to have an outside of your PhD first of all! I do exercise, I play hockey … I know how important it is to get out and be healthy, be active." Marie

"I never gave up on my hobbies, I kept singing in a choir and stuff like that. I think these things are important things when you're really in an intense phase of your work or studies … But I can say I kept good wellbeing, I kept a good balance, and I feel stress sometimes but basically, I still do fine." Phil

One PGR explained feeling like they were using a different part of their brain when engaging in these kinds of activities:

"I still run. I've taken up random hobbies, making clay mice. It's anything that's not this! One of the key things for me is doing activities that are not using those parts of the brain that you're using on the PhD!" Olivia

It was evident that PGRs enjoyed engaging in tasks that encouraged mindfulness or taking their minds off their work. These varied depending on their personal preferences of hobbies, but several participants reported tangible wellbeing benefits.

Social Support

Many of the PGRs reported seeking support from their friends, families, or intimate partners during their postgraduate research.

"Family definitely plays a huge role; they don't understand what I'm doing! They definitely don't! But at least you know, just knowing that they're cheering you on." Gasira

However, some felt that their loved ones were unable to support them or did not understand what they were going through. This was experienced more so in those who had no friends or family who had previously undertaken a postgraduate degree:

"He's never experienced that, he can't really empathize with that… Sometimes I talk to my parents about it. But I don't think they really know what I'm doing… they just don't get it at all... I'd have to explain a lot to get them to understand what the problem is. And I've only got so much time in the day! I'm not spending an hour doing that, so I just say it's fine." Molly

Others looked to their faith and religious communities for support:

"My faith… knowing that I'm not alone. And that's really been a strong support for me … when I think I'm hitting a wall, I'm not feeling as enthusiastic, feeling overwhelmed, I always, always go back to God to strengthen me." Gasira

Overall, supervisors were the primary source of social support during the research degree:

> *"The support I got from my supervisors at that point was excellent… I've had crisis of confidence, I've had imposter syndrome, I've been bounced back more time for publications than you can imagine… Every time there has been a supervisor who has listened to me."* Olivia

However, the PGRs often reported confusion about the role of their supervisor, wanting them to take on a more emotional, pastoral role in supporting them:

> *"I don't know what I'm doing. I don't know who to talk to you. Do I talk to my supervisors, do I talk to other PhD students?"* Rebecca

> *"Your supervisors could maybe give you a sense of how they can support you … in terms of their own availability and resources and emotional space in their lives and pressures. How much can they actually offer you?"* Benu

It was evident that the participants were seeking pastoral support from their supervisors. Several participants discussed the value of support from peers, but felt that opportunities to develop peer networks were limited:

> *"We're all quite isolated, quite separate from each other... But I know there's people like you, who are going through similar things, and you can sit and talk."* Jacob

Due to the disparate nature of the campus at the university, with faculties spread across several buildings across the town, some of the PGRs reported feeling separated from each other, working in silos. The encouragement of hot-desking, limited office space, and a lack of a PGR hub at the university likely contributed to their feelings of physical isolation.

Time Management

For many of the PGRs interviewed, time management, planning and strategizing were discussed as ways of coping. For some individuals, the act planning their time effectively increased feelings of control, alleviated stress, and allowed them to maintain a comfortable work-life balance:

> *"I think that's one of the biggest learning I've had is that it's not like a nine to five job … So, some of what I've had to learn, and to manage my own wellbeing, is to be forgiving of that. I make sure as much as possible I take my holidays ... There's no reason why you can't if you can manage it."* Olivia

Those who struggled with time management reported feeling out of control:

"It's almost like you walk in and they go "right, 3 years, we'll see you at the end." How do you manage that time? How do you plan when everything needs to be done? I think that has greatly added to my stress levels, because I just feel everything is slightly out of control." Molly

Some PGRs discussed not having enough time to invest in their personal or academic development:

"I've heard a lot of people say, you know, they don't bother doing the Researcher Development Programme workshops... you have to kind of balance taking time out of work to go to these workshops." Benu.

Again, feelings of guilt were discussed when weighing up whether they could afford to spend time attending development opportunities.

5.4.3   Illustrative Examples

The following three examples are presented by narrating the participants' story through their interview data with supporting evidence from their survey responses. Three examples are presented in this chapter to give a balanced overview, the first from a student with high wellbeing (Marie), the second with a wellbeing score close to the group mean (Claire) and the third with a low wellbeing score (Yusuf). The participants' names have been changed to protect anonymity. The participants' JPWBS, wellbeing, resilience and scores are displayed in Table 5-10, in comparison to the PGR sample and population means.

Table 5-10   Example participants scores vs sample and population mean.

	N	JPWBS	*N*	WEMWBS	*N*	CD-RISC
Participant						
Marie	1	1.55		69.00		85.00
Claire	1	1.97		41.00		81.00
Yusuf	1	3.76		35.00		36.00
Sample						
	52	2.13 ± 0.77	52	45.08 ± 12.09	52	67.75 ± 16.43
Population						
	1202	1.90	7020	51.61 ± 8.71	577	80.40 ± 12.80

Note: Table displays mean ± standard deviation. *n*= number of participants. JPWBS mean score ranges from 1-5, 1 = not at all important to wellbeing, 5= extremely important to wellbeing. WEMWBS total score ranges from 14-70 with higher scores reflecting greater resilience. CD-RISC total score ranges from 0-100 with higher scores reflecting greater resilience.

Marie

Marie is a 30-year-old, full-time PhD student from the UK who was interviewed in her 2nd year of her 3-year programme. Marie had high wellbeing and resilience scores (69.00 and 85.00 respectively) in comparison to the sample mean. Marie is British and lived in the area so did not relocate for her research programme.

Marie discussed managing her time well during her research and implementing project planning to provide structure and control over her work:

> *"You've got a three-year block and it seems quite a long period. But actually, if you've got milestones … you can break it down into smaller chunks, it doesn't seem so scary!"*

Marie reflected on being knowledgeable about what a postgraduate research degree entailed before starting her PhD and feeling prepared. Marie credited her understanding of the process to her previous work in a university environment and a network of professional connections.

This meant that she had realistic expectations of postgraduate research and felt she adjusted well to the transition:

> *"From being in university environment … I kind of already knew the process; I've been around academia and that kind of thing already … that really helped a lot. I knew what to do."*

In addition, Marie felt that her supervisors were clear on their expectations of her and the project:

> *"Our project was fairly set in terms of where we wanted to get with it. Coming in I already had many expectations of "this is where we want to get to"."*

The clarity and guidance on the direction of the project that Marie received from her supervisors was discussed as a positive and encouraging. This was reflected in her responses on the JPWBS scale, indicating that she felt supported by her supervisors. She reflected on this high level of support through the transition into postgraduate research:

> *"…my supervisors sent me, probably too many, but lots of PDFs on Dropbox … When I first started, we had weekly meetings for first month or so … they were kind of to keep me on track."*

Marie discussed being confident in asking for further practical help from her supervisory team when she needed it:

> *"On Friday I just said I'm really struggling with this. She emailed back an hour later asking me to pop up now just for five minutes … I'm quite supported."*

Beyond her supervisory team, Marie actively engaged in university events to socialise with her peers and colleagues. She often looked for advice and support from fellow students:

> *"Having those people that understand the process, that you can talk to about and knowing that they're going through the same journey as you is quite helpful."*

Despite this, Marie still reported feeling isolated at times. This was reflected in her responses to the Social domain items in the JPWBS. She rated the following items as extremely important to her wellbeing during her PhD: *feeling isolated from other research colleagues in your department* (5 out of 5), *not feeling part of a team* (5 out of 5), *not feeling part of your department's wider research programme* (5 out of 5), *lacking sufficient opportunities to socialise with others within your department* (5 out of 5), *lacking opportunities to have useful discussions about my research with peers* (5 out of 5) and *feeling lonely at university* (5 out of 5). Although she discussed

engaging in university events, she expressed the need for more opportunities to network and build relationships with others in the department or faculty:

> *"This would create that kind of environment and relationships with people that are more similar to you and doing similar projects… there's not much at a department level or even within faculty… there are gaps."*

As many other participants who completed the survey, Marie found the postgraduate research experience stressful. Within the Health and Home domain of the JPWBS Marie rated the following items highly: *experiencing high levels of stress because of research* (4 out of 5), *having a high workload that impacts on your private life* (4 out of 5). However, Marie discussed the activities she uses to reduce stress. She acknowledged the importance of making time to exercise:

> *"I know how important is to get out and be healthy, be active."*

Marie maintained that exercise supported her wellbeing during her research and engaged in group sports. This gave her opportunities to socialise outside of her studies, providing additional benefits such as social support and tackling isolation.

Claire

Claire was in her 2nd year of her 4-year PhD programme at the time of the interview. She is British but relocated from another area in the UK to study for her PhD, experiencing practical, emotional, and financial challenges during the transition:

> *"Financial, personal, professional: I have experienced stress and anxiety."*

Claire had low wellbeing (41) in comparison to the sample mean at the time of completing the survey. Claire discussed experiences that affected her wellbeing, especially the transition to postgraduate research, yet she managed to overcome them and showed high personal resilience. This is reflected in her resilience score (81), which was high in comparison to the sample mean. Due to her previous knowledge and experience, Claire felt confident in her abilities to complete her postgraduate research. She discussed her experience in project management, and how this was beneficial:

> *"I felt that I had a fairly sound grasp of research methodology and project managing … So I felt I had a good grounding"*

However, despite feeling prepared and capable to undertake postgraduate research, she acknowledged that the challenge exceeded her expectations:

> *"Nothing prepares you for the actual PhD… I wasn't certainly prepared really for the, you know, how much it kind of engulfs every aspect of your life and it permeates every part of your being."*

Claire also felt that her role as a PGR was ambiguous, causing her to feel apprehensive and uncertain of what was expected of her. This was also reflected in her high JPWBS score for the items: *having a poor induction to the college when you joined* (4 out of 5) and *believing that the interests of PGRs are inadequately represented by union bodies* (4 out of 5). Claire felt that communication between the university and PGRs was poor at times:

> *"As a general kind of scope of your role and responsibilities. I didn't think that was clear… It seems like it's quite loosely defined here …. I think procedurally, the University isn't very good, whether they've got the standards and the policies and the procedures in place and they're just not being filtered down properly. I think that that's certainly an issue."*

In addition, Claire struggled with her identity as she transitioned from her professional role to her role as a PGR:

> *"That was probably one of the hardest parts of the programme … you kind of negotiate a ton of feelings don't you during that, during that transitional phase?"*

In addition, Claire felt that her experience in practice was undervalued as a PGR at times:

> *"I just think it would be nice to be recognized for the amount of experience we have, and also what we bring to the research environment."*

Claire felt uncertain about where to seek emotional support from during the difficult transitional phase:

> *"Are they [supervisors] going to give you pastoral support? Or just are they going to remain very professional? Initially, I found that I really needed the pastoral support, because I've moved away from all my family and friends ... I quickly realized they weren't going to give me any pastoral support and it was just professional. So, I had to really toughen up and get that from somewhere else."*

However, demonstrating her personal resilience, Claire sought further support; she was proactive in seeking help:

> *"I was proactive and said, 'I'm really struggling'… It was a transition. I learned from it, and then it's made me stronger."*

Claire also discusses engaging in the postgraduate community, building her support network, identifying this as key to her wellbeing:

> *"We're trying to create our own little community to support each other … I needed to be proactive and immerse myself in a research environment … the support that we give each other in our little community is pivotal to our wellbeing."*

Claire identified peer support was a coping resource for her. She also supported her peers throughout the process, building a community of support within her faculty.

Yusuf

Yusuf was experiencing very low wellbeing during their studies. Yusuf's wellbeing score was 35, far lower than the mean of the PGR sample. A WEMWBS score of more than one standard deviation below the population mean is said to indicate poor mental wellbeing, Yusuf's score was nearly two standard deviations lower. Yusuf's resilience score (36) was also far below the sample mean, within the lowest 25% of the population for resilience.

The disparity between his expectations and the reality of postgraduate research study left Yusuf feeling disappointed, expressing that he no longer wanted to continue with his studies. This was reiterated in his JPWBS results for the following items: *finding that your PGR experience is different to what you had envisaged initially* (4 out of 5), *feeling ill-equipped to deal with the lack of formal structure on a PGR programme* (5 out of 5). Yusuf expressed feeling let down by university resources, such as workspace and training, this is reflected in his JPWBS score for the following items: *having a poor-quality workplace* (5 out of 5), *having to work under difficult conditions e.g. poor lighting, noise levels* (5 out of 5), *lacking training to develop your technical research skills* (4 out of 5):

> *"It's the system that needs changing from its core."*

Yusuf commonly reported experiencing uncertainty, the unclear expectations and perceived lack of information from the university left him feeling frustrated. This was highlighted in his scoring of the following JPWBS items: *being frustrated with the university's administration systems* (5 out of 5), *Having to deal with too much paperwork and bureaucracy* (5 out of 5), *being unclear about funding arrangements* (5 out of 5), *being unclear about your entitlements e.g. holiday* (5 out of 5), *having a poor induction to the college when you joined* (5 out of 5), *being unclear about the next stage of your career after your PhD* (5 out of 5). He was dissatisfied with the induction he received when starting his postgraduate research degree:

> *"All we got was this really sh*t induction that I didn't really get anything out of it apart from it just fed my anxieties on my first day… Which is really sh*t because I really don't know what is expected of me."*

The isolation of independent postgraduate research study is something Yusuf found very difficult. This was compounded by feeling physically isolated from other PGRs due to the lack of a shared workspace:

> *"The lack of interaction and colleagueship in this place is part of the process that is anxiety-inducing … When it comes to uni, it's sh*t and it's really lonely."*

This was reiterated in his JPWBS results, scoring 5 out of 5 for the following items: *feeling uninvolved with the wider research environment outside of your department, feeling isolated from other research colleagues in your department, not feeling part of a wider post-graduate community at the college, not feeling part of a team, lacking opportunities to have useful discussions about my research with peers, feeling lonely at university, feeling excluded from the college's wider research environment,* and *not feeling supported by your research colleagues*.

Yusuf also discussed managing personal issues during his studies that affected his academic progress and motivation to complete. He rated the health and home domain 4.27 out of 5 for importance to his wellbeing and rated the following JPWBS item highly: *being unable to balance your research with your home demands* (4 out of 5). He discussed the effects that his private life had on his wellbeing:

> *"That definitely took its toll on me. There wasn't anyone to really go and chat to about that and that was just getting me lower and lower … I never knew of anywhere that I could go to, to ask for help, just to help me process what was going on."*

Yusuf did not know where to access further pastoral or practical support from the university. He tended to conceal his problems from his supervisors as he did not want to be a burden, causing him to withdraw further:

> *"It just acts as this never-ending circle of me wanting to avoid a lot of contact with them as I feel like I have annoyed them far too much."*

Yusuf felt unable to discuss his issues with his supervisor and reported finding it difficult to communicate with his supervisory team.

Conclusion

These illustrative examples describe the experiences of three students with differing wellbeing and resilience levels. Zooming in to each transcript in this way compliments the group analysis

of the results. This crystallization provides an insight of the nuanced, individual, personal experience of postgraduate research. The three PGRs reported experiencing varying degrees of stress but had unique experiences and varying challenges, demands, and responsibilities.

Most importantly, the PGRs had different ways of coping with the inevitable stresses of the research degree. The PGRs who sought social and practical support from supervisors and peers appeared to cope better with setbacks. This reiterates the importance of individual coping and how positive ways of coping could be targeted through interventions. It also highlights the how pivotal peer support can be, and the importance of providing opportunities for PGRs to build relationships with their peers and academic community, buffering academic stress.

5.5   Discussion

The results of the online survey demonstrated that wellbeing and resilience scores of PGRs were significantly lower than population averages. This supports existing research that suggests a prevalence of low wellbeing in PGRs studying in the UK (Byrom et al. 2020; Berry et al. 2021; Casey et al. 2022; Jackman et al. 2022c; Moss et al. 2022; Gooding et al. 2023), indicating a heightened risk of developing mental health problems. More recently, studies have begun to highlight low resilience in this group (Milicev et al. 2021; Casey et al. 2022; Gooding et al. 2023). The findings from this study provide additional evidence that resilience could be an avenue of individual interventions, as higher resilience is expected to buffer the negative effect of academic challenges (Gooding et al. 2023).

Within the survey, the JPWBS allowed the researcher to pinpoint a range of aspects of the PGR experience that affected wellbeing, finding that Health and Home were most impactful on wellbeing. Wellbeing and resilience scores were significantly positively correlated. Factors including Health and Home, Research, Development, University, and Supervisor were significantly correlated to wellbeing and resilience, addressing the final research question.

To fulfil the overarching aim: to explore the factors that affect PGR wellbeing, the qualitative findings elucidate and provide further understanding of these factors. These findings, reported as a group and individual examples, provide a detailed, nuanced description of the complex, emotional experience of the PGR journey. Qualitative data was used in this manner, secondary in the sequence, to help to elaborate and explain the initial quantitative findings (Ivankova et al. 2006).

The first theme was Control. The JPWBS revealed that items relating to control and self-efficacy including *"lacking confidence in your ability to conduct research to the necessary standard"*, and *"feeling disappointed in your abilities as an academic researcher"* were highly rated within the online survey. There is strong evidence that control and self-efficacy are associated with academic achievement (Zimmerman et al. 1992; Duckworth et al. 2019). Therefore, increasing psychological resources, such as self-efficacy or self-belief, could be a mechanism for change. Self-efficacy has yet to be measured in samples of PGRs studying in the UK, however, international research suggests that higher self-efficacy may be protective of mental health (Barry et al. 2018).

Similarly, the experience of imposter syndrome has been documented to be related to PGR mental health in UK higher education, specifically the prevalence of stress and poor wellbeing (Byrom et al. 2020). These feelings of fraudulence were often discussed within this sample in relation to wellbeing. Past qualitative data highlights that worry about one's own capacity and

imposter syndrome are thought to exacerbate wellbeing issues in PGRs (Crook et al. 2021; Jackman et al. 2022c). Survey data identifies imposter syndrome as a consistent predictor of mental health problems in PGRs studying in the UK (Berry et al. 2021). Gill (2020) suggests that normalising these feelings of fraudulence is the first step in developing stronger self-belief for researchers. It could be recommended that doctoral colleges and supervisors encourage open dialogue with PGRs about imposter syndrome and managing failure, and advocate sharing success, to reduce self-doubt, self-blame, and self-depreciation. This could be posed as an intervention that may target both the individual and their community.

Another key finding was the effect uncertainty had on PGR mental health and wellbeing. This is not an aspect of postgraduate research that has been investigated within UK research to date. Yet, uncertainty is considered an inherent part of postgraduate research (Butler-Rees and Robinson 2020; Albertyn and Bennett 2021). Qualitative findings from other educational context surmise that this lack of control contributes to poor mental health (Schmidt et al. 2014). Traditionally, academia has silenced the emotions around uncertainty in research (Butler-Rees and Robinson 2020). It is recommended that uncertainty in research is normalised and re-framed as a positive (Albertyn and Bennett 2021), creating a safer space for discussing the emotional consequences (Butler-Rees and Robinson 2020). Again, this offers a suggestion for intervention that could target an individual's coping capacity while also addressing the role of their wider academic network in their wellbeing.

Providing clear, balanced expectations is key in managing unrealistic expectations and reducing uncertainty. Considering this, highlighting positive experiences in postgraduate research is also important (Guthrie et al. 2018). This challenges the narrative that PGR study is synonymous to poor mental health. It is essential that HEIs and researchers disentangle the "normal" stress related to the challenge of completing a PGR degree (Metcalfe 2018) from the symptoms of mental health problems, and that the narrative is balanced.

Expectations was a concept that was often discussed in the interviews with PGRs from the university. The discrepancy between preconceived ideas of the postgraduate research experience and reality was a source of concern and disappointment. Previous international research has identified a mismatch between PGRs' expectations of support and resources and the actual support and resources available to them (Pyhältö et al. 2012b; Emmioğlu et al. 2017). It is understandably difficult for universities to balance the need to honestly represent the reality of the PGR experience to manage expectations, with the desire to market a positive PGR culture for the student. Especially as the student is increasingly positioned as the consumer (Nixon et al. 2018), the potential for student dissatisfaction increases. Most importantly, universities and doctoral colleges should consider how they are marketing the PGR experience to the student.

This may be especially pertinent in fee-paying PGRs, due to the "value for money" discourse (Jones et al. 2020). This is a theme that has not been explored in the current body of research evidence. Longitudinal research that looks at the expectations of PGRs pre-enrolment and throughout the course of their research degree is recommended.

Interestingly, issues with supervision were scored the lowest of all JPWBS domains for importance to wellbeing, this mirrored the findings of PGRs from other universities in the UK as reported by Casey et al. (2022). This contrasts with the consensus of current literature, suggesting that supervision is the main factor influencing the wellbeing of PGRs internationally (Leonard et al. 2006; Mackie and Bates 2019). Research that has been conducted within the UK HE context also indicates that poor supervisory relationships are predictive of depression and anxiety (Milicev et al. 2021; Berry et al. 2022), and mental health related attrition intention (Berry et al. 2022). Despite supervision being rated as least important in the JPWBS, supervision was frequently discussed within the interviews, specifically in relation to control. Therefore, it could be argued that the JPWBS does not efficiently cover all aspects of the supervisory relationship, or perhaps the scale was unable to pick up on the more subtle nuances of the supervisory relationship and how these interplay with wellbeing, such as agency and power balances (Berry et al. 2020; White et al. 2022).

The issues of power and autonomy were frequently discussed in reference to supervision. A central challenge for doctoral supervisors is striking the balance between providing sufficient support whilst encouraging PGRs to develop into autonomous, independent researchers (Overall et al. 2011; Berry et al. 2020). Some PGRs in the study perceived the influence of supervisors and institutional milestones as a threat to their autonomy and ownership of their research, and this can result in feelings of decreased control. Literature has shown that PGRs tend to become more autonomous and exhibit more power over their research as they progress in their programme, often seeing themselves as having more power than their supervisors at the end of their degree (Thompson et al. 2005; Doloriert et al. 2012). These underlying conflicts may be predictive of PGR mental health, but this requires further exploration. Research has yet to conceptualise or measure these concepts, providing a new area of exploration.

The supervisory relationship was also discussed in relation to identity: the attempt to control the way one is seen by others. An element of postgraduate research is developing an identity as a researcher (Foot et al. 2014). The PGRs involved in this study reported that they oscillate between student and academic identities. The PGRs in the study discussed experiencing imposter phenomenon when they were not treated like "real academics" in the institution. This may be experienced more acutely by those who have entered academia from practice later in their careers. As mentioned, UK research highlights the predictive role of imposter feelings in

PGR mental health (Berry et al. 2021). Universities and supervisors could be encouraged to recognise this shift in identity throughout the PGR journey and provide sufficient support through these pressure points. This is imperative, as research demonstrates that a combination of high levels of autonomy and high levels of academic support created the highest levels of research self-efficacy in doctoral students (Overall et al. 2011). It is important that is monitored; further longitudinal research is needed to explore and understand identity development and how PGRs can be supported.

Balance was another central theme of the qualitative findings; summarising the demands and challenges that limited the PGRs' ability to maintain a healthy work-life balance. As discussed, the high workload and working hours of PGR study make it difficult to engage in social opportunities or enjoyable hobbies outside of research. This mirrored some of the top-rated items on the JPWBS scale: "*Experiencing high levels of stress because of your research*", "*Having a high workload that impacts your private life*", and "*Making unreasonably high demands of yourself in the name of research*". Previous literature has identified early stage PGRs' identification of the culture of long working hours in academia in the UK (Jackman et al. 2021a). This is said to have been normalised in postgraduate research (Hazell et al. 2021b), and the rhetoric perpetuated through social media (Casey et al. 2022). Managing work-life balance is therefore presented as a support need for PGRs in the UK.

Isolation was also frequently discussed, yet participants in this study reported that they found it hard to make time to integrate in their PGR community due to their high workload; opting to focus on their research. This reflects the findings from Casey et al. (2022), where qualitative comments highlighted that PGRs felt they did not have time to engage in university social or training activities. Isolation has been found to be the strongest predictor of PGR mental health in the UK (Berry et al. 2021). Isolation also underpins attrition intentions during postgraduate research degrees (Berry et al. 2022). Researchers in the UK have explored the negative psychological impact of PGRs not feeling like they belong to their academic community (Crook et al. 2021; Morris 2021). This identifies the need to bolster the accessibility of support for PGRs from their academic community.

Further, those who were living with disabilities, chronic illnesses, or mental health problems had further barriers in engaging with their immediate academic community. Literature has also highlighted the link between disabilities and absenteeism and attrition in postgraduate research (Berry et al. 2022). In addition, the participants in this study who had caring responsibilities experienced further difficulties in maintaining their work life balance. This has been described in previous literature as a balancing act (Schmidt and Umans 2014), finding that PGRs tend to make personal sacrifices in the name of research (Martinez et al. 2013). It important that

intersectionality (Crenshaw 1989) in the PGR student body is further explored, to understand the specific needs of minoritized students, and to develop ways to reduce their barriers to social support. Especially as non-diverse academic environments may exacerbate feelings of being an outsider (White et al. 2022). Researchers and universities should leverage the lived experience of their students with intersectional identities by involving them in co-production to fully understand the accommodations or modifications required to make academic and social support accessible and inclusive for all (Peterson and Saia 2022).

The final theme identified within this phase of research was coping; the ways in which the PGRs responded to the threats to their sense of control or balance. Quotations from the coping theme encompass protective psychological resources that buffered the stress of the PGR experience and begin to form recommendations for the next phase of the study. Activities like exercise, hobbies and distractions were commonly discussed by the PGRs as ways to manage wellbeing; these are seen as positive ways of coping (Salmon 2001; Shiota 2006). Martinez et al. (2013) characterised these ways of coping in doctoral students as 'seeking wellbeing' including managing own stress levels, promoting physical and mental health, and creating personal time to achieve balance.

Social support appeared to be the primary coping mechanism for the PGRs in this study, this is reflective of previous findings (Martinez et al. 2013). PGRs were often seeking emotion-focused support, looking for comfort from others who were going through the same experience. Research highlights the importance of social connections for PGR wellbeing (Dutta et al. 2022) for reducing stress (Berry et al. 2021) and combatting isolation (Jackman and Sisson 2022). Again, it was mentioned that they lacked chances to meet and build relationships with academic peers. This reiterates the need to address these barriers and create opportunities for PGRs to build their social networks and seek social support.

Time management was a type of proactive coping discussed by the PGRs in the sample, reporting its benefits for increasing productivity and maintaining work-life balance. These ways of coping were also identified by Kearns et al. (2007) as a potential change mechanism. This was integrated within their cognitive behavioural coaching intervention. A level of stress while completing a PGR degree cannot be avoided, but if PGRs are trained in how to manage and plan their projects effectively they may be better prepared to cope with this stress. Time management or project planning interventions have not been trialled in PGRs but may provide a promising intervention option. If this were to be delivered in a group setting, an individual intervention may also capitalise on increasing social support from the academic community, permeating several layers of the PGRs' social environments.

5.5.1 Limitations

This phase of the research has several limitations. Firstly, self-selection bias is a common limitation of research around mental health and wellbeing and is likely to have influenced the results of this study. Within the recruitment adverts and the Participant Information Sheet terminology was used that has clear mental health connotations, such as "wellbeing".

It is an important consideration that when terminology relating to mental health are used within research recruitment adverts, respondents tend to score higher on clinical measures of wellbeing, stress, and distress (Choi et al. 2017). In addition, the order of the survey could have affected participant's responses. Firstly, the participants completed the wellbeing and resilience measures. The WEMWBS and the CD-RISC are positively worded scales. However, the JPWBS consists of a list of negative experiences during postgraduate research, asking the respondent to document how much each negative experience had affected them. Listing these negative experiences prior to asking for participant's thoughts within free-text questions may have caused a learning bias or priming effect (Choi and Pak 2005) leading to more negative responses.

The female bias of this study sample is also important to highlight. Of the 54 survey respondents, 72% identified as female, this may have skewed the results. Especially as it is documented that female students tend to experience poorer mental health at university (McManus and Gunnell 2020). Research highlights how males tend to be less likely to take part in research relating to mental health and wellbeing (Trenoweth and Lynch 2008; Oliffe et al. 2019). Males tend to be more likely to respond to surveys relating to mental health if terms like 'strength' and 'happiness' are included in place of clinical terminology (Choi et al. 2017). This is an important consideration for further research, to ensure a fairer distribution of male participants within student mental health research.

5.5.2 Conclusion

This phase was the first step towards the development of preventative interventions for PGRs within the overarching feasibility study, exploring the factors that affect the wellbeing and resilience of PGRs studying in the UK. This phase addressed the first two steps in the new intervention development process Wight et al. (2016), to define and understand the problem and its causes and identify which causal factors are modifiable.

The quantitative data collected in this research phase allowed the three research questions to be explored, with the qualitative data further explaining the findings. From the integrated findings, and the presentation of the in-depth individual illustrative examples, the factors that shaped the problem were identified and those with the greatest scope for change or had the potential to make the biggest effect could begin to be considered. The factors that underpin the

wellbeing and resilience of PGRs are diverse and multifaceted, however, this phase of the research identified key pressure points and protective factors, as demonstrated in figure 5-12.
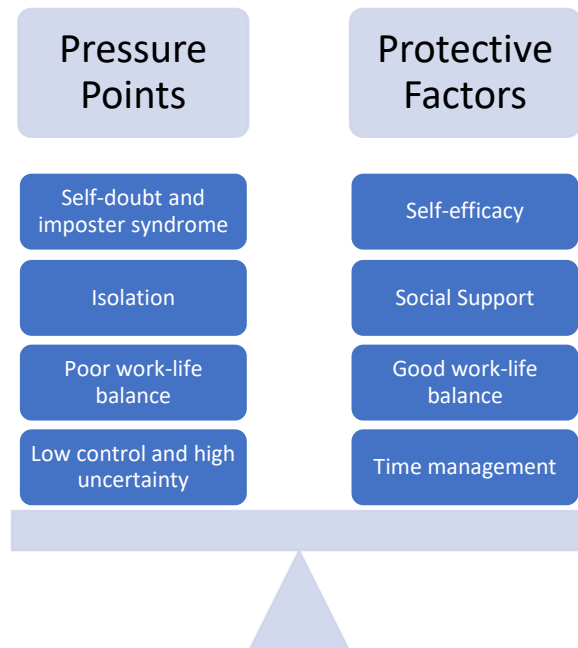
Figure 5-10   Pressure points and protective factors

The development of the interventions, discussed in the next chapter, focuses on how these individual protective factors may targeted to promote positive coping. Although systemic, institutional issues were highlighted in this phase of the research, the next phases of the study put forward interventions that were individual-focused but also address community-factors.

Although the purpose of the interventions was to provide PGRs with positive coping strategies, increasing social support from academics and peers, and encouraging PGRs to seek this social support was another focus. It is beyond the scope of this research to address the wider academic culture of overwork, but the interventions developed in the subsequent phases may provide complementary, self-care strategies to support PGRs to manage stress and to encourage engagement in their academic communities. The next chapter presents the second phase of the research, The Development Phase, in which the initial intervention ideas generated from Phase 1 were taken to a discussion group of PGRs. This is the next step towards developing interventions to support the positive mental health and wellbeing of PGRs at the institution.

Chapter 6 Phase 2: Development Phase

"It's not unicorns and rainbows, that needs to be made clear!"

6.1   Chapter Overview

This chapter outlines the next stage of the development of new interventions focused on promoting positive coping to improve the wellbeing and resilience of PGRs at this university. As outlined in the previous chapter, Phase 1: The Assessment Phase integrated quantitative and qualitative findings to explore the factors that affected the mental health and wellbeing of this group. This evidence expands on the existing understanding of the PGR experience in the UK that was gathered in the first phase of this research.

The next phase of the research builds upon the existing body of literature and the preliminary exploration conducted in Phase 1. From the needs identified in the literature review and the support gaps discussed by the participants in Phase 1 this chapter presents a range of initial intervention ideas. These ideas were anchored in the coping theory literature, as Phase 1 highlighted the importance of ways of coping and how this affected individual experiences. These ideas were discussed with group of PGRs who expressed their interest in being involved in the co-production of these new interventions. This chapter outlines the outcomes of these discussions. The details of these initial intervention ideas and the methodology of this research phase is also discussed within this chapter. The chapter concludes by describing the intervention ideas that were taken forward for piloting in the final research phase, The Intervention Phase.

6.2   Introduction

Student mental health continues to be a core priority in the UK (Broglia et al. 2021a), with the launch of the recent University Mental Health Charter advocating a whole university approach to improving wellbeing in higher education (Hughes and Spanner 2019). Until recently, much of university support for mental health was directed towards undergraduate students. Research has also highlighted the different needs of those undertaking postgraduate research degrees (Waight and Giordano 2018), and a reluctance to access support services from campus (Thorley 2017; McCray and Joseph-Richard 2021). However, in reaction to reports of concerningly high rates of mental health problems in PGRs worldwide (Levecque et al. 2017; Evans et al. 2018), there was an injection of research funding directed towards investigating this issue in UK higher education (Metcalfe et al. 2020). The assumption that what works for undergraduate students would work for PGRs is now challenged (Mackie and Bates 2019).

As a result of this funding boost, there is more awareness about societal cost of attrition at postgraduate research level due to mental health. As highlighted in earlier chapters, there has

been significant development in understanding of the prevalence of poor mental health of PGRs studying in the UK (Hazell et al. 2021b). Catalyst-funded research highlights the contributing factors, including factors pertaining to the individual, their immediate community of support, and wider academic culture (Berry et al. 2021; Jackman et al. 2022c). In addition, qualitative research has provided a greater understanding of the specific, nuanced experiences of PGR through deep descriptions of their situated experiences (Berry et al. 2020; Jackman and Sisson 2022; White et al. 2022). This funding has also driven research efforts to produce interventions to promote the mental health and wellbeing of PGRs studying in the UK. A number of small-scale interventions have been trialled in UK universities (Watson and Turnpenny 2022).

