University of Southampton

Faculty of Environmental and Life Sciences

School of Psychology

An investigation into the relationship between burnout and wellbeing and its association with individual and organizational factors

by

Ellis Baker

Thesis for the degree of Doctor of Clinical Psychology

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Abstract

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Both chapters of this doctoral thesis focus on investigating the relationship between burnout and wellbeing and their association with individual and organizational factors in healthcare professionals.

The first chapter is a systematic review which aimed to identify, summarise and critically evaluate the research exploring both formal and informal peer support on burnout, mental health, or organizational outcomes in healthcare workers. After conducting a thorough database search, eighteen papers were identified, compromising 4,134 participants. Given the heterogeneity across studies to date, methodological quality was assessed, and a narrative synthesis was undertaken. Despite the mixed findings across studies, when comparing the different types of peer support collectively, informal peer support was favoured, demonstrating improved outcomes on both an individual and organizational level. Limitations and clinical implications were discussed.

The second chapter is an empirical paper, which aimed to understand the relationship between psychological flexibility, burnout and wellbeing. It also explored the moderating effects of workplace factors, clinical supervision and psychological training. A total of 188 cancer or palliative care clinicians completed an online survey. Regression analyses revealed that higher levels of psychological flexibility predicted lower levels of burnout and higher levels of wellbeing. A moderation analysis confirmed that areas of work life (AWS) moderated the relationship between psychological flexibility and burnout, while access to supervision and training did not. The results provide preliminary evidence regarding the moderators which may underpin the association between psychological flexibility and burnout. Future research would benefit from further examining the protective factors that reduce susceptibility to burnout within cancer care.

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Research Thesis: Declaration of Authorship

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I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

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Definitions and Abbreviations

ACT	Acceptance and Commitment Therapy
AMBI	Abbreviated Maslach Burnout Inventory
AWS	Areas of Work Scale
DP	Depersonalisation
EE	Emotional Exhaustion
ERGO	Ethics and Research Governance Online
NHS	National Health Service
PA	Personal Accomplishment
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PSYFLEX	Psychological Flexibility
SPSS	Statistical Package for the Social Sciences
SWEMWBS	Short Warwick-Edinburgh Mental Wellbeing Scale

Chapter 1 The role of peer support and its association with burnout and organizational factors among health and social care professionals: A Systematic Review

This paper has been prepared in line with the author guidelines required by the 'Journal of Occupational and Organizational Psychology'

1.1 Abstract

Research exploring the impact of peer support in the workplace is developing. To date, research has indicated positive findings, demonstrating improvements in stress, burnout, and mental health outcomes in healthcare professionals. Yet, less is known about the effectiveness of different types of peer support. The aim of this systematic review was to identify, summarise and critically evaluate the research exploring both informal and formal peer support on burnout, mental health, or organizational outcomes in healthcare workers. A database search was undertaken (PsychINFO, MEDLINE, Web of Science and CINAHL) to identify eligible studies that were peer reviewed and published between 2006-2023. Eighteen papers were identified and included in the review, comprising 4,134 participants. Given the heterogeneity across studies to date, methodological quality was assessed, and a narrative synthesis was undertaken. Despite the mixed findings across studies, the results demonstrated that the majority of formal peer support interventions did not report statistically significant findings, when measuring the impact on burnout, stress, mental health or organizational outcomes. In contrast, many of the studies exploring the effects of informal support, reported significant findings across all outcomes, which emphasises the benefits of informal encounters of peer support within the workplace. Such findings suggest that formalised peer support programmes may not necessarily be required to improve individual and organizational outcomes. Instead, a focus on implementing an organizational culture that promotes the use of informal support through a top-down process across organizations should be considered.

1.2 Introduction

Burnout is the consequence of persistent exposure to chronic stress, which often occurs when excessive pressures or other types of demands outweigh the individual's ability to manage the workload effectively (Schaufeli & Leiter, 1996). Emotional exhaustion, depersonalization and low sense of personal accomplishment are all considered as symptoms of burnout (Maslach et al., 1996) which are often linked to reduced levels of job satisfaction, absenteeism, higher sickness rates and poorer psychological outcomes within the workplace (Larsson & Sanner, 2010; Bowling, et al., 2015; Nixon et al., 2011). It's been suggested that employees who work within a supportive environment are likely to experience increased job satisfaction (Butts et al., 2009). Consistent support from colleagues is associated with reduced levels of emotional exhaustion (Jenkins and Elliot, 2004; Coffey & Coleman, 2001., Glasberg et al., 2007) and can serve as a protective factor from burnout and occupational stress (Bowling et al., 2015).

Social support has been defined within the research as multidimensional (Taylor & Stanton, 2007). The Social Support Theory identified four constructs: emotional, informational, instrumental, and appraisal support (Peterson & Bredow, 2019). Emotional support involves offering empathy and gratitude to colleagues. Informational support encompasses education, advice, and guidance. Instrumental support consists of offering colleagues tangible support, whereas appraisal support includes the use of validation and recognition, which in turn increases a sense of belonging (Peterson & Bredow, 2019). Collectively the four constructs have been utilised in research to measure the various aspects of social support.

Peer support can be described as support provided among peers. Mead, Hilton, and Curtis (2001) defined peer support as "a system of giving and receiving help founded on key principles of respect, shared responsibility, and mutual agreement of what is helpful" (p. 137). Peer support can incorporate all four constructs of support identified through the Social Support Theory (Peterson & Bredow, 2019).

As identified within the research, formal peer support can be described as peers participating in organizational peer-run programmes, training, interventions, or mentoring programmes (Bradstreet, 2006). The research to date indicates that peer support programs in organizations can enhance psychological resilience and improve reciprocal support between colleagues, leading to better mental health outcomes and reduced levels of isolation (Wallace, 2016; McGuire et al., 2020). 95% of healthcare professionals reported engaging in peer support, which exceeded the percentage who sought support from other sources (Folette, Polusny & Milbeck, 1994).

Despite the growing interest within the literature, research examining the role of peer support within healthcare organizations is still in the exploratory stages. The development of a peer support model originated within mental health services. Individuals with lived experience of mental health difficulties were employed within specialist roles to support with the recovery of service users (Wallcraft et al., 2003). The model has since evolved in health and social care settings with healthcare professionals offering peer support to one another. During the COVID-19 pandemic, several workplace peer support programs were developed to promote wellbeing and reduce work-related stress.

Sustaining Resilience at Work, a workplace peer support programme was developed to support the mental well-being of employees (Agarwal et al., 2020). The training demonstrated positive results, staff from various private or public sector roles were more able to support colleagues and maintain their own well-being. (Agarwal et al., 2020). Similarly, studies evaluating peer support programmes such as the Resilience in Stressful Events (RISE) (Edrees et al.,2016) and Trauma Risk Management (TRiM) (Agarwal et al., 2020) reported similar findings. Peers who participated in the RISE programme were able to offer psychological first aid and emotional support to colleagues who experienced stressful clinical incidents within the workplace. The initial findings indicated that RISE improved organizational outcomes and reduced the adverse impact of stressful events on the psychological health of employees (Edrees et al., 2016). TRiM has widely evolved as a peer support programme in the army and police force (Greenberg, Langston & Jones, 2008). The training supports staff to undertake a psychological risk assessment with colleagues to mitigate the risks and adverse effects associated with exposure to traumatic incidents. TRiM has recently begun to evolve in healthcare organisations with healthcare staff, particularly during the COVID-19 pandemic and initial findings have demonstrated promising outcomes (Flaherty & O'Neil, 2021).

Although there appears to be growing evidence supporting the implementation of peer support interventions, the impact of peer support and the various types of peer support have not been fully explored. In one of the first reviews that explored the evidence surrounding peer support in mental health services, peer support was categorised into three types: informal peer support (naturally occurring), peer support programmes and the employment of peer supporters who are service users (Davidson et al., 1999).   Peer support within healthcare organizations is often evaluated through formal peer support programmes (Agarwal et al., 2020; Edrees et al.,2016; Greenberg et al., 2008). It's also equally important to consider the effectiveness of informal encounters of peer support in the workplace. Informal peer support, which consists of naturally occurring support from peers, incorporates the four constructs of support identified by Peterson and Bredow (2019Within the context of the review conducted by Davidson et al., (1999), informal peer support was defined as naturally occurring support between individuals, that include components of emotional and instrumental support. This involved offering empathy, encouragement, a space to listen and the offer of tangibles or practical support. Informal support from peers has been linked to greater well-being and job satisfaction and has also served as a buffer against stress and burnout (Van Emmerik et al., 2007; Van der Ploeg et al., 2003; Cummins, 1990).

The impact of both formal and informal peer support in the working environment has demonstrated promising findings, with reports of improved mental health outcomes for those who are receiving or engaging with either formal or informal peer support (Butts et al., 2009). A recent systematic review by Crandall et al., (2022) attempted to explore the effects of provider-to-provider peer interventions on emotional support, organizational measures, and mental health outcomes of health care providers across the USA. The review reported limited evidence for the effect of formal peer support programmes on burnout, emotional support, and organizational outcomes. This was largely due to the quality of the studies included, with inconsistencies and biases reported across the studies designs, interventions and outcomes. The review was therefore not able to meaningfully address the proposed questions.

To address issues of heterogeneity, the current review will examine peer support and its impact on outcomes globally. This will allow for further reporting in the similarities or differences across interventions and findings, which could support with synthesising the findings and building on more robust conclusions. Additionally, Crandall et al., (2022) focused solely on formal peer support in contrast to exploring informal peer support. The current review will further expand on this through exploring the impact of different types of peer support, which compares both formal and informal peer support and its impact on burnout, mental health and organizational outcomes.

1.2.1 Objectives

To expand on the gaps identified, the current review will consider the various types of peer support (formal and informal) within healthcare organizations globally. In addition, it will explore the impact of peer support on burnout, mental health, and other organizational outcomes. The findings from this review may help to inform healthcare organizations of the value of different types of peer support, as a possible preventative and protective measure within the workplace.

This review will therefore aim to answer the following questions:

- How does peer support impact upon burnout, mental health or organizational outcomes in healthcare professionals?
- Do different types of peer support impact upon burnout, mental health or other organizational outcomes in healthcare professionals?

1.3 Materials and Methods

1.3.1 Search Strategy

The Patient, Intervention, Comparison, Outcome (PICO) framework was utilised to define the review's research question, search strategy and protocol (Richardson et al., 1995). The review was registered with PROSPERO in January 2023 (Booth et al., 2014). The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRIMSA) guidelines (Page et al., 2021).

Four electronic databases, PsycInfo (through EBSCO), Cumulative Index of Nursing Allied Health Literature (CINAHL, through EBSCO), Medline (through EBSCO) and Web of Science were used to undertake a systematic search of the literature in February 2023. In addition, grey and unpublished literature was sought through searching the Bielefeld Academic Search Engine (BASE), ProQuest and through a citation search in the Web of Science database to ensure a diverse range of sources were explored.

1.3.2 Search Terms

To generate search terms, previous systematic reviews within the peer support and burnout literature were identified (Crandall et al., 2022). Table 1 outlines the full search syntax utilised to identify relevant literature within PsycInfo, Medline and CINHAL. The terms were adjusted accordingly to undertake the same search in Web of Science. Key words related to (a) healthcare staff/professionals, (b) peer support and (c) burnout were connected by the Boolean operator 'OR'. The terms were then combined using the operator 'AND'. Search filters were applied when searching all four databases to include only peer-reviewed journal articles written in the English language between the date range of 2001-2023.

Table 1

Search Syntax used when searching all four databases

Review Protocol and Database	Search Syntax
Population (Health Care Staff) All four databases	“healthcare worker*” OR “healthcare professional*” OR “healthcare staff” OR nurs* OR doctor or medic* OR physician OR clinician OR “social worker” OR “support worker” OR psychologist OR physiotherapist OR “occupational therapist” OR “medical personnel”
AND	
Predictor Variable (Peer Support) PsycInfo, Medline and CINHAL	Peer* N1 (support OR group* OR intervention OR mentor* OR engage* OR program*OR initiative)
Web of Science	“peer support” OR “peer group” OR “peer intervention” OR “peer mentor*” OR “peer engage*” OR “peer program*” OR “peer initiative”
AND	
Outcome Variable (Burnout/Work Stress/Mental Health/Organizational Outcome) All four databases	“wellbeing OR "well-being" OR "employee wellbeing" OR "job satisfaction" OR burnout OR “emotional exhaustion” OR depersonalization OR “occupational stress” OR "coping behaviour" OR "coping skills" OR “compassion fatigue” OR “secondary trauma” OR “traumatic stress”

1.3.3 Inclusion and Exclusion Criteria

Studies were eligible for inclusion if they were peer reviewed papers, written in the English language and published between 2001 and 2023. The date range was based on the definition of peer support identified within the last dated empirical paper (Mead et al., 2001). Studies were included if participants were health or social care professionals receiving peer support in health and social care settings. This could include, but is not exclusive to, doctors, nursing staff, social workers, support workers, physicians, psychologists, physiotherapists, and occupational therapists. The population is not restricted to the UK and this review examined studies globally. The review included cross-sectional, correlational, pre and post, quasi experimental, cohort or RCT designs. Studies were eligible if they measured or evaluated peer support interventions (formally or informally); included at least one measure of burnout or a mental health outcome (i.e compassion fatigue, traumatic stress etc) or an organizational outcome (i.e job satisfaction, work related stress etc).

Studies were excluded if they had a qualitative design or included participants that were mental health peer support workers or specialists, employed by mental health services to deliver peer support.

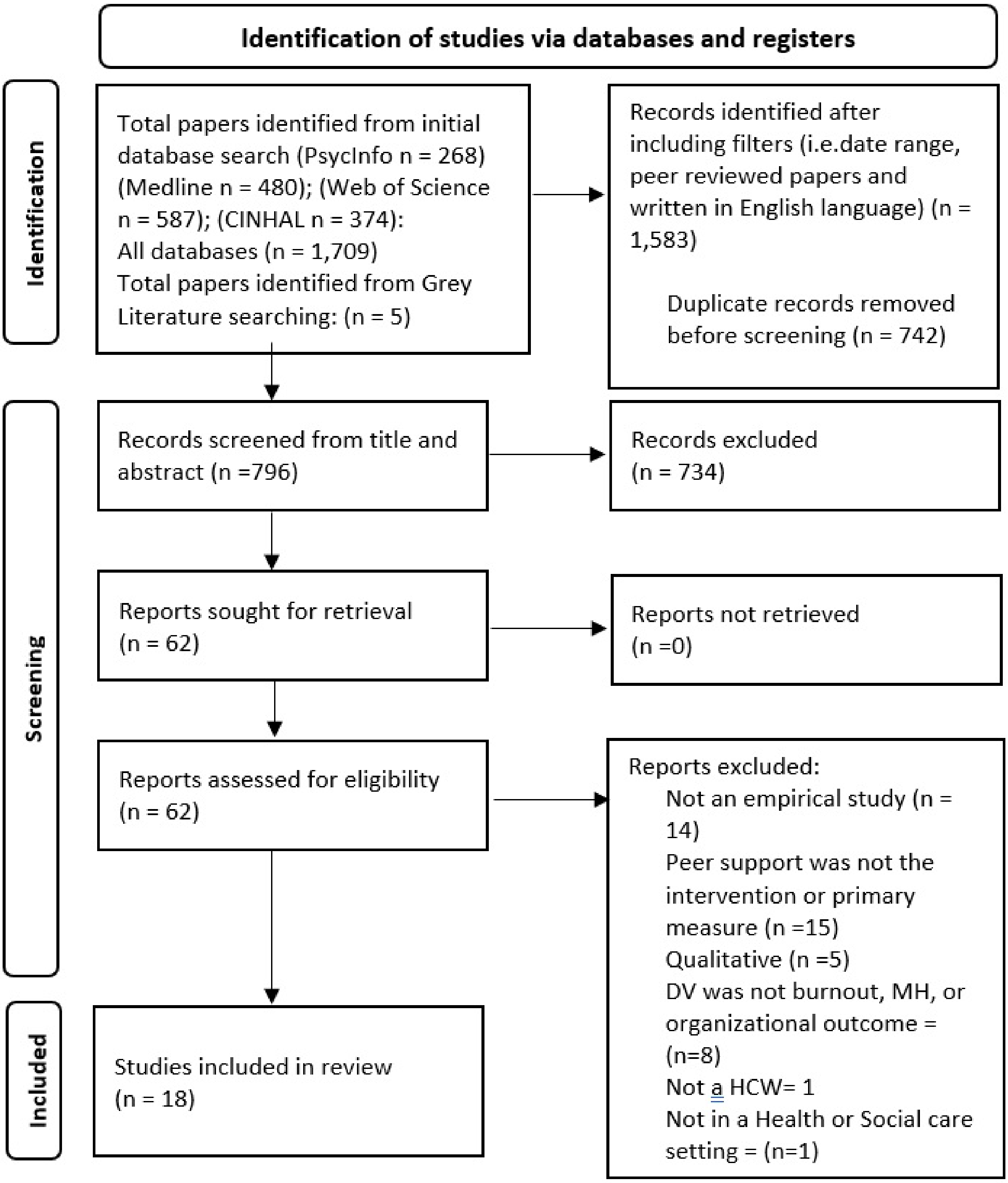
1.3.4 Screening and Selection

The PRISMA Flow Diagram (Page et al., 2020) is presented in Figure 1. The systematic search of all four databases yielded 1,709 papers. The returned searches were filtered to include only peer reviewed papers, written in the English language, published between 2001-2023, which identified a total of 1,583 papers. From the grey literature searches, 5 papers were identified. 742 duplicates were removed, and 796 titles and abstracts were later screened for eligibility. Following title and abstract screening, 62 papers were identified as eligible for full text screening. A further 44 studies were excluded at this stage (see Figure 1), leaving 18 studies to be included in this review.