The small number of interventions that have been conducted in the UK have focused on using social support as a mechanism to promote wellbeing and tackle the issue of isolation and loneliness in postgraduate research degrees. This included interventions anchored in providing additional peer support (Lane and De Wilde 2018; Mason and Hickman 2019; Homer et al. 2021; Panayidou and Priest 2021), or support from other academic staff (Hutchings 2017; Marchand 2017; Lech et al. 2018). This body of evidence provide promising results. Their findings indicate that activities to support wellbeing, when delivered by peers or other faculty staff, may have positive psychological outcomes and social benefits. A strength of the existing body of interventions is that they target both the individual and the micro-level of the PGR's social environment, likely contributing to the effectiveness of the interventions (Jackman et al. 2022a). However, due to the lack of robust evaluation methods, it is difficult to decipher how much of the intervention benefits can be attributed to the activity or the increased support from the facilitators.

The main limitation of existing interventions that have been conducted in this context is the evaluation methods. Only one study located in the review of the literature conducted a robust mixed methods evaluation of the initiative (Panayidou and Priest 2021), combining validated pre- and post-test measures with qualitative user feedback. In addition, the published interventions to date have not included preliminary explorations, piloting, or feasibility stages. Crucially, despite the importance of a student-centred approach in the development of higher education policy and practices (Piper 2019), only one study has included PGRs in the development of an intervention to promote PGR wellbeing (Homer et al. 2021).

Therefore, this thesis builds upon previous findings and presents an iterative, rigorous approach to intervention development. This process involved an initial exploration of the experience of PGRs studying at the target institution, providing a contextual understanding. Keeping the voices of the PGRs at the heart of the research, the next phase of intervention development involved co-production with those active within this community. Building on the collection of research

that has implemented preventative interventions for PGRs to date, this study presents a multi-phased approach to developing theory-driven, co-produced interventions.

The research continues to move through the steps of intervention development (Wight et al. 2016), with the objective to identify how to bring about change, and how to deliver the change mechanism (see Figure 6-1).

1	•Define and understand the problem and its causes
2	•Clarify which causal factors have the greatest scope for change
3	•Identify how to bring about change: what is the change mechanism?
4	•Identify how to deliver the change mechanism
5	•Test, refine and evaluate the intervention on a small scale
6	•Collect sufficient evidence of effectiveness to justify rigorous implementation

Figure 6-1   Six Steps in Quality Intervention Development by Wight et al 2006.

From the Phase 1 of the research protective factors were highlighted as potential modifiable causal factors that could be promoted through interventions. These included positive individual psychological resources such as self-efficacy, time planning, and adaptive coping. Social support was also considered to be an integral component of each intervention, ensuring the intervention targeted both the individual and micro-level of a PGRs' social system (Bronfenbrenner 1992).

The next step of the research was concerned with identifying how to bring about change and considering what actions and resources would be needed. The aim of this phase was: to co-produce preventative interventions to promote PGR wellbeing and resilience, intending to answer the research question: What are the most effective ways to increase PGRs' wellbeing and resilience?

6.3   Methodology

6.3.1   Method

A recruitment poster was disseminated via social media and word of mouth. Unfortunately, recruitment posters could not be displayed around the university due to the COVID-19 pandemic; the campus was closed from March 23 2020 due to a nation-wide lockdown.

Participants were directed to register for the focus groups online via Jisc Online Surveys, this involved inputting demographic information and contact details. The survey was open for the month of April 2020. Due to the continuing lockdown restrictions, focus groups were conducted via Microsoft Teams video calling. The focus groups were conducted between 20 April- 30 April 2020.

6.3.2 Materials

A short PowerPoint presentation was sent to focus group members prior to the online meeting to review the three emergent intervention ideas: peer mentorship in induction, project management workshops and mindfulness workshops. The presentation introduced the researcher's initial ideas and explained the theoretical underpinning of the interventions. The content of this presentation can be viewed in Appendix 3. Semi-structured questions were designed prior to the focus groups. The questions were refined and piloted with the project supervisors. The focus group guide can be found in Appendix 4.

6.3.3 Initial Intervention Ideas

The intervention ideas and the mechanisms of change proposed to the PGR focus groups were project planning, peer mentorship, and mindfulness. Firstly, a project planning intervention was suggested to the focus groups. As identified in Phase 1, feeling out of control and being unsure of what to expect of PGR study were major stressors. Remedial strategies that were identified to increase self-efficacy were time management and goal setting. The illustrative examples helped to portray the individual differences in coping strategies. Those PGRs who embedded project planning strategies had a greater sense of control over their work and their lives.

There is research evidence that techniques such as project planning, time management, and prioritising may be protective to PGR wellbeing, work-life balance, and study engagement (Pyhältö et al. 2012a; Martinez et al. 2013). For example, Kearns et al. (2008) found that behaviours such as ability to manage time well, setting specific times for writing, having a specific plan for writing the thesis, and regularly showing work to the supervisor were all associated with lower levels of stress for PGRs. This contributed to study completion. Likewise, Prieto et al. (2021) surmise that the adoption of time-management techniques can be beneficial to PGRs' progress and productivity.

Therefore, an intervention for PGRs providing training relating to project planning was proposed to the focus groups. Emphasis was placed on tackling and avoiding common self-sabotaging behaviours including over-committing, writer's block, procrastination, and perfectionism (Kearns et al. 2008; Lonka et al. 2014). It was suggested that the training would also focus on optimising working relationships with supervisors, which is also said to be related to positive

mental health outcomes (Peluso et al. 2011; Levecque et al. 2017). The intervention was proposed to encourage adaptive coping such as problem solving, strategizing, and priority setting within the specific context of postgraduate research.

Secondly, the peer mentorship initiative was discussed with the group. This was proposed as a peer-led induction, where new starters would be matched with a mentor further on in their postgraduate research journey, to support them during the transition and adjustment. It is well documented in the literature that the PGR journey can be isolating, often with limited opportunities to network with peers. Isolation was another key factor underlying the wellbeing in PGRs, as identified in Phase 1. It was identified in the Assessment Phase that PGRs tended to seek pastoral support from their supervisors due to limited social connections with peers. This increases the demand on academics who may not have the time or resources to deliver this support. This was a source of confusion and dissatisfaction for the PGRs. Also, peer support from other PGRs allows students to ask each other questions that they may feel unable to approach their supervisors or other authority figures with (Coromina et al. 2011; Denman et al. 2018).

Peer mentorship during postgraduate research degrees has been found to be effective in increasing engagement and creating a sense of community, even when delivered online (Lewinski et al. 2017; Galica et al. 2018). Creating a sense of belonging has positive implications for mental health, especially in the early stages of the PGR journey (Cornwall et al. 2019). Peer support has been the most common intervention mechanism utilised to support PGR wellbeing in the UK (Lane and De Wilde 2018; Mason and Hickman 2019; Homer et al. 2021; Panayidou and Priest 2021). The suggested peer mentorship intervention planned to target adaptive ways of coping including support seeking, information seeking, and social referencing. PGRs could benefit from relevant, context-specific academic and pastoral support. This intervention would also provide a platform for PGRs to build relationships with peers and may increase a sense of belonging.

The final intervention idea proposed to the focus groups was a mindfulness-based intervention, involving mood monitoring. In Phase 1, it was evident that PGRs used distractions like hobbies, crafts, exercise, and sport to take their minds off the stress of postgraduate research. One participant identified the need to use a different part of their brain to escape from work. Practising mindfulness provides this type of distraction with evidence-based benefits. There have been many mindfulness interventions in HE students, finding reductions in anxiety, distress, and increases in wellbeing and problem-focused coping (Galante et al. 2018; Dawson et al. 2019; Serrão and Alves 2019). This has been trialled in PGRs in Australia, finding significant increases in hope, resilience, and self-efficacy, and decreases in depression compared to a control group (Barry et al. 2019).

A mindfulness intervention, aiming to improve emotional regulation and the ability to restructure thoughts into more healthy patterns, was discussed with the focus groups. This would be designed to increase PGR's use of adaptive ways of coping such as emotional regulation, behaviour regulation, and cognitive restructuring.

6.3.4   Ethical Considerations

Ethical approval was granted by the university in March 2020 (Appendix 5). The collection of the participant's email addresses via the online survey was a fundamental ethical consideration; however, this was essential to facilitate the focus groups on Microsoft Teams. As with any focus group, anonymity could not be provided within the members of the focus group. However, the researcher reassured the members that their names would be anonymised within the transcripts and subsequent reports and reminded them that anything discussed within the focus group session should not be repeated to others outside of the group.

6.3.5   Participants

The research continued to recruit PGRs from the same post-92 university in the south of England. PGRs from any research degree at the university could take part in the study. A total of 7 participants took part in the focus groups. Table 6-1 displays their demographic information; participant's names have been replaced with pseudonyms for the purpose of confidentiality.

Table 6-1   Participant information

Participant	Gender	Programme	Mode of Study	Ethnicity	International Student
Olivia	Female	PhD	Full-time	White British	No
Rashida	Female	PhD	Full-time	Arab	Yes
Marie	Female	PhD	Full-time	White British	No
Rob	Male	EdD	Part-time	White British	No
Benu	Female	PhD	Full-time	Other White background	Yes
Harisa	Female	PhD	Full-time	Pakistani	Yes
Jacob	Male	MRes	Part-time	White British	No

6.3.6   Data Analysis

The steps of Thematic Analysis, as outlined by (Braun and Clarke 2006), were followed (see Figure 6-2). Within this phase of the research, a deductive coding framework existed prior to the analysis as the researcher sought information relating to specific interventions. However,

further open questions allowed for participants to voice their own thoughts and discuss their own original ideas.
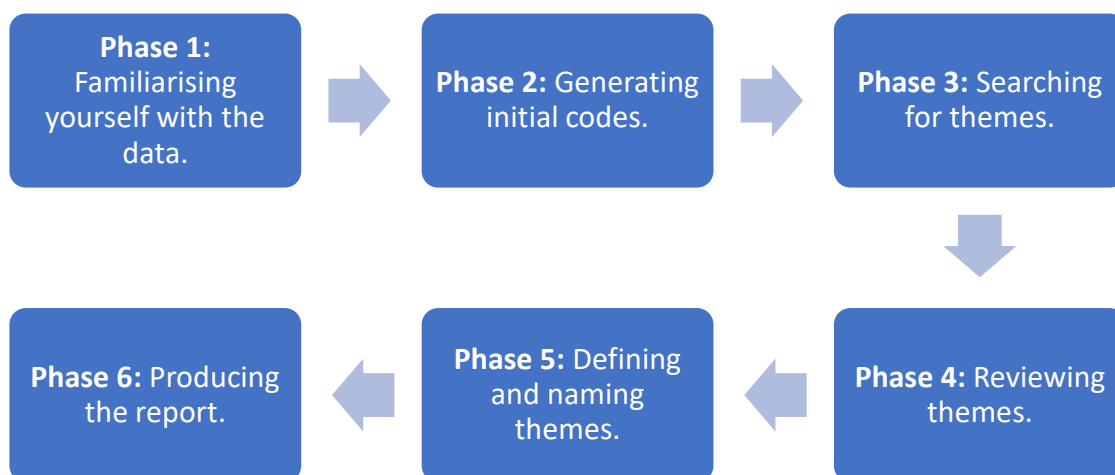
Figure 6-2   Thematic Analysis (Braun and Clarke 2006)

In the first phase of Thematic Analysis, familiarising oneself with the data, notes were added to the transcript about group dynamics, individual behaviour, and the effect of the researcher involvement in the group. Also, the group dynamic of the focus groups were considered, as the group members communication with each other is important (Onwuegbuzie et al. 2009). This included how the individuals positioned themselves within the group in terms of their relationships with others (Duggleby 2005).

Next, initial codes were highlighted. The initial coding structure was organised in the following groups for each of the three intervention ideas: Strengths, Limitations, Barriers, and Recommendations. These were colour-coded and visualised in mind maps. The themes were refined using the number of coding references to disband themes that appeared less important. Some subthemes with less coding references were aggregated, for instance, under the theme of Peer Mentorship, Building Relationships was merged with Social Referencing. Themes were displayed as mind-maps and refined again.

The analysis was then re-focused at a broader level and the underpinnings of the initial coding structure were considered. A new document was created to not overwrite Phase 2 coding. The codes were organised into those that were specific to each intervention idea and those that were applicable to all interventions, such as recruitment and evaluation. More themes were merged due to similarity or overlap. Once the researcher felt that the thematic map reflected the consensus of the focus groups accurately the themes were confirmed and described. The coding references and descriptions of each theme are included in the results section with supporting quotes.

6.4 Results

6.4.1 Group Interactions

Members of Focus Group 1 knew of each other and were from the same faculty. They established a collective voice as health researchers, more frequently referring to other PGRs as 'they', as if an outgroup with different needs to their own. Focus Group 2, who were from multiple faculties did not know each other prior. This group were more willing to share their personal experiences and discuss their own wellbeing, considering how useful they would find the interventions themselves.

In Focus Group 2, Rob's experience in pedagogy design was identified at the very start of the discussion due to his background as an experienced teacher within HE setting. He often encouraged discussion, however, he became aware of his tendency to talk more than quieter team members, so decided he would raise his hand to indicate that he wanted to speak, ensuring he gave other team members a chance share their views.

6.4.2 Thematic Analysis

The data from two focus groups of PGRs were amalgamated to provide feedback to support the co-creation of wellbeing initiatives for PGRs. Before the analysis, three themes were pre-determined based on the intervention ideas provided by the researcher to the group of PGRs: Peer Mentorship, Mindfulness, and Project Planning. Three additional themes were established by the researcher from the conversations with the focus groups: Peer Forum, Evaluation, and Recruitment. Each theme is described below with supporting quotations from participants.

Project Planning

The first intervention idea discussed with the participants was project planning. Both groups appeared to advocate the importance of project management training and support and how it could be an effective stress management tool. Several mentioned how they wished they had received more support with project planning at the start of their degree programme. However, they discussed potential limitations such as the risk of reducing self-efficacy and creativity. The project planning theme and subthemes are displayed in Figure 6-3.
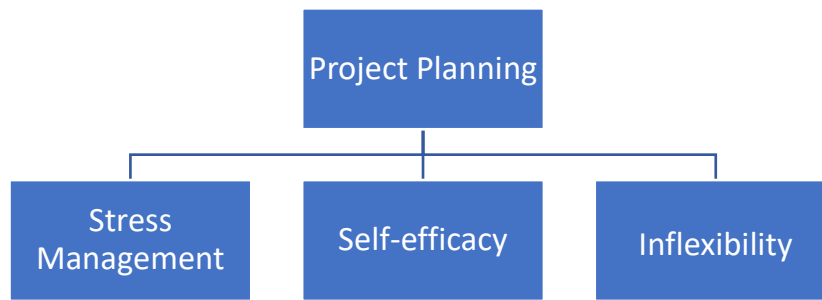
Figure 6-3   Project Planning themes and subthemes

Stress Management

The participants discussed the potential for project planning training to reduce academic stress through the effective management of workload:

> *"It is always overlooked. It's the scary side… and it's really ignored."* Rashida, Group 1

> *"I would love to go on that training! I still have this over-arching idea that every minute I waste not on my PhD I'll regret later."* Benu, Group 2

As in the previous study, participants discussed feelings of guilt when taking time away from work. This may present a barrier to engagement in the interventions unless the practical benefits of the project management course are expressed.

Self-efficacy

However, Group 2 had concerns about the implementation of project structure and personal targets:

> *"I did do a [project planning] workshop, but I walked out feeling like the world's worst student, I felt so much anxiety afterwards, I felt like there weren't enough tools to help me change my behaviour … it left me feeling like I'm doing the worst job in the world."* Benu, Group 2

They explained how, with the uncertainty of the research journey, inputting goals then falling short of these targets could increase feelings of inadequacy.

Inflexibility

This group also discussed the risk that applying project management techniques to the postgraduate research degree could stifle creativity during the process:

> *"I wouldn't want to apply any of that sort of project managements on to my research project, I think in many ways I find that very stressful… I don't want to regulate that approach too much otherwise it becomes less enjoyable."* Rob, Group 2

Participants express the need to encourage flexibility and adaptability, to allow for uncertainty and changes of circumstances.

Peer Mentorship

The second intervention idea proposed to the focus groups was peer mentorship. This theme encompassed discussions specifically around the proposal of a peer mentorship or buddying intervention. Two subthemes were identified: Social Referencing and Boundary Setting. Within the Social Referencing subtheme (illustrated in Figure 6-4), the group discussed the perceived benefits of having relevant and timely support from a peer, especially at the beginning of a research degree. However, within the Boundary Setting subtheme, concerns around the feasibility of such an intervention were summarised.
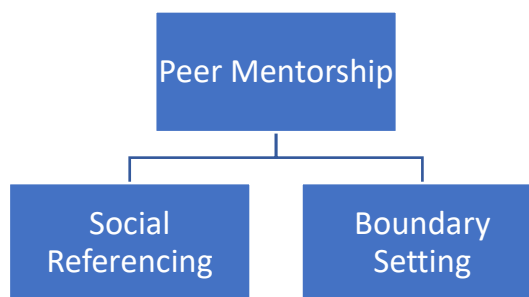
Figure 6-4   Peer Mentorship themes and subthemes

Social Referencing

The idea of peer mentorship was well-received by all members of the focus groups. The participants discussed the benefits of building relationship with peers. This helps to evaluate their own feelings in comparison with others who are in the same situation:

> *"I think the best support when it comes to mental health, is actually having other people, to know it's not just me … but to know that you guys are also experiencing it … I think that makes you feel like part of something … This is normal. You're allowed to be anxious, you're a PGR."* Olivia, Group 1

Group 1 also discussed how having support from a peer mentor in the early stages of postgraduate research would have helped with setting realistic expectations:

> *"It would be really good to talk to a student about things like that and see that someone else has managed to survive this first year of confusion and to help you get through it as well … It's not unicorns and rainbows, that needs to be made clear!"* Rashida, Group 1

A peer mentoring intervention was particularly useful for those at the start of their research degree, especially for those who had moved to the area.

"I think it's a great idea. I struggled as well when I came here. When you arrive, you don't really have any idea what to do, you can't really ask everything from your supervisors"
Harisa, Group 2

This highlights the potential usefulness of such an intervention at the beginning of the research journey, especially targeting international students or those who have relocated.

Boundary Setting

Despite the positive response to the peer mentorship intervention, the group members discussed several concerns around feasibility. Mostly, the PGRs were concerned with how time intensive mentoring would be for volunteers:

"I need to know how much time you're expecting me to invest, so they don't just think that they can fully rely on the other student." Rashida, Group 1

"My concerns around how resource-intensive that is as a potential mentor, that's a big commitment to make." Benu, Group 2

The group discussed remedial support and workload management for mentors that may relieve the added pressure of the role:

"There needs to be a something where the peer mentors can feel reassured that they know where they go to when it gets beyond basic …something around boundaries and expectations" Olivia, Group 1

Participants reiterate the importance of advice and signposting resources for mentors, to allow them to establish when someone needs support beyond their capability as a mentor.

Mindfulness

The final intervention idea proposed to the PGR focus groups was a mindfulness-based intervention. The PGRs that took part in the focus group agreed that a mindfulness intervention could be a useful tool to manage stress, regulate emotions, and support wellbeing. Many of the focus group members had practiced mindfulness before and one was trained to deliver mindfulness, advocating its potential effectiveness.

However, there were in-depth discussions about the negative connotations surrounding mindfulness, especially as it has been commercialised in recent years and frequently offered by employers as a stress management technique. They also explored the potential stigma, especially in certain cultures, in attending a mindfulness course, explaining how this could be viewed as an admission of poor mental health. Figure 6-5 displays this theme and the subthemes.
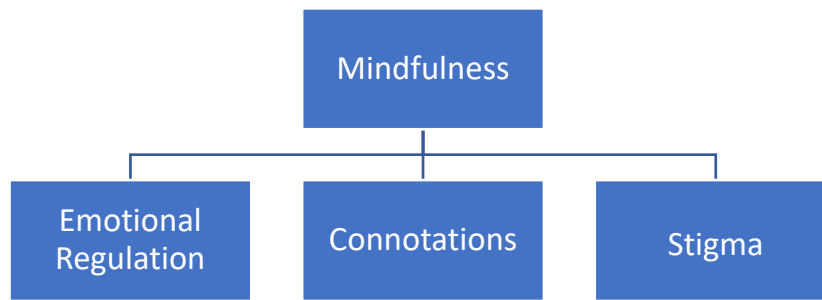
Figure 6-5   Mindfulness themes and subthemes

Emotional Regulation

The focus group participants agreed on the potential usefulness of a mindfulness-based intervention. They understood how mindfulness can be used to teach coping strategies to deal with stress and regulate one's emotions:

> *"If you're becoming stressed by the whole PGR journey and your responsibilities, then yes, mindfulness would calm your anxiety."* Olivia, Group 1

The groups identified mindfulness as a well-established method of stress reduction and recognised its potential benefits.

Connotations

However, they discussed, in depth, a range of reasons why themselves, or others, may view mindfulness negatively. There were some members of the group that viewed mindfulness as theoretical, suggesting they would prefer to attend training that would provide them practical support:

> *"But we're the kind of the people that don't necessarily think in those 'unpractical' ways, that we can't necessarily see that link of exactly how it helps."* Marie, Group 1

It would, therefore, be important to advertise the evidence-based benefits of mindfulness interventions in the educational context to negate this barrier.

Stigma

The most frequently discussed barrier to engaging in mindfulness was the fear of stigma. This was discussed more so by the international students within the focus groups. They explained how, in their culture, attending a mindfulness course could be viewed as an admission of mental health problems due to the use of mindfulness as a treatment of mental ill health:

> *"That's me coming from an international student's background, from a country where there's a stigma around it, a lot of people wouldn't be happy to say that I'm attending this course".* Rashida, Group 1

*"I would also be nervous as a student thinking, well, what do they have on record …
whether that would be a detriment to my development because mental health is very
stigmatised in my country."* Benu, Group 2

This is an important consideration, to explore where this stigma stems from and ensure that the
intervention is marketed as a preventative activity that could benefit all PGRs.

Peer Forum

The previous three intervention ideas were those that were initially proposed by the research
through their collation of the data from the Assessment Phase and the review of the existing
literature. The peer forum was a novel idea that was generated by Focus Group 2. They discussed
the creation of a peer forum that could include online content such as live or recorded
workshops, interviews with other PGRs, blogs, discussion boards, online chats, all driven by
current PGRs. The groups also discussed how this forum may be able to be integrated within
their existing VLE, offering a practical and easily implemented intervention. The theme and
subthemes are presented in Figure 6-6, encompassing the discussions around this new idea.
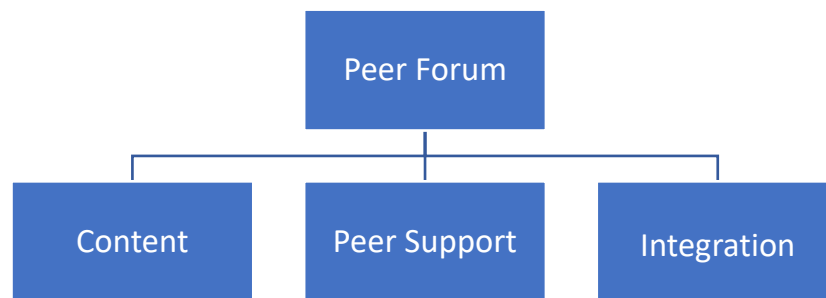
Figure 6-6   Peer Forum themes and subthemes

Content

Firstly, the PGRs discussed content that they would like to be included within a peer forum. They
discussed ideas of static content, such as blogs, pre-recorded interviews, and workshops. They
also generated ideas about live workshops and podcasts:

*"We could have a closed LinkedIn type thing but keep it quite informal … you could go,
'I'm pretty good at mindfulness, any postgraduates want to come and do mindfulness?
I'm running a Zoom session once a week or once every other week.'"* Jacob, Group 2.

They expressed how they would imagine this area to provide an opportunity to create social
connections with their fellow PGRs at the university.

Peer Support

The group discussed the usefulness of providing a platform to chat to other PGRs. They discussed
options such as discussion boards, question and answer sessions, or instant messaging:

We can sort of just fire off a question and people respond … like a forum that becomes a central repository of where people can go first to look for support, and maybe create their own connections within it." Benu, Group 2

Some PGRs conceptualised the use of a forum as an area for banking frequently asked questions and responses. The idea of the peer forum and its contents further unfolded throughout the conversations.

Integration

The PGRs also discussed ways in which this peer forum could be embedded:

"How do you integrate this sort of stuff into the delivery of the programme? ... so, it becomes part of it, and those sorts of social connections get generated via that." Rob, Group 2

They argued the importance of integrating the peer area within their existing virtual learning platform to make it easily accessible.

Evaluation

An additional theme that was generated through the discussion with the focus group was Evaluation. Within this, the group discussed the importance of evaluating the effectiveness of the interventions, and the importance of both quantitative and qualitative feedback. The theme and subtheme are demonstrated in Figure 6-7.
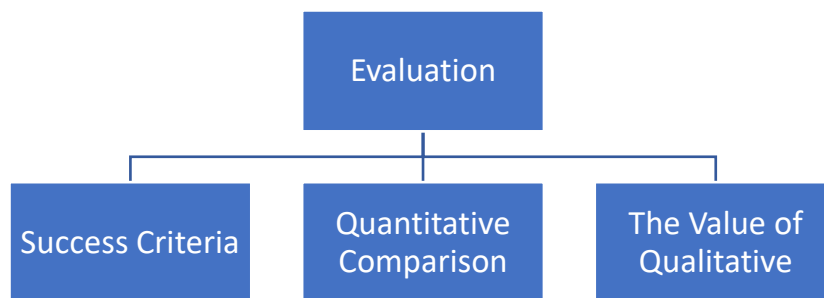
Figure 6-7   Evaluation themes and subthemes

Success Criteria

There was resounding agreement of the importance of evaluating these pilot interventions to provide feedback to the Doctoral College:

"If we were to have some affordable group-ran peer-support workshops, then people can feed into that and say this has helped me a little bit, seven out of 10 … and that way you can have a hierarchy of effective interventions." Jacob, Group 2

The group strongly encouraged the researcher to include PGRs in the evaluation so that the most effective and relevant intervention ideas can be taken forward to further implementation.

Quantitative Comparison

Several group members suggested the inclusion of psychometric scales at the piloting phase, allowing comparison between the intervention ideas:

> *"I think there's no harm in just using one of these scales … get some stats in there like you've been using in the forms so you can see if there's a significant difference, and then integrating with the qualitative will give you the context."* Harisa, Group 2

This would provide robust evidence of effectiveness at a small scale. This preliminary data could aid decisions of what initiatives could be implemented on a larger scale in future.

The Value of Qualitative

Most participants agreed that qualitative data should be at the heart of the evaluation:

> *"I'd say that I think that's possibly the only way you can sort of evaluate it is that qualitative data. Everyone's situation is so different, and they grapple with so many different things. And I don't think there's any neat way you can sort of capture that or evaluate it in any other way."* Rob, Group 2

They agreed that the student voice should be central, especially in assessing the feasibility of these novel interventions.

Recruitment

The final theme identified in the analysis of this phase of data collection was Recruitment. This theme encompasses the useful suggestions the focus group members discussed around the advertisement of interventions and how to engage potential participants. This theme and subthemes are represented in Figure 6-8.
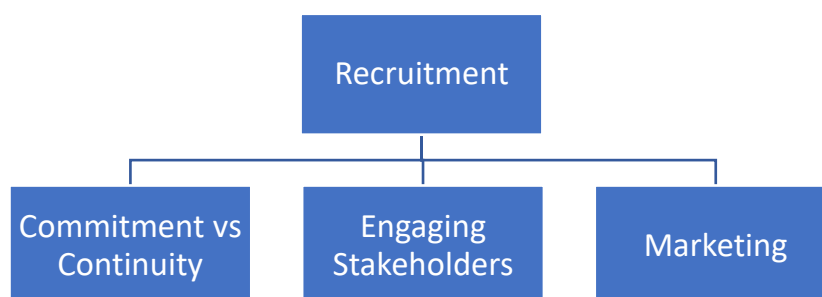
Figure 6-8   Recruitment themes and subthemes

Commitment vs Continuity

A central concern for the members of the focus groups was the time commitment from PGRs that would be involved in the delivery of the interventions, specifically the peer mentoring suggestion. This was also discussed as a trade-off between the amount of commitment required from the facilitators and the quality and continuity of the support provided by the participants:

> *"I think you might see problems with recruiting PGRs delivering the mentorship… I think third year students would be really busy with their projects. I'm thinking about the time"*
> Harisa, Group 2

This was a key consideration that the researcher took forward. Those who have the most experience as PGRs, those in later stages of their research, are likely to be limited by time. This is a likely barrier to recruiting experienced PGRs into the study as mentors or intervention facilitators.

Engaging Stakeholders

The focus group members also expressed the importance of engaging key stakeholders, particularly project supervisors, in promoting the intervention to their PGRs:

> *"Getting the support of the supervisors to promote it to the students. If my supervisors tell me to go along to something, I have a tendency to go."* Olivia, Group 1

The groups agreed that having buy-in from the Doctoral College and research degree supervisors would be integral to the success of recruitment strategies.

Marketing

Both focus group discussed the importance of how the wellbeing interventions are advertised to PGRs. They provided helpful suggestions of how best to promote the initiatives to encourage interest from PGRs. They also touched upon issues in relation to mental health stigma, and how the interventions should be pitched to make them as inclusive as possible.

> *"I think advertising and marketing it in a good way, to promote it as being practical and what you get out of it. What's in it for them."* Marie, Group 1

Again, they also spoke about the guilt surrounding taking time off from study to take part in the suggested workshops. They discussed how PGRs weigh up the benefits and potential usefulness of training opportunities. It may be important to justify the time investment and the likely benefits to encourage adherence.

6.5   Discussion

This phase of the research was concerned with how to bring about positive change in PGR wellbeing at the university. It was important that each stage of the development of the new interventions was anchored in the student voice. Therefore, this phase was concerned with presenting initial intervention ideas to PGR focus groups. Phase 1 highlighted the key protective factors that affected the wellbeing and resilience of this group of PGRs, the initial intervention ideas were grounded in these findings. The focus groups provided feedback on the researcher's initial concepts and discussed recommendations for improvements. This study aimed to collect the values and experiences PGR focus groups and to involve them in the production of the novel interventions.

The focus groups discussed the researcher's original ideas: project planning, peer mentorship, and mindfulness. The members also generated a new intervention idea, a peer forum. The group discussed the potential effectiveness of these intervention ideas and explored potential barriers to implementation. The PGRs also provided helpful feedback about the advertising, recruitment, and evaluation of new interventions.

The idea of a tailored project planning course for PGRs was first suggested to the focus groups. This intervention idea stemmed from the discussions with participants in Phase 1, considering the ways time management training could be useful to promote adaptive coping. The focus groups discussed that project management training could be effective to alleviate stress, in agreement with previous literature supporting the psychological benefits of such interventions (Kearns et al. 2007; Kearns et al. 2008)

The focus groups further explored potential negative consequences of project planning training. Some individuals discussed how past attempts at implementing goals and structure to their research degree had led them to feel inadequate when they fell short of their targets, reducing self-efficacy. Therefore, a key consideration when taking this intervention idea forward for development was the importance of realistic, achievable goal setting. Setting measurable, time-specific goals was a central element of the successful project planning intervention led by Kearns et al. (2008) at an Australian institution, Flinders University. Therefore, it can be recommended that a programme of this kind should focus identifying the barriers to achieving these goals, and encouraging self-compassion when goals are not met. These steps should negate the potentially negative experiences identified by the focus groups.

The second intervention idea that was presented to the focus groups was a peer mentorship programme, where existing PGRs would be paired with new starters, to support them through their research degree. The participants in this study agreed on the value of peer mentorship as

a method for supporting new PGRs. The groups discussed the benefits for new starters such as providing relevant support, building a social network, and understanding expectations. The groups discussed how this type of support usually happens organically, but it would be especially pertinent to help PGRs to build these relationships due to the reduced opportunities to meet peers during the COVID-19 pandemic (Jackman et al. 2022b). Mentorship is reported be a successful way to support PGRs' academic and psychosocial development (Kumar and Johnson 2017). Peer mentorship models have been frequently implemented in PGR students reporting benefits including enhanced research and learning experiences, and reciprocal psychosocial support (Grant-Vallone and Ensher 2000; Terry and Ghosh 2015; Wilson and Gregoric 2015; Lewinski et al. 2017; Nokkala et al. 2022).

However, although the focus groups were positive about the benefits for the mentees, they were concerned about the effects on the mentor. Their concerns included boundaries, workload management, and commitment. As Colvin and Ashman (2010) discuss, although mentors and mentees can both experience benefits from peer mentorship programmes, there are risks and challenges. The practical risks to mentors include mentees' over-reliance on them and difficulties in managing the time commitment (Colvin and Ashman 2010). Similarly, Grant-Vallone and Ensher (2000) highlighted in the discussion of their intervention findings, that peer mentorship requires extensive training and a lot of dedication from the mentors. There can be questions about the dynamics of relationships, and the capability of the peer mentors to support academically (Colvin and Ashman 2010; Devos et al. 2017).

Most importantly, the focus groups also discussed the emotional burden for the mentors, and where and how to escalate issues relating to the mental health and wellbeing of their mentees. Recent international research by Loissel et al. (2020) suggests that 81% of PGRs reported that they supported their peers academically and emotionally during their studies. However, although 68% found it to be rewarding, 76% reported that it was emotionally draining, and 67% felt it had an impact on their private life. The findings report that PGRs and academics were supporting others with their mental health and wellbeing, yet 60% claimed to be struggling with their own mental health at the time of offering support to others. Of the peers they were supporting, 63% of them were suffering with depression or low mood, for which they were often not receiving professional support.

The study highlights how the responsibility of supporting peers can be burdensome and potentially detrimental to mental health. This is an important consideration in the development of an intervention that relies on PGRs to sacrifice their time to support others, given the evidence of poor mental health and wellbeing of PGRs studying in the UK at this time (Byrom et al. 2020; Berry et al. 2021; Milicev et al. 2021; Casey et al. 2022; Jackman et al. 2022c; Moss et

al. 2022). Institutions need to carefully consider this argument as they have an obligation to provide training for these individuals.

Despite the success of peer mentorship interventions, if a university's solution to the crisis facing PGR mental health and wellbeing is to put more strain on the PGR to support others, this is bound to worsen the cycle. Therefore, in light of COVID-19 lock downs and how this was worsening PGR mental health and wellbeing of PGRs studying in the UK (Byrom 2020; Jackman et al. 2022b), the focus group members suggested a less resource and time intensive alternative to one-to-one peer mentorship. The focus group proposed an online peer-support area, where PGRs can offer and receive support from each other, without the commitment of being an exclusive mentor.

As an alternative, Focus Group 2 proposed a peer forum that could be embedded within the university's existing virtual learning platform to support PGRs throughout COVID-19 and beyond. They recommended that this could provide a forum for interactions between PGRs and an opportunity to share helpful content with them to support their wellbeing. At the time there was a pressing need for this opportunity to create a space for PGRs to communicate, as the loneliness of the PGR experience was exacerbated due to campus closures, with the learning and psychological health of students at risk (Sahu 2020; Zhai and Du 2020). Especially as initial evidence at the time of the focus groups suggested that students and young people were experiencing social isolation and loneliness in lockdown more acutely than other demographic groups (Royal Society for Public Health 2020).

At this time, Student Minds published an updated report, following the launch of the University Mental Health Charter in December 2019 (Hughes and Spanner 2019), to reiterate the importance of student mental health during the pandemic (Hughes and Spanner 2020). The researchers outlined seven principles that universities should consider in supporting the mental health of students, one being to ensure social integration, community building, and sense of belonging is promoted. A study of the impact of COVID-19 on PhD students and early career researchers by the SMaRteN Network and Vitae (Byrom and Metcalfe 2020) identified a correlation between wellbeing and how much PhD students felt supported. Specifically, good communication from the university and staff had a positive impact on PhD students' social connectedness. It is evident from Phase 1 that PGRs longed for more social interaction with peers, and those that experienced more social cohesion and received more social support appeared to cope better. This was magnified during COVID-19 while PGRs work from home, intensifying the need for this kind of online community. Therefore, the researcher took forward the idea of the peer forum. Mentoring was also considered to be a valuable and effective tool

to support PGRs during this time, however, it was clear that this should not be delivered by PGRs, who were experiencing poor psychological outcomes because of the pandemic.

Finally, the focus groups were also introduced to the idea of a mindfulness-based intervention, to which they reacted positively, advocating the potential usefulness for coping with stress. There is strong evidence from meta-analyses of the effectiveness of mindfulness-based interventions in university students (Regehr et al. 2013; Bamber and Morpeth 2019). A recent review of qualitative feedback from university students who had been involved in mindfulness-based interventions described mindfulness training as a helpful coping mechanism that reduced stress and anxiety and improved emotional regulation, focus, and learning (Bamber and Schneider 2020).

Barry et al. (2019) were the first to trial a mindfulness intervention in PGRs, reporting many significant psychological benefits for those undertaking postgraduate research in Australia. There have been no published findings from mindfulness interventions in PGRs studying in the UK, so this presents a promising tool to support wellbeing. The intervention in Australian PGRs was self-administered through CD audio, however, as this study focuses on increasing the sense of community and peer support, it is important that the intervention was designed to run in a group setting with a live facilitator. This presents an opportunity for this interventions to promote an individual's coping capacity, but also improve support at a community level, targeting multiple layers of their social environment (Bronfenbrenner 1992).

However, the focus groups discussed potential barriers to partaking in mindfulness-based interventions. They believed that mindfulness has received negative attention in recent years, and how it has been utilised in a way that is not evidence based, perhaps diluting its effectiveness. They identified some key issues in relation to recruitment and retention to mindfulness-based interventions that had not been explored fully by Barry et al. (2019). The focus group highlighted certain negative connotations related to mindfulness, that it may be impractical, and even a "waste of time" as it does not directly relate to getting the research done. It is very important that as the mindfulness intervention is developed, the benefits are clearly communicated to the PGRs, to encourage recruitment. It is also imperative that PGRs are positively encouraged to devote their time to these kinds of self-care activities, to allow themselves time away from their work to attend, to reduce this sense of guilt.

In addition, the concept of stigma was a focus of conversation. Some members of the focus groups who originate from outside of the UK discussed their concerns that taking part in a mindfulness-based intervention. In some countries and cultures where there remains stigma relating to accessing mental health support, partaking in a mindfulness programme may be

viewed as an admission of mental health problems. These mental health connotations may be a contributing factor to the low response rates from international students and males in the Australian intervention (Barry et al. 2019). This highlights an important consideration in the marketing of any mindfulness-based intervention in PGRs. A challenge for further research is to sever the link between mindfulness and poor mental health, promoting such interventions as a positive wellbeing initiative for all.

6.5.1 Limitations

Due to the timing of the study, during the first COVID-19 lockdown, this phase of the research was conducted online. Conducting focus groups and interviews online has challenges in relation to the effectiveness of digital tools and the researcher's ability to observe non-verbal behaviours and manage interactions between the participants (Janghorban et al. 2014). The lockdown presented other challenges too. This research was conducted at a time when PGRs were dealing with increasing demands, such as juggling childcare, illness, financial uncertainty, and increased stress and anxiety (Jackman et al. 2022b). Therefore, there were challenges with recruitment. Just 7 participants volunteered to take part in the two focus groups, larger participant numbers are often recommended (Sandelowski 2008) However, smaller focus groups, consisting of 3 or 4 members, are advocated where participants have specialised knowledge and shared experiences (Onwuegbuzie et al. 2009), and are conducive to open, honest discussion.

Other limitations relate to the self-selection bias within this study. As in Phase 1, males were the minority in the sample, perhaps due to the mental health connotations of the study (Choi et al. 2017). The majority of those who took part were from the Faculty of Health and Social Sciences, perhaps due to their education, mental health literacy, and interest in health research. Therefore, the opinions of those from other educational backgrounds were lacking in the design of these interventions. Importantly, many of the participants of the focus groups were also involved in Phase 1 of the research. Although this demonstrates their interest, excitement, and commitment to this research and improving the experience of PGRs, it limits the range of views.

An important consideration to take forward to the next stages of the development of the interventions is how they may be perceived to be directed at individual deficits. There were discussions around the use of workshops designed to increase resilience, specifically. One focus group member articulated this within the focus group.

Although the first phase of the research captured several individual psychological resources that could be a mechanism to promote wellbeing. There are also systemic, institutional issues relating to academic culture that affect the wellbeing and resilience of PGRs studying in the UK. Although it is out of the scope of this study to make changes at the institutional level, it is

important that PGRs did not feel that the onus is being put on them to improve their own resilience to cope with these institutional issues, such as the culture of overwork.

However, it is recommended that interventions target the individual and their immediate academic community, to incorporate wider layers of their social environment (Jackman et al. 2022a). Therefore, the interventions bought forward to the next stage were delivered live in a group session to promote social support from the facilitators and other participants. This means that the intervention may have additional benefits, such as increasing a PGR's social circle. This also presents a recommendation for the next phase of the study, ensuring that during the recruitment and dissemination of the interventions, that the PGRs do not feel that they are the problem that needs fixing.

6.5.2 Conclusion

This phase of the research encompassed the next steps towards the development of wellbeing interventions for PGRs within the overarching feasibility study. This study was concerned with identifying how to bring about change, and how deliver the change in the most effective way (Wight et al. 2016).

Data taken from two focus groups were integrated to achieve the study aim: to co-produce preventative interventions to promote PGR wellbeing and resilience. During these focus groups PGRs studying at the university provided their thoughts and feedback on initial intervention ideas presented by the researcher. These intervention ideas were grounded in the existing literature and the data gathered in Phase 1. The participants also offered useful suggestions about the advertising, recruitment, and evaluation of the pilot interventions taken forward to the next phase of the research.

The focus groups were presented three ideas: project planning, peer mentorship, and mindfulness. The focus groups agreed on the potential value and effectiveness of the initial ideas. However, the focus groups did not recommend that the idea of formal peer mentorship to be taken forward to piloting due to the onus on the mentees. Therefore, due to the timing of the study, the researcher did not take the idea of a formal peer mentorship programme forward due to the increased prevalence of poor wellbeing in PGRs and early career researchers during the COVID-19 lockdown (Byrom 2020; Jackman et al. 2022b). The group challenged the reliance on peer mentorship as a solution to the worsening mental health and wellbeing crisis in PGRs. Alternatively, it was decided that mentorship could be provided by a member of faculty who was outside of the PGR body and experienced in delivering this level of pastoral support to students.

To still harness the effectiveness of peer support during postgraduate research, the focus groups generated a new idea of an online peer forum. This presented an opportunity for PGRs to build relationships with their peers in a time when face-to-face contact was not possible. This forum would offer an online space where PGRs can communicate with each other and capitalise on reciprocal, relevant practical and emotional support from peers in a way that is less time intensive and burdensome than volunteering to be a one-to-one mentor. HE institution should be offering further support, not solely relying on PGRs to support each other.

The next phase of the research takes forward the ideas generated from the focus groups, developing a range of pilot interventions. The following chapter captures the next steps of the intervention development and tests the feasibility of four initiatives that aim to increase adaptive coping, promoting PGR mental health, wellbeing, and resilience.

Chapter 7 Phase 3: The Intervention Phase

"You can't fix what's broken, but you can give a helping hand."

7.1 Chapter Overview

Phase 3 was the final phase of the research, with the aim to pilot and evaluate a range of interventions to promote the mental health, wellbeing, and resilience of PGRs. The literature review in Chapter 2 provided an overview and critique of existing interventions that had been trialled within PGRs studying in the UK. These findings allowed a foundation for the researcher to build upon, from identifying the limitations and what was yet to be explored.

This study took forward four intervention ideas to this next phase of the research, these were shaped by the conversations with PGRs in Phase 2. These intervention ideas were grounded in coping theory, focusing on positive aspects of coping and how these could be bolstered to promote mental health. In addition, the situated knowledge gathered in Phase 1 provided the evidence base for the development of these intervention ideas.

The researcher and intervention facilitators worked together to develop workshops and online resources to deliver these. The interventions are described in this chapter, and the process of their development is outlined. These interventions were piloted in a small sample of PGRs from the university. The findings of the piloting phase are shared, focusing on the feasibility of the interventions and qualitative feedback from the participants involved and the intervention facilitators.

7.2 Introduction

Recent research has indicated a high prevalence of stress (Byrom et al. 2020), psychological distress (Jackman et al. 2022c; Moss et al. 2022), and depression and anxiety (Hazell et al. 2021b) in PGRs studying at UK universities. Further exploration has identified the impact that poor mental health may have on absence and attrition in postgraduate research degrees (Berry et al. 2022). This may have several negative consequences on a personal level and an institutional level, adversely affecting the research output of UK universities, highlighting the need for intervention.

The Catalyst funding call provided a platform for research groups to begin implementing remedial factors (Metcalfe 2018; Metcalfe et al. 2020), of which this university was a recipient. These preliminary interventions have been tested on a small scale in single UK universities. These interventions have tended to focus on promoting social support from faculty staff (Hutchings 2017; Marchand 2017; Lech et al. 2018) or peer support between PGRs (Lane and De

Wilde 2018; Mason and Hickman 2019; Homer et al. 2021; Panayidou and Priest 2021) as an approach to reduce the impact of loneliness and lack of support on mental health. However, the results of the previous phase of this research, and a recent report form Loissel et al. (2020), highlight the psychological risks of relying on PGRs who are expected to provide support to others. This is even more pertinent within the COVID-19 context, when poor wellbeing was exacerbated within this group (Byrom 2020; Jackman et al. 2022b).

In response to this call to action from the funders, these interventions tended to be implemented without a prior assessment of the contextual factors. The study researchers did not report prior preliminary investigations before undertaking intervention testing. In addition, many of the research teams did not actively engage PGRs in the research design. In terms of evaluation, few combined qualitative and quantitative analysis feedback on adherence, acceptability, and recruitment strategies. Many did not include validated psychometric tests pre- or post-intervention. This shortfall makes it difficult to critique and compare this body of evidence (Metcalfe et al. 2020).

The next stage of this research project aims to build on this existing body of evidence. By identifying the limitations of the existing research, this study presents a multi-phase approach with co-production, in line with the MRC framework for intervention development and evaluation (Craig et al. 2008). This moves onto the final steps of intervention development outlined by Wight et al. (2016) (see Figure 7-1), with the objective being to test, refine, and evaluate interventions on a small scale in attempt to collect evidence to justify larger scale testing.

1	•Define and understand the problem and its causes
2	•Clarify which causal factors have the greatest scope for change
3	•Identify how to bring about change: what is the change mechanism?
4	•Identify how to deliver the change mechanism
5	•Test, refine and evaluate the intervention on a small scale
6	•Collect sufficient evidence of effectiveness to justify rigorous implementation

Figure 7-1   Six Steps in Quality Intervention Development by Wight et al 2006.

The aim of this phase of the research was to test and evaluate interventions to promote the wellbeing and resilience of PGRs at the university. The interventions were based on coping theory (Skinner et al. 2003), targeting adaptive ways of coping. The research question that underpins the methods of this stage of the research was "what are the factors influencing the acceptability and implementation of the interventions?".

7.3   Methods

7.3.1   The Interventions

Four intervention ideas were bought forward from Phase 2: project planning, group mentorship, mindfulness, and a peer forum.

Project Planning

During Phase 2, the focus groups discussed the perceived usefulness of a project planning intervention for PGRs and came up with ideas about the content. It was important to the focus group members that the workshops would be delivered in a positive way, encouraging PGRs to implement plans that were realistic, achievable, adaptive, and flexible to change. Within the literature review and the findings of Phase 1, it is evident that PGRs are likely to have low self-efficacy and are susceptible to self-doubt and imposter syndrome (Byrom et al. 2020; Casey et al. 2022). Therefore, the project planning intervention was designed with these considerations in mind, providing tools to cope better with the setbacks and uncertainty of the postgraduate research degree.

As concluded from the research conducted by Kearns and colleagues (Kearns et al. 2007; Kearns et al. 2008), behaviours such as an ability to manage time well, setting specific times for writing the thesis, and regularly sharing work with supervisors were associated with lower levels of stress in PGRs. This was reported to increase the ability to complete the postgraduate research degree and fostered good work-life balance. Kearns et al. (2008) also highlighted common self-sabotaging behaviours in PGRs, including overcommitting, writer's block, procrastination, and perfectionism. The finding from this experimental research were also considered within the design process.

The project planning intervention was designed in collaboration with a lecturer from the Department of Social Sciences and Social Work, who facilitated the delivery of the intervention. The facilitator was a recent doctoral graduate from the university so had knowledge of the experience. They also had previous experience as a staff development manager in HE. The facilitator's knowledge and expertise in designing training and their understanding of the postgraduate research experience meant that they could deliver a professional, well-structured, and relevant series of workshops for PGRs. The live course was delivered over four weeks

between September and October 2020. The course was delivered on Microsoft Teams in a group format, to capitalise on peer support from the other participants.

The weekly workshops were one hour and focused on helping the group of PGRs plan their time and mentally prepare for the challenges of postgraduate research. The content and organisation of the workshops is outlined in Figure 7-2.

Week 1: Getting the most out of supervision	• Getting to know each other • The supervisory relationship • Preparing for supervisory meetings: expectations and assumptions • Managing supervisory feedback • Where to find further support and what to do if it goes wrong
Week 2: The project plan	• Recap • Making a formal plan and breaking it down • The PGR journey • Where to find further support and food for thought
Week 3: Managing your time	• Recap • Working smarter not harder • Fundamentals of time management • "Time stealers and enemies of effectiveness" • Planning and scheduling: prioritisation in a PhD • Activity: identify your key pitfalls and how to address them
Week 4: Knowing yourself and keeping well	• Recap • Understanding your "drivers" • Recognising imposter syndrome • Self-efficacy and challenging negative self-talk • Work-life balance and avoiding burnout • Activity: reflection and celebrating successes

Figure 7-2   Project planning intervention structure

The first session was centred around getting the most out of supervision. The rationale for this session was to provide PGRs with project planning tools to implement structure in their supervision meetings and manage expectations. This session helped PGRs to understand what to expect from the supervisory relationship. It was evident from the first phase of this research that PGRs often had unrealistic expectations of the support they would receive from their supervisor. Reports suggest that 63% of PGRs studying in the UK see their supervisor for less than one hour per week (Cornell 2020), therefore, it is imperative that PGRs understand how to use their supervision time effectively. The PGRs were given practical tools, such as a supervisory meeting agenda, to help them to plan their meetings in advance, utilising the time most effectively. The participants were also shown the academic calendar for the year. This gave them an overview of workload for academics to help them consider their expectations for the return

of feedback from supervisors. This session gave them the tools needed to plan their milestones and have realistic expectations for the turnaround of feedback.

The pivotal role the supervisory relationship plays in PGR mental health and wellbeing is well documented (Berry et al. 2021). Therefore, much of this session was dedicated to the relationship between the PGR and their supervisory team, understanding how to build effective professional relationships and avoid conflict. In Phase 1, many PGRs discussed feeling confused about the supervisor's role and had expectations for them to provide pastoral and emotional support. This often led to disappointment when their supervisor did not have the capacity to provide this. The workshop provided PGRs with an understanding of other sources of assistance throughout the university, including The Doctoral College, research administrators, student representatives, the student union, and student services. This provided PGRs other avenues of academic and social support throughout the degree, encouraging them to access social support from outside of their supervisory team, broadening their network.

The next session was centred around the project plan. Again, this workshop focused on expectations, attempting to elucidate the postgraduate research degree journey. In this more practical session, the participants were encouraged to work on a project plan, including key milestones and research activities, with the facilitator's support. The PGRs were also given advice to support them in project planning and breaking their project down into manageable objectives.

The third workshop was focused on managing personal time. Based on the work of Kearns et al. (2007), this session focused on the common pitfalls that PGRs experience, such as overcommitting, procrastination, and maladaptive perfectionism. The participants were encouraged to reflect on their own behaviours and ways of coping. The facilitator asked them to explore their personal ways of coping, adaptive or maladaptive. They considered ways in which these could be replaced with more helpful strategies, such as problem-solving and seeking practical support which may help to maximise their own productivity.

The final workshop was focused more on wellbeing in the context of project planning. The PGRs were aided in discussion of imposter syndrome and how they might increase their self-belief. The facilitator asked them to look at their project plans and ensure that they have factored in hobbies and activities that support their wellbeing, focusing on work-life balance. The first Phase of the research identified how PGRs often prioritised work over opportunities for personal development or socialising, such as workshops, conferences, and events. It was also documented that they tended to feel guilty if they did engage in these activities within their working hours (Casey et al. 2022). The facilitators encouraged PGRs to include these events in

their project plans, encouraging them to get involved in their academic community and expand their network of peers and colleagues.

All resources used to deliver the project planning workshops were then shared on the researcher's peer forum, so that the participants had the resources to refer to throughout their projects. It also meant that were not able to attend the live sessions would have access to the tools and workshop materials.

Mentorship

The focus groups in Phase 2 deemed that offering formal mentorship to peers would be too demanding and time-intensive for PGRs during the COVID-19 pandemic. However, mentorship is an initiative that was taken forward to the piloting stage, due to the evidence of its effectiveness in the postgraduate research context (Posselt 2018; Nokkala et al. 2022). Consequently, the mentorship intervention was delivered by a UKCGE Accredited Research Supervisor and Senior Academic in mental health nursing at the university. Kumar and Johnson (2017) advocate delivering mentoring to PGRs in a group setting, enabling networking with peers, forming a group that can support each other. This format avoided additional pressure on PGRs to act as mentors, but still allowed participants to capitalise on the relevant social support from other participants. Providing PGRs with support from a faculty member outside of their supervisory team was also expected to have many benefits. Student-faculty interactions contribute to the social integration and satisfaction of students in HE (Nora and Crisp 2007). Specifically, support from faculty members has been shown to significantly reduce emotional exhaustion and attrition intentions in PGRs (Hunter and Devine 2016).

As the academic mentorship is already provided through the PGRs' supervisory team, the sessions focused on the psychosocial aspect of mentorship (Kram 1985). As highlighted by Kumar and Johnson (2017) in their literature review of mentorship for PGRs, the psychosocial domain of mentorship includes support, encouraging self-reflection, and helping mentees to understand their own strengths. This formed the basis of the concepts covered within the mentorship intervention. The intervention also covered aspects of mental health literacy, whilst having the tools to provide mental health advice and signposting.

The live 4-week online course was developed by the facilitator and the researcher and took place in October 2020. The workshops were hosted once a week and lasted one hour, the facilitator provided self-reflection resources for the participants to complete in between the sessions. Figure 7-3 outlines the content of the mentoring intervention.

Week 1: What is good mental health and wellbeing?	• Welcome • Presentation: what is good mental health and wellbeing? • Breakout rooms: how do you maintain good mental health during your studies? • Homework: complete the Calgary Symptoms of Stress Inventory
Week 2: How do we identify and cope with our stress?	• Check-in • Presentation: what is stress? • Breakout rooms: what are helpful ways to manage stress? What works for you? • Homework: complete the WEMWBS
Week 3: How can we better solve problems?	• Check-in • Presentation: why is problem solving important? • Activity: case study on problem solving • Homework: complete a wellness action plan
Week 4: How do we maintain our wellness at university?	• Check-in • Presentation: how can we maintain positive mental health and wellness? • Final discussion and feedback

Figure 7-3   Mentoring intervention structure

The first week aimed to provide an overview of what is good mental health and wellbeing, aimed at providing a basis of mental health literacy. Breakout rooms were used to encourage discussions between the group members.

The participants were given homework, to complete to Calgary Symptoms of Stress Inventory (CSOSI) (Carlson and Thomas 2007), to begin to consider the mental and physiological consequences of stress. The second workshop then moved on to learning about how to identify stress and cope adaptively. Within the breakout rooms, the group were asked to discuss the ways they currently manage stress and their ways of coping. The facilitator then discussed with the group the evidence-based adaptive ways of coping that have the best psychological outcomes, such as problem-solving and support seeking.

The next session expanded on problem-solving. The facilitator introduced the group to literature around learned helplessness. They also discussed different types of stress, such as daily hassles or chronic stress, and how they may implement strategies to deal with life's problems. In the breakout activity, the facilitator asked the participants to apply some of the suggested problem-solving strategies to case studies they provided.

Before the final session, the participants were asked to complete a wellness action plan, integrating the coping strategies they had been taught across the course. This workshop was situated around maintaining positive health and wellness in future. There was also time for

discussion and feedback, allowing the participants to share with the group what they learnt and how it has helped them so far.

Mindfulness

The third intervention taken forward to the piloting stage was the mindfulness-based intervention, delivered by a current PGR at the university. There is strong research evidence of the psychological benefits of a mindfulness-based intervention for PGRs, including increased self-efficacy (Barry et al. 2019). The focus group members agreed that mindfulness may be a useful tool to reduce stress during the postgraduate research journey. However, they highlighted important issues such as stigma due to the mental health connotations. They also shared perceptions that mindfulness was theoretical, rather than a practical tool. Therefore, it was imperative that in the design, recruitment, and delivery of the mindfulness course, it was emphasised that this intervention is evidence-based and proven to be effective.

It was important that the facilitator of the interventions understood the PGR experience, to deliver a relevant, tailored course. A PGR from the university, who was also a professional mindfulness trainer, was paid to design and deliver the course. It was important to the researcher that the PGR received payment for the time it took to design and deliver this course due to the understanding of the high workload and financial strain of studying for a postgraduate research degree. The PGR was reimbursed for their time at the hourly rate of a research assistant within the university pay structure.

The 6-week online course commenced in October and ended in November 2020, This was delivered in a group format to promote social support between PGRs. An introduction to mindfulness was designed and delivered, providing guided practical sessions. The facilitator also discussed with PGRs the supporting theories and research evidence. The beginner's course aimed to promote the positive benefits of mindfulness and support long-term independent implementation of self-care. These sessions were run live within a group setting, with online resources within the PGR peer forum to support practice from home during the course and beyond. Figure 7-4 outlines the course content of the mindfulness-based intervention.

Week 1: Introduction to mindfulness	• Presentation: what is mindfulness? • Guided exercise: simple breathing practice • Discussion: making space for mindfulness in our daily lives? • Weekly practice: record your weekly practice
Week 2: Stressors of PGR life	• Presentation: consider academic stressors and how mindfulness could support academic performance • Guided exercise: "stop thought" exercise • Weekly practice: observe and record everyday sources of stress
Week 3: Bodily mindfulness and implementation	• Presentation: what is bodily mindfulness? • Guided exercise: 15-minute progressive body relaxation • Weekly practice: log weekly practice for the week, what are barriers to implementation?
Week 4: The cycle of change	• Presentation: the transtheoretical model of change: resilience, maintainance, and relapses • Guided exercise: sensory experience exercise • Weekly practice : continue to implement mindfulness into your daily life
Week 5: Guided visual journey	• Presentation: what is visualisation? • Guided excercise: peaceful place visualisation • Weekly practice: devloping the ability to visualise
Week 6: Ideal self & review	• Guided exercise: 5 minute breathing exercise • Presentation: the ideal self, aspirations and motivation • Closing discussion: feedback, signposting to wellbeing resources, long-term support for mindfulness implementation

Figure 7-4   Mindfulness-based intervention structure

The first session introduced mindfulness and began with a presentation about the theory and evidence of mindfulness-based interventions for wellbeing. The participants were guided through their first simple meditation which focused on breathing. The facilitator then

encouraged a discussion, asking participants to consider when and how they would factor mindfulness into their daily lives. This was focused on behaviour change techniques, asking the participants to keep a record of their mindfulness practice to promote implementation and habit formation.

The next online workshop focused on academic stress. The presentation was designed by the researcher and the facilitator, to share the body of research evidence about the efficacy of mindfulness to support mental health in academia. They were introduced to another tool in the guided session, stop thought, designed to block stressful thoughts. This is an evidence-based approach used to target rumination and unwanted thoughts and focus the mind on meditation. The group were then asked, for their homework, to make a record of the stressors they experienced the following week and note the times they were able to use the stop thought technique to divert the mind away from negative thoughts.

The third session introduced more advanced meditation techniques, such as bodily mindfulness. The group discussed the stressors in their lives, and the facilitator asked them to tune in to the physiological responses to stress, especially tension in the jaw and shoulders. They were the guided through a practical session, designed to relax the body, with emphasis on taking note of tension in the body, tuning in to each part of the body during relaxation. As a group, they then reflected on their mindfulness implementation the previous week and any barriers they experienced.

Behaviour change techniques were the focus of the fourth mindfulness session. The taught element of this session was anchored in the Transtheoretical Model (Prochaska and Velicer 1997), and how this explains the maintenance of new behaviours and how to manage relapse. The participants were then introduced to a new technique in the practical session, the sensory experience exercise. This involves using food, such as a raisin, and focusing on the taste and texture of the food during the meditation.

Week 5 moves on to visual mindfulness techniques. The practical task involved a peaceful place visualisation. It is argued that visualisation can enhance mindfulness meditation, allowing individuals to imagine something specific to help relaxation and focus. Their homework for the week was to try to implement visualisation into their mindfulness practice.

The final session started with a guided breathing exercise and then focused on reflecting on the whole course and how they are going to take what they have learnt forward. The facilitator guided conversations about the ideal self, in terms of their personal aspirations and goals and how mindfulness can be used to support achieving these. The tools, presentations, and recording of the guided mindfulness sessions were posted on the peer forum so that participants

would continue to use the resources to support implementation. They were also available for all registered PGRs to access so that they may engage in the series of workshops in their own time without a live facilitator.

Peer Forum

The final intervention to be taken forward to piloting was the peer forum. Loneliness and feelings of not belonging have been documented as central issues affecting PGR wellbeing (Pyhältö et al. 2009; Stubb et al. 2011; Cornwall et al. 2019), and were highlighted as key pressure points in the findings of Phase 1. This loneliness was likely more intense during the COVID-19 pandemic campus closures, as being unable to attend university limits one's contact with peers and supervisors, creating physical distance that could reduce the sense of belonging (Carvalho et al. 2018). It is well documented that students with a strong sense of community are less likely to attrite (Tinto 1999), and for PGRs, a stronger identification with the academic community is protective of psychological health (Jackman et al. 2022c). Therefore, it was important that those supporting PGRs were agile, rapidly responding to their needs for online support as they faced working in isolation, away from campus for a long period of time. Fostering a sense of community online by facilitating dialogue between students may reduce psychological distance and increase sense of belonging (Rovai 2002).

Therefore, a PGR peer forum was created, based on the ideas generated from the focus groups in Phase 2. The student learning experience is predominantly centralised on online repositories known as VLEs. Although these platforms are used in HE to deliver the curriculum, there are also socioemotional aspects of online learning, such as social interaction, identity formation and sense of belonging (Delahunty et al. 2014). Integrating a peer forum into the existing learning environment was also suggested by the focus group members, harnessing the potential of the existing infrastructure to engage PGRs with opportunities to build social support networks. But also providing a safe space which is monitored, secure and familiar to PGRs, supervisors, and research administrators. It is important that any online space within the VLE embeds best practice policies and behaviours but does not make PGRs feel as though they are being watched or monitored.

The focus groups in Phase 2 came up with ideas about peer-led content they would like to see within this space such as online workshops, videos, and discussion boards. This would address some of the key issues surrounding expectations, as highlighted in Phase 1. A peer forum was created to provide PGRs more information about the postgraduate research journey, demystifying the experience, and facilitating a space where they can interact with peers, encouraging information and support seeking. The content of the peer forum is illustrated in Figure 7-5.

Figure 7-5   Peer forum resources

The main element of the peer forum was the video blogs and interviews with PGRs about their experiences including being an international student, the *viva voce* examination, pursuing an academic career, and coping with rejection in publishing. The resources from the project planning and mindfulness workshops were shared with all PGRs at the university after the course. The facilitators posted their slides, recordings, and additional resources so that they could be accessed at any time by the participants and for those who missed the live workshops. Discussion boards were created to provide an inclusive, accessible forum for PGRs to ask questions to their peers and interact. This also created a space where PGRs could advertise events, social activities, and advertise for research participants.

7.3.2   Method

To recruit participants to the workshop interventions a poster was disseminated online via social media and the peer forum, due to continued campus closures. Participants were directed to register for the workshops online via Online Surveys, this involved inputting demographic information and contact details. The survey was open for the month of September 2020.

Workshop participants were asked to complete pre-workshop and post-workshop surveys, including a range of validated scales, and were asked to enter their email address take part in follow-up focus groups. The questions were pre-determined prior to the focus groups, based on the research questions, findings from the literature reviews, and the key elements the researcher wanted to evaluate.

Separately, participants were recruited in January 2021 to evaluate the peer forum. An overview of the process of data collection is outlined in Figure 7-6.

September 2020
- **Participant recruitment:** PGR peer forum launched and recruitment posters for the three workshops were advertised.

October 2020
- **Participant registration:** PGRs registered for the workshops via Online Surveys and were sent PAF and information regarding their workshops.
- **Pre-workshop survey:** participants were asked to fill out the pre-workshop survey via Online Surveys.

November 2020
- **Post-workshop survey:** participants were asked to fill out the post-workshop survey via Online Surveys and were offered an opportunity to take part in follow-up focus groups.

January 2021
- **Peer forum evaluation:** peer forum users were invited to review the peer forum via Online Surveys, and were offered an opportunity to take part in follow-up interviews.

Figure 7-6   Data collection process

7.3.3   Procedure

In total, three surveys were administered to the workshop participants, at registration, pre-workshop, and post-workshop. Firstly, to register to the workshops, participants were asked to complete a survey via Online Surveys. The layout of the survey is outlined in Figure 7-7.

Page 1: Participant Information Sheet
- Participant Agreement
- Inclusion criteria

→

Page 2: About you
- Demographic questions

→

Page 3: Workshop registration
- Selection of workshops: project planning, mentoring, or minfulness
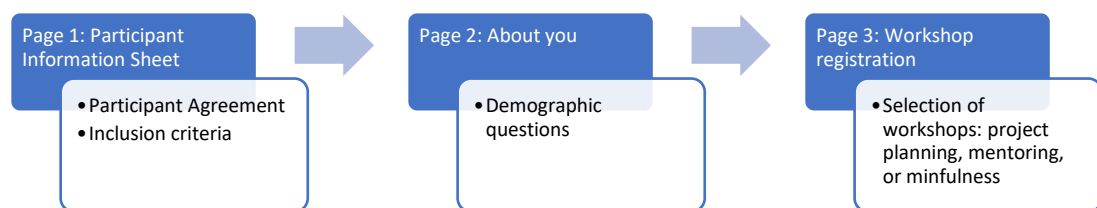
Figure 7-7   Registration survey

To evaluate the workshops, a survey was designed on Online Surveys and was disseminated pre- and post-workshop. The participants were given an identifier code to link their responses to the surveys and for anonymity. Participants were asked to input this code when completing the subsequent surveys. The surveys contained two scales that were included in Phase 1 and in the researcher's prior publication (Casey et al. 2022) to measure wellbeing and resilience pre- and post-workshops. These tools are described in Chapter 4 in the description of Phase 1. Within this study, two scales were added to explore general self-efficacy and coping. The acceptability of the outcome measures was evaluated by recording whether participants complete the measures in full. The structure of the surveys is outlined in Figure 7-8 and Figure 7-9.
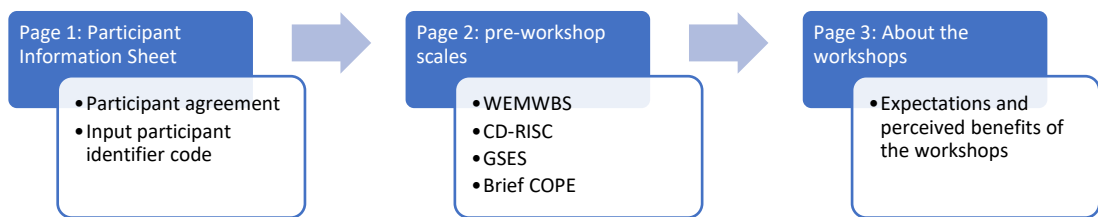
Figure 7-8   Pre-workshop survey
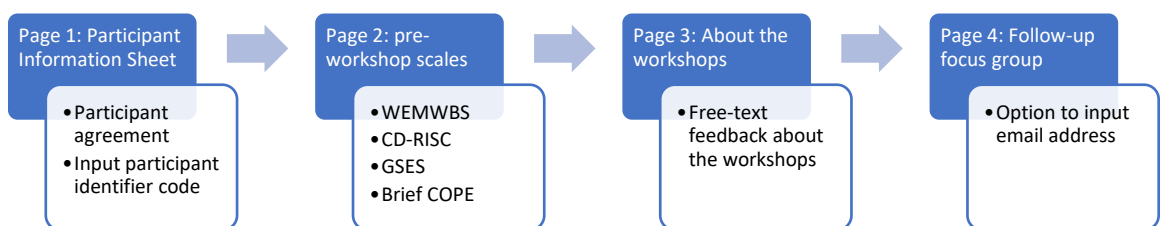
Figure 7-9   Post-workshop survey

A final survey was sent to all peer forum users via an announcement on the platform. To evaluate the peer forum, users were asked to provide free-text responses to questions online, or volunteer to take part in an optional follow-up interview. The layout of the survey is outlined in Figure 7-10.
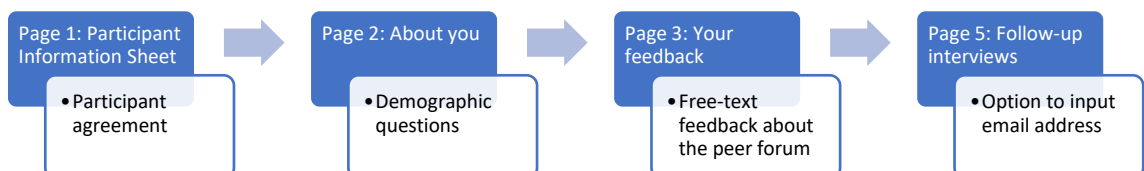
Figure 7-10   Peer forum evaluation survey

7.3.4 Materials

Testing the potential for the interventions to increase wellbeing, resilience, positive coping, and self-efficacy were the aims of the feasibility study. The wellbeing and resilience outcome measures used in Phase 1 of the study and the researcher's published paper (Casey et al. 2022) were also utilised in this study. A description of the WEMWBS and CD-RISC scales can be found in Phase 1, Chapter 5. In this study, two additional scales were included in this phase to explore self-efficacy and ways of coping.