The screening process was undertaken with a second rater who examined 30% of the included and excluded studies, to ensure reliability and to reduce the risk of bias. Inter-rater reliability was calculated during the abstract and title screening, of the 30% of studies screened by the second rater, there was a 93% agreement. During full text screening, 30% of the studies were screened by a second rater and an 89% agreement was calculated. Disagreements were discussed and clarified throughout the process and a decision to include or exclude was agreed by both raters prior to identifying the 18 included studies.

Figure 1

PRISMA Flow Diagram



Note: DV = Dependant Variable. MH = Mental Health. HCW = Healthcare Worker.

1.3.5 Quality Assessment

The quality of the 18 included papers was assessed using the Standard Quality Assessment Critical Appraisal Tool (QualSyst;)-(Kmet et al., 2004). This validated tool incorporates two scoring systems which can be used for both quantitative and qualitative research. For this systematic review, only the quantitative criteria were utilised to assess the studies included. The QualSyst was chosen for its broad range of appraisal criteria and its ability to quality assess a diverse range of quantitative study designs. The quality of the studies is scored through the criteria of 'yes' which equates to (2) points, 'partial' which equates to (1), 'no' which equates to (0) or 'N/A'. Higher scores indicate higher quality studies. The total score for each study is calculated as a sum of the ratings of each item and divided by the maximum of applicable criteria. The score is then converted into a percentage score, which can be interpreted using the QualSyst criteria. A score of >80% is interpreted as strong quality, 60-79% as good quality, 50-59% as adequate and a score of <50% is ranked as poor methodological quality.

Table 2

A summary of the methodological quality rating assessed using the QualSyst

Authors and Date	**QualSyst Score (%)**	**Methodological Quality**
Jyothindran et al., 2001	86%	Strong
Fisak et al., 2020	63%	Good
Davison et al., 2007	71%	Good
Pinks et al., 2021	67%	Good
McLean et al., 2023	59%	Adequate
Thompson et al., 2022	81%	Strong
Wahl et al., 2021	81%	Strong
Portoghese et al., 2018	86%	Strong
Connors et al., 2020	72%	Good
Peterson et al., 2008	82%	Strong
Barnard et al., 2006	81%	Strong
Manning-Jones et al., 2016	86%	Strong
Wang et al., 2022	81%	Strong
Eagle et al., 2012	54%	Adequate
Davidson et al., 2017	45%	Poor
Elbay et al., 2018	81%	Strong
Bozionelos, 2009	77%	Good
Ageel et al., 2022	81%	Strong

A second rater examined 30% of the included studies, a good level of agreement (93%) was identified between both raters. Of the 18 studies that were quality assessed, the quality of the studies ranged from a poor to strong rating. One study was rated as poor, two studies were rated as adequate, five studies were rated as good and ten of the studies were interpreted as having strong methodological quality. All 18 studies were included in the analysis. Final QualSyst scores ranged from 45% (Davidson et al., 2017) to 86% (Jyothindran et al., 2001; Portoghese et al., 2018; Manning-Jones et al., 2016). The ratings of all 18 studies included is listed in table 2 and a detailed breakdown can be found in Appendix A.

1.3.6 Data Extraction

The studies details (e.g author, country, year), design, participant characteristics, type and content of the intervention delivered, outcome measures and statistical analyses are presented in table 3 and 4.

Due to the diverse range of study designs, interventions and outcome measures utilised within each study, a narrative integration approach was undertaken to synthesise the data. A narrative synthesis involves describing, organising, and exploring the similarities and differences between the findings of different studies, as well as exploring the patterns that emerge (Higgins et al., 2019). A narrative synthesis focusses on the use of text to summarise the findings and assess the strength of the evidence provided (Lisy & Porritt, 2016). The final stage is to critically reflect on the strengths and weaknesses of the synthesis methods utilised.

1.4 Results

1.4.1 Study Characteristics

Eighteen studies were included in this review. The publication dates of the papers ranged from 2006 (Barnard et al., 2006) to 2023 (McLean et al., 2023). Most of the studies were undertaken in the USA (*n* = 8), two were conducted in Australia, two from Saudi Arabia and one from each of the following countries: Canada, Guam, Italy, Sweden, New Zealand, and Turkey.

1.4.2 Participants

The majority of participants were female (70%). From the eight studies that reported mean age, there was an average age of 41 years old, with the age ranging between 25-60 years old. Only four of the eighteen studies reported details on ethnicity; across these studies, participants identified themselves as White (71%), Black/African American (6%), Asian (10%), Arab (7%) or as belonging to another ethnicity group (‘other’, 3%). Seven of the studies included nursing staff, two included student nurses and paramedics, two included physicians and the seven remaining studies included healthcare workers from various disciplines. Further information regarding the participants is listed in table 3.

1.4.3 Study Designs

Eight studies used cross-sectional design, six used a pre-post design, two used a quasi-experimental design, one study used a randomised controlled design, and another used a controlled design. The reported sample sizes in the studies ranged from 870 participants (Portoghese et al., 2018) to 22 (Eagle et al., 2012). The total sample size across all 18 studies was 4,134.

Table 3

A summary of the participant’s characteristics across the eighteen studies included

Author	Date	Country	Sample Size (N)	% Female	Mean Age	Profession	Setting
Jyothindran et al	2021	USA	242	43%	N/R*	Physicians	Emergency Department
Fisak et al	2020	Guam	40	62%	N/R	Nurses	Navy Hospital
Davison et al	2007	Australia	90	90%	45	Nurses	Care Home
Pinks et al	2021	USA	141	51%	26	Paramedic Students	Community Setting
McLean et al	2023	USA	Pre = 246,Post = 90	80%	N/R	HCW’s*	Variety of Health and Social Care Settings
Thompson et al	2022	USA	Pre = 31, Post = 32	57%	N/R	Nurses	Hospital
Wahl et al	2018	USA	Pre = 41, Post = 21	95%	45	HCW’S	Hospital
Portoghese et al	2018	Italy	870	71%	N/R	HCW’S	Hospital
Connors et al	2020	USA	375	N/R	40	Nurses	Hospital

Author	Date	Country	Sample Size (N)	% Female	Mean Age	Profession	Setting
Peterson et al	2008	Sweden	870	83%	50	HCW’s	Hospital
Barnard et al	2006	Australia	101	91%	N/R	Nurses	Oncology
Manning-Jones et al	2016	New Zealand	365	82%	48	HCW’s	N/R
Wang et al	2022	Canada	31	83%	N/R	Nursing Students	N/R
Eagle et al	2012	USA	Pre =28, Post =22	N/R	N/R	HCW’s	PICU*
Davidson et al	2017	USA	Pre=164, Post =83	N/R	N/R	HCW’s	Hospital
Elbay et al.	2018	Turkey	442	56%	36	Physicians	N/R
Bozionelos	2009	Saudi Arabia	206	86%	39	Nurses	Hospital
Ageel & Shbeer	2022	Saudia Arabia	180	53%	N/R	Nurses	ICU

Notes. HCW’S = Healthcare workers. N/R = Not recorded. PICU = Psychiatric Intensive Care Unit. ICU = Intensive Care Unit.

1.4.4 Outcome Measures

1.4.4.1 Measures of Burnout

Eleven of the eighteen studies measured burnout, of which six used validated burnout measures and three used adapted measuring assessing burnout through single or multiple items within a questionnaire. Of the eleven studies, four used additional measures to assess either stress, mental health, or an organizational variable (e.g job satisfaction, absenteeism and turnover intention). Four of the studies used the Maslach Burnout Inventory (MBI) (Maslach et al., 1997) and two used the Professional Quality of Life Measure (ProQOL) (Stamm, 2009) and Oldenburg Burnout Inventory (OLBI) (Demerouti et al. 2001). The remaining studies used the Copenhagen Burnout Inventory (CBI) (Kristensen et al., 1999), Burnout Measure Short Form (Malach-Pines, 2005) and an adapted version of the Professional Fulfilment Index (Trockel et al., 2018).

1.4.4.2 Measures of Stress

Three of the eighteen studies included in this review, measured stress. These included the Response to Stressful Experiences Scale (RSES) (De La Rosa,et al., 2016), the Perceived Stress Scale (PSS-10) (Warttig et al., 2013) and the Stressor Scale for Paediatric Oncology Nurses (SSPON) (Hinds et al., 1990).

1.4.4.3 Measures of Mental Health

Four studies used measures to assess mental health symptomology and wellbeing. Three of the studies used the Depression Anxiety Stress Scale Test (Lovibond & Lovibond,1995), two used the Hospital Anxiety Depression Scale (Zigmond & Snaith 1983), one used the Secondary Traumatic Stress Scale (Bride, 2004) and another study used the Warwick–Edinburgh Mental Well-being Scale (Stewart-Brown & Janmohamed, 2008). A fifth study developed two items to measure stress and anxiety within participants.

1.4.4.4 Measures of Organizational Outcomes

Three of the eighteen studies used measures to assess various organizational variables. One study used the Second Victim Experience and Support Tool (Burlison et al., 2017) to measure absenteeism, turnover, distress, and perceived support. Another study measures job satisfaction and turnover using the McCloskey and Mueller Satisfaction Scale (Mueller & McCloskey, 1990).

The third study used the HSE Management Standards Indicator Tool (Edwards et al., 2008) which measures workplace conditions related to work related stress.

1.4.4.5 Measures of peer support based on study design

Seven studies included in the review with cross sectional designs, measured peer support. Two of the studies used the HSE Management Standards Indicator Tool, utilising the peer support subscale to measure the perceived level of support from colleagues (Portoghese et al., 2018; Ageel et al., 2022). Another study used the Social Support Scale (Bride et al., 2004) to evaluate four social support functions (instrumental, informational, emotional and appraisal support) from colleagues (Manning-Jones et al., 2016). Four developed their own items via Likert scale questions to establish the level of support received from peers at work (Jyothindran et al., 2021; Barnard et al., 2006; Elbay et al., 2020; Bozionelos, 2009).

Two of the studies which evaluated a formal peer support intervention with either a pre and post or quasi experimental design used an additional measure to assess peer support. McLean et al., (2023) developed their own single items. Pinks et al., (2021) used the Multidimensional Scale of Perceived Social Support (Kazarian et al.,1991) to determine the perceived adequacy of support received from peers and further developed a two-item measure to assess perceptions of support received by peers

The remaining nine studies evaluating the use of formal peer support interventions did not use any additional measures to assess peer support.

1.4.5 Formal Peer Support

Eleven of the studies in this review evaluated a formal peer support intervention and the remaining seven studies measured the relationship or association of peer support with another outcome variable, which was categorised in this review as informal peer support.

Of the eleven studies that explored the use of formal peer support interventions, the duration and frequency of interventions appeared to vary between studies. Six of the studies offered multiple peer support sessions (Davison et al., 2007; McLean at al., 2003; Eagle et al., 2012; Wang et al., 2022; Peterson et al., 2008; Pinks et al., 2021) which were either weekly or monthly sessions, which ranged from 20 minutes to 2 hours in length. Four of the studies offered peer support upon request (Connors et al., 2020; Fisak et al., 2020), two of which offered peer support 24 hours a day, 7 days a week (Thompson et al., 2022; Wahl et al., 2021). One study offered a care package which consisted of instrumental support and was offered to all staff on a one-time basis who were part of the peer support programme (Davidson et al., 2017).

Four of the studies offered peer support via a group format (Davison et al., 2007; Eagle et al., 2012; Pink et al., 2021; Peters et al., 2021) and one study offered both group and individual peer support (Wahl et al., 2021). The remaining studies offered individual sessions of peer support, mentoring or coaching sessions.

Four of the studies utilized a specific framework as a structure to deliver the peer support., Connors and colleagues (2020) employed the RISE framework, designed to offer timely support to peers who encounter stressful events in the workplace. ‘Code Lavender’ was developed as a framework to deliver instrumental support to employees from colleagues within the workplace (Davidson et al., 2017). The ‘Buddy’ framework was utilized as a pre-clinical peer-to-peer intervention to address occupational and compassion fatigue and workplace stress (Fisak et al., 2020). Lastly, the CARES framework was employed for colleagues to offer emotional support to peers (Pinks et al., 2021). All of the interventions in the eleven studies incorporated elements of informational, instrumental and emotional support to varying degrees.

In addition to offering peer support, five of the studies offered additional training to those who were delivering the peer support. The training consisted of Stress First Aid (McLean et al., 2003), Compassion Focused Training (Wahl et al., 2021), Psychological First Aid (Thompson et al., 2022) Grief Management and (Eagle et al., 2012) and in-house training to support with utilising self-care when experiencing secondary traumatic stress and burnout (Davidson et al., 2017).

The formal and informal peer support interventions from all eighteen studies are further described in table 4.

Table 4

An overview of formal and informal peer support, designs, sample sizes and key findings

Formal Peer Support					
Author and Date	**Design**	**Sample Size (N)**	**Intervention**	**Data Analysis**	**Key Findings**
Fisak et al., 2020	Pre and Post	Baseline Measures = 12 Post Measures: 3 months = 12 6 months = 11	Peer Coaching Individuals are paired with another peer of similar experience. Peer Support upon request	T-Tests	No statistically significant differences were reported between burnout scores (Pre to Post 3 months, $p = 0.63$, Pre to 6 months, $p = 1.00$, or 3 to 6 months $p = 1.00$) across time points after accessing peer support.
Davison et al., 2007	Controlled Trial	Intervention Group (Peer Support) = 29 Training Group = 35 Control Group = 26	Five Peer Support Sessions Group Format 30–60-minute sessions Staff choose topics Facilitated by researchers	ANCOVA's	Results demonstrated no effect of training on burnout subscales (EE, DP, PA); Post-hoc analysis showed no additional effect of peer support (relative to the training group) on any of the subscales, ($F < 1.10$, $p > 0.05$).
Pinks et al., 2021	Quasi Experimental	Intervention Group = 44	90 minute workshop Groups of 5-6 peers	T-tests	Statistically significant increase reported in emotional expressivity scores ($p=0.047$) and emotion-focused coping

		Control Group = 34	CARES Framework		scores (p=0.002) and a reduction in help seeking scores (p<0.001) in the intervention group, after engaging in peer support. Intervention group stress scores significantly increased between time point 1 and 2 (p=0.004).
Author and Date	**Design**	**Sample Size (N)**	**Intervention**	**Data Analysis**	**Key Findings**
McLean et al., 2023	Pre and Post	Baseline Measures = 246 Post Measures = 94	Stress First Aid Co-worker Support Model; 8 weekly sessions 20-30 minutes	Mann-Whitney U tests comparing the group scores pre and post	Stress and anxiety was significantly higher among those who completed the SFA sessions, compared to pre SFA scores (U(244) = 9739.50, p =0.39). Proficiency in supporting peers was higher in those who attended the SFA group, U(245) = 9123.00, p = .002. Burnout, mood, valuation and perceptions of peer support were not different across the two timepoints (≥.197).
Thompson et al., 2022	Pre and Post	Baseline Measures = 51 Post Measures = 32	Peer Support Training Psychological First Aid 8 nurses trained in Peer Support; Peer Support available 24/7 upon request	Correlations Mann-Whitney U	Moderate to strong positive correlations were reported between psychological distress and physical distress (pre-r_s =0.583; post-r_s = 0.638), intervention to leave and absenteeism (pre- r_s = 0.455; post- r_s =0.410). On Post intervention, moderate to strong positive correlations were identified between: insufficient colleague support and absenteeism (post- r_s = 0.508), insufficient colleague support and turnover intention (post- r_s = 0.355).
Wahl et al., 2021	Pre and Post	Baseline Measures = 33 Post Measures = 20	Peer Support Network 3 tiers of Peer Support 1st and 2nd tier = Emotional First Aid;	T-Tests	On the subscales of ProQOL-5 and CPI, all scales showed improvements in decreasing fatigue and increasing satisfaction. The compassion satisfaction subscale was statistically significant after accessing peer support (*t*18, =

			CFT training, Peer Support training; Peer Support available 24/7 Individual and Group sessions		4.0, $p = .001$. The compassion fatigue scores decreased but did not demonstrate significance ($t19 = -1.630$, $p = .83$)

Author and Date	Design	Sample Size (N)	Intervention	Data Analysis	Key Findings
Connors et al., 2020	Cross-Sectional	375	Peer Support Programme The Resilience in Stressful Events (RISE) Framework; Peer Support upon request	Pearson's correlations Chi-Square Logistic Regressions	Among those who had used RISE, 93% indicated levels of burnout. Among those who had never used RISE, 67% reported burnout. The difference was statistically significant ($p=0.03$). Those who had used RISE in the past year were significantly more likely to report resilience ($p=0.025$). No differences in job satisfaction between nurses who had used RISE and those who had not. Responses regarding burnout revealed that 40% of nurse leaders who had activated RISE reported at least some burnout, versus 50% who had not activated RISE.
Wang et al., 2022	Quasi Experimental	31	Peer Mentoring Virtual mentor and mentee matches, Meet twice a month; Mentor training programme 1 year programme	T-tests MANOVA	At baseline, mentors had higher WEMWBS ratings, ($t(29) = 3.658$, $p < 0.01$) and lower DASS total ratings ($t(29) = -2.28$ $p < 0.05$) compared to mentees. At time 2, mentors continued to experience higher anxiety ratings compared to mentees ($t(29) = 2.07$ $p < 0.05$). At time 3, no differences were noted between mentors and mentee ratings. From time 1 to time 3, the mean scores for WEMWBS and SCS increased with mean scores for DASS decreasing for mentees. One-way MANOVA revealed a non-significant difference in scores of mentees over time ($F(57, 114) = 0.93$, $p = 0.55$).