General self-efficacy was added as an additional outcome measure within this phase of the research due to the findings of Phase 1, and of the existing literature, highlighting the problem of sense of control, imposter syndrome, lack of self-belief in PGRs. Specifically, Phase 1 revealed that PGRs lacked confidence in their abilities as researchers and experienced a lack of control over their research. In addition, coping was included as an outcome measure in this feasibility study to further explore the way PGRs cope with stress. This expands on the results of Phase 1, that indicated that adaptive coping appeared to buffer stress. The researcher was interested in the ways of coping PGRs currently employ and the potential for the interventions to encourage more adaptive coping tools.

The General Self-efficacy scale (GSES) (Jerusalem and Schwarzer 2010) and the Brief Coping Orientations to Problems Experiences (COPE) (Carver 1997)were selected as scales to measure these concepts. The rationale as to why these psychometric scales were chosen is outlined below.

General Self-efficacy

The GSES (Jerusalem and Schwarzer 2010) was used as an outcome measure in this study. The 10-item scale is designed to measure one's self-belief in their ability to cope with challenges in life, referred to as personal agency. The self-report measure has very good internal consistency and has been validated for use across many languages. Each item is measured on a four-point scale, 1= not at all true, and 4= exactly true. A higher score on this scale indicates higher general self-efficacy.

Coping

The Brief COPE Inventory (Carver 1997) is a shortened version of Carver's COPE Inventory (Carver et al. 1989). The shorter version was utilised in this phase of the research to assess ways of coping. The Brief COPE Inventory consists of 28 items, split into 14 subsections: Self-distraction, Active Coping, Denial, Substance Use, Use of Emotional Support, Use of Instrumental Support, Behavioural Disengagement, Venting, Positive Reframing, Planning, Humour, Acceptance, Religion, and Self-blame. The scale has an acceptable level of internal consistency,

is validated in a range of samples, and has been translated for use in many languages. Respondents are asked to complete the scale of one to four to indicate how often they engage in certain ways of coping during times of stress.

Carver designed the COPE and Brief COPE inventories to explore the nuances in an individual's use of coping strategies, not to aggregate group results. Therefore, Carver does not recommend in the guides for users to categorise the coping into emotion-focused, problem-focused, adaptive, or maladaptive strategies. However, researchers have since divided the scales into useful categories for comparison (Eisenberg et al. 2012). Most recently, Poulus et al. (2020) divided the scale into three distinct categories: Problem-focused Coping, Emotion-focused Coping, and Avoidant Coping. Their research provided norms for non-clinical samples enabling comparisons to other populations. Therefore, these groups were used to categorise the results within this study.

7.3.5 Ethical Considerations

Ethical approval for this phase of the research was granted by the university in September 2020 (see Appendix 6). The Participant Information Sheets were formatted into the online surveys, the participants confirmed they had read the form before continuing to complete the surveys. Workshop participants reviewed and signed the Participant Agreement Form virtually before taking part in the interventions. Likewise, all focus group and interview participants were asked to review and sign a Participant Agreement Form before attending.

A key ethical consideration was the necessary collection of the participants' email addresses for them to take part in the workshops or the evaluation of the peer forum. Doing so was integral to organising the workshops, and evaluator focus groups and interviews. Those taking part in the workshops were given a participant identifier code to protect their anonymity, this was only known by the researcher. This was a key aspect of the research design, allowing for the pre- and post-workshop data to be aggregated and compared. Participants were made aware that they could withdraw from the study at any time. They were also able to withdraw their data from the study by emailing the researcher after ceasing participation.

With the evidence of low mental health and wellbeing in this population in mind, the scales were selected, and focus group or interview questions were designed to be positively worded and sensitive. If any participants were concerned about their wellbeing during or after partaking in the research, the details of the university's student services, The Samaritans, Student Minds, and other key signposting information were formatted into the survey and provided again during any interactions with the participants during the workshops, focus groups, and interviews. In addition, the intervention facilitators were mental health first aiders and were reminded of

wellbeing resources for the students. Trigger warnings were also incorporated into workshop slides before any discussion of mental health and wellbeing.

During the mindfulness workshops, those suffering with asthma, chronic obstructive pulmonary disease, long COVID, or other conditions that affect breathing were asked to disclose this to the facilitator. They were still able to take part in the visualisation and body check exercises, however, they were warned to stop participating in the guided breathing exercises if they experienced any discomfort.

7.3.6   Participants

This phase of the research continued to focus on a purposive sample of PGRs from the same post-92 university in the south of England. PGRs from any research degree could register for the workshops. All PGRs were added as users to the peer forum on their VLE. All participant's names were replaced by pseudonyms to protect their anonymity.

7.3.7   Mixed Methods Research Design

The mixed methods research design used in this phase is convergent mixed methods (Creswell 2010), in which the qualitative and qualitative results are reported together. In this form of research design the researcher collects the quantitative and qualitative data at around the same time. The researcher then merges and integrates both types of results throughout the data collection, data analysis, reporting of results, and discussion to provide a holistic, comprehensive overview of the findings. The qualitative data attributed to each intervention was then expanded in more detail within the results.

7.3.8   Quantitative Data Analysis

As discussed in Chapter 3, feasibility studies are increasingly used to inform planning decisions in the development of larger, randomized trials (Van Teijlingen and Hundley 2002; Sim 2019). To address the research question (what are the factors influencing the acceptability and implementation of the interventions?) the effectiveness of each of the workshop interventions were reported via quantitative metrics including:

- Recruitment rates
- Response rates
- Completion of outcome measures
- Attendance rates
- Attrition
- Changes in outcome measures (paired samples T-tests or non-parametric alternative).

To evaluate the peer forum using quantitative data, user activity during the intervention period is reported, indicating engagement and adherence. The quantitative data analysis process was designed in line with guidance from the MRC on how to assess the feasibility of new interventions, focusing on the acceptability, compliance, and delivery of interventions, rather than statistically significant changes in outcome measures (Craig et al. 2008).

7.3.9   Qualitative Data Analysis

To explore the research question in more depth, 14 individuals were interviewed or involved in focus groups, including the workshop participants (*n*=8, involved in focus groups), the intervention facilitators (*n*=3, one-to-one interviews), and peer forum users (*n*=3, one-to-one interviews). The interview and focus group questions can be found in Appendix 7. This data was combined with the free-text answers from the post-workshop surveys (*n*=13 workshop participants). Like in previous chapters, the interviewees names were replaced with pseudonyms. However, to decipher between those who were interviewed and those who completed the online survey feedback, the survey respondents are numbered.

This analysis had a deductive framework, with the researcher seeking to evaluate certain aspects of the interventions, whether they were successful in increasing the protective factors highlighted in Phase 1: self-efficacy, adaptive coping, social support, and work-life balance. Therefore, a coding framework existed prior to the analysis. However, further open questions allowed for participants to voice their own thoughts.

To evaluate the workshops, initially the data from the focus groups of participants and interviews with facilitators were analysed separately. However, due to similar themes, the data were combined and reported together within the group results. The data from the peer forum users was analysed independently. The steps of Thematic Analysis (Braun and Clarke 2006) were followed. Below, Figure 7-11 documents the stages of the Thematic Analysis framework.

Firstly, the transcripts were imported into NVivo and the transcripts of each intervention group were analysed separately. Next initial codes were recorded that appeared interesting to the researcher, and were organised into preordained categories: recruitment, engagement, content, benefits, and recommendations. The themes were refined; their weightings were reviewed with the entire data set by comparing the numbers of coding references. Some themes were created outside of the preordained themes. The analysis was re-focused at a broader level outside of the pre-ordained categories. A new folder was created in NVivo as not to overwrite Phase 2 coding. The codes were combined into overarching themes; these were visually displayed in mind-maps. Some themes were merged due to similarity, overlap or low amount of coding references. Once the researcher felt that the thematic map reflected the experiences of

the participants accurately, the themes were then confirmed and described. The feedback from the workshop attendees and the facilitators were combined and reported on together within the results. A detailed description of data including evidence of each theme in the form of extracts is included in the results section.

Phase 1: Familiarising yourself with the data.	→	**Phase 2:** Generating initial codes.	→	**Phase 3:** Searching for themes.
Phase 6: Producing the report.	←	**Phase 5:** Defining and naming themes.	←	**Phase 4:** Reviewing themes.
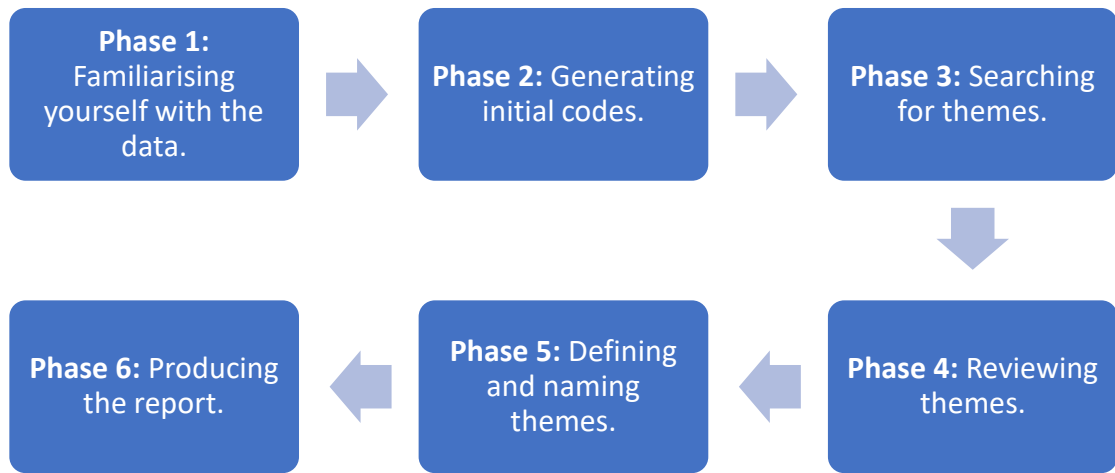
Figure 7-11   Thematic Analysis (Braun and Clarke 2006)

7.4 Results

7.4.1 Overall Workshop Evaluation

The quantitative data was used to evaluate the feasibility and acceptability of the workshop interventions. Firstly, the recruitment and adherence to the series of workshops were evaluated via recruitment rates, response rates to the pre- and post-workshop surveys, and completion of the outcome measures. In terms of recruitment rates, 26 PGRs from the university signed up to take part in the workshops, 4.38% of the population of PGRs at the university at the time of the study.

Table 7-1 demonstrates the demographics of the participants who registered for the workshops. The sample was female biased, and a majority were from the Faculty of Health and Social Sciences. However, the sample included a near equal balance of international students to home students, with participants from a range of study phases.

Table 7-1 Demographics of registered participants.

Demographics	*N*	M (SD)	Freq	%
Age	26	37.23 (10.11)		
Gender				
Male	26		8	30.8
Female	26		18	69.2
Faculty				
Health and Social Sciences	26		13	50.0
Media and Communication	26		5	19.2
Science and Technology	26		5	19.2
Management	26		3	11.5
Programme				
PhD	26		24	92.3
MRes	26		1	3.8
EdD	26		1	3.8
Mode of study				
Part-time	26		6	23.1
Full-time	26		20	76.9
Staff	26		5	19.2
Year of study				
1st year	26		10	38.5
2nd year	26		7	26.9
3rd year	26		5	19.2
4th year	26		1	3.8
5th year	26		2	7.7
6th year			1	3.8
Research stage				
Taught phase	26		6	23.1
Pre-Major Review	26		10	38.5
Post-Major Review	26		7	26.9
Writing thesis	26		3	11.5
Ethnicity				
White UK/Ireland	26		11	42.3
White European	26		3	11.5
Other White background	26		1	3.8
Pakistani	26		1	3.8
Chinese	26		3	11.5
Other Asian background	26		2	7.7
Other Black background	26		1	3.8
Arab	26		3	11.5
Other	26		1	3.8
International students	26		14	53.8

Note: Table displays frequencies and percentages. *n*= number of participants. M= mean. SD= standard deviation. Freq= frequency. %= percentage.

Of those who registered to take part in the workshops, 10 (38%) chose to take part in the project planning strand, 10 (38%) opted to take part in mentoring, and 6 registered for the mindfulness workshops (24%). Of these respondents, 20 attended the workshops (77%), indicating attrition rates of 23% before the workshops had begun.

Response rates to the pre-and post-workshop surveys are demonstrated in Table 7-2. Of the 20 that attended the workshops, 75% (*n*=5 project planning, *n*=5 mentoring, *n*=5 mindfulness) completed the pre-workshop survey and 65% (*n*=5 project planning, *n*=5 mentoring, *n*=3 mindfulness) completed the post-workshop survey.

Table 7-2   Survey response rates

	Workshop Participants	Pre-workshop respondents	Attrition (%)	Post-workshop respondents	Attrition (%)
n	20	15	-25	13	-13

Of the 20 workshop participants 15 (75%) completed the pre-workshop outcome measures in full. One participant accessed the survey but closed the browser at page 2. Of those who completed the survey 14 (93%) completed the free-text questions at the end.

Of the 20 workshop participants, 13 (65%) completed the post-workshop outcome measures in full. All respondents who started the survey completed all pages. Of these respondents 12 (92%) completed the free-text questions, and eight (40%) agreed to participate in the follow-up focus groups.

Attendance and engagement were measured through attendance rates of the workshops, as illustrated in Table 7-3. Although only 60% (6) of those who signed up for the mentoring workshops attended, attendance across the four-week course was 100%, with all six participants attending each week. For project planning, 90% of those who signed up attended one session, attendance was inconsistent throughout, with the group having 77% attendance overall. Although 83% who signed up for mindfulness came to the first session, the workshops were poorly attended throughout, with attendance declining over the six weeks.

Table 7-3   Workshop attendance

Intervention	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Attendance (%)
Project Planning	5	7	9	7	-	-	-	77
Mentoring	-	6	6	6	6	-	-	100
Mindfulness	-	5	2	3	1	1	2	47

Note: Table displays frequencies and percentages. *n*= number of participants.

The means and standard deviations of the outcome measures pre- and post-workshop are displayed in Table 7-4. All groups experienced non-significant increases in wellbeing, resilience, and self-efficacy. Significant changes were identified in emotion-focused and avoidant coping in the project planning and mentoring groups. However, measuring changes in the outcome measures was not the focus of the feasibility study.

Table 7-4   Pre- and post-intervention scores

	Project Planning				Mentoring				Mindfulness			
	Pre-workshop	**Post-workshop**			**Pre-workshop**	**Post-workshop**			**Pre-workshop**	**Post-workshop**		
	N	M (SD)	M (SD)	*p*	*N*	M (SD)	M (SD)	*p*	*N*	M (SD)	M (SD)	*p*
WEMWBS	5	51.33 (10.44)	55.17 (12.53)	.44	5	54.00 (8.46)	59.60 (9.84)	.45	5	43.80 (11.05)	45.00 (7.00)	.26
CD-RISC	5	68.83 (14.39)	76.00 (12.55)	.44	5	74.20 (13.83)	78.00 (14.11)	.52	5	60.40 (13.63)	65.33 (12.10)	.77
GSES	5	33.17 (5.56)	34.3 (3.78)	.34	5	32.20 (2.39)	33.80 (1.64)	.30	5	30.00 (7.55)	31.00 (3.46)	.50
Problem-focused coping	5	2.98 (.51)	2.93 (1.04)	.91	5	2.68 (.21)	2.60 (.50)	.77	5	2.80 (.56)	3.00 (.33)	.74
Emotion-focused coping	5	2.40 (.36)	1.43 (.34)	.01**	5	2.47 (.44)	3.00 (.33)	.05*	5	2.42 (.37)	1.88 (.43)	.16
Avoidant coping	5	1.53 (.21)	2.18 (.66)	.15	5	1.45 (.29	1.63 (.42)	.00**	5	1.60 (.34)	2.47 (.46)	.09

Note: *n*= no of participants, M= mean, SD= standard deviation, *= significant to .05, ** significant to .01 level

7.4.2 Project Planning Results

Of the 10 participants who registered for the project planning group, five completed the pre- and post-workshop surveys, and three took part in a focus group to evaluate the workshops, making suggestions for the future. The data from the focus group was aggregated with the free-text feedback from the surveys. Themes from the analysis are displayed in Figure 7-12.
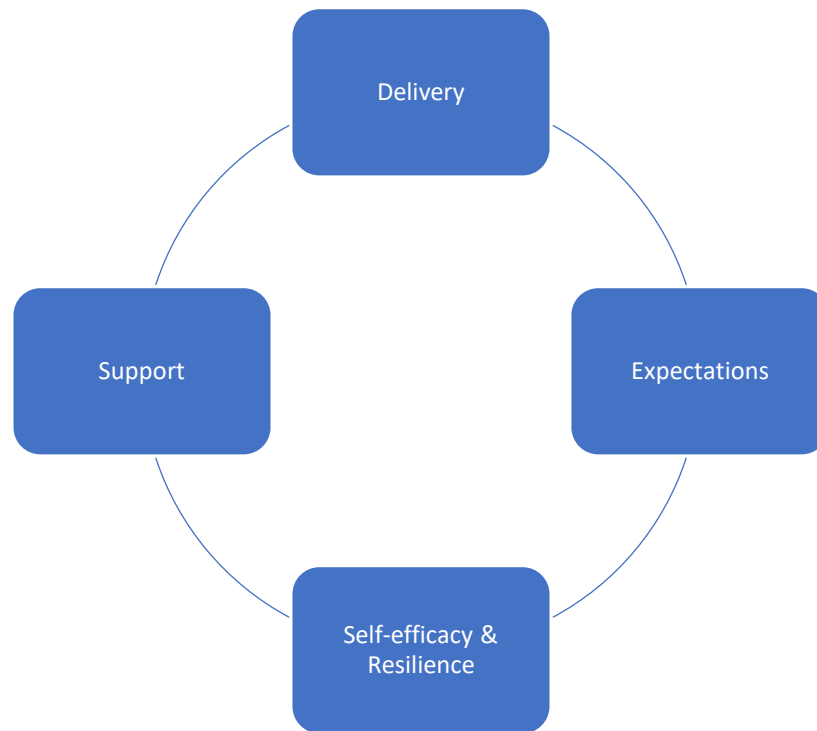
Figure 7-12   Project Planning group themes

Delivery

The focus group members identified many benefits to the Project Planning course being run online, meaning it was more accessible for those who work or live further away from campus and with other work or caring responsibilities:

> *"With things coming online in my experience, it has been greatly beneficial. I have more opportunity to catch workshops."* Joanna

Most reported that the format of the 1-hour weekly workshops worked well for them in terms of time commitment and breaking the content down into manageable pieces:

> *"I do think that running the course over an extended period was very helpful … if everything was loaded all at once you tend not to take everything in."* Peter

However, one survey respondent commented that the hour sessions were not long enough to allow participants to discuss concepts with the group or facilitator:

> *"The discussion points were meaningful to some participants which could have benefited from more time. Trouble shooting PGR's issues should be given more attention."* Survey respondent 2.

This participant expressed the need for further support beyond the delivery of the content. Although the facilitator offered opportunities for questions about the project planning techniques, the participants often wanted to discuss issues pertaining to their research or personal lives with the facilitator and the group. This may have been because there were limited opportunities to engage with peers, supervisors, and other academics during lock downs, but it highlights the requirement for further social support and a space to discuss issues.

Expectations

Although the aim of the focus group was to evaluate the interventions, discussions turned to the postgraduate research experience. Echoing the previous results from this research project, the focus group members discussed the expectations they had before they started their research degree, and how these were often not met, leading to disappointment, uncertainty, and stress:

> *"It's a whole new concept, the PhD is. Although my husband doing his PhD, watching it is totally different than experiencing it … I think it's cultural shock… my thoughts were all totally false."* Habi

The focus group members shared feelings of being unprepared and uncertain of what was expected of them. They discussed feelings of helplessness:

> *"If I'm ever stressed or I feel like I can't cope it's usually because I'm not really sure what I'm supposed to do."* Peter

The participants also discussed the adjustment to postgraduate research, and how, as they developed as researchers, they began to take control of their research project:

> *"I was so insecure for such a long time … Once you find your feet in your PhD research and subject then you have more of control over what you're doing, things start falling into place."* Joanna

> *"You are now directing this entirely yourself as the researcher … I think what these past few weeks and months have provided is that underpinning induction into this is how a PhD should be organized and this is what's expected of you... Now I know my roadmap, it's just building something out of Lego."* Peter

This was a pivotal moment in their self-development. The participants credited the workshops for helping them to understand the postgraduate research journey and what to expect. This provided clarity, reduced uncertainty, and helped them to take more control over their projects.

Self-Efficacy and Resilience

In contrast, for those at the start of their research projects, the discussion of project planning within the workshops exacerbated feelings of being out of control and overwhelmed by the enormity of the project ahead of them. Two using metaphors of running:

> *"That's been my experience, hit the ground and run … It's a bloody treadmill. It's stressful … I cannot waste time."* Joanna

> *"It's really a race combined with a marathon! … you just want to sit in the corner and start crying, but you don't have time to do that … this is the only chance I have… but I'm always late, I can't like catch up with deadlines… and if not you will be kicked out."* Habi

For these PGRs who were feeling that their project was insurmountable, the inputting of deadlines increased their stress, reduced self-efficacy, and made them feel helpless.

Within the conversation of the workshop series, the participants discussed the importance of the workshop content during COVID-19 and considering the economic and societal changes that were happening at the time of the research. The participants discussed the notion of resilience and coping, and how the content could help students to adjust better to postgraduate research:

> *"There is this inability to cope with education in Britain … so I think at PhD-level you need a bit more of a boot camp to get people up to standard so that they can cope."* Peter

> *"I think that resilience in this day and age is very different … because things have gotten really tough, things are very uncertain, and we live in fear all the time … It's gotten so tight that if you make one step wrong and you're out. And that's not a healthy way of living."* Joanna

Particularly during the pandemic, the participants had to change their research plans, causing significant stress, and affecting progress:

> *"Before COVID I think my self-esteem was much higher. It's really devastating, it slowed my progress… maybe it's psychological, because of the stress."* Habi

> *"Especially with the pandemic… the emotional strain, the world vibes are so heavy... I lose time with worry. I know that I have lost a full year of progress."* Joanna

Although the participants reported how the project planning course helped them to manage stress during their research degree, this theme illuminates the struggles that PGRs were facing

at the time, and the emotional impacts. It is important that the evaluation of this workshop series is considered in the context of the COVID-19 pandemic. It was pertinent that the project planning training was delivered with sensitivity, encouraging flexibility and adaptability.

Support

The focus group members provided many recommendations as to how project planning support could be built upon in future, beyond the COVID-19 context:

> *"[I suggest] a mapping tool for PGRs. Most of the challenges to resilience are triggered by the academic processes (the sense of being lost, lack of control)."* Survey respondent 2

> *"I think that the university should have something in the beginning, a little booklet to give you a generic roadmap. Every PhD is different, but just a generic roadmap."* Joanna

This could address the commonly discussed issue of expectations and the sense of uncertainty at the beginning of PGR study. The university provide a detailed guide in the form of their *Code of Practice for Research Degrees*, and shorter mini guides. However, the participants express the need for further information beyond the academic expectations that could assist them with managing their project plans. One suggestion was that video blogs, including discussions with existing PGRs, could be shared to help new starters set realistic expectations of the experience:

> *"These conversations that we're having now should be played to new PhD students. A conversation with students, for the new researchers, about what to do when they feel stressed."* Peter

> *"Maybe invite some additional volunteer graduates for short periods within the session to share pro-tips and experiences."* Survey respondent 3

These thoughts highlight, again, the importance of peer support and the desire for PGRs to hear from others who have been through the experience. Other participants also highlighted that additional social support from university staff beyond the supervisory team could be a mechanism to support students during their adjustment to postgraduate research study:

> *"We need a centre where you know you can go where there is somebody on hand. You know what, a twenty-four-seven phone line chat … somebody who knows their stuff and who might be able to firefight a situation."* Joanna

> *"Maybe even a PGR counselling service that considers academic guidance and emotional direction. You can't fix what's broken, but you can give a helping hand."* Survey respondent 2

These comments express the desire for further PGR-specific support from the institution beyond the existing provision of student services. This emphasises how PGRs feel their needs differ from undergraduate students, and the requirement for relevant support from those who understand the postgraduate research process.

The facilitator of the intervention was also interviewed to provide a detailed evaluation of the project planning workshops and their recommendations for the future. The themes from the analysis included Group Dynamics and Engagement.

Group Dynamics

The facilitator discussed the benefits of running the workshops online, being able to engage those who could not usually attend on-campus events:

> *"There are benefits of doing it online in that you increase participation from those that are perhaps remote, those that are working from different countries, working from home or have caring responsibilities."*

However, limitations were also identified in comparison to running similar workshops face-to-face. The facilitator discussed the difficulty of building rapport with the individuals in the group, and between the group members, during online delivery:

> *"The thing that was missing was that ability to really interact and watch the body language in the room."*

The facilitator felt that the PGRs benefitted from the workshops being delivered by a recent graduate who had situated knowledge of the experience. They discussed the benefits of running the workshops in a group format including fostering peer support between the participants who attended consistently:

> *"It was useful to use breakout rooms to help build the community in terms of the social side, because I think that was one of the unintended potential consequences."*

However, the facilitator had reservations about the inclusion of PGRs from all stages of their research journey. She believed that having a group of new starters at induction would have been more beneficial to avoid negative input from those who were experiencing problems in their research:

> *"It was quite hard with this group as they were all so disparate and where they were in their journey."*

This was an issue particularly during the COVID-19 context, when PGRs were experiencing struggles and setbacks in their research at the time. The group had the tendency use the

workshops as an opportunity to discuss these issues. The facilitator did appreciate the value that speaking to PGRs ahead in their research journey could bring so suggested ways that this could be integrated whilst avoiding negative narratives:

> *"I think that they would bring value if we gave a very clear brief: "we want you to talk about it warts and all, but we want you to remain balanced.""*

Again, the issue of balancing the expression of realistic expectations, and controlling the negative rhetoric. There is the need for new starters to understand the inevitable challenges, but the views should be balanced with stories of success and hope.

Engagement

Although the facilitator believed that the project planning training is most beneficial to new starters, she identified that PGRs further along in their research degree would also benefit from the training, advocating the inclusion of PGRs across the research journey:

> *"We do make some assumptions that by the time they're halfway through that they're standing on their own two feet… the PGR I was in week two is not the person and I was in month 18."*

The facilitator also discussed ways in which engagement could be increased in the future, arguing that the name "Project Planning" could be off-putting for some, when the content covered many different aspects of the PGR journey from managing supervisory relationships, maintaining work-life balance, and looking after your wellbeing:

> *"I think my caveat is that it doesn't need to be turned into "here's how to do a Gantt chart"… otherwise I think you're going to end up in this generic project management bubble."*

This echoes the sentiments shared by the workshop participants, that there is a need for adaptability and malleability when implementing project planning techniques. Moreso in the COVID-19 context, but beyond this, research is inherently uncertain and liable to change. It is recommended that future iterations of project planning support keep this in mind and encourage flexibility and forgiveness when research does not go to plan.

7.4.3 Mentoring Results

Of the nine participants who registered for the mentoring group, five completed the pre- and the post-workshop surveys. Of the participants who took part in the post-workshop surveys, two took part in a focus group to evaluate the workshops and make future recommendations. The data from the focus group was aggregated with the free-text feedback from the surveys. Themes from the analysis are displayed in Figure 7-13.
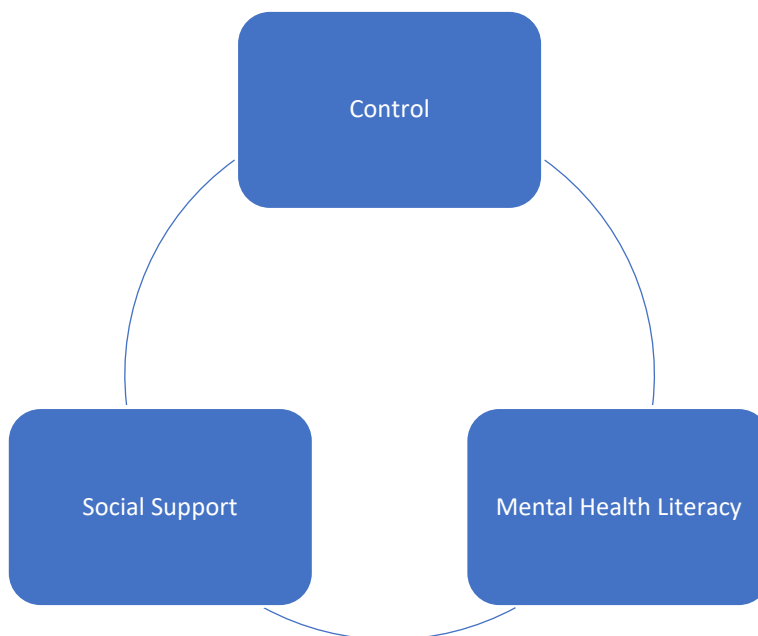
Figure 7-13   Mentoring group themes

Control

One benefit of the course that the focus group participants discussed was that it helped them deal with the uncertainty of the research degree, feeling more able to cope with the challenges:

> *"It has helped reflect on the way that I would cope … My stress when it comes to this whole PhD journey is the fact that I have no idea what's expected."* Akila

One focus group member expressed that the workshops encouraged them to think about focusing about things they can control, helping to manage stress:

> *"One of the key things I got out of the sessions and that is really solidified, is that this is all in my control. Even though I can't control certain situations that I'm in, there's still a choice there whether I enter into these situations."* Rob

The workshop participants made references to cognitive restructuring, replacing maladaptive thoughts with more balanced thoughts:

"It's really forced me to think about myself and what's good for me, so it's I think it's turned the lens back on myself rather than thinking about what other people think." Rob

This addressed some of the concerns raised in Phase 1 of the research, helping participants regain a sense of control over their research journey, and understand what to expect.

Mental Health Literacy

Another benefit highlighted by the workshop participants was an increase in mental health literacy. Group members expressed how the course provided them with an understanding of their own mental health and a toolkit to help them to cope with future challenges:

"It really allowed me to understand that I need to look after my mental and physical health and gave me tools to do so." Survey respondent 1

"He gave us the tools... I've got something to go back to and help me think about how I would approach it." Akila

Giving the participants this mental health tool kit had immediate benefits, and likely longer-term benefits, as they were encouraged to embed the techniques they were taught when facing future challenges. Specifically, the course encouraged the participants to focus on self-reflection in relation to their mental health and ways of coping:

"The workshops provided interesting and engaging inputs that gave space to think about my own mental health." Survey respondent 2

"The main thing I learnt about myself is that I could deal with work stress more proactively rather than 'just getting through it'. For example, I could make plans to reduce the stress rather than accepting it." Survey respondent 4

This critical self-reflection of ways of coping that the facilitator encouraged supported participants reframing their capacity for coping, encouraging more adaptive techniques.

"I need to put myself first … It's opened my eyes to taking care of myself, as parents, we tend to put our children ahead of everything." Akila

"I've actually resigned from my voluntary role … it's really forced me to think about myself and what's good for me." Rob

The participants of the focus group even discussed making positive life changes due to the self-reflection and what they learnt about themselves during the workshops.

Social Support

The focus group members gained significant value from having a member of staff outside of their supervisory team to talk to during the mentorship workshops. They felt comfortable seeking emotional support from the facilitator. They felt this eliminated the need to spend supervision time discussing their personal feelings, allowing them to focus on academic and research-specific issues:

> *"Historically, I have overshared … I don't go to my supervisors because I know they won't have time to properly deal with that because they've got so many other things going on as well."* Rob

Although they acknowledged that supervisors were key sources of support, they were often busy and not always accessible. The participants also discussed feelings of guilt, as if they were burdening their supervisors with their problems. Also, many PGRs have a professional student-tutor relationship with their supervisors, meaning that they may not feel comfortable discussing personal issues with them:

> *"I'm still in that phase of, like, they're my professors … there's still this hierarchy in my head… It's not that they're intimidating. It's just I am intimidated by them."* Akila

Having this academic outside of their supervisory team, with the focus on their psychosocial needs, had several benefits, expanding the participant's access to pastoral support. This, in turn, eliminated some of the tensions within the supervisory relationship. Participant felt comfortable accessing emotional support elsewhere rather than relying on the supervisors, where there can be issues of power imbalance and conflicts of interest.

Beyond the usefulness of the workshop content, a key benefit of the mentoring intervention was the engagement with the other group members. The sessions increased their access to social support through building relationships with each other, in a time where contact with peers was limited. This likely contributed to the high adherence within this intervention:

> *"We got to know each other really well. Especially at this time where there is no interaction really with anybody, it was quite nice to have this small group of people."* Akila

This group of participants built a good relationship with each other, sharing their experiences openly and embracing different beliefs and attitudes:

> *"What I found really helpful was the peers … we all came with such different ideas, philosophies and beliefs."* Akila

The structure, content, and facilitation of the workshops was conducive to the building of rapport. This was an intentional effort of the facilitator, but also the PGRs who signed up for this session were aware that they would be expected to be open and share their thoughts and experiences:

> *"It allowed knowledge to be shared but also for the group members to start to get to know one another and start to feel a sense of security which aids more open discussion and mutually supportive relationships."* Survey respondent 4

> *"Because this is about my mental wellbeing and I can't come in close-minded … So, I think it's the frame of mind that I would enter sessions is different."* Akila

Those that self-selected to take part in this workshop were attracted to the opportunity to engage in the content and openly share their feelings. Participants acknowledged that they were primed to enter the workshops ready to discuss these themes with the group. However, the focus group members did feel the success of the peer support is down to the individual group members, the dynamics of the group, and the extent to which they engaged in the course:

> *"Conversely, you can get a group of people together and it's impossible for them to work together as those personalities just clash … I think it's always contingent to certain degree on who joins that group."* Rob

Although the group discussed building a good rapport with the other group members, only emerging relationships could be built within this limited timeframe:

> *"I think for me if it's once a week for a short period of time I think that only does the very short-term job …. I think that if that peer stuff was expanded out, or there was a bit more space for that, I think even more value to be got from those sessions."* Rob

Also, with the online format, their opportunities to build a relationship with others was limited. Creating longer-term peer networks would likely require more time and further opportunities to be in physical proximity to each other:

> *"It might be nice if we were to have a monthly catch up with the group of people … maybe we could address those certain issues that come out through the journey."* Akila

With an understanding that this was not possible during the COVID-19 lockdowns, in future, these mentoring workshops could be complimented by further opportunities for the group to spend time together. For example, refreshments before or after the sessions would be conducive to further informal discussions, encouraging participants to build relationships with peers.

The facilitator of the intervention was also interviewed to provide a detailed evaluation of the feasibility of the initiatives and their recommendations for the future. Two themes were identified: Group Dynamics and Mental Health Literacy.

Group Dynamics

The facilitator echoed the feelings of the participants in the mentoring group, that the group format enhanced the experience of the workshops:

> *"If you have one-to-ones then it actually takes on a completely different flavour… I'm not sure that that would be as helpful as the discussion that actually happened between participants."*

The facilitator commented on the openness of those who attended the workshops and how they were happy to share their experiences with the other participants:

> *"The people that attended really wanted to think about the issues about mental health and wellbeing … their motivation to be there was fantastic … their participation was quite open was quite frank."*

Again, as the participants self-selected to take part in these workshops, it is likely that it attracted those who were more inclined to share and discuss issues relating to wellbeing. Individuals from across the four faculties of the university attended the mentoring workshops, encouraging a diversity of thought:

> *"Once you've got PGRs from all across the board, then it becomes less incestuous and less about the workings of a particular faculty or the failings of a particular faculty, and more about the experience of all PGR students."*

The facilitator also highlighted the benefits of the online platform was particularly useful for engaging those who work remotely or had caring responsibilities that may not usually be represented in such interventions if delivered on-campus:

> *"It struck me that this is a fantastic opportunity, not just for part-time students, but for overseas students to also get the same quality of input as people who are just living around the corner."*

For these reasons, the intervention attracted a diverse group of students, from different disciplines and geographic locations. This, as the participants and facilitators discussed, created a more diverse group of PGRs who may not have met otherwise, broadening the participants' networks.

Mental Health Literacy

However, the facilitator acknowledged that those that did engage with the workshops tended to be from the disciplines related to health and social sciences, who are educated in the interplay between physical and mental health and are often encouraged to reflect on their own mental health as part of their practice:

> *"Many of Health and Social Science students do engage with this sort of thing… they're not necessarily the people that we need to reach out to."*

This highlighted a key consideration about how, in future, this kind of initiative could be marketed to read those who are less literate in mental health:

> *"People who are more comfortable with talking about health and wellbeing are more drawn to this than people who find the whole thing baffling or mystifying or terrifying."*

However, due to self-selecting the intervention they wanted to take part in, there is inevitable bias. Further exploration of how to engage those who are less open to discussions of mental health is recommended in future research.

7.4.4 Mindfulness Results

Of the participants who registered for the mindfulness group, five completed the pre-workshop survey and three completed the post-workshop survey. From the mindfulness group, three participants agreed to take part in the follow-up focus group. The themes from the focus group discussion are illustrated in Figure 7-14.
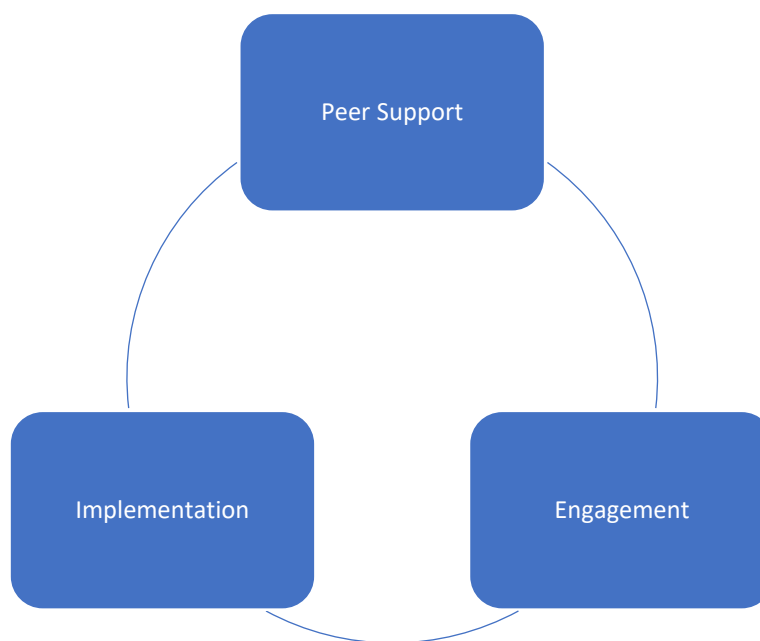
Figure 7-14   Mindfulness group themes

Peer Support

Those that attended the mindfulness sessions reported that the peer support element of the group workshops was beneficial and negated feelings of loneliness:

> *"There was an element of doing on your own, but also there was an element of togetherness about it."* Benu

> *"That social bit that goes with it, which is as much about the wellbeing as probably the mindfulness is"* Tina

As with the other workshop interventions, it is hard to decipher how much of the wellbeing benefits can be attributed to the workshop content or the social element of spending time with the workshop facilitator and the other group members. Having the time and space to discuss issues with those who understand the experience seemed particularly valuable. One participant credited peer support with helping to motivate them to implement the mindfulness activities into their life:

> *"If it was purely a solo activity, I think there would be less likelihood of integrating it in a meaningful way… making that commitment with others was really useful."* Tina

However, the limitations of the online format in terms of building social connections were discussed:

> *"It would have been nice to engage with everybody else in the workshop ... It felt a little bit like a solitary activity at times. There was an element of doing on your own, but also there was an element of togetherness about it."* Benu

The online format and connectivity issues, particularly with the mindfulness workshops, limited the ability to connect with the other group members. In addition, as the guided exercises were solitary activities, the format of the workshops also limited the time available for group discussion. If the participants were face-to-face, there may have been more of a sense of togetherness. However, taking part online limited this.

Engagement

The mindfulness intervention had the lowest recruitment of the three initiatives. The focus group discussed the potential barriers to recruitment, believing that negative perceptions of the concept of mindfulness could explain recruitment challenges:

> *"I'm aware of people thinking mindfulness is another one of those airy-fairy things that hippie-type people do."* Tina

The group also explored the issue of stigma around seeking mindfulness support, and how, in some cultures, mindfulness is used as a treatment for mental ill-health, medicalising the use of mindfulness. This could create barriers for engagement in some international students:

> *"We're all generally from different cultures and have different exposures to the idea of mindfulness … it might seem more wishy washy or has a negative connotation for some people."* Benu

Further, two members of the group express how they are hesitant to designate their working hours to workshops relating to mental health and wellbeing, opting to spend time on programmes that are skills-based, perceiving them to directly benefit their research:

> *"As a PGR you can't give yourself permission to undertake something that's about your wellbeing. I don't know why that is, but it seems like you can't justify it to yourself."* Benu

The other key barrier t engagement to the mindfulness intervention was time limitations and being able to balance the six-week programme with their research work. It was evident from the adherence to the intervention that is was difficult to consistently commit to the workshops:

"I was a bit worried about the commitment because it was always our regular time and there was a need to attend regularly … That almost made me think, actually, I can't do this." Tina

To ensure that participants feel that engaging in mindfulness is worth their time, the psychological benefits of the implementation need to outweigh the time spent on the workshops. Also, the notion that the more time you put into implementation the more benefits you reap is important to disseminate. This is a challenge for future iterations, to consider how the evidence-based benefits can be better advertised to encourage adherence.

Implementation

To experience the long-term benefits of mindfulness practice, the techniques need to be implemented into one's daily life beyond the course of training. Some focus group members discussed how mindfulness affected their ways of thinking, regulating emotions, and coping with stress:

"I will apply it to control my expression and mood." Survey respondent 1

"As for me, I used to watch TV shows to relax myself, but I found that this mindfulness class is another way to ease my pressure." Zhen

However, some found difficulty in embedding the implementation in their daily lives beyond the course of workshops:

"I didn't experience any significant benefits; I think that is less to do with the workshop content and more to do with still exploring ways to begin to integrate the new behaviour into my life." Survey respondent 3

Although the course focused on behaviour change techniques, the participants required more support over the longer-term to adopt daily mindfulness practice. It could be recommended that future mindfulness-based interventions provide more ongoing support to encourage implementation.

For some, the barriers were a lack of time and distractions:

"Every time that I managed to engage there were distractions and it was hard to give 100% to the actual activities." Tina

Distractions, especially, were an issue for most individuals working from home during the pandemic. With several members of the household working from home, with children at home due to school closures, finding a quiet place to practice mindfulness was not always possible for

the participants. This is an issue that may be less pertinent post-pandemic, but the findings should be interpreted considering this.

The facilitator of the mindfulness intervention was also interviewed to provide a detailed evaluation of the limitations of the initiative and their recommendations for the future. Two themes were established: Delivery and Engagement.

Delivery

The mindfulness facilitator felt that the workshops were less impactful due to the online format, with mindfulness-based interventions working better face-to-face:

> *"With mindfulness, it's much more human… which is something that is better covered face to face… Being able to elicit responses from people… that can lead into some really valuable discussion. When it's online it becomes much more of a taught exercise than back and forth peer-to-peer discussions."*

The online delivery limited the interaction that the group members could have with one another throughout the programme. It also posed practical problems with the facilitation of the mindfulness course. The facilitator experienced connectivity issues meaning that certain tools they wanted to use to increase the interactivity of the sessions had to be omitted.

In addition, the facilitator felt that learning mindfulness online at home, in their usual working environment at the time, restricted the ability to engage with the training:

> *"To be able to shift your mental state, it seems to make sense for you to be out of the context that you're usually working in."*

The facilitator believed that, with the business of home life during the pandemic, participants' ability to engage with the guided exercises at home was reduced. Courses that the facilitator had run previously would be arranged in a quiet, calm, and comfortable space, away from the usual working environment.

Engagement

There was low uptake with the mindfulness intervention, with just five people registering to attend the sessions out of 10 available spaces. Adherence to the six-week mindfulness course was also low, with some sessions having only one attendee. The smaller group size meant that the participants were willing to share honestly with the facilitator, and had more opportunities to speak in discussions in comparison to the workshops that recruited higher numbers of participants:

> *"People contributed in the chat because we had small numbers and they were open and willing to share. I did try to encourage that peer stuff, but with the small numbers it didn't quite work."*

However, the element of peer support that the course hoped to achieve was unattainable with small numbers, especially when engaging in solitary guided meditation sessions.

In addition to these limitations, the facilitator was also concerned that the length of the course was insufficient for the individuals to implement mindfulness into their routines long-term. He suggested that the introduction to mindfulness could span across the academic year, with regular homework and refresher sessions:

> *"To be able to implement mindfulness you need a longer, more intense process of implementation."*

Especially for those who did not attend consistently, it was unlikely that they would have experience benefits, reducing their likelihood of engaging in the workshop or home practice further.

Resonating with the thoughts of the mentoring facilitator, those who engaged most with the mindfulness workshops were from a health and social sciences background, with a certain level of mental health literacy:

> *"I've always thought that mindfulness doesn't always reach people that need it or would be quite receptive to it. Because I think people with lower mental health literacy would respond better."*

The facilitator believed that a mindfulness-based intervention has the potential to have the largest positive benefit for those who are less knowledgeable in health education. However, these individuals were not reached by the recruitment strategies, or were less likely to sign up or take part in the intervention. The facilitator suggested that the course could be recommended by the Doctoral College or by study supervisors to encourage recruitment in future. Having the buy in from key stakeholders would likely increase engagement with the workshops.

7.4.5 Peer Forum Results

To evaluate the peer forum area that was added to the postgraduate research VLE, quantitative metrics and qualitative data were combined. Only three participants responded to the feedback survey, with all agreeing to take part in further interviews. Their data was also combined with relevant comments from the participants and facilitators of the workshops, who used the forum to access the tools and resources for their interventions.

The peer forum was accessible to all 615 PGRs enrolled at the university at the time of the study. The trial period was between 1 Jan and 28 Feb 2021. Figure 7-15 displays the number of times per day the peer forum was accessed during this period.
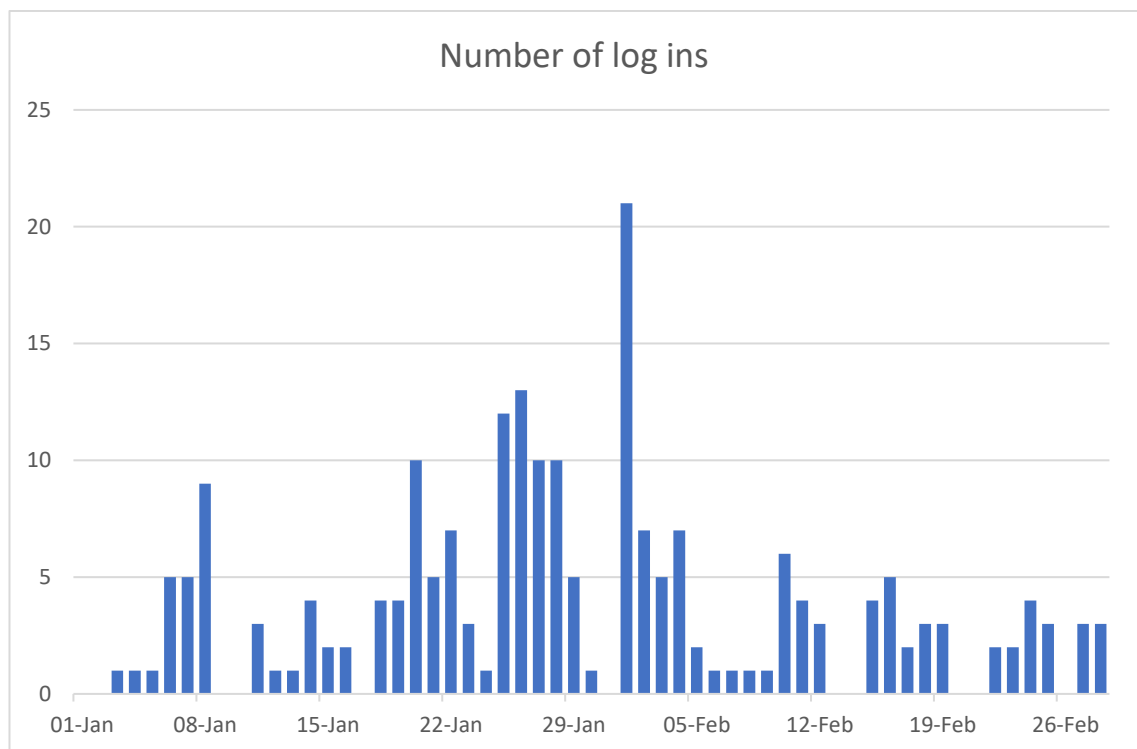
Figure 7-15   Forum access statistics

In total, the forum was accessed 213 times. The peaks in log ins followed announcements from the peer forum, the Doctoral College induction (1 Feb 2021), and advertisements in the Doctoral College newsletters.

The responses from the three interviews were analysed together with the comments from participants and facilitators of the workshop interventions. Three key themes were identified, as illustrated in Figure 7-16.
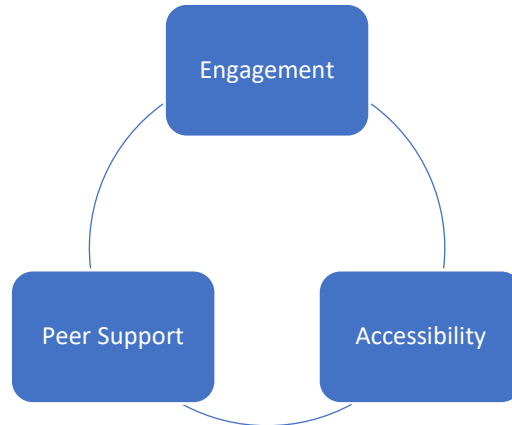
Figure 7-16   Peer forum themes

Engagement

Engagement from PGRs has been a central challenge throughout this research project, and the participants interviewed believed that the lack of engagement with the academic community could have contributed to the low uptake of the peer forum trial and evaluation:

> *"PGRs are not very, engaged … PGRs don't seem to be well connected … I think we need to inspire them to get this launched and get this out there properly because I am convinced that it can be an amazing tool."* Julia, interview participant

However, the participants also discussed that the use of the VLE as the medium may also be the issue surrounding engagement, as it is not frequently accessed by PGRs:

> *"I think one of the problems is probably having it on [the VLE] … we don't use it that much as PGRs… so it's not something I check regularly"* Melissa, interview participant

> *"PGRs do not use [the VLE] as a norm … So I think if we're looking at the requirement for PGRs to use it, it needs to be as part of their induction, emphasise that it exists and needs to be something that they can see is really useful and important for them to access."* Project Planning Facilitator

It was discussed that communications between PGRs within faculties or smaller groups of PGRs may be prevailing over the peer forum discussion boards. PGRs are more likely to contact their peers in their own faculties than ask a question to all PGRs:

"I think that got in the way of our faculty going on to the page because we were used to using that Whatsapp and I think people just got used to convenience of having it on their phones." Jane, interview participant

However, for those who are new, working remotely, or who have not established relationships with other PGRs are likely to be excluded from smaller group communications, like Whatsapp groups.

In addition, the lack of instant notifications from the VLE was discussed as a barrier to engagement during the interviews, in comparison to keeping in touch via telephone. This highlights the limitations in the platform's functionality as a social space:

"You can't see the notifications … I do not believe that PGRs are ignoring the page because they don't need it, I believe that it's because they are not aware of what's going on on it." Julia, interview participant

"If all the resources were somehow placed on Facebook… a more user friendly and aesthetic platform. I guess people would chat more and get instant notifications [the VLE] really isn't good at being an app style thing." Mindfulness Facilitator

However, When critiquing the VLE, the participants unanimously agreed that it was the best place for the peer forum to exist. This is because every PGR has access to the VLE through the institution and it is a professional forum, reducing the risk of excluding people:

"You don't know if everyone has Facebook, then you're excluding people that don't have Facebook or don't want to engage with it. Whereas with [the VLE] you can automatically add every PGR so they don't have to go and find it." Melissa, interview participant.

Additionally, PGRs at the university have several log ins for various repositories or resources, such as the VLE, their email inboxes, the staff intranet, and their annual monitoring site. Introducing another platform for PGRs to access was not considered advantageous:

"I can't have 35 passwords and 35 places to go, it's just mind boggling." Julia, interview participant

It is also beneficial that communication is kept to a professional platform so that it can be monitored by the Doctoral College and adhere to the code of practice and behaviours expected by the university. This reduces the risk of inappropriate or negative comments or misinformation being shared.

Accessibility

Despite the platform's shortcoming as a social environment, participants from the workshop interventions found the site especially useful as a site for depositing information, making the workshop material more accessible for them:

> *"The facilitators have done such an outstanding job, the resources that we still have available to us going forward for me as the best benefit because I think that's going to help me to integrate this into my daily life now."* Benu, mindfulness participant

> *"It has been hugely beneficial… I can always refer to my notes and the PowerPoint and I've got the synthesis of it with the recording. I think that's fabulous. Just having them there gives me that peace of mind if I come across another problem. I'll just go back to it and listen to it again. Amazing."* Joanna, project planning participant

One participant discussed how populating the page with more useful content will, in turn, increase engagement and discussion within the peer forum:

> *"The concept is powerful, there's no doubt about it, we know there is substance in it. Because we did imagine a filing cabinet with all these kinds of things you've got it in there … people are going to go there to look for those files and therefore cause traffic."* Julia, interview participant

However, the accessibility and navigation of the VLE was a concern for the interview participants, with many citing that they found the peer forum space difficult to locate:

> *"I found it really difficult to find … you have to go through quite a series of tabs to find it will be nice if it had a bit of a higher profile."* Tina mindfulness participant

> *"I didn't find your page for ages … I was scrolling up and down everywhere. I have no clue how to manage [the VLE], it's just not clear enough."* Julia, interview participant

These comments should be considered and taken forward. Further support from the university's learning technologists may aid improvements of the page layout. However, the researcher is limited by the design of the platform, which is continually monitored, refreshed, and improved each academic year.

Peer Support

The participants who helped to evaluate the peer forum were very positive about the forum's ability to create a sense of connectedness to other PGRs:

> *"There's more to going on information sites than just getting the facts, it gives you a sense of the connectedness of a certain group of people … Your piece on there is almost*

a little VLE but for PGRs and is tailored to peers. We know what we need, and we have a place to ask for it." Julia, interview participant

"From the videos you get that conversation, although you're not actively involved in that conversation you get a conversation from other people about their experiences, and I think one of the things PhD students find really helpful is to know other people that are going through the same thing." Melissa, interview participant

However, one participant discussed how the loneliness and disconnectedness experienced by PGRs during the COVID-19 pandemic could have reduced their motivation to engage in the peer support forum:

"I think that relates back to the fact that we're in lockdown and people are actually quite challenged on a lot of levels and very isolated. And I think that's part of the reason why people not using the online thing … part of the problem is the fact that you've launched in the COVID year, so I don't I don't think that we should be disheartened by the apparent lack of uptake, I think that will come." Jane, interview participant

It is evident that loneliness increased for PGRs during lockdown, but they were also managing the demands of living within a pandemic whilst maintaining progress with their research. This may have left them with less time to engage in the PGR culture and community or caused them to withdraw socially due to the challenges they were experiencing, reducing the likelihood of engagement.

7.5   Discussion

This phase of the research aimed to test and evaluate a range of pilot interventions to promote the wellbeing and resilience of PGRs at one post-92 university in the south of England. These interventions were designed with the objective of targeting the protective factors identified in Phase 1 of this research, focused on encouraging adaptive ways coping. To explore the factors that influenced the acceptability and implementation of the pilot interventions quantitative and qualitative data were triangulated, with the qualitative the focus of the evaluation. The feasibility of each of the workshop interventions were reported via recruitment rates, response rates, completion of outcome measures, attendance rates, attrition, and changes in outcome measures, in line with MRC guidance for intervention development (Craig et al. 2008).

Overall, the mentoring intervention had the most consistent attendance (100%) and most positive feedback, providing PGRs with tools to handle further stressful situations. Self-reflection appeared to be an effective mechanism of change, encouraging participants to consider their work-life balance and ways of coping with stress. The group format was also effective in building relationships with peers, as recommended by Kumar and Johnson (2017), creating an additional benefit. The intervention targeted several layers of the PGRs' social environment simultaneously, including individual psychological resources, and social support from their immediate academic community (Jackman et al. 2022c).

The project planning intervention was also well received, with good attendance throughout (77%). Participants reported that the intervention taught them practical skills and helped them to further understand the expectations of the postgraduate research journey. Again, the group format was an additional benefit to taking part in the workshops, broadening their social network at a time where face-to-face socialising was not possible (Jackman et al. 2022b).

Other interventions were less effective. The qualitative evaluations shed light on the underpinning reasons. The peer forum was accessed by few PGRs and was limited by the functionality of their virtual learning platform, which was not conducive to an interactive forum. Despite the users identifying the usefulness of the content and scope for increasing engagement, they found the platform difficult to navigate. In addition, the mindfulness intervention had the lowest recruitment and attendance rates of the workshops. Despite the strong research evidence of the effectiveness of mindfulness-based interventions in PGRs (Barry et al. 2019), the workshops had the lowest sign-up rates and attendance and engagement was poor.

Engagement was a central issue across the interventions, including recruitment rates, response rates, attendance, and attrition. As identified in the first two phases of this research, PGRs

expressed a need for more opportunities for social support. There is much evidence in the literature that postgraduate research can be lonely and isolating (Pyhältö et al. 2009; Emmioğlu et al. 2017), and this was evident in Phase 1 of this research.

Therefore, increasing social support was a key consideration in the design of all the workshops and the peer forum. Despite this, there remained low attendance for the group workshops and low engagement with the online peer forum. It seems paradoxical, but this highlights that there are further barriers for PGRs in accessing peer support, as participants have alluded to throughout this research.

Likewise, it is reported in the literature that engaging with the academic community can be viewed by PGRs as time-intensive and burdensome (Stubb et al. 2011; Cornwall et al. 2019). It is evidenced that high workload limits the time available to engage in opportunities for social support, and PGRs struggle to give themselves permission to designate time to socialising (Lahenius 2012; Casey et al. 2022). Many PGRs do not feel a part of their scholarly community (Pyhältö et al. 2009) and want and need more support from their academic communities, yet are failing to uptake opportunities for support. It understood that for PGRs studying in the UK, stronger identification with peers and the academic community is associated with positive psychological outcomes (Byrom et al. 2020; Jackman et al. 2022c), therefore it could be recommended that more social support opportunities are factored into mandatory training or induction processes for PGRs to encourage attendance. This requires further exploration, evaluating such implementation. The participants reported the social support they received from peers during the intervention period as one of the main benefits, highlighting the potential effectiveness of bringing PGRs together during training and development.

Other reported benefits of the interventions were an increased sense of control and an understanding of expectations. The PGR journey can be uncertain (Butler-Rees and Robinson 2020; Albertyn and Bennett 2021), but the participants reported that the project planning intervention gave them a road-map, helping them to understand the postgraduate research degree experience and approach the journey with realistic expectations. Members of the mentoring group reported an increased sense of control and ability to cope with the unexpected.

These interventions addressed some of the main pressure points highlighted in Phase 1, providing balanced expectations for PGRs to reduce uncertainty and increase their sense of control and ability to cope. This further identifies the need for universities and supervisors to normalise talking about uncertainty in research, and the toll this can take on academics' mental health (Albertyn and Bennett 2021), to create a safe space for discussion and to manage

expectations. If PGRs are taught to expect uncertainty and are given training to help them cope with uncertainty, this may be protective of mental health.

7.5.1 Limitations

Although the online format of these interventions allowed PGRs who would usually find it difficult to access on-campus opportunities for support, such as distant learners, part-time students, or those with disabilities or caring responsibilities, there were still limitations of the recruitment strategy. The intervention facilitators commented on the high number of participants from health and social sciences backgrounds. Those with lower mental health literacy, with educational backgrounds outside of health and wellbeing, could experience larger benefits from engaging in these kinds of interventions. Similarly, there was a low number of males who took part in the interventions, this is a central issue. This could be due to the connotations of mental health and wellbeing (Choi et al. 2017; Oliffe et al. 2019), perhaps viewing taking part as an admission of weakness.

As mentioned, those who did uptake the workshop interventions experienced increased social support from other PGRs as well as the facilitator. The group format of the workshops allowed informal peer support during the intervention period, an additional benefit. The more the facilitators were able to encourage group discussion within their weekly workshops, better attendance was documented. With mindfulness-based activities, such as meditation and visualisation being a solitary activity, the group interaction was not as easy to achieve. This intervention had the lowest attendance and adherence of the three courses of workshops. This is a consideration for future research, how organic peer support within the group setting could be encouraged in mindfulness-based interventions.

A major criticism of wellbeing or resilience interventions is the onus is on the individual to change and adapt. While this research has identified some benefits to supporting PGRs to develop adaptive ways of coping with stress, there were concerning discussions about their experience of being a PGR within a high-pressure academic environment.

Again, it is important to recognise that these types of individual interventions do not address the culture of over-work within academia and other systemic issues in the sector. It is important that future interventions adopt an approach that target several layers of the PGRs' social environment, such as the academic community (Jackman et al. 2022c). As much as it is important for individuals to strengthen their personal resilience, it is the responsibility of universities and faculties to create resilience-enabling cultures (Gooding et al. 2023). Fortunately, the researcher had the support of the Doctoral College in the implementation of these interventions, enabling

the researcher to embed the peer forum within the PGRs' the VLE, giving opportunity for the initiatives to permeate the community, more so than the workshops alone.

7.5.2   Conclusion

Phase 3 was the final phase of this research, evaluating and piloting a range of wellbeing interventions with PGRs from one UK university. Moving through the final steps of intervention development (Wight et al. 2016), four preventative interventions were tested on a small scale and evaluated: project planning, mentoring, mindfulness, and a peer forum. The interventions were designed to target the protective factors identified in Phase 1 of this research. Through the combination of qualitative and quantitative data, the factors that influenced the acceptability and implementations of the interventions were explored.

Participants of the interventions reported several benefits including increased social support, clearer expectations, increased feelings of self-efficacy and control, and improved strategies to cope with stress. Key challenges of recruitment, engagement, and attendance were evidenced through the quantitative and qualitative findings. The following chapter will further discuss these results within the context of the overall research findings, discuss the implications of the results in practice, and explore future recommendations for research.

Chapter 8 Discussion

8.1   Chapter Overview

The previous three chapters presented the results and analysis of this multi-phase intervention development. The first element was an assessment phase, conducted to provide an in-depth understanding of the factors affecting PGR mental health and wellbeing within the context of their university experience. The mix of qualitative and quantitative data within this phase provided a comprehensive overview of the specific experiences of the PGRs studying at this UK university. The quantitative data allowed the researcher to pinpoint the most pertinent factors that were negatively affecting their wellbeing. The qualitative data enabled an in-depth understanding of these experiences and their ways of coping. The findings from this phase of the research were consolidated and presented to groups of current PGRs in Phase 2, where these individuals worked with the researcher to co-produce intervention ideas.

Phase 2 offered further deep insights of the experiences of PGRs at the university, and how they can be best supported to cope successfully with the demands of a postgraduate research degree. In the final phase of the research, the researcher worked with one current PGR, a recent graduate, and a member of faculty to develop four interventions. These were then piloted within a feasibility study, using qualitative and quantitative methods of evaluation to understand the acceptability and effectiveness of the intervention, and challenges such as recruitment and adherence. This thorough evaluation was presented in the previous chapter, outlining the successes and the limitations of the novel interventions when piloted on small scale.

An overview of this iterative process, the decisions made, and how each phase informed the next is discussed chronologically within this chapter. Having investigated the individual research questions within the thesis, this final chapter provides a discussion of the key findings related to each of the questions. In addition, a discussion of the key findings is considered within the context of the existing literature. The methodological limitations of this research, the implications of the results in practice, and the recommendations for future research are also outlined within this overall discussion.

8.2   Discussion of Key Findings

This multi-phase study sought to understand the pressure points and protective factors that underpin the mental health and wellbeing of PGRs studying at this institution. The exploration of the experience of PGRs at the university in the earlier stages of the research informed the next stages, providing an understanding of the adaptive ways of coping that could be harnessed to promote wellbeing and resilience. Based on these research findings four pilot interventions

were co-produced, implemented, and evaluated with PGRs from the university. They key findings in relation to each research question are discussed below.

8.2.1 How does the wellbeing and resilience of PGRs studying at the university compare to the general population?

The objectives of the first phase of the research were to define and understand the problem and its causes, and to clarify which causal factors have the greatest scope for change (Wight et al. 2016). To do so, the prevalence of the issue needed to be established. The research was concerned with understanding the levels of wellbeing and resilience within this specific sample, to further understand how these psychological resources may be promoted through intervention. The author's published paper: *Exploring the wellbeing and resilience of postgraduate researchers* (Casey et al. 2022), measured the wellbeing and resilience of PGRs from across the UK, excluding this university. This research reported that PGRs studying in the UK had significantly lower wellbeing and resilience than population averages.

In the current project, to address this research question, participants were asked to complete the same validated wellbeing and resilience scales. This study revealed comparable findings: that PGRs within the institution had significantly lower scores than other population groups. This parallels the results of other UK-based surveys (Byrom et al. 2020; Hazell et al. 2021b; Casey et al. 2022; Jackman et al. 2022c), and that of international research (Levecque et al. 2017; Evans et al. 2018), reinforcing that the mental health and wellbeing of PGRs is poor in comparison to other individuals in the population.

Low wellbeing and resilience scores on these psychometric scales are an indication of the likelihood of developing mental health problems. Therefore, the findings indicate that the PGRs studying at the university may be at risk of developing mental health problems, emphasising the need for further investigation and remedial interventions. By answering this research question, this study provided robust justification for proceeding with the next phases of the study.

8.2.2 What are the main factors affecting the wellbeing and resilience of PGRs studying at the university?

The design of this research phase allowed the researcher to pinpoint the main factors that affected mental health and wellbeing, using the JPWBS to identify the most pertinent variables. By triangulating survey and interview data, these factors could be explored in more depth, understanding their experiences, and best answering this research question.

The first phase of the research highlighted two main overarching pressure points: lack of control and balance. Control encompassed self-efficacy and how these PGRs lacked belief in their ability

to succeed in research. This is corroborated by other research, finding that PGRs often lacked belief in their own skills and knowledge (Juniper et al. 2012; Hargreaves et al. 2017; Casey et al. 2022), and often reported feeling like imposters (Barry et al. 2018; Byrom et al. 2020; Berry et al. 2021). Self-efficacy, specifically, is a concept that has not been measured in PGRs studying in the UK. However, this study identified self-efficacy as a potential remedial factor in supporting mental health and wellbeing. To explore this assumption, general self-efficacy was included as an outcome measure in the feasibility study.

In addition, PGRs' expectations of postgraduate research were found to underpin control. Respondents felt disappointed and helpless when their expectations of the postgraduate research degree were not met. Postgraduate research is inherently uncertain (Butler-Rees and Robinson 2020; Albertyn and Bennett 2021). However, creating dialogue around uncertainty, and making efforts to create clearer expectations may increase PGRs' sense of control over their experience, reducing anxiety (Butler-Rees and Robinson 2020). These recommendations informed the design of the mentoring and project planning interventions, helping the participants to form realistic expectations, and implementing strategies to manage uncertainty.