Author and Date	Design	Sample Size (N)	Intervention	Data Analysis	Key Findings
Peterson et al., 2008	RCT	Intervention Group = 51 Control Group = 80 Non-Participants = 509	Reflecting Peer Support Groups; Weekly two hour sessions	ANCOVA	Both groups reported an overall decrease in scores of exhaustion, disengagement, depression, anxiety and quantitative demands between T0 to T1. Comparisons of change between groups 12 months after the intervention revealed interaction effects in perceived quantitative demands (*F* = 6.25*,* p = 0.014*)* and in general health *(F = 6.91,* p = 0.010) when using T1 scores as covariates.
Eagle et al., 2012	Pre and Post	Baseline Measures = 28 Post Measures = 22	Peer Support Sessions Training/Education Offered on 3 occasions	T-tests	The difference between CBI scores pre and post intervention did not demonstrate significant results. For the three domains of the CBI, the post-test scores were as follows: client-related burnout (p = 0.38), personal burnout (p = 0.31), work-related burnout (p =0.28).
Davidson et al., 2017	Pre and Post	Baseline Measures = 164 Post Measures = 83	Peer Support Programme (Code Lavender) Care packages provided to employees by peers; Instrumental support; Training provided	T-tests	Results indicated no statistically significant differences between the dimensions of compassion satisfaction *(t*(1,65)= 0.53, p= .60), burnout (*t*(1,63) =0.26, p=.79) or secondary traumatic stress *(t*(1,63) =0.82, p= .41) when measured before and after Code Lavender. No differences were reported in job satisfaction pre and post (p=0.58).
Informal **PeerSupport**					
Author and Date	**Design**	**Sample Size (N)**	**Intervention**	**Data Analysis**	**Key Findings**

Elbay et al., 2018	Cross-Sectional	442	No intervention	Multiple Regression	Regression analysis indicated that low support from peers and supervisors and low occupational competence were associated with higher stress scores. Lower support from peers (p=.001 and p=.014 respectively for anxiety and stress scales) and supervisors (p=.001) for both anxiety and stress scales) were independently associated with stress and anxiety scores.
Bozionelos, 2009	Cross Sectional	206	No intervention	ANCOVA's	Male participants reported greater peer support than their female counterparts, which demonstrated significance *F*(1, 196) = 3.31, p <.001). Arab and non-Arab-origin participants did not differ in reports of peer support , (b = –3.61, *t* = -1.84, p<.05). Peer support was significantly related to job satisfaction (β = .23, t= 2.91, p< .001).
Ageel et al., 2022	Cross Sectional	180	No intervention	Mann-Whitney U Kruskal-Wallis test Spearman's Correlation	There were significant positive correlations between all HSE management standards with the domain of peer support. Peer support and work demands (r_s (180) = 0.34, p<0.05); peer support and control (r_s (180), =0.71, p=0.01).
Portoghese et al., 2018	Cross-Sectional	870	No intervention	Confirmatory Factor Analysis Mediation and Moderation	Results demonstrated a statistically significant interaction between patient verbal abuse and peer support (R2 = .12, *F* (3, 866) = 35.43, p < .01). Patient verbal abuse was positively related to emotional exhaustion for employees both with strong peer support *(B* = .43, SE = .08, p < .001) and weak peer support (*B* = .20, SE = .06, p < .001).
Manning-Jones et al., 2016	Cross-Sectional	365	No intervention	Correlations	Peer support was significantly correlated with STS. A significant main effect was found for peer support, (*F* (4,360)

				MANOVA	= 2.92, p = .02). Significantly higher scores in peer support were reported by nurses compared to Psychologists (p = 02, d=0.51).
Author and Date	**Design**	**Sample Size (N)**	**Intervention**	**Data Analysis**	**Key Findings**
Jyothindran et al., 2001	Controlled Trial	242	No intervention	Correlations Logistical Regression	Moderate correlations were identified between burnout and four of the wellness culture domains (value *r*= 0.45; appreciation *r*=.045; schedule *r*=.039; and peer support *r*=(*r* =-.034). A logistical regression reported only family support (p =0.025) and appreciation (p=0.004) as significant predictors of burnout.
Barnard et al., 2006	Cross Sectional	101	No intervention	Correlations	Higher mean scores were reported for 'informational support and 'emotion support' from peers. Correlations reported a significant but weak correlation (*r* = 0.22) between peer support and personal accomplishment.

Notes: CARES = Connect to emotion, attention, training, Reflective listening, Empathy, and Support help seeking. ProQOL-5 = The Professional Quality of Life Scale. CPI= Compassion Practice Instrument. WEWBS= The Warwick-Edinburgh Mental Well-being Scale. DASS= Depression Anxiety Stress Scale. CBI = The Copenhagen Burnout Inventory.

1.4.6 Informal Peer Support

Seven studies in the review used cross-sectional designs and evaluated the use of informal peer support. The studies explored the association and relationship of peer support with burnout, stress, mental health, or an organizational outcome. Informal peer support in this review is defined as naturally occurring support from peers within the workplace which incorporates the four constructs of support by Peterson & Bredow (2019). Informal peer support within the studies incorporated emotional support which involved offering empathy, encouragement, a space to listen and reciprocal respect for colleagues. Informational and instrumental support was also identified, which involved providing solutions and supporting a peer's work by sharing the workload (Jyothindran et al., 2001; Portoghese et al., 2018; Manning-Jones et al., 2016).

1.4.7 Formal Peer Support and the impact on Burnout

Of the seven studies that measured the impact of formal peer support interventions on burnout, only one study reported a reduction in burnout between baseline and post intervention (Fisak et al., 2020). The study reported a medium effect size on burnout scores between baseline and 3 months and between baseline and 6 months. The intervention involved peer coaching, upon request which utilised the 'Buddy' framework. However, it is important to note that this study had a small sample size which could limit the generalizability and increase the likelihood of type II errors. A study with a similar intervention utilising a specific framework (RISE), which was also offered to colleagues upon request, did not find a statistically significant difference between nurses who accessed the peer support and those who didn't. Despite this finding, the study did report that nurses who used RISE in the past year were significantly more likely to report resilience (Connors et al., 2020). Studies that incorporated training and peer support (McLean et al., 2023; Wahl et al., 2021; Eagle et al., 2012; Davidson et al. 2017) did not report any significant difference in participant's burnout scores pre and post intervention. Similar findings were reported in a controlled trial which involved three groups (control, training, and training with peer support) the study did not report any significant difference in burnout scores between all three groups(Davison et al., 2007 It is also important to note, that the study did not clearly specify its sampling method which could also further limit its generalisability.

1.4.7.1 Formal Peer Support and the impact on Stress

Three of the eleven studies evaluating a formal peer support intervention explored the impact on stress pre and post intervention. None of the studies reported statistically significant differences or reductions in stress scores post intervention. Pinks et al (2021) reported that stress scores in fact increased in peers who attended the intervention group. Similarly, McLean et al., (2023) reported that stress scores were higher in employees who had accessed the Stress First Aid Peer Programme. Despite this, proficiency in supporting peers was rated higher post intervention compared to pre ratings. Fisak et al (2020) assessed the impact of a peer support programme on occupational stress scores pre and post intervention. However, like the two previous studies, no statistically significant differences in scores measuring perceived stress or on the RSES measure were reported post intervention. The lack of participant characteristics and data collected across time points in the study could also limit the inferences drawn.

1.4.7.2 Formal Peer Support and the impact on Mental Health

Four studies explored the impact of peer support interventions on mental health outcomes. Peterson and colleagues (2005) reported a reduction in follow up scores of peers on depression and anxiety after accessing a peer support intervention. Additionally, a positive interaction between general health and exhaustion was also identified between time points. The other three studies reported poorer mental health outcomes. Pink and colleagues (2021) reported a significant increase in emotional expressivity, emotion focused coping and a reduction in help seeking scores on the GHSQ after attending a peer support intervention.

Similarly, another study by Wang et al. (2022) reported higher anxiety scores in mentors on the DASS-21 compared to mentees following individual peer mentoring, despite wellbeing scores improving for both mentors and mentees across time points. The study, however, did not report any significant results across wellbeing domains post intervention (Wang et al., 2022). The findings are consistent with another study conducted by Davidson and colleagues (2017) who did not report any significant impact on dimensions of compassion satisfaction or secondary traumatic stress after accessing Code Lavender Peer Intervention. It is important to note that the studies had relatively small sample sizes.

1.4.7.3 Formal Peer Support and the impact on Organizational Outcomes

Four studies reported on organizational outcomes. As identified by the Work Stress Model (Palmer and Cooper, 2001) exposure to stressors, which are labelled as potential hazards within the model, can result in symptoms of stress at both an individual and organizational level. Organizational pressures (e.g organizational culture, increased demands, lack of control, role ambiguity, change, relationship conflict and lack of support) can result in absenteeism, increased turnover, reduced job performance and satisfaction, lower morale and increased levels of presenteeism.

A study evaluating the use of a peer intervention which consisted of individual peer support upon request and group peer support, reported significant improvements in fatigue and job satisfaction (Wahl et al., 2021). Findings from another study evaluating a formal peer intervention utilising a structured framework did not report any significant difference in job satisfaction between pre and post scores after receiving a peer intervention (Connors et al.,2020). Similarly, another study which evaluated the use of peer support on request, reported a significant association between insufficient colleague support with absenteeism and turnover intention (Thompson et al., 2022).

1.4.8 Informal Peer Support

1.4.9 Informal Peer Support and the impact on Burnout

Three studies utilized cross sectional designs and explored the use of informal peer support with burnout. One study found a moderate correlation between burnout and peer support, however further analysis only identified appreciation and family support as protective factors against burnout (Jyothindran et al., 2021). Similarly, Barnard and colleagues (2006) reported a weak but significant correlation between the burnout subscale of personal accomplishment and peer support. Another study found that staff who reported experiencing verbal abuse from patients were more likely to experience emotional exhaustion, this did not significantly differ however between those who received weak or strong peer support (Portoghese et al., 2018).

1.4.9.1 Informal Peer Support and the impact on Stress

From the seven studies that explored the impact of informal or naturally occurring peer support, two of the studies measured the impact on stress within the workplace. Manning-Jones and colleagues (2016) reported that all three forms of social support, which included peer support was significantly negatively correlated with secondary traumatic stress. The findings suggest that informal peer support may serve as a protective factor against traumatic stress in the workplace, which is also consistent with the results that indicated that peer support was positively correlated with vicarious post traumatic growth (Manning-Jones et al., 2016). Similarly, another study reported that lower levels of support from peers was associated with higher stress and anxiety scores (Elbay et al., 2018).

1.4.9.2 Informal Peer Support and the impact on Mental Health

In relation to mental health outcomes, a study conducted by Portoghese et al., (2018) reported a significant interaction between employees who experienced verbal abuse from patients and peer support. Peer support was identified as a moderator for improved mental health outcomes when colleagues were exposed to patient abuse.

1.4.9.3 Informal Peer Support and the impact on Organizational Outcomes

Of the studies that explored the impact of informal peer support on organizational outcomes, one study identified a significant relationship between peer support and job satisfaction (Bonzionelos et al., 2009). Another study reported a significant correlation between all of the HSE standards with peer support, which suggested that peer support positively impacted upon a colleague's ability to manage work related demands, change, relationships, role, control, and their role within the workplace (Ageel & Shbeer et al., 2022).

1.5 Discussion

1.5.1 Summary of Findings

The objectives of this review were to undertake a comprehensive synthesis of quantitative research to consider the impact of peer support (both formal and informal) on burnout, mental health, and organizational outcomes. The is the first systematic review to specifically explore the different types of peer support across these domains. A systematic search identified a total of 18 eligible studies published between 2006-2023. The majority of the studies were published within the last 5 years, which suggests that research within this area is current and developing. Given the recent impact of the Covid-19 pandemic on the mental health of health and social care staff, the implementation of staff wellbeing initiatives may have coincided with the increase in peer support on a global scale. It will be interesting to consider this within the context of the findings.

When comparing informal and formal peer support and its impact, the majority of formal peer support interventions did not report statistically significant findings when measuring its impact on burnout, stress, mental health or organizational outcomes. Six of the studies did not find any significant results and four reported mixed findings, indicating some improvement in outcomes but not in all the variables studied. In contrast, the majority of studies exploring the effects of informal support, reported significant findings across all outcomes. The findings of the studies will be discussed based on the type of peer support (formal or informal) while considering the impact on burnout, stress, mental health, and organizational outcomes. Additional sample characteristics will also be considered throughout.

1.5.1.1 Peer Support and Burnout

1.5.1.1.1 Formal Peer Support and Burnout

Of the studies that explored the effectiveness of a formal peer support interventions, only one study reported a reduction in burnout after receiving peer support from a mentor with a similar degree of knowledge and experience (Fisak et al., 2020). None of the remaining studies measuring the impact of formal peer support programmes reported a significant change in burnout in colleagues who were receiving the support. Despite having protected time to access the support, it could be suggested that colleagues who were already predisposed to symptoms of burnout, may be accessing the intervention reactively in contrast to proactively. Additionally, organizational and systemic factors may be maintaining the high level of burnout reported by healthcare staff which could be reducing the potential efficacy of more formal peer support interventions, particularly within the context of the pandemic. Without addressing such factors, the efficacy of formal peer support programmes in reducing burnout may be difficult to fully establish.

It is also important to consider the methodological limitations that were identified. Only six of the studies used validated measures of burnout and only four studies used the same burnout measure, which limits the ability to draw comparisons across studies.

1.5.1.1.2 Informal Peer Support and Burnout

Of the studies that explored the effectiveness of more ad hoc peer support, there appeared to be some similarities in findings. Two of the studies reported an association between peer support and the personal accomplishment subscale of burnout, which indicated that the informal support received from colleagues was linked to a greater sense of personal achievement within the workplace (Jyothindran et al., 2021; Barnard et al., 2006). The findings are supported by Kilfedder et al., (2001) who reported that higher levels of personal accomplishment in psychiatric nurses were associated with greater availability of social support. A workplace culture that promotes mutual support, which subsequently leads to frequent encounters of both emotional and instrumental support between colleagues, could serve to buffer the symptoms of burnout.

Interestingly, Portoghese et al., (2018) did not report any significant differences in the subscale of emotional exhaustion regardless of the level of informal support provided. Despite working within a supportive environment, the relationship between patient verbal abuse and emotional exhaustion was stronger. The results may serve to reinforce the stressful nature of working in such settings, whereby additional support from supervisors is also required to reduce the risk of burnout.

Collectively there is evidence to suggest that naturally occurring support between colleagues within the workplace can better mitigate the risk of burnout within the context of the current findings.

1.5.1.1.3 Stress Outcomes and Peer Support

1.5.1.1.3.1 Formal Peer Support and Stress Outcomes

The studies evaluating formal peer support interventions did not find any significant findings when measuring the impact on stress (Fisak et al., 2020), which is somewhat conflicting to the literature within this area (Butts et al., 2009; Gould, Greenberg, & Hetherton, 2007; Small et al., 2013). Pinks et al., (2021) reported that stress scores in fact increased in peers who attended the intervention group. Similarly, McLean et al., (2023) reported that stress scores were higher in employees who had accessed the Stress First Aid Peer Programme. Such findings could indicate that individuals who are attending peer support programmes are already presenting with higher levels of stress, and an increased awareness of this could be maintaining the stress, in contrast to the intervention itself. The shift from operating in drive and avoidance to becoming more present and in contact with internal processes, may have become more challenging throughout the course of the intervention. Particularly for those who rely on avoidant coping strategies to manage the stressors within the workplace.

It is important to acknowledge the high degree of heterogeneity in the sample characteristics of the studies. The variation in the samples included could limit the generalisability of such findings across different professional groups, as such variables were not controlled for in the studies included.

1.5.1.1.3.2 Informal Peer Support and Stress Outcomes

The findings from the only study evaluating the relationship between informal peer support and secondary traumatic stress, reported differing results (Manning-Jones et al., 2016). The study predicted that social support (which included peer support) would negatively predict secondary traumatic stress and positively predict vicarious post traumatic growth in healthcare workers. The results supported the prediction. It could be said that the ability to emotionally connect through shared experience, direct colleagues to personal resources and provide a safe space to express emotions are characteristics of peer support that protected against further distress (Catherall, 1995). The current study offers further evidence for the overall effectiveness of ad hoc support within the working environment, emphasising its protective function.

1.5.1.1.4 Mental Health Outcomes and Peer Support

1.5.1.1.4.1 Formal Peer Support and Mental Health Outcomes

Of the studies exploring the impact of formal peer support on mental health outcomes, a reduction in scores of depression and anxiety and a positive increase in emotional expressivity and emotion focused coping were identified (Peterson et al., 2008; Pinks et al., 2021). Both studies offered peer support through a group format, which offered colleagues a space to reflect, receive and offer empathic feedback. The findings support the theoretical underpinning of the Social Support Theory (Cohen & Wills, 1985), which suggests that social support can form as a buffer from stress, which can be sought through the supportive actions of others or the belief that support is available (Greenberg, 2011). Given the benefits identified from attending a reflective space with peers, protected time to facilitate such spaces within organizations would be beneficial to sustain improved mental health outcomes among healthcare staff.

The other studies reported poorer or no change in mental health outcomes after participating in a formal peer support intervention (Davidson et al., 2017; Wang et al., 2022). Interestingly, one of the studies measured the wellbeing of both mentors and mentees who offered and received peer support (Wang et al., 2022). The study reported higher anxiety scores in mentors after completing the intervention. The additional time and resource required to attend training and offer formalised peer support may be indirectly impacting upon the mental health of those offering the support. The availability of support for mentors or colleagues offering formal peer support is therefore imperative to sustain such programmes.

The limited change in mental health outcomes may also be due to the high degree of variance in the method, sample and measures utilised across the formal peer support interventions, which could limit the generalisability of the findings reported.

1.5.1.1.4.2 Informal Peer Support and Mental Health Outcomes

Only one study explored the relationship between mental health outcomes and the use of informal peer support (Portoghese et al., 2018). Peer support was identified as a moderator for improved mental health outcomes when colleagues were exposed to patient abuse. Despite having a weaker study design, the sample size was large, and the findings appear consistent with previous research undertaken within this area, that suggest peer support can moderate a colleague’s experience of distressing events (Stephens & Long, 2000; Van der Ploeg, Dorresteijn, & Kleber, 2003). The nature of the informal peer support provided in the study is in keeping with the conclusions drawn, which indicate that the various forms of informal support (i.e instrumental, emotional, informational) can protect against worsening mental health outcomes in employees.

1.5.1.1.5 Organizational Outcomes and Peer Support

1.5.1.1.5.1 Formal Peer Support and Organizational Outcomes

There appeared to be mixed findings reported on formal peer support and its impact on organizational outcomes. Higher levels of compassion satisfaction and lower levels of compassion fatigue were reported in colleagues who received formal peer support (Wahl et al., 2021). However, other studies reported no significant difference in job satisfaction after attending a peer programme (Connors et al., 2020) with increased absenteeism and turnover for those who received reduced amounts of peer support (Thompson et al., 2022). There appears to be limited evidence to suggest that formal support has a significant impact on organizational outcomes within the studies included. It is important to note that the studies had small sample sizes and low response rates post intervention. Additionally, the lack of change in outcomes could reflect the short duration of the peer programmes.

1.5.1.1.5.2 Informal Peer Support and Organizational Outcomes

In contrast, studies that explored the impact of informal peer support on organizational outcomes reported significant findings. Informal peer support was positively associated with increased job satisfaction (Bonzionelos et al., 2009) and negatively related to turnover intentions (Ageel et al., 2022). As reported by the studies, informal encounters of peer support could result in an increased ability to manage work related demands. The consequences of which could have further implications for organisations. An organizational culture which offers protective time for the various forms of informal peer support could subsequently lead to better organizational outcomes, which could result in reduced employee sickness and turnover.

1.5.2 Limitations

Despite the methodological strengths and ratings identified across studies during the quality assessment process, there was a great deal of heterogeneity across the studies. The level of detail describing the interventions offered varied considerably as did the outcome measured utilised. Of the studies evaluating a formal peer support intervention, only two utilised a specific peer support measure to evaluate the effectiveness of the intervention, it was therefore unclear as to what specific components of peer support impacted upon the outcomes in such studies. The high degree of variation in interventions and outcome measures utilised across the literature could impact upon the generalization of the findings, particularly when comparing the effectiveness of the formal peer support interventions. Selection biases were evident across many of the studies, the lack of detail describing the sampling method within the studies could account for this. Many of the studies relied upon self-report measures which may increase the likelihood of reporting biases (Furnham, & Henderson, 1982). In addition, only three studies within the review utilised comparators, as the majority used pre and post or cross-sectional designs, which further limits the ability to draw conclusions regarding causality. The ability to directly measure the effectiveness of the interventions on outcomes was also more difficult to establish, as many of the studies were sufficiently underpowered, did not report effect sizes and did not account for confounding variables, which again may impact upon the ability to draw generalisations across professions and settings.

This review should be interpreted in the context of its limitations. Despite completing a systematic search of the literature, a percentage of relevant studies may have been missed, this could be due to inclusion of only English language publications. This could have also resulted in possible cultural biases based upon how peer support is accessed and may limit further generalisation across countries and cultures. Secondly, due to heterogeneity and risk of bias across the studies included, it was not possible to examine the effect sizes or conduct a meta-analysis, which limits the opportunity for direct comparisons across the interventions studied. Despite this, the current review was the first of the author’s knowledge that specifically examined the differing types of peer support on burnout, mental health, and organizational outcomes, it has highlighted gaps in the research, methodological inconsistencies and suggests directions for future research.

1.5.3 Future Research

The review offers further insight into the role of both formal and informal peer support and its value in health and social care. It would be also beneficial for future research to explore the longitudinal effects of peer support and address issues of causality. This would strengthen the evidence base and expand upon the growing literature surrounding the use of peer support. It would also assist with implementing effective support systems in clinical practice to prevent and protect against burnout and occupational stress. Future studies should also explore potential gender and racial differences when considering barriers and accessibility of peer support. It would also be interesting to explore the differences across professional groups. Future studies should also consider the issues related to heterogeneity within this area, utilising validated measures and offering a transparent explanation of methods of application would support to develop a robust evidence base.

1.5.4 Clinical Implications

The findings of the current review emphasise the benefits of informal peer support within the workplace. The studies included offer promising findings which can be built upon in further research and incorporated into healthcare systems. Organizations that recognise the benefits of informal peer support would benefit from prioritising funding and protective time for colleagues to fully engage with this type of support, instead of focusing on incorporating more formal peer support programmes. Clinical Psychologists can support with embedding a culture of compassionate care, through supporting managers to become more psychological aware and aligned with the needs of team members. Maslow's Hierarchy of Needs could be utilised as a framework to establish the needs of the team, which will help to maintain positive working relationships between colleagues (Maslow, 1943). Dutton et al., (2007) stated that interpersonal acts of compassion that focus on the sharing of resources, values and interpersonal skills can increase cooperation and morale in teams, which offers further support for informal peer support and its role in maintaining staff wellbeing. A culture where informal peer support is role modelled and encouraged by management at all levels of the organization would support with creating a compassionate workplace.

1.5.5 Conclusions

The main objective of the current review was to undertake a comprehensive synthesis of the literature, through identifying and comparing different types of peer support (informal and formal) and their impact on burnout, mental health, and organizational outcomes.

The majority of studies exploring the use of formal peer support reported little to no effect on burnout, mental health or organizational outcomes. This could be partially explained by the methodological limitations across the eleven studies and the lack of peer support measures utilised to directly assess the impact of peer support programmes or interventions. The high degree of variation in interventions and outcome measures utilised highlighted across the literature could impact upon the generalization of the findings. Across the studies, many healthcare staff were accessing formal peer support reactively in contrast to proactively, and so future peer programmes that aim to mitigate the risk in contrast to alleviating stress and burnout could offer more promising outcomes.

Interestingly, of the studies that explored the use of informal peer support, the majority reported positive findings across outcomes. It could be suggested that organisations in which informal support takes place may have an existing culture which allows or encourages reciprocal support, which protects against the risk of burnout and poorer mental health and organizational outcomes. The conclusions drawn from the results of the studies, suggest that informal encounters of peer support benefited colleagues more so than formalised peer support. This further suggests that formalised peer support programmes may not necessarily be required to improve individual and organizational outcomes. Instead, a focus on implementing an organizational culture that promotes the use of informal peer support across organizations should perhaps be prioritised.

Chapter 2 Understanding the psychological predictors of burnout in cancer care

This paper has been prepared in line with the author guidelines required by the 'Journal of Occupational and Organizational Psychology'

2.1 Abstract

Caring for patients with cancer can be highly rewarding, yet the role can also present as emotionally challenging and can predispose clinicians to increased levels of burnout. There has been very little evaluative research exploring the association between psychological flexibility, burnout and wellbeing among professionals working in cancer care. The current study employed a cross-sectional design to understand such associations and explore the moderating effect of workplace factors, clinical supervision, and psychological training. A total of 188 health professionals working in cancer or palliative care completed an online survey. Measures assessed demographics and work-related characteristics, psychological flexibility (PsyFlex), burnout (AMBI), wellbeing (SWEMWBS) and areas of work life (AWS). Regression analyses revealed that higher levels of psychological flexibility predicted lower levels of burnout and higher levels of wellbeing in the current sample. A moderation analysis confirmed that areas of work life (AWS) moderated the relationship between psychological flexibility, while access to supervision and training did not. Future research would benefit from further examining the protective factors that reduce susceptibility to burnout within this area. Implementing a wider range of preventative interventions that incorporate Acceptance and Commitment Therapy (ATC) principles could further support clinicians to mitigate the risk of burnout.

2.2 Introduction

Cancer care clinicians offer holistic support to patients with cancer across all stages of the cancer pathway. Working in cancer care services often involves the delivery of psychological and emotional support to patients and their families (Skilbeck et al., 2003). Caring for patients with cancer can be highly rewarding, yet the role can also present as emotionally challenging and can predispose clinicians to increased levels of burnout (Shanafelt et al., 2012). Maslach et al., (1997) defined burnout as a syndrome of depersonalisation (DP), emotional exhaustion (EE) and a low sense of personal accomplishment (PS). On an organizational level, such symptoms are often associated with reduced job satisfaction, high sickness levels and higher levels of turnover (Dyrbye et al., 2014; Atkinson et al., 2006) which can also indirectly lead to reduced patient satisfaction (Shanafelt et al., 2012). Research has highlighted significant rates of burnout in professionals working in cancer care. In a study that examined the rates of burnout in oncology nurses, 31% of nurses reported EE, 36% reported DP and 29% indicated lower levels of PA (Gomez-Urquiza et al., 2016).

Individual and organizational risk factors have found to be associated with an increased susceptibility to burnout in cancer care (Shimizutani et al., 2008; Bährer-Kohler, 2013). In addition to various sociodemographic factors, individual characteristics related to a person's coping style can also influence how they respond to stressors. For individuals with an avoidant coping style, the features of this (i.e suppressing unpleasant thoughts, feeling or physical sensations) have found to be significantly associated with stress and burnout (Gellis, 2002; Healy & McKay, 2000; Iglesias et al., 2010). In addition to individual contributors, the literature also indicates that additional workplace factors such as higher workloads, increased emotional demand, continuous exposure to illness and loss, and the inability to work in line with professional and personal values are all predictors of wellbeing and burnout (Greenglass et al., 2001; Isikhan et al., 2004; Ekedahl & Wengström, 2007).

One factor that may be associated with individual burnout and wellbeing is psychological flexibility (PF). Psychological flexibility is the ability to respond effectively in situations with present-moment awareness, an openness to emotional experiences and an ability to be guided by personal values (Hayes et al., 2011). Existing research has demonstrated that higher levels of psychological flexibility predict improved wellbeing and job performance and can reduce the use of avoidant coping mechanisms in health care professionals (Salvarani et al., 2019). Acceptance and Commitment Therapy (ACT) is a psychological intervention that uses acceptance and mindfulness techniques, along with commitment and behaviour change strategies that are values driven to increase psychological flexibility (Hayes et al., 2012).

The research exploring the use of ACT within the workplace is developing (Bond, 2004; Bond & Bunce, 2000; Flaxman & Bond, 2010; Hayes et al., 2004). ACT uses a range of techniques to support individuals to increase psychological flexibility and subsequently improve their wellbeing and efficacy within the workplace (Prudenzi et al., 2021). Attending ACT informed training or has proven to be an effective method to enhance experiential learning and improve psychological flexibility among health care professionals (Morris & BilichEric, 2017). Basic training on psychological flexibility is increasingly offered to cancer clinicians to support them in their roles, which has also found to be associated with improved mental health (HulbertWilliams et al., 2021). Controlled trials have demonstrated that psychological flexibility can increase, which in turn can lead to better workplace outcomes (Rad et al., 2015; Wersebe et al., 2018; SuleimanMartos et al., 2020). Despite the promising findings, the evidence-base is still under-developed, particularly within cancer care and further replication of findings is required.

Studies have suggested that regular access to education, training and Clinical Supervision can mitigate the risk of burnout in health care professionals (Edwards et al., 2006; Kay-Eccles et al., 2012). Access to Clinical Supervision can support healthcare professionals to manage the complex demands of working in oncology (Mackereth et al., 2010). Clinical supervision offers health care professionals a space to reflect on the impact of their clinical work, particularly within cancer care where recurrent exposure to death and loss can evoke a range of emotions (Hession & Habenicht, 2020). Currently, there are mixed findings reported regarding the effectiveness of Clinical Supervision in reducing clinician burnout (Martin et al., 2021; Teasdale, 2000). The current study will therefore aim to better understand the role of supervision and its association with psychological flexibility, burnout, and wellbeing.

Continuous exposure to organisational stressors is directly linked to the development of burnout in employees (Maslach & Jackson, 1981). The Areas of Work Life (AWS) model suggests that an alignment between workload, control, reward, community, fairness and values is required to maintain occupational health and mitigate the risk of burnout (Leiter & Maslach, 2003; Brom et al., 2015). Working in cancer care can often include long periods spent providing direct patient care, high workloads and competing demands and at times a lack of social support (Shanafelt et al., 2012). The reduced alignment with workplace factors increases the risk of occupational stress and burnout in professionals working in this area (Kash et al., 2000). No previous studies have directly investigated areas of work life in relation to other protective factors (e.g impact on psychological flexibility) for reducing burnout. It is therefore important to understand the impact of workplace factors and the potential protective factors than can mitigate against burnout.

To understand the protective factors related to burnout, the current study will firstly aim to understand whether psychological flexibility (PsyFlex) is predictive of burnout (AMBI) and wellbeing (SWEMWBS) among cancer clinicians. Secondly, it will determine whether workplace factors, assessed using the Areas of Work Life Scale (Leiter & Maslach, 2003), and the use of Clinical Supervision and access to psychological training, would moderate the association between psychological flexibility, burnout and wellbeing.

It was hypothesised that:

- (1) Higher psychological flexibility would predict lower levels of burnout among cancer care clinicians.
- (2) Higher psychological flexibility would predict greater levels of wellbeing among cancer care clinicians.
- (3) The relationship between psychological flexibility and wellbeing would be moderated by areas of work life (AWS).