Identity was also a sub-theme of control. PGRs were uncertain about their position at the university, confused by the hybrid role of student and staff member. The participants discussed feelings of self-doubt and fraudulence that occurred when they were treated as students rather than researchers within their academic communities. It was evident that, as they progressed through their research degree, they wanted more autonomy. As they developed in confidence, some PGRs began to view supervisory guidance as controlling. Research reports that as PGRs move through their research journey, they begin to see themselves as the expert in their subject rather than their supervisor (Doloriert et al. 2012). To continue to provide high support and guidance while allowing the PGR high autonomy is a difficult balancing act for postgraduate research supervisors. However, this combination fosters high self-efficacy (Overall et al. 2011). This emphasises the need for further exploration of power balances between supervisor and supervisee (Polkinghorne et al. 2023) to inform guidance for research supervisors in the UK.

The other overarching pressure point highlighted in Phase 1 was balance. Within this theme, feelings of isolation were frequently discussed. It is widely understood that postgraduate research can be lonely due to the solitary nature of the research. Research highlights that those who are isolated from their academic communities are at greater risk of mental health problems (Metcalfe 2018; Berry et al. 2021). Therefore, increasing social support was a priority of the design of the subsequent interventions, knowing there are several psychological benefits of increased support from academics (Hunter and Devine 2016; Levecque et al. 2017) and peers (Byrom et al. 2020; Jackman et al. 2022c). Building social networks is time consuming and

involves consistent effort, something the PGRs from the institution struggled to find the time to engage in, due to their high workload. Therefore, running the workshop interventions in a group format provided PGRs opportunities to build their social networks while taking part. From an ecological systems perspective (Bronfenbrenner 1992), this allowed the researcher to target the micro-system level of the individual's social environment simultaneously (Jackman et al. 2022a), experiencing multiple benefits.

Poor work-life balance was another main pressure point identified within this phase of the research, further exacerbating the issue of isolation. Recent data indicates that PGRs in the UK are working significantly more hours than their contracts stipulate (Cornell 2020), and that work-life balance is a central challenge. This was evident in the interviews with PGRs from the university studied, especially for those with professional or caring responsibilities. A poor work-life balance during postgraduate research degrees has been associated with adverse psychological outcomes (Peluso et al. 2011; Caesens et al. 2014; Levecque et al. 2017). Therefore, supporting PGRs in balancing their workload was expected to be protective of their mental health and wellbeing. This was a consideration of the subsequent project planning intervention, understanding the pressing need for support and practical advice in how to embed work-life balance in project plans.

In summary, from this phase of the research the pressure points and protective factors underpinning the mental health and wellbeing of PGRs within the institution were highlighted and summarised in Figure 8-1. These factors identified by the participants of Phase 1 were the focus of the intervention development in Phase 2.
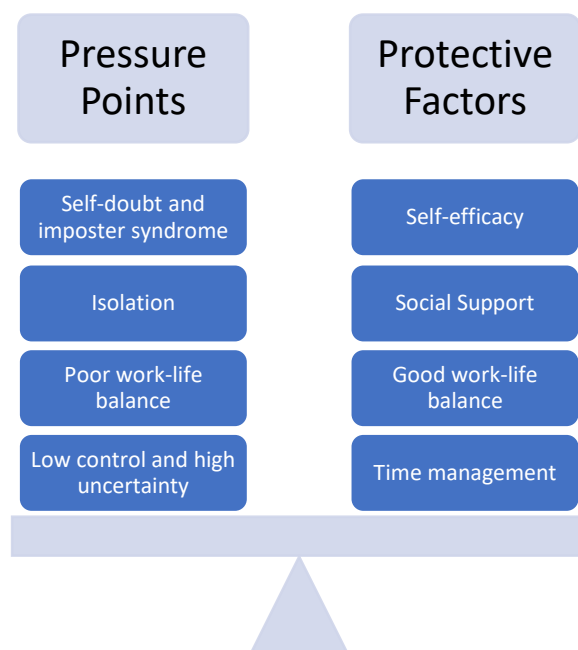
Figure 8-1   Pressure points and protective factors.

The qualitative data captured in Phase 1 illustrated the ways that PGRs cope with the stress of postgraduate research. From these findings, three preliminary intervention ideas were proposed, as illustrated in Figure.8-2
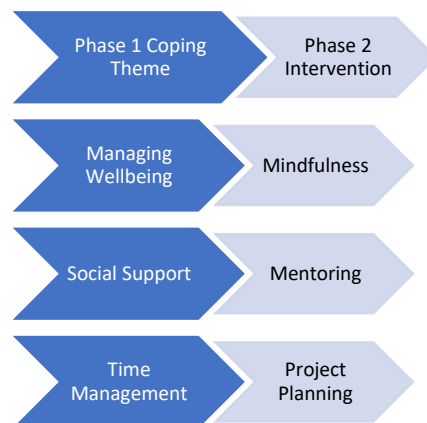
Figure 8-2   Interventions to promote adaptive coping

These intervention ideas were considered to have the potential to deliver change, with a sound rationale from the previous literature evidence presented in Chapter 2 and the research findings of Phase 1.

8.2.3   What are the most effective ways to increase the wellbeing and resilience of PGRs studying at the university?

Phase 2 was designated to exploring these initial intervention ideas with PGRs who had situated knowledge of the experience at the university. It was important that the voices of the PGRs were at the heart of the decisions made, to understand what interventions they deemed to be most effective, and best answer the research question.

The discussions in Phase 2 informed not only the choices of interventions but the content of the interventions, how they were advertised, implemented, and evaluated. Co-production has known benefits to the research, increasing the relevance and effectiveness (Gitlin 2013), but is also said to benefit the participants. Evidence suggests that participant involvement in research can increase feelings of self-worth (Slay and Stephens 2013). As Phase 1 highlighted, PGRs at the university reported experiencing self-doubt and a lack of control over their experience. Therefore, being given some control of shaping experience of PGRs at their university is likely to have benefited this group.

In relation to the research benefits, the discussions with the focus groups presented nuanced, sensitive, and perceptive insights from those positioned within the university. This data provided the researcher with alternative suggestions and innovative new ideas. Firstly, the perceptions the PGR focus groups had about the marketing of the interventions was integral to their design.

For example, they discussed how previous project management training had stifled their creative processes and made them feel inadequate. This shaped the design of the intervention, ensuring that the workshops embraced flexibility and adaptability. In addition, the insights from international PGRs presented issues in relation to wellbeing interventions, like mindfulness, and the associated stigma. This emphasises the importance of researchers and institutions further exploring culturally appropriate wellbeing support, to increase engagement from PGRs who come from a culture where mental health problems are seldom discussed, masked, or stigmatised.

Most importantly, the focus group's perceptions of peer mentoring changed the course of this research. Despite the success of previous peer mentorship interventions (Grant-Vallone and Ensher 2000; Lewinski et al. 2017), and the protective effect of peer support on PGRs' mental health and wellbeing (Byrom et al. 2020; Jackman et al. 2022c), the PGRs who took part in the focus groups heavily critiqued the idea of implementing a peer mentoring intervention. The respondents challenged the rationale of putting the onus on PGRs to support each other in the absence of additional support from the university. They had concerns about the time commitment and the burden of the role of peer mentor.

Although research around peer support in postgraduate research mostly advocates its effectiveness, it highlights challenges, such as over-reliance on mentors (Colvin and Ashman 2010) and time intensiveness (Grant-Vallone and Ensher 2000). The findings of Phase 1 confirmed that PGRs at the university had low wellbeing and resilience, struggling to maintain their own work-life balance. Therefore, the respondents of Phase 2 articulated that PGRs are unable to pour from an empty cup. This brings about concern when recent research has established that 81% PGRs are supporting their peers academically and emotionally (Loissel 2020). This is despite more than 61% of these respondents suffering with depression and low mood themselves (Loissel 2020). This organic peer support between PGRs is expected within universities and normalized, yet more than three quarters find it emotionally draining (Loissel et al. 2020).

It is important to consider that the timing of the study may have affected the results, with lockdown worsening the mental health and wellbeing of PGRs in the UK (Byrom and Metcalfe 2020). The pandemic increased demands on those giving and needing support, especially those with caring responsibilities (Loissel 2020). Loissel (2020) report that researchers were supporting individuals with increasingly complex needs such as mental health problems, suicidal thoughts, substance abuse, and eating disorders during that time. Despite the severity of these issues, over 50% of the individuals were not receiving professional support. This study highlights the pressing need for universities to provide training and recognition for the individuals who are

supporting others. This should include advice and signposting information, as the majority of respondents felt unsupported by their institution for the help they were providing others (Loissel et al. 2020). This was also a time where academics and university staff were experiencing increased stress and supporting students with increased mental health needs (Shen and Slater 2021).

At present, it is evident that a proportion of the practical and emotional support needs for PGRs is falling on other PGRs. It is crucial that there is further discussion and investigation into the impacts that these hidden, yet expected, responsibilities have on PGRs, emotionally and professionally. Further research is urgently needed for universities to make changes to practice. In summary, in reaction to the constructive discussions within the focus groups, the peer mentorship intervention was not pursued. The focus group members suggested an online peer forum to foster peer support in a less time-intensive, burdensome way than a formal peer mentorship programme.

8.2.4 What are the factors influencing the acceptability and implementation of interventions to promote wellbeing and resilience in PGRs?

The final phase of this research reported the findings of a feasibility study, piloting several small-scale interventions at the university and completing a comprehensive mixed methods evaluation. The aim of the interventions piloted in Phase 3 was to bolster the protective factors highlighted in Phase 1, increasing adaptive coping to buffer against poorer wellbeing. The evaluation focused on the feasibility of the novel pilot interventions, and what factors influences the acceptability or implementation of these initiatives.

Overall, the mentorship intervention was the best received by the participants with consistent attendance and low attrition rates. Mentoring within postgraduate research degrees is an established method of supporting PGRs psychosocial development. This been demonstratively effective, even when delivered online (Kumar and Johnson 2017). Despite known issues of understanding non-verbal communication and building trust using online communication methods (Ensher et al. 2003), the qualitative feedback from this intervention was encouraging. Participants reported that the mentoring sessions were effective in improving adaptive coping and self-efficacy, with additional benefits including improved self-reflection skills. However, the success of the intervention hinged on the facilitator, a principle academic and mental health professional, and the exceptional support he gave to the PGRs. It is also important to consider how time-intensive it is for an academic to be responsible for delivering workshops like these. In addition, it is established that PGRs are likely to experience poor mental health in comparison to other groups (Lau and Pretorius 2019), therefore, may have complex needs. If an academic

were expected to deliver this kind of one-on-one psychosocial support for PGRs then it is imperative that they are given adequate support. They should be given guidance from the university, be in contact with the university's counselling services for signposting, and for it to be effectively work-load planned.

The success of such interventions is also reliant on the characteristics of the group of PGRs and their interactions with each other. Within this pilot trial, the group benefited from the social support they garnered from their other team members. The format of the workshops and how the mentor encouraged and supported interaction between peers contributed to the success. This, in turn, widened the PGRs' social networks at the university and gave them access to social support from outside of their supervisory team at a time during lockdown, when they needed this additional social contact. Therefore, it is difficult to estimate the success of the intervention were it to be replicated in a different group of individuals or within a different context or point in time.

The mindfulness intervention, on the other hand, had the poorest recruitment and attendance rates, despite having a strong evidence base to support its effectiveness in improving student mental health and resilience (Dawson et al. 2019; Worsley et al. 2020). An experimental longitudinal study by Galante and colleagues (Galante et al. 2016; Galante et al. 2018; Galante et al. 2021) demonstrated how mindfulness interventions were a feasible and effective mechanism to support good mental health within students. The study involved 616 undergraduate students and demonstrated reduced psychological distress and higher resilience in the mindfulness group during exam periods in comparison to a control group. This research provides evidence that mindfulness may be effective component of overall student mental health strategy in the UK.

Likewise, Barry and colleagues presented the results of a mindfulness-based intervention conducted with PGRs in Australian universities to promote mental health and wellbeing (Barry et al. 2019). This was a methodologically robust multi-phased study that first involved an assessment phase, defining and understanding the problem within their specific population of PGRs (Barry et al. 2018). Further than reducing stress or distress, the findings demonstrated significant increases in positive psychological resources such as resilience, hope, and self-efficacy (Barry et al. 2019).

In this study, the mindfulness intervention was instructor-led and delivered in an online group setting, expected to be of further benefit with one-to-one guidance and social support from peers. However, despite positive feedback from the participants, attendance was poor and dwindled throughout the mindfulness course. One explanation could be the timing of the study

during the height of the COVID-19 pandemic, where PGRs were likely experiencing poorer mental health (Byrom and Metcalfe 2020). The ability and capacity to engage in self-care, such as mindfulness practice, during lockdown may have been limited. For instance, some participants reported struggling to access to a quiet space to practice their mindfulness activities due to living in shared accommodation or alongside home-schooling.

Recruitment was also a challenge with the mindfulness intervention, perhaps due to the negative connotations related to the practice. Firstly, mindfulness is becoming increasingly commercialised in the UK and the West. As mindfulness increases in popularity, there is the risk of the practice being commercialised. A recent systematic review identified 605 available apps based on mindfulness practice, yet only seven had been tested for efficacy in randomised controlled trials. Within this, the majority of apps were deemed low quality (Schultchen et al. 2021).

Jon Kabat-Zinn, an influential academic responsible for implementing mindfulness in stress research, labelled this cultural transition of mindfulness "McMindfulness" (Kabat-Zinn 2015). The commercialisation of mindfulness practice in the West may contribute to the negative connotations that some participants associated with mindfulness interventions. In addition, the cross-cultural transition of mindfulness and extraction of techniques from its original Buddhist context dilutes the meaning (Hyland 2017). This westernised form of mindfulness practice is frequently implemented in clinical settings and in research to improve mental health outcomes, including in HE (Worsley et al. 2020), with significant benefits. (Kabat-Zinn 2015).

However, as Grossman (2011) argues, the need to measure the experience and benefits of mindfulness within research using psychometric scales is problematical and contradictory to the original teachings. With this transition to Western culture, mindfulness is considered a science of the mind and cognition. This positions mindfulness as a preventative treatment for mental health (Kirmayer 2015) dispersing the Buddhist context. Therefore, mindfulness practice now has associations with the treatment of mental health problems. As some international students that took part in Phase 2 highlighted, there may be a stigma relating to engaging in mindfulness practice. It was suggested that it could be seen as an admission of needing mental health support. Barry et al. (2019) reported sample bias in their intervention, skewed towards domestic Australian students. This provides further evidence that interventions directed at promoting mental health may not be appealing to those from certain cultural backgrounds. A recent systematic review indicates that racial and ethnic minority groups often express greater public or self-stigma in accessing mental health services than White American groups (Misra et al. 2021). In HE students, research reports mistrust of campus mental health services and culturally

based negative attitudes towards seeking therapy in students of colour (McSpadden 2022) and Asian students (Maeshima and Parent 2022).

Data from the OfS (2019) suggest that black full-time students who report a mental health condition have some of the lowest attainment and continuation rates at UK universities. Therefore, it is important that these cultural insights are considered and inform change in the provisions offered to support mental health at university. Further research is needed to understand how to tailor support services to be more culturally appropriate. By working with students from different cultural backgrounds, university mental health services and initiatives should strive to further understand external and personal perceptions of mental health stigma.

8.3   Methodological Limitations

It is important to highlight the limitations of this research, how this affects the implications of the findings, and identify where future research can expand. Firstly, it is important to note that the way the survey in Phase 1 was administered renders it vulnerable to bias. Although almost all cross-sectional studies using self-selected samples are prone to this (Henderson and Page 2007), it can be more problematic in research relating to mental health and wellbeing. The over-representation of those with poor mental health in these types of research is well documented. Studies that use mental health related terminology within their online recruitment strategies are more likely to recruit respondents that score higher on clinical measures of wellbeing, stress, distress, depression, and anxiety (Batterham 2014; Choi et al. 2017). In Phase 1, the survey title included the word wellbeing. Due to the connotations of mental health and wellbeing, the study may have attracted PGRs from the university with poorer mental health. Therefore, this may have caused a deviation in the resilience and wellbeing scores.

Recruitment bias for mental research is further complicated by stigma or fear of negative repercussions of self-disclosure (Sanchez et al. 2020). This is known to be more of a concern in male students (Sagar-Ouriaghli et al. 2020). This research documents how male students are less likely to seek support for mental health and hold more negative attitudes towards the use of psychological services. Each phase of this research attracted more female than male PGRs. In mental health research, samples that are recruited from social media tend to have an overrepresentation of younger females (Batterham 2014). Research has indicated males are less likely to take part in research that has mental health connotations (Choi et al. 2017).

To improve the recruitment rates of males within mental health research, the complex barriers require further investigation (Ryan et al. 2019). In particular, researchers and universities should consider the effectiveness of their advertising strategies and the suitability of mental health initiatives for male students (Sagar-Ouriaghli et al. 2020). Choi et al. (2017) demonstrated how

males are more likely to respond to adverts using terminology relating to happiness and psychological strength in comparison to adverts using negative terminology. Likewise, the current research highlighted important issues of mental health stigma in international students. This too requires further investigation.

The aim of a cross-sectional study is to obtain a representative sample by taking a cross section of a population to find the prevalence of an outcome of interest. In the case of this research this was PGRs studying at one UK university and the prevalence of low wellbeing. However, it is very important to consider the results within the context of the university geographically. The institution that was focused on within this research is situated in an affluent area in the South of England. Inequities have been demonstrated in the postgraduate research student experience in the UK (Arday 2018; Mateos-González and Wakeling 2022) with first-generation students and those from ethnic minority backgrounds disproportionately experiencing mental health problems and difficulties transitioning into postgraduate research. Although this was not discussed explicitly by the participants in this study, it is an important consideration and an issue that requires further research exploration.

In addition, the results of a single cross-sectional study conducted at one time point should be generalised with caution. These types of studies provide a snapshot of the phenomenon at that specific point in time and are therefore limited. This means that the wellbeing of PGRs may have been different if this phase was conducted at a different time. Due to the length of time surpassed between Phase 1 and Phase 3, there is the risk that the prevalence may have changed or worsened, especially with the COVID-19 pandemic coinciding with Phase 2. The researcher highlighted the lack of longitudinal studies within the body of existing literature. Unfortunately, it was not feasible to collect longitudinal data during this PhD research due to time limitations. Acknowledging that this research was unable to fill this gap, there remains the need for research to span across the course of postgraduate research, to gain an understanding of the whole journey.

Phase 2 of this research project was about to begin as the pandemic hit, and lockdown began on the 23 March 2020. Considering the challenges PGRs were experiencing at this time, the researcher adapted the course of the research to react to the current events. There is a body of published research investigating the impact of COVID-19 on PGRs studying in the UK (Byrom 2020; Goldstone and Zhang 2021; Jackman et al. 2022b). Although these studies reported poor mental health and wellbeing during this time, it is unknown whether the observations were specific to COVID-19 as they did not compare to pre-pandemic data.

Research from around the world indicate high levels of stress, anxiety, and mental health problems were prevalent amongst PGRs pre-pandemic (Pranger et al. 2014; Levecque et al. 2017; Barry et al. 2018; Marais et al. 2018; Sverdlik et al. 2018). UK-specific studies undertaken before the pandemic reported low wellbeing, resilience, and imposter syndrome (Byrom et al. 2020; Berry et al. 2021; Hazell et al. 2021b; Milicev et al. 2021; Casey et al. 2022). However, research focusing on the effects of the pandemic reported that 50% of PGRs studying in the UK felt less connected to their peers during the pandemic (Goldstone and Zhang 2021). This was experienced more acutely by disabled students and those with caring responsibilities.

In addition, Byrom and Metcalfe (2020) identified that the decreased ability to conduct research work created increased stress for PGRs. Therefore, it could be suggested that the pandemic worsened existing issues. This likely affected the opinions and beliefs of the focus group members in Phase 2, and subsequently the development of the co-produced interventions. It can be assumed that this changed the course of the research, and that PGRs may have had different support needs pre- or post-pandemic. However, taking the body of evidence gathered in the literature review into account, the factors underpinning the mental health and wellbeing appear to be salient, transcending the pandemic.

Conducting the interventions during the pandemic meant that the interventions had to be run online, rather than face-to-face. This may have reduced the effectiveness of the interventions, which were ultimately designed to increase social support for PGRs. Although online methods of communication provided by the university gave opportunities for digital connection with peers and supervisors (Byrom 2020), these also presented challenges for some students due to problems with network connections or lack of facilities (Fathoni and Retnawati 2021; Khuluqo et al. 2021) or a quiet study environment (Fathoni and Retnawati 2021).

The secondary aim of the interventions was to encourage peer networking and peer support as reduced direct interaction between fellow students during the pandemic had negative psychological consequences (Fathoni and Retnawati 2021). Despite efforts from the intervention facilitators to foster peer support, participants discussed how it was challenging to engage with others without non-verbal communication, making the activities feel solitary at times. It could be argued that with the passing of time, PGRs may have become more used to socialising via online methods, reducing this barrier. Also, it is well-documented that for many PGRs, especially those living away from campus or with caring responsibilities, online social support provisions are beneficial (Byrom 2020). Many UK universities continue to offer support to PGRs through online or hybrid methods beyond the pandemic, realising the benefits this has for certain groups of students, increasing accessibility.

Intervention studies are especially susceptible to selection bias unless efforts are made to minimise it. The most effective method to minimise bias is by randomly allocating participants to treatment and control groups. However, no control group was used within this feasibility study, nor are they commonly used in preliminary testing of interventions (Craig et al. 2011; Eldridge et al. 2016). Participants had the choice of registering to whichever workshops they were interested in attending, introducing further bias. This allowed participants to choose wellbeing activities that most appealed to them but creates methodological limitations. As a result, the researcher is unable to make comparisons about the psychological benefits of each intervention. According to the MRC Framework for Developing and Evaluating Complex Interventions (Craig et al. 2008), randomisation is needed if there is the potential for exposure to the intervention may be influenced by other factors. Therefore, firm conclusions about the impact of the intervention cannot be drawn from this study without further exploration. Especially as the peer support forum was also running at the same time as the three workshop interventions, potentially contaminating the effects.

However, in line with MRC guidance (Craig et al. 2008), the purpose of feasibility studies is not to statistically test the effectiveness of interventions but to produce initial findings that may determine whether an intervention may be recommended for further testing (Bowen et al. 2009). Often preliminary data is collected within a convenience sample to give an indication of efficacy (Bowen et al. 2009), but not usually in comparison to a control group. The aim of this feasibility study was to further understand the challenges and barriers to implementing these intervention ideas within PGRs. The main purpose was to explore the acceptability, adherence, and demand of such interventions (Bowen et al. 2009; O'Cathain et al. 2019), rather than statistical significance.

It is important to note that since this study was conducted, the MRC has updated their widely used guidance for developing and evaluating complex interventions. Now, there is more specific direction available for this research process (Skivington et al. 2021). The MRC still advocate a multi-phase approach to intervention development, as adhered to in this study. However, they have introduced further considerations for researchers, such as how the intervention interacts with the context, how diverse stakeholder perspectives can be built into the research, and how the costs and resources balance with the outcomes. Integrating this new, more detailed framework will aid researchers' decisions and ask questions beyond just the efficacy and effectiveness of the interventions. This has the potential to assist researchers developing interventions that are more person-centred and relevant to the population and context (Skivington et al. 2021). This is advice is expected to continue to update and improve. It is

therefore important that this guidance is continually adhered to in future research, keeping abreast of developments.

Within this feasibility study, attrition was an issue, especially within the mindfulness intervention. Reviews have documented how mindfulness randomised controlled trials suffer from relatively high attrition rates, and a higher drop-out than control counterparts (Nam and Toneatto 2016). One explanation could be the time-intensive nature of mindfulness-based interventions in comparison to passive control activities. However, if there are systematic differences between people who remain in the study and those who have left, then this introduces bias. Especially in mental health research, those experiencing poorer wellbeing are more likely to leave randomised controlled trials (Nunan et al. 2018). It is unclear in this study why the participants did not continue the series of workshop as they did not complete the post-workshop survey. Therefore, this affects the reliability of the post-workshop survey results, as only those who engaged throughout completed the outcome measures. It is unknown whether the interventions had the same benefits for the engaged or non-engaged users. Those with poorer wellbeing are likely to benefit most from the mindfulness interventions (Galante et al. 2021), however, these individuals are most likely to attrite (Nunan et al. 2018). This is a consideration for future researchers, considering how to encourage the least engaged or those who did not complete the intervention to be involved in feedback and evaluation.

8.4   Implications and Recommendations

Despite the explicated limitations of these studies, this research provides several novel recommendations for future research and for practice. The thesis presents interventions that target both positive individual psychological resources and adaptive coping strategies and the academic community, offering suggestions to how initiatives can be designed to target multiple layers of a PGRs' ecological system (Bronfenbrenner 1992; Jackman et al. 2022a). The interventions were co-produced, capitalising on the situated knowledge of PGRs at the university to develop the most relevant interventions that have the scope to have demonstrable impact. The initiatives designed in this study were cost-effective, easy to implement, and could be adapted for any educational context. The findings from this multi-phase study provide practical recommendations for universities nationally and overseas. This thesis also describes in detail the challenges and barriers faced during the piloting of the interventions, offering key learning, and sharing best practice for other organisations.

A key theme throughout this thesis was the importance of peer support for PGR mental health and wellbeing, supporting previous research (Byrom et al. 2020; Casey et al. 2022; Jackman et al. 2022c). Data from Phase 1 cemented the importance of peer support as central to coping and

wellbeing, buffering the stresses of postgraduate research. Therefore, the initiatives implemented in Phase 3, especially the peer forum, focused on bolstering peer support for PGRs during lockdown and beyond. The three workshop interventions were also designed to be delivered in a group format to harness peer connections. Universities can foster academic communities and opportunities for organic peer-to-peer support, providing ways to encourage PGRs to build their own support networks. The advancement of online platforms has supported the provision of inclusive online support for those are less able to access face-to-face provisions. Peer support interventions are a low-cost, resourceful way for institutions to support the mental health and wellbeing of PGRs, with many reciprocal psychological benefits. Previous interventions reported benefits included reduced anxiety and isolation, and improved motivation, confidence, and sense of community (Lane and De Wilde 2018; Mason and Hickman 2019; Homer et al. 2021; Panayidou and Priest 2021).

However, as discussed in previous chapters, it is important that institutions consider the burden for those PGRs who are supporting others. This is especially pertinent in this group, as there is much evidence to suggest a high prevalence of poor mental health and wellbeing in the UK (Hazell et al. 2021b). Institutions who implement formal peer mentoring and peer support initiatives could consider this, providing training, support, and financial compensation for those who give their time to help others. To harness the benefits of organic peer support within universities, an academic culture needs to be created where staff and PGRs are permitted and encouraged to take time out of their work to build networks with their colleagues and peers and support each other.

Secondly, a key finding from Phase 1 was the impact of uncertainty and unmet expectations to the mental health and wellbeing of PGRs. In reaction to this, the project planning intervention was developed, to demystify the postgraduate research experience. This focused on supporting PGRs to implement realistic and measurable goals. This, in turn, increased PGRs feeling of control and self-efficacy. Doctoral Colleges can embed project planning skills training within their inductions or researcher development programmes to support students to manage uncertainty. This may support PGRs in managing their expectations of the postgraduate research journey, increasing feelings of control, and building self-belief. However, as discussed in previous chapters, it is important that project plans are personalised, flexible, and adaptable. Uncertainty is inherent in postgraduate research (Butler-Rees and Robinson 2020; Albertyn and Bennett 2021). Therefore, project planning tools should be malleable to changes throughout the degree, whether these are personal, or research related setbacks. The Doctoral College at this university continue to embed elements of the project planning intervention within their portfolio of researcher development training for their PGR students. The in-depth evaluation of this

intervention presented in Phase 3 shares the key benefits and setbacks of the intervention, from the perspective of the participants. Elements of this intervention could be scaled and adapted for delivery to PGRs from other educational contexts, nationally or internationally.

Although interventions developed in this research focused on increasing social support outside of supervision, the supervisory relationship was still a key theme throughout the research. Previous literature demonstrates the profound affect supervision can have on the mental health and wellbeing of PGRs (Peluso et al. 2011; Cornér et al. 2017; Levecque et al. 2017; Metcalfe 2018). This research, particularly the qualitative data collected in Phase 1, revealed nuances about supervisory relationships, the role that they play in expectation setting, and the issue of power balance. The PGRs discussed how some monitoring and guidance from supervisors can feel stifling, especially as they progress in their research degree and feel they are becoming experts in their studies (Polkinghorne et al. 2023). Research data indicates that a combination of high levels of supervisory support in combination with high autonomy creates the highest self-efficacy for PGRs (Overall et al. 2011). This is a balance supervisors need to create, supporting their PGRs whilst empowering them to be independent. Although the supervisory relationship depends on the individual, supervisors can use the UKCGE Good Supervisory Practice framework (Taylor 2019) as a hand-rail for best practice and stay abreast of contemporary research in this area. Universities should continue to embed these competencies in their training and support for postgraduate research supervisors.

The PGRs that took part in Phase 1 frequently discussed the need and expectation of more pastoral support from their academic supervisors. Supervisors are increasingly expected to offer emotional support for postgraduate researchers. The UKCGE Good Supervisory Practice Framework outlines the postgraduate research supervisor's responsibilities to include awareness of personal issues and signposting to support services (Taylor 2019). Much research positions supervisory relationships as a leading factor in the development of poor mental health in PGRs (Peluso et al. 2011; Cornér et al. 2017; Levecque et al. 2017; Metcalfe 2018). However, if supervisors are increasingly expected to take more of pastoral role with increasing demands for mental health support for students, support for supervisors could also be bolstered. Academic staff experienced poor mental health and wellbeing during the pandemic (Shen and Slater 2021), with six out of 10 academics in the UK reporting psychological distress during this period (Wray and Kinman 2022). The issue of poor student and staff wellbeing in HE continues beyond the pandemic, in an interdependent relationship. With increasing PGR mental health problems, the demands on supervisors increase, causing psychological distress (Wang 2022).

Research from Australia highlights that supervisors believe they give more guidance than PGRs perceive that they receive (Cardilini et al. 2022). Also, this study reported that supervisors often

only provided further guidance when the PGR explicitly asked (Cardilini et al. 2022). It is therefore important that the onus is not put solely on the supervisor, but the PGR takes responsibility of discussing needs and expectations with their supervisor from the outset (Cardilini et al. 2022). This could reduce the detrimental psychological impact of mismatched expectations between PGRs and their supervisors (Pyhältö et al. 2012b), allowing the supervisor to adopt a supervisory style that is appropriate for the individual PGR (Polkinghorne et al. 2022). The project planning intervention focused on maximising supervisory relationship, so offers recommendations on how PGRs can be encouraged to take the lead in building effective working relationships.

The mentoring intervention in Phase 3 was delivered by an academic outside of the PGRs' supervisory teams. These workshops were well-attended and positively received. The participants identified the positives of having support from another academic, focusing on pastoral support. With funding and workload limitations in mind, there may be scope for universities to consider the structure of supervisory teams to include a pastoral advisor within the team. Alternatively, further training and support for postgraduate research administrators, doctoral college, or wellbeing support staff on the mental health and wellbeing of PGRs is likely to be beneficial (Metcalfe et al. 2020). Strengthening the capability of these individuals so that they are better able to support PGRs may be instrumental to PGR mental health and wellbeing, whilst reducing the burden on postgraduate research supervisors to provide pastoral support.

8.4.1 Recommendations for Future Research

The UK continues to spearhead the issue of PGR mental health and wellbeing in research since the Catalyst funding call in 2018 (Metcalfe 2018). Funding recipients continue to publish research in this area (Berry et al. 2021; Hazell et al. 2021b; Jackman et al. 2022c), along with further researchers who received funding through the Student Mental Health Research Network (Byrom et al. 2020; Jackman et al. 2022c), and PhD researchers who are focusing on the issue (Milicev et al. 2021; Casey et al. 2022).

However, despite few exceptions (Gooding et al. 2023), this body of research evidence comprises of mostly cross-sectional, observational studies, providing one snap-shot in time. The methodologies used in the current body of published work makes it difficult to understand how the mental health and wellbeing fluctuates and varies throughout the research degree journey (Schmidt and Hansson 2018; Scott and Takarangi 2019; Jackman et al. 2021a). It is Important that as the research area grows, researchers use consistent measures so that their data can be amalgamated within meta-analyses (Barkham et al. 2019; Hazell et al. 2020) and consider longitudinal measurements. To achieve robust prevalence rates of student mental health across

the UK, researchers should engage and collaborate with university counselling services within their institutions and beyond (Barkham et al. 2019), progressing towards developing a national data set of student mental health data (Broglia et al. 2021b).

The findings from the current research also touched upon complex issues that were not investigated further within this thesis. These avenues present future directions for research. For instance, the experience of identity formation, the student-staff hybrid role, and the balance between supervisory support and PGRs' need for autonomy. These issues require further investigation within qualitative research; providing understanding of how supervisors can most effectively support their PGRs as they develop into autonomous researchers (Polkinghorne et al. 2023).

The first phase of this research also highlighted specific emotional and practical difficulties experienced by disabled and neurodiverse individuals studying at the university. Further understanding of intersectionality within postgraduate research and how these interplay with mental health and wellbeing is imperative. Likewise, further investigation is required to understand the fear of stigma of international students in engaging in wellbeing activities, such as the interventions presented in Phase 3. Research suggests fear of stigma and mistrust of student mental health services is experienced by international students (Misra et al. 2021; Maeshima and Parent 2022; McSpadden 2022). Qualitative research and co-production are crucial in the development culturally appropriate mental health interventions for international PGRs studying in the UK. This is an area that warrants further exploration.

8.5   Contribution to knowledge

Until recently, there was a dearth of research that focused on the experience of PGRs studying in the UK and how this affected mental health and wellbeing. Phase 1 of this project added to the growing body of evidence that has rapidly increased since the Catalyst funding call (Metcalfe 2018). By using quantitative methods consistent to previous research, this project contributes to the existing evidence base of research around mental health and wellbeing of PGRs (Metcalfe et al. 2020; Watson and Turnpenny 2022), allowing comparisons to be made and providing the scope for future analysis. In addition, the inclusion of qualitative data within this study provided unique insights, presenting a nuanced, detailed description of the experience of the transition to postgraduate research, and the whole research journey.