- (4) The relationship between psychological flexibility and burnout would be moderated by areas of work life (AWS).
- (5) The relationship between psychological flexibility and wellbeing would be moderated by access to supervision
- (6) The relationship between psychological flexibility and wellbeing would be moderated by access to psychological training.
- (7) The relationship between psychological flexibility and burnout would be moderated by access to supervision.
- (8) The relationship between psychological flexibility and burnout would be moderated by access to training.

2.3 Materials and Methods

2.3.1 Design

A cross-sectional design was employed using self-report questionnaires to assess psychological flexibility as the predictor variable and wellbeing and burnout as the outcome variables. The study also examined whether Areas of Work Life (Leiter & Maslach, 2003) and access to supervision or psychological training were moderators of psychological flexibility when measuring change in wellbeing and levels of burnout. The study involved the completion of a series of online questionnaires through Qualtrics (Qualtrics, 2015) at a single time point. Ethical approval was granted by the University of Southampton Ethics Committee (ERGO II Number: 78377). The Health Research Authority (HRA) were consulted but confirmed that the study did not require approval from an NHS Research Ethics Committee, nor from HRA or NHS/HSC Research & Development team (see Appendix B for ethics confirmation).

2.3.2 Participants

An opportunistic sample was utilised to recruit participants from cancer and palliative care services. Participants were recruited between January and April 2023, across multiple NHS trusts across the United Kingdom (UK), in addition to cancer alliances and social media platforms. The study was advertised through generic advertising routes across multiple recruitment sites and publicised through NHS trust communication emails, newsletters, bulletins and through posting on websites and social media outlets.

Participants were eligible to participate in the study if they were over the age of 18 and working within Cancer or Palliative Care services across the UK. For this study, cancer clinicians were defined as those working with adults affected by cancer. Further information regarding the inclusion and exclusion criteria for participating in the study can be found in Appendix C.

A medium effect size of 0.61 was found in closest study from the existing literature, which measured psychological flexibility and burnout among nursing staff (Kent at al., 2019). A G*Power (Faul et al., 2009) calculation indicated that a minimum sample size of 137 participants was required to provide sufficient power (1-β = 0.80) to detect a medium effect size at a 5% significance threshold ($f^2 = 0.35$) (Cohen, 1992) using regression and statistical analyses with ten predictors.

2.3.3 Measures

All variables were measured using self-report questionnaires. The two outcome measures were burnout and wellbeing, measured using the Abbreviated Maslach Burnout Inventory (AMBI) (Maslach et al., 1997) and Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) (Stewart-Brown et al., 2009). The predictor variable was psychological flexibility, measured through The Psy-Flex (Gloster et al., 2021). For the moderator analysis, the moderating variables were the Areas of Work Life Scale (AWS) (Leiter & Maslach, 2003) and two demographic questions assessing access to clinical supervision and psychological training. A copy of all measures can be found in Appendix D.

2.3.3.1 Demographic Information

Demographic information containing participant’s age, gender, ethnicity, duration in the role and location patch was collected. Additional questions about their role and access to supervision and training was also obtained (see Appendix E.)

2.3.3.2 Abbreviated Maslach Burnout Inventory (AMBI)

The AMBI, is a 9-item measure of burnout (Maslach et al., 1996). Subscales include measures of Emotional Exhaustion (EE), Depersonalisation (DP), and Personal Accomplishment (PA). Each subscale is assessed by three items, responses are based on a 7-point Likert Scale, ranging from never (0) to every day (6). Scores on each subscale range from 0-18, higher scores of emotional exhaustion and depersonalisation and lower scores of personal accomplishments indicate greater burnout. Previous research has demonstrated acceptable and good reliability of the subscales; emotional exhaustion demonstrated good internal consistency ($\alpha = 0.89$) for depersonalisation (α

= 0.76), personal accomplishment (α = 0.72) and overall burnout (α = 0.81) (Shaikh et al., 2019). A total score is yielded through combining the EE and DP subscales (Shaikh et al., 2019). In the current study, Cronbach's alpha for all subscales and total burnout demonstrated either a questionable or poor reliability measurement, DP (α =0.67), PA (α =.45), EE (α =.52) and overall burnout (α = .59).

2.3.3.3 Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)

The SWEMWBS is a 7-item questionnaire measuring mental wellbeing (Stewart-Brown et al., 2009) Individuals are asked to consider each statement within the context of the last two weeks, such as "I've been feeling useful" and "I've been feeling relaxed". Each statement has five response categories, ranging from "none of the time" to "all of the time". A total score is calculated, with higher scores demonstrating higher positive wellbeing. The measure has demonstrated good internal consistency (α = 0.89) (Vaingankar et al., 2017). In the current study, Cronbach's alpha was good (α = 0.86).

2.3.3.4 The Psy-Flex

The Psy-Flex is a 6-item measure of psychological flexibility (Gloster et al., 2021) Items are associated with the core skills related to ACT and the concept of psychological flexibility and wellbeing. Responses are rated via a 5-point scale, ranging from (1 = very rarely) to (5= very often). A total score is calculated. Higher scores suggest greater levels of psychological flexibility. The measure has demonstrated excellent internal reliability, (α =0.91) (Gloster et al., 2021). In the current study, Cronbach's alpha was acceptable (α = 0.78).

2.3.3.5 Areas of Work Life Scale (AWS) (Leiter & Maslach, 2003)

The AWS assesses organizational factors, exploring whether the areas of work life are consistent with the individuals' expectations and ability. The AWS measures six areas of work life that contributes to work life and wellbeing (Leiter & Maslach, 2003). The measure includes 29 items, with six scales: Workload (6 items), Control (3 items), Reward (4 items), Community (5 items), Fairness (6 items) and Values (5 items). Responses are indicated via a 5-point Likert Scale (1= strongly disagree to 5 = strongly agree). Ten items are negatively worded items which are reversed scored. A score is obtained for each subscale and a total score can be calculated, with higher scores indicating a greater perceived alignment between working conditions and wellbeing. Acceptable Cronbach alpha values for the AWS ranging from .70 to .82 have been reported (Leiter & Maslach, 2003). In the current study, Cronbach's alpha was excellent (α=0.92).

2.3.4 Procedure

An information poster (see Appendix F) and email advertising the study (see Appendix G) was circulated through the trusts R&D departments and through other generic channels when advertising outside of NHS trusts. The poster and email advertising the study included a QR code and URL directing participants to the study. The link directed participants to an online participant information sheet (see Appendix H) and consent form (see Appendix I). The information sheet provided an overview of the research and those wishing to participate were directed to the study's consent form. Consent was obtained through ticking a box online, stating that they agreed and consent to the study. Once consent was submitted, participants were then presented with the set of questionnaires, which was administered via Qualtrics (Qualtrics, 2015). Following completion of the questionnaires, participants were presented with the debrief form (see Appendix J). This included information to signpost to services should they wish to seek further support or advice. Finally, participants who wished to be entered into the prize draw were asked to enter their email address into a separate Qualtrics link at the end of the study. This was separate to the main study and the main Qualtrics form, to ensure that participants responses to the questionnaires remained anonymous. A flow chart demonstrating the recruitment process can be found in Appendix K.

2.3.5 Statistical Analysis

All data analyses were conducted using SPSS Statistics (IBM SPSS Statistics, Version 28). Descriptive statistics were examined, and a series of correlations were undertaken to investigate the strength and direction of the relationships between the predictor, outcome, and moderating variables. Hierarchical linear regression models were then fit to determine the association of psychological flexibility with burnout (model 1) and wellbeing (model 2), and additional predictor variables (i.e demographic variables and areas of work life).

Finally, a series of moderation analyses were carried out using PROCESS v.3.5, model 1 (Hayes, 2018) to further examine whether the relationships between psychological flexibility and burnout were moderated by areas of work life (AWS), access to supervision and psychological training (model 1). A second model aimed to determine whether psychological flexibility and wellbeing were moderated by areas of work life (AWS), access to supervision and psychological training.

2.4 Results

The data checks completed met parametric assumptions. The distribution of data was normally distributed, the depersonalization subscale demonstrated a positive skew, which has also been identified previously with the subscale (Wood et al., 2011). Bootstrapping was utilised for further statistical analysis.

2.4.1 Sample Characteristics

Two-hundred-and-thirteen participants completed the survey, however only 188 completed more than one measure and were included in the final sample. Of the final sample, 166 participants (identified as female (88%), 21 participants identified as male (11%), and one participant (0.5%) specified they would prefer not to say. The average age of those included in the final sample was 45, which ranged between 21-68 years old (SD=10.3). The majority of participants (N=161, 86%) identified as White English/Welsh/Scottish/Northern Irish/British ethnicity, and most of the participants (N=70, 37%) worked in Clinical Nurse Specialist roles and in oncology settings (N=74, 39%). More than half of participants had been in post for over 9 years (N=116, 61%). Full demographic information is presented in table 5.

Table 5

Demographic Information and Descriptive Statistics for Research Variables

Variables	**Category**	***N***	***M(SD)***	***%***
Gender	Male	21		11%
	Female	166		88%
	Prefer not to say	1		
Age		184	45(10.3)	
Ethnicity	English/Welsh/Scottish/Northern Irish/British	161		85%
	Irish	2		1.1%
	Gypsy or Irish Traveller	1		0.5%
	Any other White Background	8		4.3%
	White and Black Caribbean	1		0.5%
	White and Asian	2		1.1%
	Indian	5		2.7%
	Chinese	4		2.1%
	Any other Asian background	4		2.1%
Professional Role	Clinical Nurse Specialist	70		37.2%
	Staff Nurse	17		9%
	Care Coordinator/Navigator	6		3.2%
	Healthcare Assistant	8		

	Allied Health Care Professional	27	4.3%
	Advance Nurse Practitioner	8	4.3%
	Physician – (Consultant/Medical Practitioner/Surgeon)	30	16%
	Other	22	11.7%
Length of time working in Cancer Care	Less than a year	10	5.3%
	Between 1-2 years	15	8%
	3-5 years	29	15.4%
	6-8 years	18	9.6%
	Over 9 years	116	61 %
Area of Cancer Specialism	Oncology	74	39.4%
	Haematology	16	8.5%
	Palliative Care	27	14.4%
	Surgery	16	8.5%
	Elderly Care	1	0.5%
	Other	54	28.7%
Access to training (e.g., psychological assessment skills training, advanced communication skills training)	Yes, within the last year	32	17%
	Yes, more than one year but less than 3 years ago;	34	18.1%
	Yes, more than 3 years ago;	77	41%
	No	45	23.9%
Received ACT training	Yes	7	3.7%
	No	139	73.9%
	Unsure	42	22.3%
Frequency of receiving psychological supervision	Monthly	29	21.3%
	Every 2-3 months	23	12.2%
	Every 4-6 months	11	5.9%
	Less than twice per year	13	6.9%
	I do not attend any form of psychological supervision	112	59.6%
Experienced mental health difficulties in relation to the role	Yes – In relation to my work life/work environment /work role	40	21.3%
	Yes – In relation to the impact of my personal life on my role or vice versa	14	7.4%
	Yes – A combination of both above	79	42%
	No	55	29.3%

Research Variables	**Subscale**	***N***	***M***	***SD***	**Score Range**
AMBI	Total Burnout Score (EE,DP)	188	14.9	5.66	0-36
	EE	188	9.7	4.14	0-18
	DP	188	5.2	3.07	0-18
	PA	188	9.5	5.23	0-18
SWEMWBS		188	24.3	4.08	7-35
PSYFLEX		188	21.9	3.72	6-30
AWS		188	99.1	18.59	9-174

Note: AMBI = Abbreviated Maslach Burnout Inventory. EE = Emotional Exhaustion. DP = Depersonalisation. PA = Personal Accomplishment. SWEMWBS = The Short Warwick–Edinburgh Mental Wellbeing Scale. PSYFLEX = Psychological Flexibility. AWS = Areas of Work Scale.

The mean of the overall burnout score (EE&DP) was calculated to categorise burnout as either “no to low burnout” or “moderate to high burnout”. When assessing the percentage of participants experiencing burnout, 30% of participants in the sample were experiencing moderate to high levels of burnout (N=55) and 70% were experiencing lower levels of burnout (N=133). When comparing gender with levels of burnout, 23% of females and 5% of males reported moderate to high levels of burnout,. Of those that reported lower levels of burnout, 65% were aged between 41-60 years old and for participants who reported moderate to higher levels of burnout, 63% were aged between 31-50 years old.

A Kruskal-Wallis test was performed to explore the differences between burnout scores for the different professional groups (Nurses, Allied Health Care Professionals (AHCPs), Physicians and other professionals). This test was chosen as the groups were not normally distributed. The differences between the rank totals of 94.17 (Nurses M= 14.67, SD =5.13), 98.57 (AHCPs M=15.44, SD =5.36), 125.63 (Physicians M =18.73, SD = 6.92) and 66.36 (other Health Care Professionals M =12.22, SD =4.37) were significant *H* (3, *n* = 188) = 19.67. *p* <.001. The results indicate that there was a significant difference between burnout scores between professional groups, with physicians reporting an overall higher burnout score.

Post hoc comparisons were conducted using the Mann-Whitney U test, which revealed that physicians (N= 30) reported significantly higher burnout scores compared to nurses (N=95), *U* = 913, z = -2.96, *p* = .003, with a small effect size, *r* = .26. There was no significant difference reported in burnout scores between physicians and AHCP’s (N=27), (*U* =285, z = -1.91, *p* =.056) but there was a significant difference between the burnout scores of both physicians and other cancer care professionals (N=22), *U* =237, z = -3.90, *p* <.001), with physicians reporting higher burnout but with a small effect size, *r* = .29.

2.4.2 Correlation Analysis

An exploratory approach was necessary to identify which predictor variables within the demographic variables were associated with burnout and wellbeing. Bivariate Pearson's correlations were initially conducted to assess whether a relationship existed between the continuous variables displayed in table 5. This was followed by Point-Biserial correlations to examine the relationships between supervision and training with wellbeing and burnout.

Table 6

Pearson's Correlations matrix for all variables

	Demographics		**AWS**	**AMBI**				**SWEMWBS**	**PSYFLEX**
	Age	**Years of Service**		**Total Score (EE,DP)**	**EE**	**DP**	**PA**		
Age	-	.47**	.02	-.01	.03	-.07	-.08	.12	.14
Years of Service		-	-.17*	.02	-.00	.05	-.14*	.05	.01
AWS			-	-.31**	-.142	-.39**	-.12	.49**	.50**
AMBI Total Score				-	.84**	.70**	.10	-.16*	-.29**
AMBI EE					-	.21**	.02	-.03	-.16*
AMBI DP						-	.15*	-.25**	-.33**
AMBI PA							-	-.28**	-.23**
SWEMWBS								-	.50**
PSYFLEX									-

Note: Areas of Work life Scale= AWS, Abbreviated Maslach Burnout Inventory = AMBI; Emotional exhaustion = EE, Depersonalisation = DP, Personal accomplishment = PA, The Short Warwick–Edinburgh Mental Well-being Scale = SWEMWS, The Psyc-Flex Measure = PSYFLEX, *p < .01 = **, p < .05 = **

As reported in the table 6, the duration of years worked in cancer care was significantly negatively correlated with personal accomplishment, which suggests that longer periods of time spent working in cancer care was associated with lower levels of personal accomplishment. Areas of work life was positively correlated with wellbeing and psychological flexibility, which suggests that a stronger alignment with work life is associated with increased psychological flexibility and wellbeing. Additionally, areas of work life were negatively correlated with overall burnout and depersonalisation, indicating that a reduced alignment with work life was associated with higher levels of burnout. Years of service will therefore be included in further analysis as another possible predictor of burnout and wellbeing.

A point biserial correlation analysis was conducted to examine the association between supervision and training with burnout. There was a significant negative correlation between supervision attendance and level of burnout ($r_{pb = .}$-.190, p <.001). The correlation coefficient between supervision attendance and burnout was .-190, indicating a significant but small effect size. This indicates that supervision attendance is associated with lower levels of burnout in this current sample. There was no significant association found between psychological training and level of burnout ($r_{pb = .}$-.132, p .072).

2.4.3 Hierarchical Multiple Regression

To answer the first hypothesis, a hierarchical multiple linear regression was undertaken to determine whether higher levels of psychological flexibility (PSYFLEX) would predict reduced burnout (AMBI), when controlling for additional predictors such as duration of years working in cancer care, frequency of supervision, access to training and areas of work life (AWS). A linear regression demonstrated that the variables were not collinear, and scatterplots confirmed homoscedasticity. A hierarchical method was undertaken using the enter method in 3 steps, the first step included years of service, frequency of supervision and access to training. The AWS was entered in to the second step and psychological flexibility was entered into the third step.

Results are displayed in table 7 and report that the final regression model predicted approximately 15% of variance in burnout (R^2 = .15, F (1,182) = 5.40, p < .001). Duration of years working in cancer care, frequency of supervision and access to psychological training predicted approximately 4% of variance in burnout, but did not significantly predict lower levels of burnout. At step two the inclusion of areas of work life (AWS) accounted for approximately 13% of variance in burnout, with higher areas of work life scores significantly predicting lower levels of burnout (β =-0.29, p < .001), predicting 29% of variance in burnout scores. At the final step, areas of work life (β =-.21, p = .008) accounted for 18.3% of variance and higher psychological flexibility scores (β =-

.18, p =.021) significantly predicted lower burnout scores, accounting for 15.8% of variance, which supports the second hypothesis.

To answer the second hypothesis, a hierarchical multiple linear regression was undertaken to determine whether higher levels of psychological flexibility (PSYFLEX) would predict increased wellbeing (SWEMWBS) when controlling for additional predictors such as duration of years working in cancer care, frequency of supervision, access to training and areas of work life (AWS).

A hierarchical method was repeated using the enter method in the 3 steps listed above in the first regression analysis. Results are displayed in table 7 and report that the final regression model predicted approximately 29% of variance wellbeing (R^2 = 0.36, *F* (1,182) = 24.3, p < .001). At step one, duration of years working in cancer care, frequency of supervision and access to psychological training predicted approximately 1.8% of variance in wellbeing but did not significantly predicted an increase in wellbeing. The inclusion of areas of work life at step two significantly increased the variance of the model by 27%, with higher scores of areas of work life (β =0.52, p < .001) predicting 51% of the variance in wellbeing scores, and duration of years working in cancer care (β =0.13, p < .001) predicting 13.4% of variance. At the final step, higher scores of psychological flexibility (β =0.33, p < .001) which accounted for 29% of the variance in wellbeing scores, predicted greater wellbeing. Additionally, higher scores in the areas of work life scale (β =0.36, p < .001) significantly predicted higher levels of wellbeing, which explained 31% of variance in wellbeing scores. The results support the first hypothesis.

Table 7

Regression results for predictors of burnout (AMBI) and wellbeing (SWEMWBS)

	AMBI						
Predictor Variables	***B***	***SE B***	***Beta***	***t***	***p***	***r***	***sr^2***
Step 1							
Duration of years worked in cancer care	.20	.33	.04	.61	.537	0.23	.044

Supervision	-1.9	.84	-.17	-2.3	.020	-.19	-.16
Training	-1.4	.98	-.10	-1.4	.148	-.13	-.10
Step 2							
Duration of years worked in cancer care	-.05	.32	-.01	-.16	.867	.023	-.01
Supervision	-1.5	.81	-.09	-1.8	.067	-.19	-.12
Training	-1.2	.94	-.01	-1.2	.199	-.13	-.08
AWS	-.05	.02	-.29	-4.2	<.001	-.31	-.29
Step 3							
Duration of years worked in cancer care	.018	.32	.00	.05	.955	.023	.004
Supervision	-1.5	.80	-.13	-1.8	.064	-.19	-.12
Training	-1.0	.93	-.07	-1.0	.274	-.13	-.07
AWS	-.06	.02	-.21	-2.6	.008	-.31	-.18
PsyFlex	-.27	.11	-.18	-2.3	.021	-.29	-.15

SWEMWBS

Predictor Variables	*B*	*SE B*	*Beta*	*t*	*p*	*r*	sr^2
Step 1							
Duration of years worked in cancer care	.12	.24	.038	0.51	6.08	.058	.038
Supervision	.29	.61	.03	0.47	6.32	.057	.035
Training	1.0	.72	.11	1.49	1.36	.126	0.10
Step 2							
Duration of years worked in cancer care	.45	.21	.13	2.13	.034	.058	.134
Supervision	-.31	.53	-.03	-.58	5.62	.057	-.037
Training	.80	.61	.08	1.30	.194	.126	.082
AWS	.11	.01	.52	8.12	<.001	.499	.510
Step 3							

Duration of years worked in cancer care	.35	.20	.10	1.77	.077	.058	.105
Supervision	-.31	.50	-.03	-.61	.539	.057	-.036
Training	.55	.58	.05	0.95	.343	.126	.056
AWS	.08	.01	.36	5.34	<.001	.499	.316
PsyFlex	.36	.07	.33	4.93	<.001	.508	.292

2.4.4 Moderation Analysis

A moderation analysis was carried out using PROCESS v.3.5, model 1 (Hayes, 2018) to test the remaining hypotheses, which was tested in two models. In the first model, psychological flexibility was the predictor, burnout was the outcome variable and the moderators tested included areas of work life (AWS), supervision and training. In the second model, psychological flexibility remained as the predictor, wellbeing was the outcome variable and the moderators included areas of work life (AWS), supervision and training.

2.4.4.1 The moderation effects of areas of work life (AWS), supervision and training on burnout

It was predicted that the relationship between psychological flexibility and burnout would be moderated by areas of work life. Results can be found in table 8.

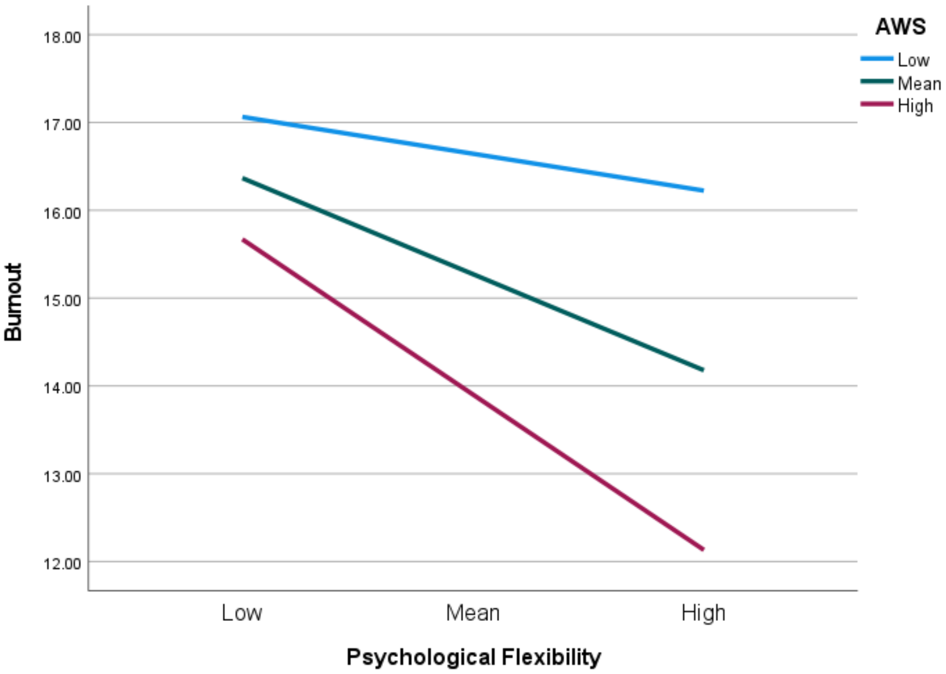
Table 8

The moderation effects of areas of workplace (AWS) on psychological flexibility and burnout

	B	*SE*	*T*	*p*	*95%CI*
Constant	15.3	.41	37.2	.00	14.4, 16.1
PSYFLEX	-.29	.11	-2.52	.012	-.52, -.06
AWS	-.07	.02	-3.15	.00	-.11, -.02
PSYFLEX x AWS	-.00	.00	-2.11	.035	-.01, -.00

The results indicated a significant main effect of psychological flexibility on burnout (b = -.29, BCa CI [-.52,.06], p =.0125) and a significant main effect of areas of work life on burnout (b = -.07, BCa CI [-.11,.02], p =.0019). There was a significant interaction effect between psychological flexibility and areas of work life on burnout (b = -.00, BCa CI [-.01,.00], p =.035). Post-hoc analyses revealed that the relationship between psychological flexibility and burnout was stronger for participants with high levels of areas of work life (*b* = -.474, 95% CI [-.760, -.188], *t* = -.3.27, *p* = <.001) than for participants with low levels of areas of work life (*b* = -.112, 95% CI [-.396, .171], *t* = -.78, *p* = .434).

Figure 2



Interaction effects of psychological flexibility and areas of work life on level of burnout.

Figure 2 demonstrates the interaction pattern through the tests of simple slopes, which confirm that areas of work life (AWS) moderate the relationship between psychological flexibility and burnout.

It was predicted that the relationship between psychological flexibility and burnout would be moderated by access to supervision. The results indicated a significant main effect of psychological flexibility (*b* = -.43, p = <.001) and supervision (*b* = -1.9, p =.018) on burnout scores. However, there was no significant interaction effect between psychological flexibility and supervision (*b* = -.081, p =.710).

It was predicted that the relationship between psychological flexibility and burnout would be moderated by access to psychological training. The results indicated a significant main effect of psychological flexibility (*b* = -.43, p = <.001) on burnout scores, however, there was no significant main effect of training on burnout scores (*b* = -1.2 p =.19). There was no significant interaction effect between psychological flexibility and training (*b* = .13, p = .60).

2.4.4.2 The moderation effects of areas of work life (AWS), supervision and training on wellbeing

It was predicted that the relationship between psychological flexibility and wellbeing would be moderated by areas of work life. The results indicated a significant main effect of psychological flexibility (*b* = .38, p = <.001) and areas of work life (*b* = .38, p = <.001) on wellbeing. However, there was no significant interaction effect between areas of work life and psychological flexibility on wellbeing (*b* = .00, p =.994).

It was predicted that the relationship between psychological flexibility and wellbeing would be moderated by access to supervision. The results indicated a significant main effect of psychological flexibility (*b* = .55, p = <.001) on wellbeing. However, supervision did not have a significant main effect on wellbeing (*b* = .13, p =.79). There was no significant interaction effect between supervision and psychological flexibility and wellbeing (*b* = -.12, p =.365).

It was predicted that the relationship between psychological flexibility and wellbeing would be moderated by access to training. The results indicated a significant main effect of psychological flexibility (*b* = .54, p = <.001) on wellbeing, however, there was no significant main effect of training on wellbeing (*b* = .51 p =.40). There was no significant interaction effect between training and psychological flexibility on wellbeing (*b* = -.25, p = .13).

2.5 Discussion

2.5.1 Summary of Findings

The current study aimed to understand whether psychological flexibility (PsyFlex) was predictive of burnout (AMBI) and wellbeing (SWEMWBS) among cancer clinicians. Secondly, the study wanted to determine whether workplace factors, assessed using the Areas of Work Life Scale (AWS), and the use of supervision and psychological training, moderated the association between psychological flexibility, burnout and wellbeing. The results supported the first and second hypotheses, which confirmed that higher levels of psychological flexibility predicted lower levels of burnout and higher levels of wellbeing in cancer care clinicians. The results also supported the fourth hypothesis, which indicated that areas of work life (AWS) significantly moderated the relationship between psychological flexibility and burnout. Areas of work life however, was not found to moderate the relationship between psychological flexibility and wellbeing. The remaining hypotheses were not confirmed, supervision and training were not found to moderate the relationship between psychological flexibility, burnout or wellbeing.

The prevalence of burnout in cancer clinicians within the current sample was relatively low, with 30% indicating moderate to high levels and 70% reporting low levels of burnout. Such findings are consistent with previous research (Shaikh et al., 2019), and a systematic review which reported lower burnout rates within the MBI's subscales for professionals working in cancer care (Hession et al., 2020). The review reported a high degree of heterogeneity across the studies samples, reporting that the degree of variation in burnout between various professionals within the area could explain the difference in prevalence rates. The current study explored this assumption, the results identified that there were significant differences in burnout scores between professional groups working in cancer care. Interestingly, physicians reported higher burnout scores compared to nurses, allied health care professionals and other professionals in cancer care. The multiple occupational demands placed upon physicians, in conjunction with other individual and organizational risk factors, could explain why this professional group are most susceptible to burnout (Trufelli et al., 2008).

The results of the current study support the first and second hypotheses, as higher levels of psychological flexibility were predictive of lower levels of burnout and greater wellbeing. The findings lend support to the developing evidence base (Lloyd et al., 2013, Losa et al., 2010; Noone & Hastings, 2011). Such studies suggest that healthcare professionals who have an ability to stay in contact with the present and respond to stress while acting in accordance with their values (Bond et al., 2011), were less likely to experience significant levels of burnout (Vilardaga et al., 2011), which appears to reflect the findings of the current study.

Further analysis reported that an increased alignment to work (which involves feeling in control, having a manageable workload, experiencing fairness and working in line with one's values) moderated the relationship between psychological flexibility and burnout. The relationship between psychological flexibility and level of burnout was stronger for individuals who had a higher workplace alignment, which suggests that individuals who have an alignment with their work and values are more likely to stay in contact with the present and adapt to the challenges that arise, which reduces the likelihood of burnout symptoms.

Such findings are supported by previous research, where higher levels of psychological flexibility predicted improved job performance and satisfaction in healthcare workers (Bond & Bunce, 2003; Bond & Flaxman, 2006). The finding that areas of work life moderated the indirect pathway to psychological flexibility and burnout were consistent with the protective-enhancing hypothesis (Richardson et al., 1990), which suggest that different protective factors interact to enhance the function of the other. It could be implied that greater alignment with workplace factors is therefore likely to increase the level of psychological flexibility and serve as a buffer to burnout

(Karasek & Theorell, 1990). Interestingly, areas of work life were not found to moderate the relationship between psychological flexibility and wellbeing. Such findings could suggest that there is a need for further preventative interventions to enhance levels of psychological flexibility in clinicians working in cancer care, which could buffer against burnout symptoms and consequently lead to greater wellbeing.

There was a significant but weak negative correlation between supervision attendance and level of burnout in the current study. The results are consistent with the findings of Gonge and Buus (2011), who reported that higher depersonalisation was related to reduced supervision attendance. The results of the current study did not find that access to supervision significantly predicted lower levels of burnout or higher wellbeing in the current sample. Psychological flexibility and supervision were independently associated with burnout; however, supervision did not moderate this relationship. Given that access to supervision was not directly impacting on levels of psychological flexibility, tailored interventions that specifically incorporate the principles of ACT (e.g ACT informed supervision, reflective practice etc) may support clinicians to increase their ability to be psychologically flexible in the presence of adversity (Morris & BilichEric, 2017; HulbertWilliams et al., 2021) which could in turn result in lower burnout and greater wellbeing.

Despite the growing evidence supporting the use of clinical supervision within cancer care (Hession & Habenicht, 2020), the findings of the study support the mixed findings reported within the literature. It is important to note that a number of participants within the sample (N=122) were not attending any form of clinical supervision. A lack of availability due to possible competing occupational demands, may have limited opportunities to engage with clinical supervision. Additionally, in the absence of a culture which advocates help seeking, the stigma associated with attending clinical supervision may indirectly impact upon its use in professionals working in this area (Dilworth et al., 2013). Alternatively, individuals may also be seeking support from peers in contrast to accessing supervision, which could be serving as an additional protective factor (Bowling et al., 2015).

The findings of the study did not find any significant association between access to psychological training with burnout or wellbeing. Equally, training was not found to moderate the relationship between PF and burnout or PF and wellbeing. 40% of participants attended psychological training more than 3 years ago and 23% had not accessed any form of psychological training. Most of the sample were either unsure of whether they had accessed ACT specific training (N=42) or had reported that they had not attended this type of training (N= 139). Despite the advantages attached to accessing psychological or ACT informed training, which have demonstrated improvements in stress and burnout (Prudenzi et al., 2021), the limited uptake in the current study suggests that many clinicians are not experiencing the perceived benefits of this. The promotion of clinical supervision and psychological training within organizations, could support with increasing access and serve as an additional preventative measure.

2.5.2 Limitations

There are some limitations to be considered within the context of the current findings. Firstly, the study utilised a cross-sectional design and therefore it was not possible to establish causality inferences across time points. Secondly, the internal consistency of the burnout subscales within the AMBI in the current sample demonstrated low reliability. Given that each subscale had less than ten items, an alpha Cronbach of .5 was deemed acceptable (Perry et al., 2004) and so the total burnout score which compromised of EE and DP was interpreted in the main analysis. It is important to note however, that low reliability may indicate higher measurement error, which places a limit on the amount of variance explained by the models within the current study.

An online opportunistic sampling strategy was utilised to attain participants from various areas within cancer care, however the nature of this recruitment strategy increased the likelihood of self-selection and reporting bias. As the study was advertised through generic channels it was difficult to establish the direct method of advertisement, which again could lead to an over or under representation of professionals participating within the study.