Although several small-scale interventions have been trialled within this context, Phase 2 presents original contributions to knowledge by co-producing novel wellbeing interventions with PGRs. This thesis took a collaborative approach to intervention development, ensuring that feasible, practical, and affordable interventions that were relevant to the population were

created. The positive outcomes of this project provides further evidence of the importance of co-production with students (Piper 2019), empowering PGRs to be a part of the change and feel their voices are heard. In addition, contrary to other research that is usually conducted by later career academics, this study was conducted by a PGR, with PGRs, capitalising on the situated knowledge of those who were going through this experience.

In the final phase of the research, four novel interventions were piloted to address the issue of poor mental health and wellbeing in PGRs. The initiatives were designed to promote the wellbeing and resilience of PGRs at the university. The comprehensive mixed methods evaluation of these initiatives provides new understanding. The transparent and honest reporting of the challenges experienced, feasibility data, and in-depth qualitative feedback presents valuable insights for other researchers (Van Teijlingen and Hundley 2002), advancing knowledge.

The findings of this research have had an impact on culture and policy at the institution in relation to postgraduate research. At the organisational level, the researcher has continually disseminated findings of the research across faculties and continually discusses the results within new PGR inductions and supervisory training. The Doctoral College have welcomed recommendations from the research and have begun to embed university-wide changes in reaction to the findings. In addition, at the community level, the peer forum created in Phase 3 remains live, positively impacting the experience of PGRs at the university. The researcher recently received funding from the university to refresh the content and create more resources, providing financial reward for PGRs who give their time to share their experiences through the videos and podcasts. This resource continues to support PGRs, especially in the transition to the postgraduate research degree, to connect with their peers and feel a sense of belonging.

This research focuses on a single university, and the demographic make-up of the PGR body is unique to the geographic location and position of the institution. However, the themes likely apply nationally and internationally. There are many parallels that can be drawn between the experiences of the students at this university that can be applied across HE contexts. Beyond the university, the researcher has begun to disseminate the findings through academic publications (Casey et al. 2022) and conferences. The work was shared at the most recent UKCGE International Conference on the Mental Health and Wellbeing of Postgraduate Researchers, reaching HE professionals, academic staff, and supervisors from universities around the world, and was positively received.

This research presents a case study of intervention development and testing, sharing the successes, limitations, and barriers of implementing wellbeing initiatives for PGRs to support

their mental health. The findings from this process can be adopted and built upon in future research, to proceed towards building mentally healthy and successful postgraduate research communities nationally and internationally.

Chapter 9 Epilogue

"The best research you can do is talk to people" -Terry Pratchett

9.1   Chapter Overview

In the Prologue I outlined my position as a researcher and my experience as a PGR researching the experience of PGRs. This provided important context for the reader to understand my journey and the journey of the research. The two reflective chapters presented in this thesis began as an unstructured personal reflexive research diary. However, I have developed this diary to provide an account of my personal experience as a PhD student over the past five years, which included one year's maternity leave. My personal reflection began in Chapter 1, with "Where I started". The Prologue documented how I came to start my doctoral degree, at the precipice of the research evidence relating to PGR mental health and wellbeing in the UK.

Within the Prologue I discussed my position as a first-generation student, juggling family life, and how these intersectional factors shaped my postgraduate research experience. I discussed the development of my interventions and how these were derived from my earlier conversations with my peers about the ways they coped with stress. In this chapter, I revisit this personal reflection at the end of my thesis, discussing "Where I Am Now", where I outline how my research developed, how I grew as a researcher, and my transition from student to academic.

9.2   Where I am now

I started writing this thesis as a PGR, I finish writing as a lecturer and academic member of staff at my university. I started with one child and end this journey as a mother of two. I have grown and developed immeasurably in confidence and capacity, personally and professionally, during this journey. I had a fantastic PhD experience and loved every minute of my research. I was surrounded by boundless support from my supervisors and colleagues and am proud of what I have achieved.

However, this process was never supposed to take me five years to complete. I started on my three-year studentship, meticulously planning my multi-phase project, convinced I would be finishing on time. I was also concerned about how not completing on time would reflect on me. I needed to prove that I was good enough to be here. However, as time went on, and I experienced inevitable setbacks, I became better at accepting that plans change. I learnt to be adaptable, flexible, and more resilient to the challenges that arose. I never planned to have a baby during my PhD, and I never imagined it would coincide with a global pandemic. As time went on, I embraced the change and detours and became more capable of going back to the drawing board and re-planning my route.

This is something that everyone learns during their PhD, but I feel this needs to be more explicit from the start. I always returned to my project planning techniques to cope when things veered off course, however, over time I developed a sense of self compassion and adaptability when things went wrong. This sentiment is what we wanted to share with other PGRs within our project planning workshops: to plan and optimise your time, but with self-care and forgiveness. As I discovered in my findings, PGRs feel a sense of guilt when their research goals are not met and tend to internalise this as a personal failure. We need to encourage PGRs to disentangle their sense of self from their academic outputs and develop strategies to cope more positively to setbacks and failures as they move forward in their academic careers.

As mentioned, I encountered many personal challenges, through COVID-19 and beyond. However, I am yet to meet someone who's research went perfectly to plan. I dealt with significant stress and grief during my PhD. I experienced anxiety and low mood in pregnancy and after childbirth, intensified by national lockdowns. My husband has been deployed abroad, for six months at a time, four times during this period. The loss of two close friends to breast cancer within a year of each other is one of the hardest things I have ever had to process. These events coincided with my PhD, but it was never the research itself that impacted my mental health. Often, it is what is happening in the periphery of people's lives that have the biggest impact on progression and productivity during postgraduate research. In my case, I felt that my work promoted my wellbeing, giving me a purpose and something positive to focus on. Throughout these challenging times I was supported by my colleagues and supervisors. I was also inspired by my peers as they shared with me their deeply personal problems and how they overcame them.

The specific, nuanced, challenges, whether personal or professional, that have been outlined within this thesis highlight the disparity between the undergraduate student experience and that of PGRs. Thanks to the increase in research interest and an influx of funding, this is now being acknowledged within UK HE. Universities are recognising the need for tailored support for their postgraduate research student body. The evidence-base around the mental health and wellbeing of PGRs studying in the UK has developed rapidly during this time.

When I started my PhD in 2018, there was a scarcity of research focusing on the wellbeing of PGRs. Now, if you type "the mental health and wellbeing of postgraduate researchers" into a Google search, many thousands of results appear. In 2022, Dr Zoe Ayres released her hugely popular book, Managing Your Mental Health During Your PhD: A Survival Guide (Ayres 2022), in which my published research was mentioned. The Catalyst and SMaRteN funding have provided a platform for advances in research in this area. Along with significant attention from sector

organisations such as the UKCGE and Student Minds, PGR mental health and wellbeing remains at the forefront of conversations in UK HE.

However, with the publication of the final evaluation of Catalyst-funded research (Metcalfe et al. 2020) and the SMaRteN Network reaching the end of the funding period, we cannot allow this issue to fall down the agenda. Thanks to sustained efforts from our Doctoral College, PGR mental health and wellbeing remains a key priority within our institution. The Doctoral College, who sponsored my research, have made significant advances in their provision of targeted training and support for PGRs based on the knowledge generated through this project. The university have provided further funding, allowing me to continue to run the peer forum and expand the initiatives I piloted within my feasibility study. They continue to embed my findings in their training provisions for new starters and postgraduate research supervisors.

Internally, the Doctoral College engage with all faculties, departments, research centres, the chaplaincy, and wellbeing services across the institution to ensure that PGR mental health and wellbeing is considered and remains of equal importance to that of undergraduate students. Externally, the team at our Doctoral College are research active. The Heads of the Doctoral College are engaged in education research and share best practice through peer-reviewed publications (Casey et al. 2022; Polkinghorne et al. 2022; Polkinghorne et al. 2023) and national and international conferences. We aim to continue to work as a team to write up chapters from my thesis as publications, sharing what we have learnt from my interventions and how the findings could be applied to other educational contexts.

As we reflect on this research as a supervisory team, we agreed that the qualitative findings were the heart of the project. I feel like I have learnt the most from talking to the students at our institution about their experiences. When I started this research, it was ingrained in me from my previous quantitative work to be concerned about my position as an insider and how this introduced a potential bias. I viewed my reflexive diary, at first, as a tick-box exercise as part of my audit trail and I did not intend to share it.

However, as my research has unfolded, I realised that my positionality was not a flaw, but an asset that could be harnessed. Research into student mental health and wellbeing is rarely undertaken by students (Piper 2019), however, being a student myself meant that I was able to ask relevant questions and relate to the PGR experience more than a more senior academic would. I feel that there would not have been the openness, honesty, and frankness if I were not someone they related to. My own experience as a PGR was the fuel that drove me. The fact that the findings resonated with me so much was the passion that kept me going during the long process of analysis and reporting of results. Therefore, as I was writing up, I knew it was

important to share my self-reflection within my thesis, even though it is still something that makes me feel uncomfortable and contradicts with everything I knew about academic writing before I started. I also realised, if I am to share the personal experiences of others, although anonymous, I should be brave enough to share my own experiences and how this affected my research.

Through this process, I have grown immensely as a researcher, and I have Professor Virginia Braun and Dr Victoria Clark to thank for my awakening as a qualitative researcher. I started my qualitative research using Braun and Clarke's earlier framework for Thematic Analysis (2006). Since, they have built upon their guidance, introducing Reflexive Thematic Analysis (Clarke and Braun 2021). This updated advice emphasises the value of researcher subjectivity and reflexivity, and the importance of critical questioning and awareness of positionality. This led me to question my beliefs as a researcher, and I learnt so much from the critical self-reflection it encouraged me to process. As the guidance has become clearer, I feel more clarity about my role as a researcher and how I integrate qualitative data in my work.

As I still find my way as an early career researcher, I consider my PhD as my apprenticeship in research. I have learnt that qualitative research is not a science, and nor should it be treated as such; it is an art. As my understanding deepened, I realise that the researchers' subjectivity is not something that should be controlled or limited. Although I have developed the ability to conduct stronger, richer, deeper, and more thoughtful interpretations of qualitative data, I am still learning. I take forward what I have learnt about the value of qualitative research methods and the importance of co-production to any future projects, but I continue developing my identity as a researcher and figuring out where I sit on the spectrum as a mixed methods researcher.

This is something I still grapple with. In my Methodology chapter, I justify my reason for switching between ontological stances throughout my research, aligning with pragmatist views, such as the reality cycle. However, I remain unsure whether mental health and wellbeing is something that can be measured quantitatively. Our perception of our own wellbeing is a product of social construction that I feel needs qualitative exploration and an appreciation of the complexity (Smith and Reid 2018). Merely collecting averages of wellbeing across large samples ignores the social and environmental determinants of wellbeing and the importance of these contextual factors. How can we use average wellbeing scores from large groups to improve people's experiences without knowledge of their lives?

Going through this identity confusion was integral to my PhD journey, and I continue to learn and grow as I begin my research career. It is thought that a PhD is as much about identity

formation as it is about producing research (Jazvac-Martek 2009; Foot et al. 2014). Transitioning to postgraduate research is a notoriously difficult adjustment (Naylor et al. 2018). The change from taught degrees to the unstructured research degree is characterised by high stress and uncertainty (Adorno et al. 2015), but it is also a transformative process (Hockey and Allen-Collinson 2005; Baker and Pifer 2011). This identity development is made more difficult due to the ambiguity of the role of the PGR student. Often PGRs find themselves oscillating between student and academic role identities (Jazvac-Martek 2009; McAlpine et al. 2009; Adorno et al. 2015). PGRs are regularly relied on for support with teaching or marking at UK universities. Such work has also been reportedly unpaid in some institutions. This presents the additional challenge of balancing teaching duties with research. Secondary, this causes further uncertainty about identity.

This dual role as a PGR is something I found particularly confusing at the start of my research degree. At our university, you have a student and a staff email address, access to the staff intranet, and are invited to staff development events. These efforts from the university encourage PGRs to feel a part of the wider academic community but cause confusion for many PGRs. As a studentship recipient, I had a contract with the university, received monthly payments, and felt that I was valuable to the institution. I received a funded extension from my university due to my maternity leave, supporting me financially during the interruption to my studies. However, there are limitations of the student status, in terms of working benefits, that represents how the work of PGRs is viewed by society. For example, in the UK, the government currently provide 30-hours funded childcare for working parents when their child reaches the age of three. Currently, PGRs, even those who are recipients of stipends, are not considered to be working in the eyes of our government, so are not entitled to such benefits. However, the government have announced an expansion of this scheme, entitling individuals to this benefit regardless of employment status and family circumstances, in the coming years.

It is these longstanding issues that underpin the University and College Union's (UCU) manifesto on recognising PGRs as staff, a policy that the trade union has been vehemently campaigning for since 2020. The UCU argue that research is labour, and PGRs should be treated as staff members at university. They believe that it is unacceptable for PGRs to be doing the work of academics without access to pensions, parental or adoption leave, sick leave, funded childcare, and other protections (University and College Union 2023). It is well established that the working conditions and financial implications of postgraduate research degrees contribute to poor mental health. In addition, feeling a part of an academic community is beneficial to wellbeing. If universities were to align with the UCU's manifesto, allowing PGRs to fully participate in the

university community and provide comparable working benefits to staff, this would decrease uncertainty and could promote financial stability and wellbeing.

During my research degree programme, I was lucky enough to be offered paid teaching opportunities by my university. This enabled me to supplement my salary towards the end of my studies and gain hands-on teaching experience in HE as a part-time lecturer, with training and support from our Centre for Fusion Learning, Innovation and Excellence. Building my track record of teaching experience, with support and mentorship from my senior colleagues, meant I was successful in applying for a full-time, permanent academic position from July 2022.

This was a catalyst for a second identity overhaul, transitioning from PGR to academic. During this transition, I hit the ground running, and the change of pace is something you could never be prepared for. After doing my master's and postgraduate research at the university, becoming a lecturer was like finally seeing backstage. I soon realised there was a vast amount of hidden administrative work that went on behind the scenes. A recent Higher Education Policy Institute report suggests that mental ill-health among university academic staff is escalating, due to high workloads, unclear career pathways, and performance metrics (Morrish 2019). Critically interlinked with academic mental health and wellbeing is research culture. The Wellcome Trust's survey of academic staff, *What Researchers Think About the Culture They Work In*, tackles this subject (Wellcome Trust 2020). The report concludes that poor research culture is contributing to stress, anxiety, mental health problems in staff.

This culture permeates from the top-down. I learnt first-hand that PGR and staff mental health are symbiotic. With the increasing mental health needs of our student body, there is an increasing demand for us to support those needs. The onus is put on academics and supervisors of university students to offer pastoral support to students, but what about our own mental health needs? When I first became a lecturer, I was the most stressed I have ever been, juggling this new, intellectually challenging role and my PhD work, with a husband on deployment and moving house on my own with two children. Despite this, I gave all the time and energy I possibly could to supporting my students. Looking back, I realise that I sacrificed my own research progress and my wellbeing. The education side of my role bled into my evenings and weekends and ate up my work time. As I reflect and grow as an academic, approaching my second academic year as a lecturer, I am learning to input healthy boundaries that work for me, and protect my time. Academics and supervisors have the responsibility of leading by example for work-life balance for their PGRs, dispelling the culture of overwork in academia and breaking the cycle. I now view prioritising myself and my wellbeing as a benefit to my students, being a role model for them.

Like PGRs, academics also have multifaceted lives and multiple responsibilities. Add writing up a thesis into the mix and you have a recipe for burnout for staff PGRs. These individuals experience all the stressors PGRs face, plus the demands of being an academic. Teaching activities and departmental responsibilities limit the time staff PGRs have available to engage in peer support and wellbeing activities. The expectations on staff PGRs are huge and often unrealistic considering the amount of administration and pastoral support they are required to carry out outside of their workload plans. To find the time and space outside of the academic role to write intensely, as the PhD requires, often feels impossible within the academic year. Staff members I have spoken to during my research have reported using their annual leave to spend time working on their PhD, seldom taking time away from work.

I have found it increasingly difficult to engage in my PGR cohort since becoming an academic staff member, meaning I feel like I have lost the sense of community I once shared with my peers. However, juggling work, PhD, and home life was far easier thanks to my supportive and accommodating supervisory team. In addition, I belong to a Department led by someone who is inclusive, compassionate, understanding, and family-focused. We have a close-knit community and often celebrate the end of our semesters on the beach, playing frisbee with our students and our families. Unfortunately, what I have learnt that this is not the experience across all universities, faculties, or departments.

Across the UK HE landscape, working outside of working hours is normalised. The expectations of after-hours emails, weekend open days, and attending conferences that involve travel are very difficult to manage with two children, especially when living without the other parent. Just recently I was accepted to present my work at a conference on mental health in HE. However, when it was announced that the conference was to be held in the North of England, and with my husband called away on deployment, it was not possible for me to attend in-person. When I requested if I could present my work online, they responded that there was no provision for virtual presentations, and I was to be withdrawn from the programme. This is just one example of the elitism, exclusivism, ableism in academia that makes it more difficult for those with overlapping intersectional factors to progress with their career.

This is a gender issue. Unfortunately, women in our society are often shouldering the burden of childcare. This was evident in the COVID-19 pandemic and was reflected in the research outputs of female academics (Ribarovska et al. 2021). This is further intensified in a military family. Military operations do not adhere to the societal norms of school holidays and teacher-training days, so the responsibility falls on the non-serving partner. Non-serving partners are often women, and experience barriers to their career progression (Gribble et al. 2019), impacting confidence and self-esteem. I, like many non-serving partners, am unable to rely on my husband

to support with childcare at any time of the year, due to rotations of deployments, unpredictable working hours, and being on notice to deploy at any time. This is another systemic issue that needs to be addressed from the top-down. There have been advances in policy, such as the offering of free before- and after-school childcare for children of those serving in the UK Armed Forces. However, this is dependent on accessibility and availability in local areas (some schools have waiting lists many years long, as I discovered first hand). Despite the changing family dynamics in our society, female non-serving partners are left behind in a patriarchal era where the man's career is paramount, and the responsibilities of home and family life are not shared fairly.

It is these layers of disadvantage, how they intersect, and how this contributes to mental health in academia that requires further investigation. To negate this, universities could aim to work with students across the spectrum of genders, ethnicities, and domiciles to make sure all voices are heard in policy decision making. Giving PGRs a seat at the table in conversations about their wellbeing is essential. Capturing their diverse views and harnessing their situated experiences will ensure the development of more effective and relevant support provisions. This is the first step towards developing interventions that work for those from under-represented cultural backgrounds, first generation students, students living with disabilities, mature students, LGBTIQA+ students, and those with caring responsibilities.

Attempting to create effective wellbeing interventions certainly challenged my own assumptions. I aimed to be as open-minded as possible, consulting PGRs at all stages of my research, formally or informally. However, I now realise I pushed through with the idea of a mindfulness-based intervention despite warning from other PGRs. Of course, I listened to their concerns in Phase 2, where they discussed cultural differences in the acceptance of mindfulness and hesitancy to partake in such activities, but from everything I had read, mindfulness had tangible, demonstrable, significant psychological benefits for HE students (Galante et al. 2016; Galante et al. 2018; Galante et al. 2021) and in PGRs studying in Australia (Barry et al. 2019). Therefore, I decided to take the intervention idea to piloting. However, the PGRs' initial concerns were warranted, and the intervention proved to be unpopular. Perhaps the rise of low-quality commercialised mindfulness apps in more recent years had diluted PGRs' perception of the effectiveness of mindfulness (Schultchen et al. 2021), or the cultural issues of self-stigma contributed to the low recruitment rates. (Misra et al. 2021). Either way, I have learnt never to assume that what worked for one group would work for another.

Mental health and wellbeing support should be varied, diverse, and inclusive for PGRs from every intersection in our society. As outlined throughout this thesis, the wellbeing of those undertaking postgraduate research is integral. The work of these individuals represents a large

proportion of the research activity of UK universities. These research outputs tackle societal issues such as climate change, politics, marginalisation and under-representation, the future of healthcare workforce, the prevention and management of disease, to name just a few. Mental health problems during postgraduate research degrees risks the loss of research productivity and the loss of future leaders in academia. This is something funders should pay attention to.

This thesis has outlined a range of factors that contribute to poor mental health during postgraduate research degrees, but I hope I have presented a balanced overview. Despite the negative experiences shared, there is hope and positivity in my story and the stories of the PGRs that I have spoken to as part of my research. Even though they discussed frustrations with the institution and resources, difficulties in their personal lives, and their mental health challenges, every individual I interviewed loved their research. Some of the PGRs that took part in my project have now been promoted to senior lecturers at my university, continuing their PhD research and receiving further funding and prestigious awards.

There remains a negative rhetoric circling social media about the postgraduate research experience, and there is now a vast range of survey-based data indicating the high prevalence rates of mental health problems in PGRs studying in the UK. My research adds to this body of evidence, offering a nuanced, rich description of the factors underpinning these statistics. Uniquely, I have begun to try and rectify these issues on a small scale, presenting some evidence-based mitigating initiatives, going beyond merely reiterating the issue. I have disseminated these findings at the most recent UKCGE International Conference on the Mental Health and Wellbeing of Postgraduate Researchers, and it was received with excitement and positivity. As I move forward in my role as an educator and a researcher, I promise that this is just the start. Although it seems like the research focusing on PGR mental health and wellbeing is fizzling out, I am just getting fired up. With the support of my research team at the Doctoral College, and in-line with the Athena Swan Charter, I am passionate about making a difference in my institution and beyond. Watch this space!

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Zimmerman, B. J., Bandura, A. and Martinez-Pons, M., 1992. Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal* [online], 29 (3), 663-676.

Appendices

Appendix 1: Phase 1 Ethics ID 24627

Bournemouth University

Research Ethics Checklist

About Your Checklist	
Ethics ID	24627
Date Created	14/01/2019 09:59:50
Status	Approved
Date Approved	05/02/2019 15:48:40
Risk	Low

Researcher Details	
Name	Chloe Casey
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - HSS
Have you received funding to support this research project?	No
Please list any persons or institutions that you will be conducting joint research with, both internal to BU as well as external collaborators.	BU

Project Details	
Title	Assessing the wellbeing of postgraduate research students
Start Date of Project	17/09/2018
End Date of Project	30/09/2021
Proposed Start Date of Data Collection	31/01/2019
Original Supervisor	Steven Trenoweth
Approver	Sue Way

Summary - no more than 600 words (including detail on background methodology, sample, outcomes, etc.)

There has been much interest in the mental health of undergraduate students but there is a lack of research exploring factors underpinning the mental wellbeing of postgraduate research students. While all students are vulnerable to mental health issues prevalence data suggests this is widespread at PGR level. It is becoming increasingly important for universities to promote the wellbeing of their PGRs so they are better supported to complete their studies. PGR programme attrition can pose significant personal and financial costs as they are often a part of wider research teams and their output provides scientific advancement and societal benefits.

There is a requirement for new, empirical research to promote a mentally healthy, robust and successful postgraduate community. The factors affecting PGR wellbeing require further exploration as previous studies are mainly cross-sectional in nature and conducted in international universities so these findings are not generalizable to the UK academic landscape. The literature provides an overview of the issue and provide recommendations for future research but they do not recommend remedial actions which could be taken to negate

these stressors. This project will be the first of its kind to investigate the wellbeing of UK PGRs, explore the factors which underpin this and present an evidence-based intervention to promote the wellbeing of PhD students.

The research itself will be of a mixed-methods design collecting longitudinal quantitative and qualitative data. This phase will allow the researcher to understand the current mental wellbeing in the following cohorts of PGR 2019 new starters at Bournemouth University. The results of this assessment will inform the design of an intervention to be incorporated into the Doctoral College new PGR induction programmes in 2020 in order to mitigate the negative stressors outlined by the research and boost resilience.

3 methods will be used to establish PGRs wellbeing and the factors than underpin these findings. The first method will be a secondary analysis of the Postgraduate Research Experience Survey (PRES) data from Bournemouth University which will be compared to UK averages. The second method is an online survey including 2 pre-validated measures of wellbeing and a PhD wellbeing scale which focuses on just the elements that could be influenced by doctoral study. Lastly, follow-up interviews will be conducted to further explore PGR wellbeing. These questions are positively-worded and focus on wellbeing and PGR experience. They are not designed to discuss mental health issues. Regardless, all participants interviewed will be supplied the Student Services leaflet including all available support resources and contact details (see attachments). In the case of any disclosure of stress or low wellbeing, the researcher has been provided training to ensure the individual is signposted to the best university support resource. Participant's responses will be triangulated to their scores from the online survey to assess whether there are specific coping mechanisms employed by those with high wellbeing scores.

Filter Question: Does your study involve Human Participants?

Participants
Describe the number of participants and specify any inclusion/exclusion criteria to be used
Purposive samples of first year PGR students from Bournemouth University will form the participants in the study including all types of research students who started their studies after January 2019. They may be either full-time or part-time students and BU staff members who are PGRs. The aim is to recruit at least 20 people per cohort (Jan, Apr, Sept 2019 start dates) and to have follow-up interviews with at least 5 students per cohort.

Do your participants include minors (under 16)?	
Are your participants considered adults who are competent to give consent but considered vulnerable?	No
Is a Disclosure and Barring Service (DBS) check required for the research activity?	No

Recruitment
Please provide details on intended recruitment methods, include copies of any advertisements.
Method 1: will involve a secondary analysis of existing samples included in Postgraduate Researcher Experience Survey BU vs average UK survey data. This data is open-source and anonymised. Method 2: for the online survey new BU PGRs recruited by convenience: flyers, posters, word of mouth, PGR events and presentations from myself during Doctoral College inductions Method 3: to recruit for the qualitative self-reflections the online survey sample will be invited for follow-up interviews

Do you need a Gatekeeper to access your participants?	No

Data Collection Activity

Will the research involve questionnaire/online survey? If yes, don't forget to attach a copy of the questionnaire/survey or sample of questions.	Yes
How do you intend to distribute the questionnaire?	
online	
If online, do you intend to use a survey company to host and collect responses?	Yes
If yes, please provide details of survey company.	
Online Surveys, formally known as Bristol Online Surveys (www.onlinesurveys.ac.uk) which provides a secure, password-protected	

platform for data collection.	
Will the research involve interviews? If Yes, don't forget to attach a copy of the interview questions or sample of questions	
Will the research involve a focus group? If yes, don't forget to attach a copy of the focus group questions or sample of questions.	Yes
Please provide details e.g. where will the focus group take place. Will you be leading the focus group or someone else?	
Will the research involve the collection of audio recordings?	Yes
Will your research involve the collection of photographic materials?	No
Will your research involve the collection of video materials/film?	No
Will any audio recordings (or non-anonymised transcript), photographs, video recordings or film be used in any outputs or otherwise made publicly available?	
Will the study involve discussions of sensitive topics (e.g. sexual activity, drug use, criminal activity)?	No
Will any drugs, placebos or other substances (e.g. food substances, vitamins) be administered to the participants?	No
Will the study involve invasive, intrusive or potential harmful procedures of any kind?	No
Could your research induce psychological stress or anxiety, cause harm or have negative consequences for the participants or researchers (beyond the risks encountered in normal life)?	No
Will your research involve prolonged or repetitive testing?	No
What are the potential adverse consequences for research participants and how will you minimise them?	

Consent

Describe the process that you will be using to obtain valid consent for participation in the research activities. If consent is not to be obtained explain why.	

Method 1: the secondary analysis of PRES data consent will not be required as the participants would be aware data anonymous data could analysed in future researchMethod 2: a PI sheet will be formatted into the online survey. By starting the survey they will be consenting to participateMethod 3: at the end of the survey participants will provide their email if they want to participate in follow-up interviews. They will be sent the PI sheet and will sign a consent form at the interview

Do your participants include adults who lack/may lack capacity to give consent (at any point in the study)?	
Will it be necessary for participants to take part in your study without their knowledge and consent?	No

Participant Withdrawal

At what point and how will it be possible for participants to exercise their rights to withdraw from the study?	

Method 1: n/aMethod 2: The participant will be made aware that they can withdraw from the online survey at any time by closing the browser window. They will be aware that after completing the survey they will no longer be identifiable in the data set so their data could not be withdrawn.Method 3: If they participate in the follow-up interviews, they will be aware that they are able to withdraw from the research at any point with no consequence until the data is transcribed and anonymised

If a participant withdraws from the study, what will be done with their data?	

If the participant withdraws during the online survey by not completing the questions their data will not be received by the researcher. If the participant choses to withdraw at any point during the interviews (before their data is anonymised at transcription) their audio recording will be permanently deleted from both recording devices and not transcribed.

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Participant Compensation

Will participants receive financial compensation (or course credits) for their participation?	No
Will financial or other inducements (other than reasonable expenses) be offered to participants?	No

Research Data

Will identifiable personal information be collected, i.e. at an individualised level in a form that identifies or could enable identification of the participant?	Yes

Please give details of the types of information to be collected, e.g. personal characteristics, education, work role, opinions or experiences

The only identifiable information that will be sought is an email address inserted into the online survey so the researcher to contact only those interested in participating in the interviews. These will be kept strictly in-line with data protection guidelines. After the interview is arranged the participant will be anonymised with an identifier code so that non-identifiable data from the survey can be linked by the researcher. The identifier codes will be viewed only by the lead researcher.

Will the personal data collected include any special category data, or any information about actual or alleged criminal activity or criminal convictions which are not already in the public domain?	No
Will the information be anonymised/de-identified at any stage during the study?	
Will research outputs include any identifiable personal information i.e. data at an individualised level in a form which identifies or could enable identification of the individual?	

Please give brief details of how you will address the need for data minimisation or explain why you do not think this relates to the personal information you will be collecting.

Data minimisation represents best practice and has been kept in mind in the design. However, collecting email addresses is essential to planning the interviews. The use of identifier codes reduces the risk of security threats as the email addresses do not need to be kept but there is no way of achieving this purpose without collecting the email addresses in the first instance. The individual will be informed of the need to collect this data and how it will be used within the PIS.

Storage, Access and Disposal of Research Data

During the study, what data relating to the participants will be stored and where?	The email addresses will be used to contact the participants via the lead researcher's BU email address which is password protected and will only be accessed on the university devices on the university's secure internet. The email trail will be deleted as soon as interviews are arranged. Participant's email addresses will not be retained by the researcher and participants will be given an identifier code instead.
How long will the data relating to participants be stored?	Until interview time and dates have been arranged and participants are then given an identifier code. The email addresses will not be retained and email chains will then be deleted. However, the email addresses would have been originally provided on the online survey system. This is password protected. As soon as the survey data is entered into SPSS for analysis, the researcher will delete the survey response including the email address from the online survey system.
During the study, who will have access to the data relating to participants?	The lead researcher, Chloe Casey.
After the study has finished, what data relating to participants will be stored and where? Please indicate whether data will be retained in identifiable form.	The personal data will not be stored by the researcher.
After the study has finished, how long will data relating to participants be stored?	The personal data will not be stored after the study has finished.

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After the study has finished, who will have access to the data relating to participants?	No one will have access to this personal data after the study, the researcher will ensure the email address is deleted in the ways outlined above.
Will any identifiable participant data be transferred outside of the European Economic Area (EEA)?	No
How and when will the data relating to participants be deleted/destroyed?	As soon as the participant is given their identifier code and their survey response data is entered into SPSS. The researcher will ensure this is done within one week of the participant completing the survey.
Once your project completes, will your dataset be added to an appropriate research data repository such as BORDaR, BU's Data Repository?	Yes

Dissemination Plans

Will you inform participants of the results?	

Final Review

Are there any other ethical considerations relating to your project which have not been covered above?	

Risk Assessment

Have you undertaken an appropriate Risk Assessment?	Yes

Attached documents

Assessment Phase Semi-structured interview Qs.docx - attached on 15/01/2019 10:51:10
Participant Agreement Form Interviews.docx - attached on 15/01/2019 10:51:17
Risk Assessment.pdf - attached on 15/01/2019 10:51:29
Student Services 2018.pdf - attached on 15/01/2019 10:51:32
Assessment Phase Qs 25th Jan.pdf - attached on 25/01/2019 14:46:54
Participant Information Sheet Interviews.docx - attached on 25/01/2019 14:47:20
Participant Information Sheet Online Survey.docx - attached on 25/01/2019 14:47:30
Interview Questions A.docx - attached on 11/02/2019 10:25:04
Participant Agreement Form Interviews A.docx - attached on 11/02/2019 10:25:04
Participant Information Sheet Interviews A.docx - attached on 11/02/2019 10:25:04
Participant Information Sheet Online Survey A.docx - attached on 11/02/2019 10:25:04
Participant Information Sheet UK Online Survey.docx - attached on 29/07/2019 11:22:11
Promoting the Wellbeing of PGR Students UK.pptx - attached on 29/07/2019 11:22:12
UK PGR Wellbeing Survey.pdf - attached on 29/07/2019 11:22:12

Approved Amendments	
Message	In response to feedback from my probationary review panel I would like to apply for an amendment for ethics to allow to my research to capture the views of all postgraduate research (PGR) students, not just new starters. My intention was to solely target those in their first year to understand the experience of settling in and what challenges this poses to wellbeing as the overall research project aims to implement support for new starters in their Doctoral College Induction period. The participant's responses in this phase of the research were going to provide a kind of control group of new starters to refer and compare how effective interventions may be at promoting wellbeing. However, after consideration I think it is important to collect the views of students at all stages of the research cycle to fully understand the experience and the challenges new starters are likely to face throughout their course. This will provide more evidence in the design of interventions to help new starters successfully manage the inevitable hurdles they will face during their doctoral studies while maintaining their wellbeing. On reflection, neglecting the experiences, difficulties and coping strategies of research students who are further on in their projects would have limited the knowledge gained of the PGR experience. Therefore, I would like to submit an amendment to seek permission to recruit students from all years of PGR study. For your consideration I have attached the amended participant information sheets, participant agreement form, online survey and my edited proposed semi-structured interview questions so they are all applicable to students at every stage of their doctoral journey. I appreciate you taking the time to reconsider my application and look forward to hearing from you.
Date Submitted	11/02/2019 10:25
Comment	I have reviewed all of the revised documentation and am happy to approve
Date Approved	11/02/2019 11:54
Approved By	Sue Way

Approved Amendments	
Message	This project is concerned with exploring the organisational factors that may affect the mental wellbeing of PGRs at BU in order to design and develop pilot interventions that may promote their wellbeing. The online survey provides the researcher information about participant's current levels of mental wellbeing and resilience and which aspects of the PhD experience most impact PGR students. This survey has already been run in BU students and has illustrated that wellbeing and resilience levels in the sample of PGRs is lower than the population averages. However, as there is no data available for a similar sample of PGR students it hard to assess whether this finding is generalisable. Also, when looking at the factors most affecting BU PGRs these appear to be very different to the highest rated factors documented in the literature and in other studies using the same scale. Therefore, I am applying for this amendment to ask for approval to distribute this survey to PGR students attending a UK university outside of BU. I feel that, although I am mostly concerned with promoting wellbeing at BU, this may provide a helpful comparison group to illuminate whether the experiences at BU differ to other UK universities and whether PGR wellbeing and resilience levels are similar. I am attending an event based on PGR wellbeing in September and feel that this would be a great opportunity to distribute the survey link via word of mouth and social media (Twitter). I have attached an amended Participant Information Sheet and online survey- this is the same except a few changes to the demographic questions so they are not BU-specific. I have retained the same wording on the recruitment posters but have attached the updated version for your review. Thank you for taking the time to consider my amendment application.Kind regards,Chloe Casey
Date Submitted	29/07/2019 11:22
Comment	
Date Approved	07/08/2019 09:22
Approved By	Sue Way

Appendix 2: Phase 1 Interview Questions

1. What do you most enjoy about your postgraduate research degree?

2. What were your hopes and expectations about your programme? Have these been met?

3. Did you feel adequately prepared for your programme when you started?

4. Do you feel that anything you have done previously prepared or helped you to adjust to your programme of study?

5. When you started, did you understand what is entailed in being a research student and what was expected of you? Please explain.