2.5.3 Future Research

In order to build upon the findings of the current study, a longitudinal or experimental design would support with confirming causality and the explanations inferred from the existing findings. Specific interventions which are tailored towards increasing psychological flexibility within cancer care services could serve as a wider preventative measure of burnout.

The current study did not explore the specific subscales of the AWS. Examining the specific organizational areas and their association with burnout, psychological flexibility and wellbeing would allow for further expansion of the current findings, and support with targeting individual or organizational interventions. Given that the AWS was identified as the only significant moderator within the study, further research exploring the use of clinical supervision and psychological training within cancer care would generate a greater understanding of the factors that underpin the relationship between burnout, wellbeing and psychological flexibility. Obtaining an understanding of how clinical supervision is utilised within this area (preventative vs reactive) and identifying the barriers or enablers to accessing psychological training among professionals, would offer further clarification.

Lastly, exploring the relationship between psychological flexibility and burnout within specific groups of professionals working in cancer care could support with generalising the findings and understanding the key organizational stressors related to specific professions.

2.5.4 Clinical Implications

Despite the majority of participants reporting lower levels of burnout within the current study, the findings highlight several clinical implications. As reported in previous research, the physical and emotional symptoms of burnout can take up to a year to fully manifest (Shanafelt et al., 2012) which highlights the need for maintainable preventative individual and organizational interventions.

Regular and consistent support that is accessible to all professional groups, particularly physicians who reported high levels of burnout in the current study, could support with increasing awareness of the early indicators of burnout and sustain increased wellbeing and psychological flexibility.

Clinical Psychologists can support managers and cancer clinicians to increase their own levels of psychological flexibility. Firstly, by supporting managers to develop and maintain a compassionate culture within teams, services, and organisations, which supports the healthy containment and sharing of challenges and shared anxieties. Fostering a culture of openness, which promotes help-seeking and challenges the notion that clinicians are “superhuman” (Balch et al., 2011), will enable cancer clinicians to seek preventative support, reducing the likelihood of increased levels of burnout. It is important for managers to role model such practices to bridge the hierarchical divisions that exists within teams. This can be achieved by role modelling self-care practices and attending the interventions offered alongside the team. This can also be exercised through implementing a grassroots approach and supporting “bottom-up communication”, which involves recognising and acknowledging the needs of all members of the team, while supporting colleagues to take ownership of their decision making and involvement in the change process (West et al., 2014).

Secondly, Clinical Psychologists can support with facilitating and up skilling other professionals to lead on wellbeing initiatives. Research has demonstrated that individuals who have greater psychological flexibility are more likely to act in line with their values and engage in compassionate action (Atkins & Parker, 2012). There is growing evidence for the effectiveness of workplace programmes which are based upon the principles of Acceptance and Commitment Therapy (ACT) (Prudenzi et al., 2022; Bond & Bunce, 2000). The promotion of engagement with reflective practice, clinical supervision and ACT based interventions could support cancer clinicians to increase their levels of psychological flexibility to assist with managing the stressors of the role.

2.5.5 Conclusions

The findings of the current study contribute to the existing burnout literature in cancer care and offer new findings relating to the specific psychological predictors of burnout. Despite the lower rates of burnout reported in this study, psychological flexibility and areas of work life were identified as significant predictors of lower burnout and greater wellbeing, which suggests that cancer clinicians with a greater alignment to their work and subsequently higher levels of psychological flexibility reported lower levels of burnout. In order to maintain psychological flexibility and prevent higher burnout, further investigation is required into the specific individual and organizational risk factors that increase a professional's susceptibility to burnout. Additionally, a wide range of interventions that are routinely accessible to all professionals within this area could serve as an effective preventative measure.

Appendices

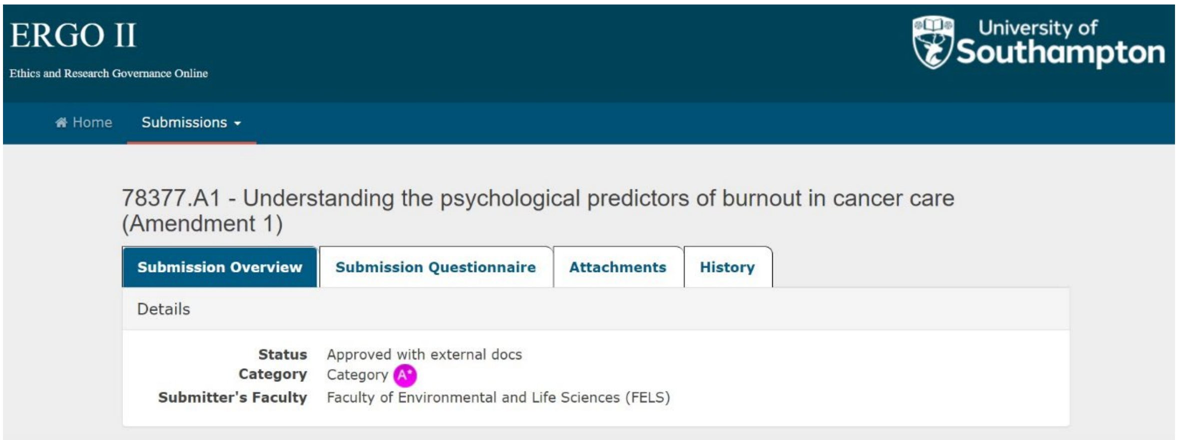
Appendix A: Systematic Review Quality Assessment Table (QualSyst)

Questions from the QualSyst Quality Assessment Tool	Jyothindran et al., 2021	Fisak et al., 2020	Davison et al., 2007	Pinks et al., 2021	McLean et al., 2023	Thompson et al., 2022	Wahl et al.,	Portoghese	Connors et	Peterson et	Barnard et	Manning-	Wang et al.,	Eagle et al.,	Davidson et	Elbay et al.,	Bozionelos,	Ageel et al.,
Question/ Objectives sufficiently described?	1	2	2	2	1	2	2	2	1	1	2	2	2	2	2	1	1	2
Is the study design evident and appropriate?	2	2	2	2	1	1	2	1	2	2	2	1	2	2	1	2	1	2
Method of subject/comparison group selection or source of information/input variables described and appropriate?	1	1	1	2	1	1	1	1	2	1	1	1	2	1	1	1	1	1
Subject (and comparison group, if applicable) characteristics sufficiently described?	2	1	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	2
If interventional and random allocation was possible, was it described?	N/A	N/A	1	0	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
If interventional and blinding of investigators was possible, was it reported?	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
If interventional and blinding of subjects was possible, was it reported?	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/misclassification of bias? Means of assessment reported?	2	1	2	2	2	2	2	2	1	2	2	2	2	1	1	1	2	2
Sample size appropriate?	2	1	1	1	1	1	2	2	1	2	1	2	1	1	1	2	2	1

Analytic methods described/justified and appropriate?	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2
Some estimate of variance is reported for the main results?	2	1	1	1	0	2	2	2	1	2	1	2	1	0	0	2	2	1
Controlled for confounding?	1	1	2	1	1	1	1	1	1	2	1	1	1	1	0	1	1	1
Results reported in sufficient detail?	2	1	2	2	1	2	1	2	1	2	2	2	2	1	1	2	2	2
Conclusions supported by the results?	2	2	2	2	1	2	1	2	2	2	1	2	2	1	1	2	2	2

Appendix B: Ethics Confirmation

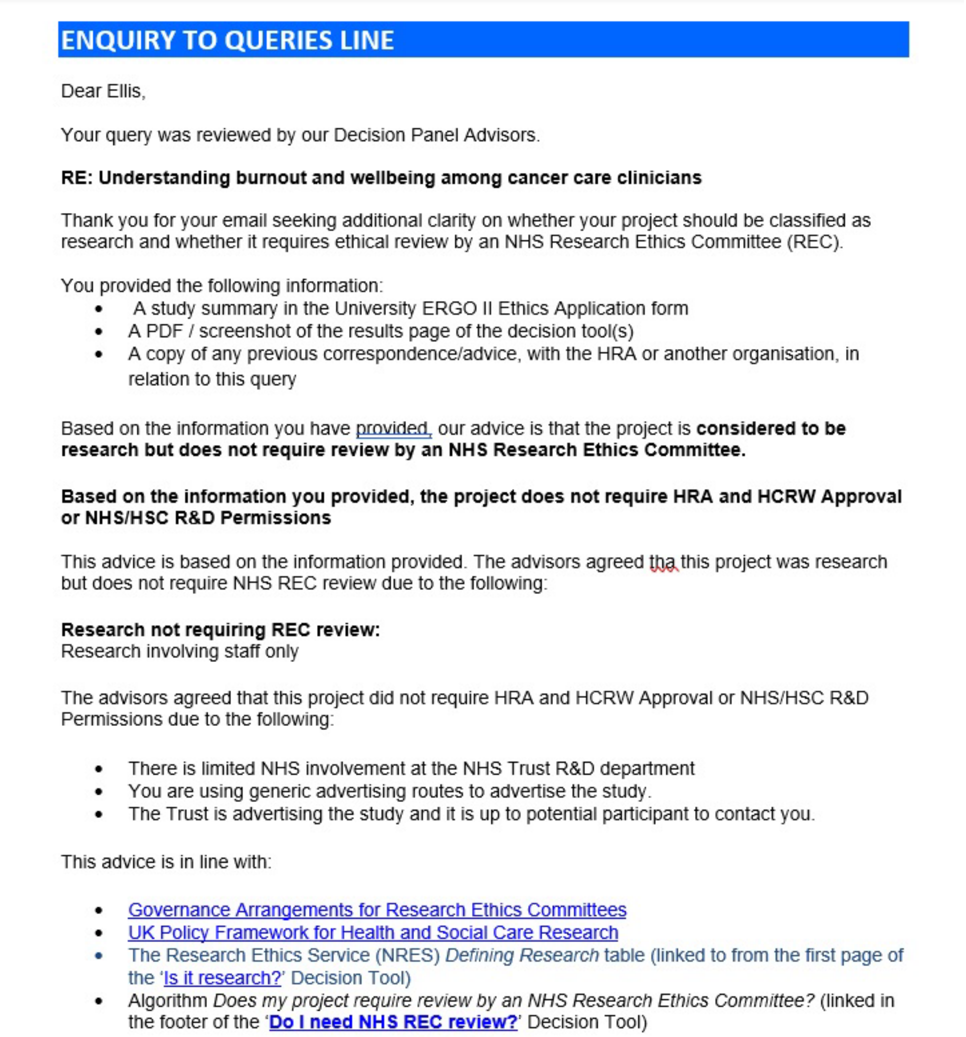
ERGO II Approval



78377.A1 - Understanding the psychological predictors of burnout in cancer care (Amendment 1)

Status Approved with external docs
Category Category A*
Submitter's Faculty Faculty of Environmental and Life Sciences (FELS)

HRA correspondence confirming that the study does not require NHS ethics.



ENQUIRY TO QUERIES LINE

Dear Ellis,

Your query was reviewed by our Decision Panel Advisors.

RE: Understanding burnout and wellbeing among cancer care clinicians

Thank you for your email seeking additional clarity on whether your project should be classified as research and whether it requires ethical review by an NHS Research Ethics Committee (REC).

You provided the following information:

- A study summary in the University ERGO II Ethics Application form
- A PDF / screenshot of the results page of the decision tool(s)
- A copy of any previous correspondence/advice, with the HRA or another organisation, in relation to this query

Based on the information you have provided, our advice is that the project is **considered to be research but does not require review by an NHS Research Ethics Committee.**

Based on the information you provided, the project does not require HRA and HCRW Approval or NHS/HSC R&D Permissions

This advice is based on the information provided. The advisors agreed tha this project was research but does not require NHS REC review due to the following:

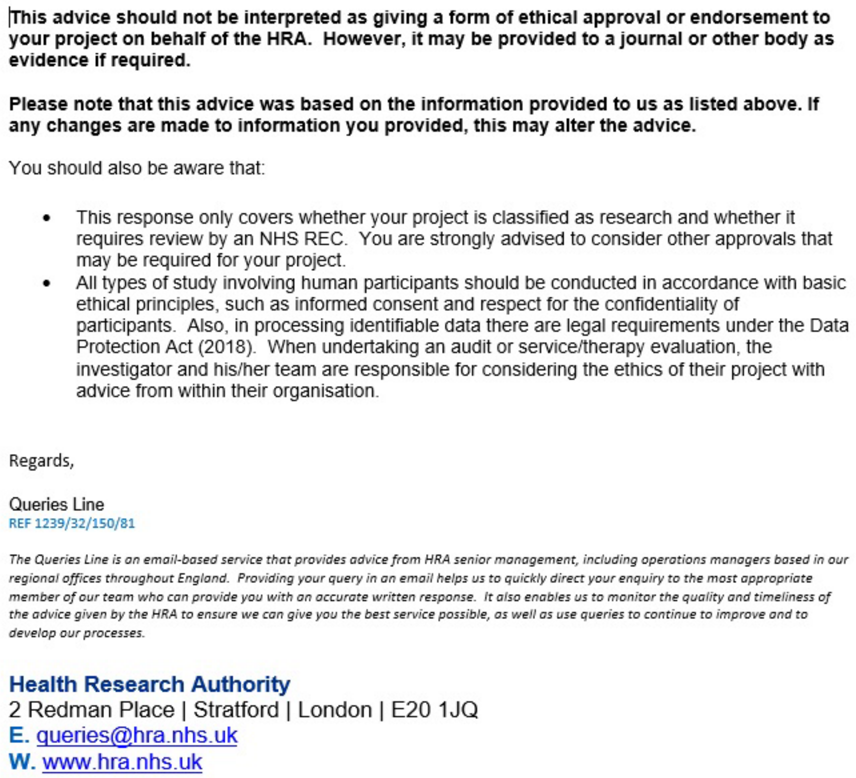
Research not requiring REC review:
Research involving staff only

The advisors agreed that this project did not require HRA and HCRW Approval or NHS/HSC R&D Permissions due to the following:

- There is limited NHS involvement at the NHS Trust R&D department
- You are using generic advertising routes to advertise the study.
- The Trust is advertising the study and it is up to potential participant to contact you.

This advice is in line with:

- Governance Arrangements for Research Ethics Committees
- UK Policy Framework for Health and Social Care Research
- The Research Ethics Service (NRES) *Defining Research* table (linked to from the first page of the 'Is it research?' Decision Tool)
- Algorithm *Does my project require review by an NHS Research Ethics Committee?* (linked in the footer of the '**Do I need NHS REC review?**' Decision Tool)



This advice should not be interpreted as giving a form of ethical approval or endorsement to your project on behalf of the HRA. However, it may be provided to a journal or other body as evidence if required.

Please note that this advice was based on the information provided to us as listed above. If any changes are made to information you provided, this may alter the advice.

You should also be aware that:

- This response only covers whether your project is classified as research and whether it requires review by an NHS REC. You are strongly advised to consider other approvals that may be required for your project.
- All types of study involving human participants should be conducted in accordance with basic ethical principles, such as informed consent and respect for the confidentiality of participants. Also, in processing identifiable data there are legal requirements under the Data Protection Act (2018). When undertaking an audit or service/therapy evaluation, the investigator and his/her team are responsible for considering the ethics of their project with advice from within their organisation.

Regards,

Queries Line
REF 1239/32/150/81

The Queries Line is an email-based service that provides advice from HRA senior management, including operations managers based in our regional offices throughout England. Providing your query in an email helps us to quickly direct your enquiry to the most appropriate member of our team who can provide you with an accurate written response. It also enables us to monitor the quality and timeliness of the advice given by the HRA to ensure we can give you the best service possible, as well as use queries to continue to improve and to develop our processes.