6. Did you feel that the Doctoral College and Faculty Induction programmes provided you with appropriate information and support as a new starter?

7. What are your thoughts about the culture and environment for PGR researchers at BU?

8. Do you feel part of a research community?

9. How are your relationship with your supervisors?

10. Have you faced any challenges so far in your research degree? Did you receive support to overcome these challenges?

11. Do you feel that these challenges reduced your wellbeing?

12. What have you found most helpful in supporting you on your programme?

13. What would be helpful to support your wellbeing during your studies? What have you found that's unhelpful?

14. Have you relocated for your doctoral study here? Are you an overseas student? If yes, have you faced any challenges in relocating?

15. How do you look after your own wellbeing?

16. Do you know where to access both academic support and support for your wellbeing? If yes, please tell me about these and how you heard about them

17. Is there anything else you'd like to discuss about your experience as PGR student?

Appendix 3: Phase 2 Focus Group Presentation Content

Developing Wellbeing Interventions for PGRs at Bournemouth University.

The evidence around the effectiveness of interventions to support the wellbeing of PGRs specifically is scarce. Few interventions are described in the literature and even fewer of those have been evaluated.

Therefore, there is a pressing need for the development of tailored interventions that are co-produced and evaluated with PGRs, not just for them.

Thank you for agreeing to take part in this participatory research project. This short presentation outlines the initial intervention ideas that I would like to discuss with you during the focus group or interview. Please take a few minutes before our meeting to review these ideas, considering what you like or don't like about them and whether you think they would be useful to promote PGR wellbeing.

These ideas stemmed from the first phase of my research and are in their infancy so, of course, I am open to suggestions and alternative ideas.

THEORETRICAL FRAMEWORK:

Although the institution should be responsible for creating environments that promote PGR wellbeing, influencing organisational structures is unfortunately outside of my control within this PhD project. Therefore, I am focusing on how PGRs can be best supported to cope with the stresses of the experience.
This is based on Skinner's 12 Families of Coping; delivering interventions that target and encourage PGRs to opt for the positive, adaptive ways of coping highlighted here:

Problem Solving	Information Seeking	Self-reliance	Escape	Helplessness	Submission
Strategizing	Observation	Emotion regulation	Denial	Confusion	Rumination
Planning	Asking others	Behaviour regulation	Wishful thinking	Cognitive exhaustion	Intrusive thoughts

Negotiation	Accommodation	Support-seeking	Opposition	Delegation	Social Isolation
Bargaining	Cognitive restructuring	Comfort-seeking	Other-blame	Maladaptive help-seeking	Social withdrawal
Priority-setting	Acceptance	Social referencing	Aggression	Complaining	Concealment

PEER-LED INTERVENTION

Intervention:
An intervention recruiting PGRs as mentors for new students conducting similar research methods. Mentors would receive training then could then be paired with new PGRs to provide an extended peer-led induction, offering practical help, support or reassurance. This would be introduced prior to Doctoral College induction so that incoming students go into enrolment feeling supported with clear expectations of the doctoral process.

Targeted ways of coping:
Support seeking, information seeking and social referencing.

Rationale:
PGRs report difficulties in navigating the induction period. Peer mentorship has been found to be effective in increasing engagement and creating a sense of community in doctoral students, even when delivered online. Creating a sense of belonging has positive implications for mental health in the early stages of doctoral study.
PROJECT MANAGEMENT TRAINING

Intervention:
A package of project management training to help students prepare for their review milestones. This would include a combination of workshops, self-guided tasks and online support delivered by academics. This could either be delivered as a whole day session or shorter sessions across several weeks. This will focus on practical aspects like effective planning, time management skills, maintaining work-life balance and tackling procrastination but may also help to increase self-efficacy, manage expectations and reduce anxiety.

Targeted ways of coping:
Problem solving, strategizing and priority setting.

Rationale:
Project planning has been evidenced to negate self-sabotaging behaviours (perfectionism, over-committing and procrastination) and increase self-efficacy in doctoral students. Managing time well, allocating specific times for working on PhD, sticking to specific times for working on PhD, having a specific plan for writing up thesis, having confidence in the plan, and having realistic expectations were significantly correlated with reduced stress and increased self-reported ability to complete PhD.
MOOD MONITORING & MINDFULNESS

Intervention:
An intervention aiming to improve self-awareness and restructuring thoughts into more healthy patterns; preparing PGR students for the emotional challenges of doctoral study. This will encourage PGRs to monitor their mood and engage in Mindfulness-Based Stress Reduction activities. The intervention could be advertised to PGRs as a method of increasing productivity, focus and concentration; facilitating performance. This could be delivered as a one-day workshop or via multiple online or face-to-face sessions.

 Targeted ways of coping:
Emotional regulation, behaviour regulation and cognitive restructuring.

Rationale:
There has been many mindfulness interventions in student groups finding reductions in anxiety and distress and increases in wellbeing and problem-focused coping. This has been trialled in PGRs in Australia, finding significant increases in hope, resilience and self-efficacy, and decreases in depression compared to a control group. This could be explored in UK PGRs.

Thank you for taking the time to review the initial intervention ideas. I look forward to hearing your thoughts and ideas.

Appendix 4: Phase 2 Focus Group Guide

1.   What do you think of this wellbeing intervention idea?

2.   Do you have any questions you'd like to ask about this idea?

3.   Do you think PGRs would find this useful?

4.   Is there anything you dislike about it?

5.   Do you see any barriers to recruiting people for this intervention?

6.   Do you think PGRs would adhere to this intervention?

7.   Do you think this intervention could improve wellbeing in PGRs, how?

8.   How would you evaluate the success of this intervention?

 (Repeat questions for each of the 3 intervention ideas).

A.   What would be your preferred choice of wellbeing intervention if you were to take part?

B.   Why would you choose this intervention?

C.   Please rank the interventions in order of preference.

D.   Why did you rank this intervention as your least favourite?

9.   Please share any additional thoughts or ideas you may have about interventions to support wellbeing, resilience, and coping for PGRs.

Appendix 5: Phase 2 Ethics ID 31908

Bournemouth University

Research Ethics Checklist

About Your Checklist

Ethics ID	31908
Date Created	27/03/2020 13:23:54
Status	Approved
Date Approved	01/07/2022 10:33:53
Risk	Low

Researcher Details

Name	Chloe Casey
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - HSS
Have you received funding to support this research project?	Yes
Is this internal funding?	Yes
Please provide the Internal Funding Body	Bournemouth University
Please list any persons or institutions that you will be conducting joint research with, both internal to BU as well as external collaborators.	BU

Project Details

Title	Promoting the Wellbeing of Postgraduate Researchers: Developing an Intervention (online)
Start Date of Project	18/09/2018
End Date of Project	18/09/2021
Proposed Start Date of Data Collection	06/04/2020
Original Supervisor	Steven Trenoweth
Approver	Sharon Docherty

Summary - no more than 600 words (including detail on background methodology, sample, outcomes, etc.)

International studies have highlighted a high prevalence of psychological distress, emotional exhaustion and low wellbeing in postgraduate research students (PGRs). Yet, there is a lack of high-quality, evidence-based inventions that have focused on promoting PGR wellbeing. The overarching aim of the research is to develop, trial and evaluate wellbeing interventions that are co-produced by PGRs as part of a feasibility study. This study seeks to overcome the weaknesses of previous attempts by ensuring that interventions are based on the support PGRs feel that they need.

The first phase of the study explored the factors that most impact the wellbeing of PGRs at BU through a survey and interviews. The survey findings indicated that wellbeing and resilience scores were significantly lower than population averages. This was explored in the interviews, finding that threats to PGRs' sense of control, identity and work-life balance underpinned low wellbeing. Adaptive, positive coping strategies appeared to counteract this. This study provides further evidence of the aspects of the UK PGR experience that can affect wellbeing and begins to recommend methods of promoting it.

This phase of the study will involve recruiting groups PGRs to participate in focus groups. The PGR focus groups will advise on the design of the interventions to ensure they are relevant to the PGR experience. The focus groups will be presented a range of wellbeing intervention ideas that the researcher has designed. These ideas stemmed from the results of the first phase of the research and from existing studies that have trialled wellbeing interventions in higher education. All the intervention ideas focus on the individual and how they may be supported to develop and practice positive, adaptive ways of coping. These interventions may help the PGRs to effectively manage and cope with their research projects and feel more able to overcome stressful events and setbacks. The interventions target adaptive ways of coping taken from Skinner's (2003) 12 Families of Coping including problem-solving, strategizing, support-seeking and emotional regulation. The initial intervention ideas to be presented to the focus groups include project-management support, mindfulness training and mood-monitoring/tracking.
The focus groups will be given an opportunity to ask the researcher further questions about the intervention ideas and to discuss these with the other PGRs. The researcher's questions will focus on what the PGRs like or don't like about each intervention and the potential challenges of recruitment and retention. The researcher will ask the participants to order the intervention ideas by their preference. Their conversations will be audio recorded and transcribed by the researcher.

This data will be analysed using thematic analysis, following the steps of Braun and Clarke (2006). The project supervisor will review the themes. The data from this phase will not disseminated to any other audience as the main outcome is to inform the development of the future interventions. Opting to conduct a feasibility study with a participative design increases the relevance of interventions and reduces the risk of wasting resources and time. The data generated from this feasibility study will provide a robust body of evidence to inform a larger intervention.

Filter Question: Does your study involve Human Participants?

Participants

Describe the number of participants and specify any inclusion/exclusion criteria to be used

The study seeks to recruit approximately 20 students to be involved in the PGR focus groups. The focus groups will be hosted online on Microsoft Teams. 4 focus group dates will be offered and no more than 4 participants will attend each online focus group. The PGRs will be from a range of disciplines, any gender, age, ethnicity or year of study. The participants will be current PGRs having not submitted their final thesis. Additionally, those who wish to be involved but are unable to attend focus groups will be interviewed separately by video call. Their responses will be included in the analysis.	
Do your participants include minors (under 16)?	No
Are your participants considered adults who are competent to give consent but considered vulnerable?	No
Is a Disclosure and Barring Service (DBS) check required for the research activity?	No

Recruitment

Please provide details on intended recruitment methods, include copies of any advertisements.

PGRs will be recruited through various methods: email invitations to previous participants (outlined in original participant information sheets), word of mouth and social media (Twitter) via the attached advertisement.	
Do you need a Gatekeeper to access your participants?	No

Data Collection Activity

Will the research involve questionnaire/online survey? If yes, don't forget to attach a copy of the questionnaire/survey or sample of questions.	Yes
How do you intend to distribute the questionnaire?	

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online	
If online, do you intend to use a survey company to host and collect responses?	Yes
If yes, please provide details of survey company.	
onlinesurveys.ac.uk	
Will the research involve interviews? If Yes, don't forget to attach a copy of the interview questions or sample of questions	No
Will the research involve a focus group? If yes, don't forget to attach a copy of the focus group questions or sample of questions.	Yes
Please provide details e.g. where will the focus group take place. Will you be leading the focus group or someone else?	
I will be hosting the focus groups online via Microsoft Teams, as all PGRs have access to this programme.	
Will the research involve the collection of audio recordings?	Yes
Will your research involve the collection of photographic materials?	No
Will your research involve the collection of video materials/film?	No
Will any audio recordings (or non-anonymised transcript), photographs, video recordings or film be used in any outputs or otherwise made publicly available?	No
Will the study involve discussions of sensitive topics (e.g. sexual activity, drug use, criminal activity)?	No
Will any drugs, placebos or other substances (e.g. food substances, vitamins) be administered to the participants?	No
Will the study involve invasive, intrusive or potential harmful procedures of any kind?	No
Could your research induce psychological stress or anxiety, cause harm or have negative consequences for the participants or researchers (beyond the risks encountered in normal life)?	No
Will your research involve prolonged or repetitive testing?	No
What are the potential adverse consequences for research participants and how will you minimise them?	

Consent

Describe the process that you will be using to obtain valid consent for participation in the research activities. If consent is not to be obtained explain why.

Participants will be provided a Participant Information Sheet to consider before taking part in the study, this will be formatted into an online survey. The online survey will be used to register to the focus group date and input some demographic data. Before the focus groups begin the participant will also be provided a Participant Agreement Form to review and sign electronically
.If participants who are unable to take part in focus groups want to be involved in a telephone or video interview they will also be sent the Participant Agreement Form via email to sign electronically.

Do your participants include adults who lack/may lack capacity to give consent (at any point in the study)?	No
Will it be necessary for participants to take part in your study without their knowledge and consent?	No

Participant Withdrawal

At what point and how will it be possible for participants to exercise their rights to withdraw from the study?

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The participants will be informed in their Information Sheet and Agreement Form that
they are able to withdraw from the study at any point until the start of the focus groups. After the focus group has been recorded
the researcher will be unable to tell which participant was speaking to remove their responses. However, those who opt for one-to-one
interviews will be able to withdraw their data until it is transcribed and anonymised.

If a participant withdraws from the study, what will be done with their data?

If the participant wishes to withdraw from the focus group they will need to do so before the focus group commences, if so, their
demographic data will be deleted from the survey. For one-to-one interview data, if the participant wishes to withdraw after the
audio has been recorded their responses will be left out of the analysis and the audio recording will be deleted from both devices.

Participant Compensation

Will participants receive financial compensation (or course credits) for their participation?	No
Will financial or other inducements (other than reasonable expenses) be offered to participants?	No

Research Data

Will identifiable personal information be collected, i.e. at an individualised level in a form that identifies or could enable identification of the participant?	Yes

Please give details of the types of information to be collected, e.g. personal characteristics, education, work role, opinions or experiences

Their email address will be submitted onto the online survey when they register to attend the focus groups or an
interview. This is necessary to send a reminder to the participant or to let them know of any unforeseen events such as cancellation or
timing changes. Email addresses will be stored on a password protected device.

Will the personal data collected include any special category data, or any information about actual or alleged criminal activity or criminal convictions which are not already in the public domain?	No
Will the information be anonymised/de-identified at any stage during the study?	No

If No, please provide details (e.g. explain why you need to keep identifiable personal, what are the benefits to your research)

For the reasons outlined, having the email addresses of the participants is vital to the study. This is necessary to send a reminder to the
participant or to let them know of any unforeseen events such as cancellation. Only the researcher will have access to
their email address and all email chains will be deleted for security. Email addresses will be stored on a password protected device.

Will research outputs include any identifiable personal information i.e. data at an individualised level in a form which identifies or could enable identification of the individual?	No
Have you considered and addressed the need for 'data minimisation'?	Yes

Please give brief details of how you will address the need for data minimisation or explain why you do not think this relates to the personal information you will be collecting.

As mentioned, the collection of email addresses is necessary to the study. However, only the researcher will have access to their email
address and all email chains will be deleted for security.

Storage, Access and Disposal of Research Data

During the study, what data relating to the participants will be stored and where?	The participants' email addresses will be stored as they will need to be contacted during the research. The email chains will be deleted after the focus groups. Email addresses will be stored on a password protected device. Audio recordings will be recorded on 2 password protected devices and will be deleted as soon as they have been transcribed. Participants' responses will be anonymised on the transcripts. Electronically signed Participant Agreement Forms will be kept on a password protected device which can be accessed only by the researcher until the research degree is awarded.

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How long will the data relating to participants be stored?	The transcripts and Participant Agreement Forms will be stored for the duration of the research and until the research degree is awarded.
During the study, who will have access to the data relating to participants?	Solely the researcher.
After the study has finished, what data relating to participants will be stored and where? Please indicate whether data will be retained in identifiable form.	No data will be retained in an identifiable form. The anonymised focus group and interview transcripts will be stored on the researchers H drive which is password protected and only accessible on password protected devices.
After the study has finished, how long will data relating to participants be stored?	The data will be stored until the research degree is awarded.
After the study has finished, who will have access to the data relating to participants?	Solely the researcher.
Will any identifiable participant data be transferred outside of the European Economic Area (EEA)?	No
How and when will the data relating to participants be deleted/destroyed?	Email chains will be deleted from email accounts as soon as possible. Audio data will be deleted from devices after transcribing. Transcripts and signed Participant Agreement Forms will be deleted from the H drive as soon as the research degree is awarded.
Once your project completes, will your dataset be added to an appropriate research data repository such as BORDaR, BU's Data Repository?	Yes

Dissemination Plans

How do you intend to report and disseminate the results of the study?

No plans to report or disseminate the results

Will you inform participants of the results?	No

If Yes or No, please give details of how you will inform participants or justify if not doing so

The results of this phase of the study will not be disseminated to any other audiences as the main purpose of their feedback is to inform the next stage of the study.
I will not directly inform the participants of the results of the study, unless they express that they would like me
to keep them updated with the research. The participants will understand that their feedback informed the design of the next stage of the study; the wellbeing interventions.

Final Review

Are there any other ethical considerations relating to your project which have not been covered above?	No

Risk Assessment

Have you undertaken an appropriate Risk Assessment?	Yes

Attached documents

Focus Group or Interview Pre-survey.pdf - attached on 30/03/2020 09:41:43

Focus Group or interview Questions.docx - attached on 30/03/2020 09:41:52
Participant Agreement Form Phase 2 Online.docx - attached on 30/03/2020 09:41:59
Participant Information Sheet Phase 2 Online.docx - attached on 30/03/2020 09:42:31
Recruitment Poster Phase 2 Online.pptx - attached on 30/03/2020 09:42:46

Appendix 6: Phase 3 Ethics ID 32854

Bournemouth University

Research Ethics Checklist

About Your Checklist	
Ethics ID	32854
Date Created	17/06/2020 09:56:07
Status	Approved
Date Approved	25/08/2020 13:50:30
Risk	Low

Researcher Details	
Name	Chloe Casey
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - HSS
Have you received funding to support this research project?	Yes
Is this external funding?	No
Is this internal funding?	Yes
Please provide the Internal Funding Body	Bournemouth University
Please list any persons or institutions that you will be conducting joint research with, both internal to BU as well as external collaborators.	BU

Project Details	
Title	Promoting the wellbeing of postgraduate researchers: pilot interventions
Start Date of Project	18/09/2018
End Date of Project	18/09/2021
Proposed Start Date of Data Collection	01/09/2020
Original Supervisor	Steven Trenoweth
Approver	Martin Hind
Summary - no more than 600 words (including detail on background methodology, sample, outcomes, etc.)	

Research highlights the high prevalence of mental health problems in postgraduate research students (PGRs), yet, few UK researchers have evaluated interventions. The aim of this feasibility study is to coproduce, trial and evaluate wellbeing interventions with PGRs.

The first phase of the study explored the factors PGRs at BU. Adaptive coping, especially support seeking, were identified as mechanisms for change. From these results and supporting evidence, initial ideas were designed. The second phase of the study used PGR focus groups to refine the ideas; discussing their relevance and acceptability.

The third phase of this research is concerned with testing the following pilot intervention ideas:

1. PEER-LED VIRTUAL LEARNING ENVIRONMENT (VLE)
A peer-led area on Brightspace is being created with the Doctoral College to complement existing support. This long-term intervention will facilitate peer-support, including content created by PGRs, in order to manage expectations and demystify the experience of the PGR journey. Ethical approval is being sought to evaluate the success of this Peer-led VLE with a sample of users via an anonymous online survey (1) and follow-up interviews.

2. PGR VIRTUAL MINDFULNESS GROUP
Mindfulness interventions in student groups have found reductions in anxiety and distress and increases in wellbeing and problem-focused coping. This short-term intervention will recruit a group of PGRs to be involved in 4 weekly online workshops, facilitated by a PGR who has also worked as a mindfulness trainer.

3. PGR VIRTUAL PROJECT PLANNING SUPPORT
Managing time well and having realistic expectations have been found to reduce stress and promote work-life balance and coping in PGRs. This short-term intervention will be designed and delivered over 4 online workshops by a PGR who has previously worked in project management.

4. PGR VIRTUAL MENTORING
Time constraints and other responsibilities can limit supervisors' ability to provide pastoral support. Research has found that for PGRs, having supportive relationships with academics outside of the supervisory team can be effective in reducing emotional exhaustion. This short-term intervention will recruit a group of PGRs who will receive weekly mentoring from an academic staff member in a group chat forum. This will be facilitated by Dr Steven Trenoweth, a UKCGE Recognised Research Supervisor and mental health professional.

Participating in the three short-term interventions (mindfulness, project planning or mentoring) may also encourage peer-support between the group members. Participants who volunteer will choose the intervention they would like to take part in; they will not be randomized into conditions.

When registering, participants will complete an online survey (2) including demographic questions. After signing a Participant Agreement Form, they will be sent the pre-test survey (3) including validated scales measuring wellbeing, resilience, self-efficacy and coping. If the groups have reached capacity resources from the workshops will be shared with these participants at the end of the research via email. These will also be shared with all PGRs via the VLE.

After the intervention period, participants will complete a post-test survey (4) including the same scales and open-ended questions to evaluate the workshops. They will also be invited to take part in follow-up interviews.

Filter Question: Does your study involve Human Participants?

Participants
Describe the number of participants and specify any inclusion/exclusion criteria to be used
All PGRs at BU will have access to the Peer-led VLE from September 2020, if they chose to engage with it. To evaluate the Peer-led VLE, the aim is to recruit a convenience sample 60 users to take part in the anonymous online survey (1) 5 months after launch in January 2021. Of the respondents, it is hoped that 10 participants would be willing to take part in the follow-up online interviews. PGRs of any stage, faculty, gender and research degree may take part in the short-term interventions. They will have the choice of three interventions and may only engage in one. The aim is to recruit small groups of 8 PGRs, via convenience sampling, for each pilot intervention to ensure the group size is manageable for the facilitators. Ideally, all participants will be retained and complete both surveys (3 and 4). Of those, it is hoped that 5 from each group will take part in follow-up online interviews. The workshops will be available on a first come, first serve basis. If the groups have reached capacity, additional participants will be sent useful resources from the interventions at the end of the research.

Do your participants include minors (under 16)?	No
Are your participants considered adults who are competent to give consent but considered vulnerable?	No
Is a Disclosure and Barring Service (DBS) check required for the research activity?	No

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Recruitment

Please provide details on intended recruitment methods, include copies of any advertisements.

To recruit the sample of Peer-led VLE users, an advert will be posted within the discussion board (see attachments) inviting users to follow a link to an online registration survey **(2)**.

To recruit PGRs to take part in the three short-term interventions recruitment posters (see attachments) will be shared via social media, at PGR inductions, through PGR Student Reps and within the discussion board of the Peer-led VLE.

Do you need a Gatekeeper to access your participants?	No

Data Collection Activity

Will the research involve questionnaire/online survey? If yes, don't forget to attach a copy of the questionnaire/survey or sample of questions.	Yes
How do you intend to distribute the questionnaire?	
online	
If online, do you intend to use a survey company to host and collect responses?	Yes
If yes, please provide details of survey company.	
www.onlinesurveys.ac.uk	
Will the research involve interviews? If Yes, don't forget to attach a copy of the interview questions or sample of questions	Yes
Please provide details e.g. where will the interviews take place. Will you be conducting the interviews or someone else?	
All interviews will be conducted by the researcher using Microsoft Teams; all BU staff and students have access to this platform. The semi-structured interview questions are attached **(i and ii)**	
Will the research involve a focus group? If yes, don't forget to attach a copy of the focus group questions or sample of questions.	No
Will the research involve the collection of audio recordings?	Yes
Will your research involve the collection of photographic materials?	No
Will your research involve the collection of video materials/film?	No
Will any audio recordings (or non-anonymised transcript), photographs, video recordings or film be used in any outputs or otherwise made publicly available?	No
Will the study involve discussions of sensitive topics (e.g. sexual activity, drug use, criminal activity)?	No
Will any drugs, placebos or other substances (e.g. food substances, vitamins) be administered to the participants?	No
Will the study involve invasive, intrusive or potential harmful procedures of any kind?	No
Could your research induce psychological stress or anxiety, cause harm or have negative consequences for the participants or researchers (beyond the risks encountered in normal life)?	No
Will your research involve prolonged or repetitive testing?	No

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What are the potential adverse consequences for research participants and how will you minimise them?

Consent

Describe the process that you will be using to obtain valid consent for participation in the research activities. If consent is not to be obtained explain why.

For the evaluation of the Peer-led VLE, the Participant Information Sheet **(A)** will be formatted into the online survey. If participants opt to take part in the follow-up interviews, they will be sent a Participant Agreement Form **(B)** prior to the online interview.

For the short-term interventions, when participants access the online survey to register for the interventions and provide their demographic details, the Participant Information Sheet **(C)** will be formatted within the registration survey.

Once they have registered for the interventions, the participants will be sent a Participant Information Sheet and Participant Agreement Form, specific to their intervention group. In the post-test survey, they will be invited to take part in follow-up interviews. Participation in the follow-up interviews is not essential, this will be outlined within the original Participant Information Sheets.

Do your participants include adults who lack/may lack capacity to give consent (at any point in the study)?	No
Will it be necessary for participants to take part in your study without their knowledge and consent?	No

Participant Withdrawal

At what point and how will it be possible for participants to exercise their rights to withdraw from the study?

For the evaluation of the Peer-led VLE, participants may withdraw from the online survey at anytime by closing their browser window. However, they cannot withdraw their responses after completing the survey, as their responses will be anonymised.

If they opt into the follow-up interviews. They may withdraw their data at anytime until their responses are transcribed and anonymised as the researcher would be unable to locate and remove their specific responses.

For those involved in the short-term interventions, participants may withdraw at any time throughout the intervention process by no longer attending the online workshops or letting the researcher know that they will not attend any further sessions.

If a participant withdraws from the study, what will be done with their data?

For those involved in the short-term interventions who would like to withdraw, their data to date will still be included in the analysis unless they explicitly express that they would like their data to be removed, this will be outlined in the Participant Information Sheet. If they would like to stop attending the online workshops and would like their data removed from the analysis, their responses will be deleted from the online survey and the data sets.

Participant Compensation

Will participants receive financial compensation (or course credits) for their participation?	No
Will financial or other inducements (other than reasonable expenses) be offered to participants?	No

Research Data

Will identifiable personal information be collected, i.e. at an individualised level in a form that identifies or could enable identification of the participant?	Yes

Please give details of the types of information to be collected, e.g. personal characteristics, education, work role, opinions or experiences

For the evaluation of the Peer-led VLE, participants who opt in to take part in follow-up interviews, email addresses will need to be collected in order to organise and facilitate the online interviews. These will only be accessed by the researcher.

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For those involved in the short-term interventions, email addresses will need to be collected from all participants at registration so that they can log into the online workshops. To do so, the facilitators of the workshops will need to be provided the email addresses of their intervention group members. This is essential to organise and facilitate the workshops.

However, participants will be provided a participant identifier code once they have completed the registration form. This code will be entered in the pre-test and post-test surveys, meaning that the participant's survey responses will be pseudo-anonymized. Only the researcher will be able to attribute the participant identifier code to the participant.

Will the personal data collected include any special category data, or any information about actual or alleged criminal activity or criminal convictions which are not already in the public domain?	No
Will the information be anonymised/de-identified at any stage during the study?	Yes
Will research outputs include any identifiable personal information i.e. data at an individualised level in a form which identifies or could enable identification of the individual?	No

Storage, Access and Disposal of Research Data

During the study, what data relating to the participants will be stored and where?	Email addresses will be stored within the Online Survey and Microsoft Outlook password protected accounts. Email records will be deleted after the research is completed, when the researcher and facilitators no longer need to contact the participants as part of the research.
How long will the data relating to participants be stored?	Identifiable data (email addresses) will be deleted as soon as possible once the interviews and short-term interventions have been completed. Non-identifiable data will be stored until the research degree has been awarded.
During the study, who will have access to the data relating to participants?	The researcher and the intervention facilitators (all of whom work or study at BU) will have access to the participants' email addresses. All members of the research team have received training from BU on General Data Protection Regulation.
After the study has finished, what data relating to participants will be stored and where? Please indicate whether data will be retained in identifiable form.	Identifiable data (email addresses) will be stored with Online Surveys and Microsoft Outlook, both are password protected and only accessible by the researcher. Non-identifiable data will be stored within SPSS or NVivo files on a password protected device, this is only accessible by the researcher.
After the study has finished, how long will data relating to participants be stored?	Non-identifiable data will remain on the password protected devices until the degree is awarded.
After the study has finished, who will have access to the data relating to participants?	Only the researcher and the intervention facilitators will have access to the non-identifiable data relating to the participants. Identifiable information (email addresses) will be deleted as soon as the interventions are completed.
Will any identifiable participant data be transferred outside of the European Economic Area (EEA)?	No
How and when will the data relating to participants be deleted/destroyed?	The identifiable data (email addresses) will be deleted electronically as soon as the interventions are completed. The non-identifiable data will be deleted electronically once the research degree is awarded.
Once your project completes, will your dataset be added to an appropriate research data repository such as BORDaR, BU's Data Repository?	Yes

Dissemination Plans

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How do you intend to report and disseminate the results of the study?	
Peer reviewed journals,Conference presentation,Participant newsletter,Other Publication	
Will you inform participants of the results?	Yes
If Yes or No, please give details of how you will inform participants or justify if not doing so	
It is important to disseminate the results to the Doctoral College and the PGR community at BU. The findings will outline which interventions have been well-received by PGRs. From these results, the Doctoral College may like to continue to implement the support provisions that have been beneficial to PGRs going forwards. Therefore, a report will be provided to the Doctoral College outlining the study findings. Also, a blog or online update of the findings will be provided to PGRs via the Peer-led VLE platform. All PGRs will also be able to access the resources used in the interventions via the VLE at the end of the research.	

Final Review

Are there any other ethical considerations relating to your project which have not been covered above?	Yes
If Yes, please explain.	
The PGRs facilitating the mindfulness and project planning workshops will be compensated for their time. This has been authorised by the project supervisory team, relevant senior members of faculty, and the HSS finance and HR departments. The PGRs will be paid the hourly rate of a BU Research Assistant. This will be funded through the Doctoral Student Development Fund. They will work a maximum of 20 hours, not exceeding 4 hours per week, in line with BU policy and the Code of Practice for Research Degrees. The PGRs have also consulted with their research supervisors, confirming that they are not behind in their own work, prior to agreeing.	

Risk Assessment

Have you undertaken an appropriate Risk Assessment?	Yes

Attached documents

1. Survey. Peer-led VLE.pdf - attached on 01/07/2020 14:09:33
2. Survey. Registration.pdf - attached on 01/07/2020 14:09:38
3. Survey. Pre-test.pdf - attached on 01/07/2020 14:09:46
4. Survey. Post-test.pdf - attached on 01/07/2020 14:09:52
A. PIS. Peer-led VLE Survey.docx - attached on 01/07/2020 14:10:15
B. PAF. Peer-led VLE Interviews.docx - attached on 01/07/2020 14:10:22
C. PIS. Intervention Registration Survey.docx - attached on 01/07/2020 14:10:29
D. PIS. Mindfulness Intervention.docx - attached on 01/07/2020 14:11:02
E. PAF. Mindfulness Intervention.docx - attached on 01/07/2020 14:11:25
F. PIS. Project Planning Intervention.docx - attached on 01/07/2020 14:15:37
G. PAF. Project Planning Intervention.docx - attached on 01/07/2020 14:15:45
H. PIS. Mentoring Intervention.docx - attached on 01/07/2020 14:15:54
I. PAF. Mentoring Intervention.docx - attached on 01/07/2020 14:16:02

Printed On 03/05/2023 15:01:37

Recruitment Adverts.pdf - attached on 01/07/2020 14:16:32
i. Interview Questions. Peer-led VLE evaluation.docx - attached on 01/07/2020 14:16:40
ii. Interview Questions. Interventions evaluation.docx - attached on 01/07/2020 14:16:47

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Appendix 7: Phase 3 Focus Group and Interview Questions

1.   Do you feel that the pilot initiative you look part in was beneficial for you?

2.   If you were unable to attend all the workshops, what were the reasons you didn't attend?

3.   Do you felt that you were able to build relationships with the other group members?

4.   Did you feel comfortable to share your views and ask questions within your group?

5.   How do you think what you've experienced within the workshops may help you in your PGR study?

6.   If you would recommend the initiative to other PGRs, how would you market it to them?

1.   Do you feel like the peer-led area of Brightspace has been supportive for you?

2.   Could you elaborate more from your survey response, how did you utilise the resources in the peer-led area?

3.   Do you feel like you have built new relationships with PGRs by engaging with the peer-led area that you may not have otherwise?

4.   Do you think all users would view the peer-led area as a positive environment?

5.   What has been most helpful to you about the peer-led area?

6.   Is there anything that has been unhelpful?

7.   Do you think the peer-led area has helped to increase a sense of community between PGRs?

8.   How do you think we could encourage more PGRs to engage with the peer-led area?

9.   Do you think it may be useful for supervisors, research administrators or other staff members to engage with the peer-led area?