Health Research Authority
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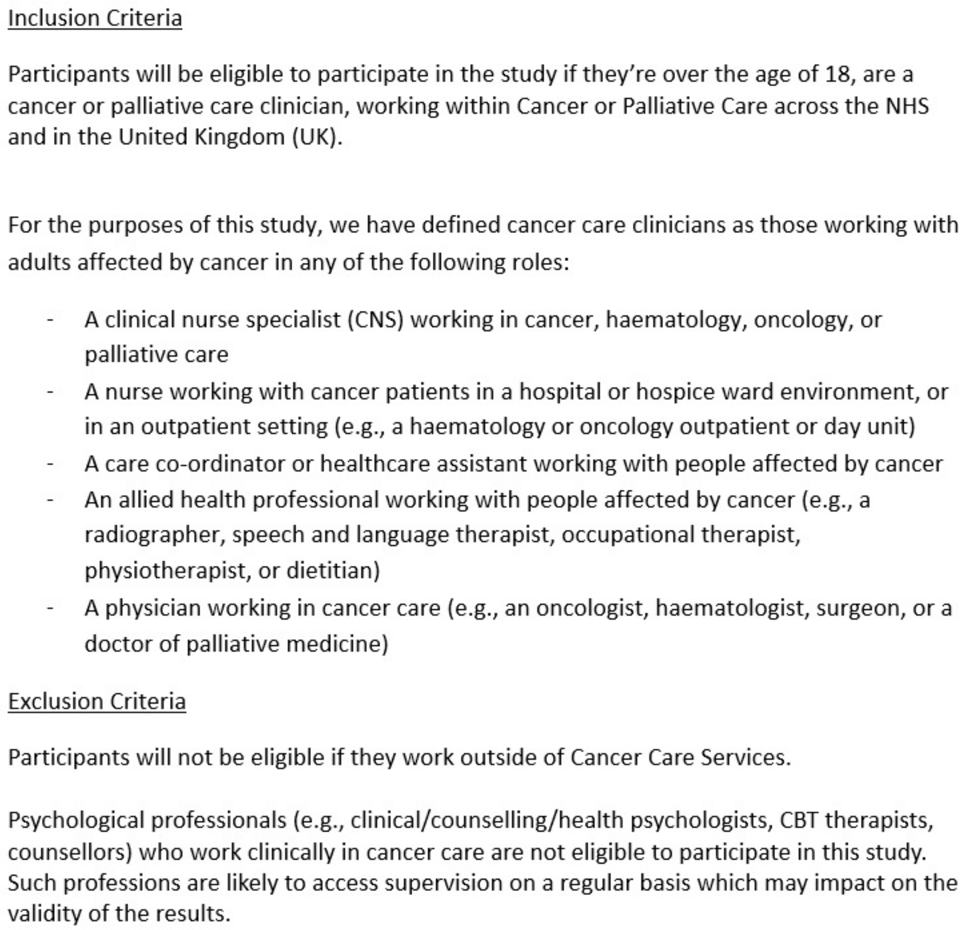
W. www.hra.nhs.uk

Appendix C: Empirical Study – Inclusion and Exclusion Criteria



Inclusion Criteria

Participants will be eligible to participate in the study if they're over the age of 18, are a cancer or palliative care clinician, working within Cancer or Palliative Care across the NHS and in the United Kingdom (UK).

For the purposes of this study, we have defined cancer care clinicians as those working with adults affected by cancer in any of the following roles:

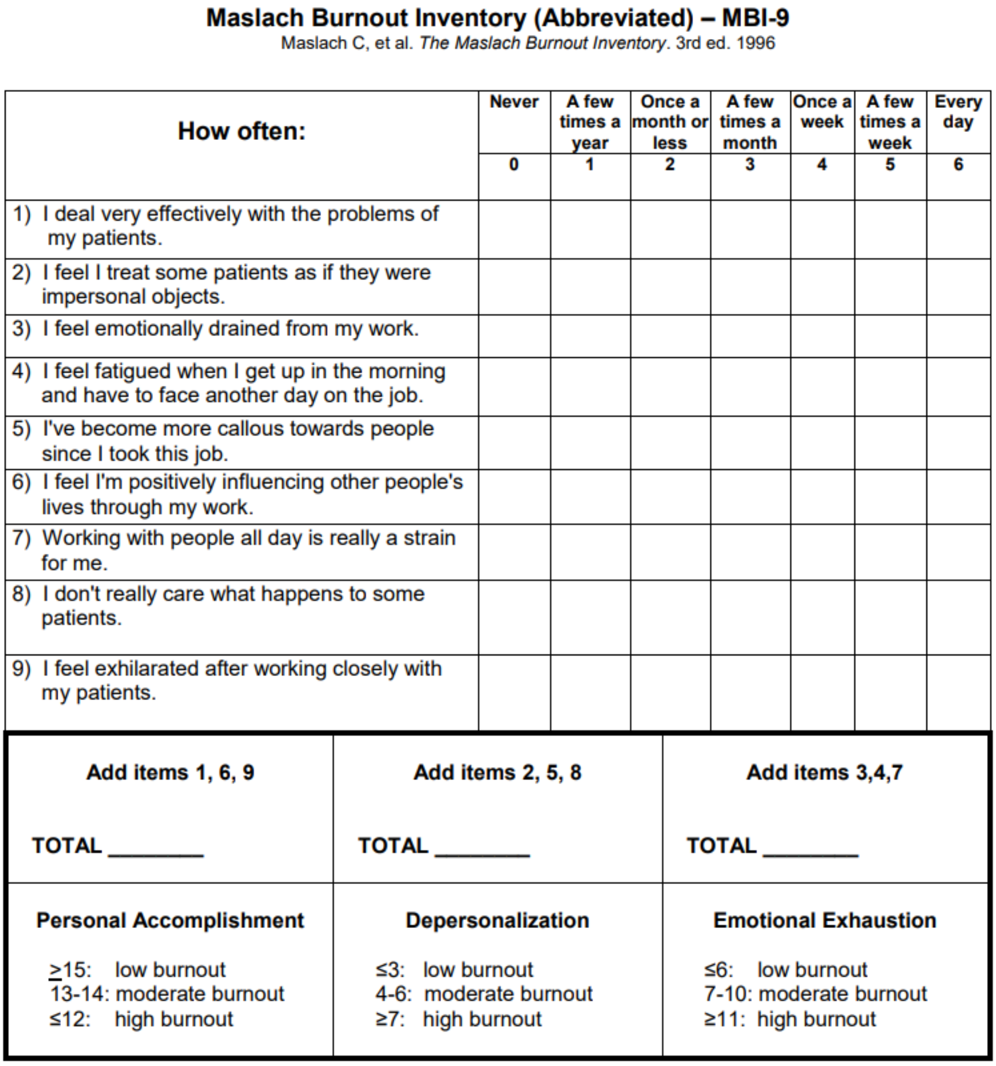
- A clinical nurse specialist (CNS) working in cancer, haematology, oncology, or palliative care
- A nurse working with cancer patients in a hospital or hospice ward environment, or in an outpatient setting (e.g., a haematology or oncology outpatient or day unit)
- A care co-ordinator or healthcare assistant working with people affected by cancer
- An allied health professional working with people affected by cancer (e.g., a radiographer, speech and language therapist, occupational therapist, physiotherapist, or dietitian)
- A physician working in cancer care (e.g., an oncologist, haematologist, surgeon, or a doctor of palliative medicine)

Exclusion Criteria

Participants will not be eligible if they work outside of Cancer Care Services.

Psychological professionals (e.g., clinical/counselling/health psychologists, CBT therapists, counsellors) who work clinically in cancer care are not eligible to participate in this study. Such professions are likely to access supervision on a regular basis which may impact on the validity of the results.

Appendix D: Measures



Maslach Burnout Inventory (Abbreviated) – MBI-9

Maslach C, et al. *The Maslach Burnout Inventory*. 3rd ed. 1996

How often:	**Never**	**A few times a year**	**Once a month or less**	**A few times a month**	**Once a week**	**A few times a week**	**Every day**
	0	**1**	**2**	**3**	**4**	**5**	**6**
1) I deal very effectively with the problems of my patients.							
2) I feel I treat some patients as if they were impersonal objects.							
3) I feel emotionally drained from my work.							
4) I feel fatigued when I get up in the morning and have to face another day on the job.							
5) I've become more callous towards people since I took this job.							
6) I feel I'm positively influencing other people's lives through my work.							
7) Working with people all day is really a strain for me.							
8) I don't really care what happens to some patients.							
9) I feel exhilarated after working closely with my patients.							

Add items 1, 6, 9 **TOTAL ________**	**Add items 2, 5, 8** **TOTAL ________**	**Add items 3,4,7** **TOTAL ________**
Personal Accomplishment ≥15: low burnout 13-14: moderate burnout ≤12: high burnout	**Depersonalization** ≤3: low burnout 4-6: moderate burnout ≥7: high burnout	**Emotional Exhaustion** ≤6: low burnout 7-10: moderate burnout ≥11: high burnout

The Short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS)

Below are some statements about feelings and thoughts.
Please tick the box that best describes your experience of each over the last 2 weeks

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5

Psyc-Flex Measure (Gloster et al., 2021)

The questions refer to your experiences in the **last seven days**.

Even if I am somewhere else with my thoughts, I can focus on what's going on in important moments.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

If need be, I can let unpleasant thoughts and experiences happen without having to get rid of them immediately.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

I can look at hindering thoughts from a distance without letting them control me.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

Even if thoughts and experiences are confusing me I can notice something like a steady core inside of me.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

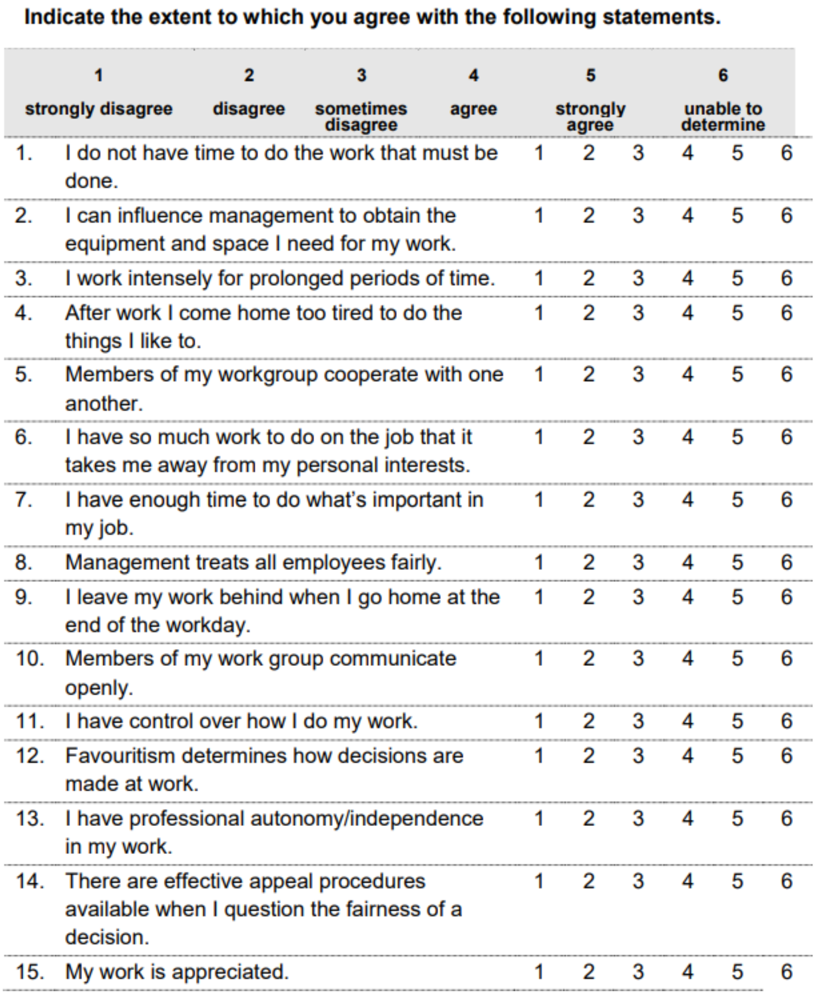
I determine what's important for me and decide what I want to use my energy for.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

I engage thoroughly in things that are important, useful, or meaningful to me.

very often	often	from time to time	seldom	very seldom
(5)	(4)	(3)	(2)	(1)

Areas of Worklife Scale (AWS) (Leiter & Maslach, 2003)



Indicate the extent to which you agree with the following statements.

1 strongly disagree	2 disagree	3 sometimes disagree	4 agree	5 strongly agree	6 unable to determine

1.	I do not have time to do the work that must be done.	1	2	3	4	5	6
2.	I can influence management to obtain the equipment and space I need for my work.	1	2	3	4	5	6
3.	I work intensely for prolonged periods of time.	1	2	3	4	5	6
4.	After work I come home too tired to do the things I like to.	1	2	3	4	5	6
5.	Members of my workgroup cooperate with one another.	1	2	3	4	5	6
6.	I have so much work to do on the job that it takes me away from my personal interests.	1	2	3	4	5	6
7.	I have enough time to do what's important in my job.	1	2	3	4	5	6
8.	Management treats all employees fairly.	1	2	3	4	5	6
9.	I leave my work behind when I go home at the end of the workday.	1	2	3	4	5	6
10.	Members of my work group communicate openly.	1	2	3	4	5	6
11.	I have control over how I do my work.	1	2	3	4	5	6
12.	Favouritism determines how decisions are made at work.	1	2	3	4	5	6
13.	I have professional autonomy/independence in my work.	1	2	3	4	5	6
14.	There are effective appeal procedures available when I question the fairness of a decision.	1	2	3	4	5	6
15.	My work is appreciated.	1	2	3	4	5	6

		1 strongly disagree	2 disagree	3 sometimes disagree	4 agree	5 strongly agree	6 unable to determine
16.	My efforts usually go unnoticed.	1	2	3	4	5	6
17.	I don't feel close to my colleagues.	1	2	3	4	5	6
18.	I do not get recognized for all the things I contribute.	1	2	3	4	5	6
19.	People trust one another to fulfill their roles.	1	2	3	4	5	6
20.	I am a member of a supportive work group.	1	2	3	4	5	6
21.	Resources are allocated fairly here.	1	2	3	4	5	6
22.	It's not what you know but who you know that determines a career here.	1	2	3	4	5	6
23.	Opportunities are decided solely on merit.	1	2	3	4	5	6
24.	I receive recognition from others for my work.	1	2	3	4	5	6
25.	My values and the Organization's values are alike.	1	2	3	4	5	6
26.	The Organization's goals influence my day to day work activities.	1	2	3	4	5	6
27.	My personal career goals are consistent with the Organization's stated goals.	1	2	3	4	5	6
28.	The Organization is committed to quality.	1	2	3	4	5	6
29.	Working here forces me to compromise my values.	1	2	3	4	5	6

Legend

Workload = 1, 3, 4, 6, 7, 9
Control = 2, 11, 13
Reward = 15, 16, 18, 24
Community = 5, 10, 17, 19, 20
Fairness = 8, 12, 14, 21, 22, 23
Values = 25, 26, 27, 28, 29

Appendix E: Demographic Questions

Demographic Questions

What is your age? (Typed response)

How would you describe your gender?

- ○ Male
- ○ Female
- ○ Transgender Female
- ○ Transgender Male
- ○ Gender Variant/Non-Conforming
- ○ Other (please specify):
- ○ Prefer not to say

How would you describe your ethnicity?

White

- ○ English/Welsh/Scottish/Northern Irish/British
- ○ Irish
- ○ Gypsy or Irish Traveller
- ○ Any other White background, please describe:

Mixed/Multiple Ethnic Groups

○ White and Black Caribbean
○ White and Black African
○ White and Asian
○ Any other Mixed / Multiple ethnic background, please describe:

Asian / Asian British

○ Indian
○ Pakistani
○ Bangladeshi
○ Chinese
○ Any other Asian background, please describe:

Black/African/Caribbean/Black British

○ African
○ Caribbean
○ Any other Black/African/Caribbean background, please describe:

Any other ethnic group, please describe:

What is your professional role?

○ Clinical Nurse Specialist
○ Staff nurse
○ Care Coordinator/Navigator
○ Healthcare assistant
○ Allied health professional (please specify job title):
○ Advance Nurse Practitioner
○ Physician – Consultant/Medical Practitioner/Surgeon (please specify job title):
○ Physician Assistant/Associate
○ Other – please specify:

For how long have you worked in cancer care?

○ Less than a year
○ Between 1-2 years
○ 3-5 years
○ 6-8 years
○ Over 9 years

Area of cancer specialism?

○ Oncology
○ Haematology

○ Palliative Care
○ Surgery
○ Elderly Care
○ Other: Please describe:

Area of the UK?

○ South-East England
○ London
○ North-West England
○ East of England
○ West Midlands
○ South-West England
○ Yorkshire
○ East Midlands
○ North-East England
○ Wales
○ Scotland
○ Northern Ireland
○ Other. Please describe:

Were you redeployed from your role in cancer care during the COVID-19 pandemic?

○ Yes
○ No

Have you had access to any form of training to support you to deliver psychosocial care to patients? (e.g., psychological assessment skills training, advanced communication skills training)

○ Yes, within the last year
○ Yes, more than one year but less than 3 years ago
○ Yes, more than 3 years ago
○ No

If you have received training in psychosocial care (e.g., psychological assessment skills training), has it included aspects of Acceptance and Commitment Therapy or Acceptance and Commitment Training?

○ Yes
○ No
○ Unsure

How frequently you attend psychological supervision to support you in your role? (for the purposes of this study, we mean supervision delivered by a clinical psychologist or another psychological professional)?

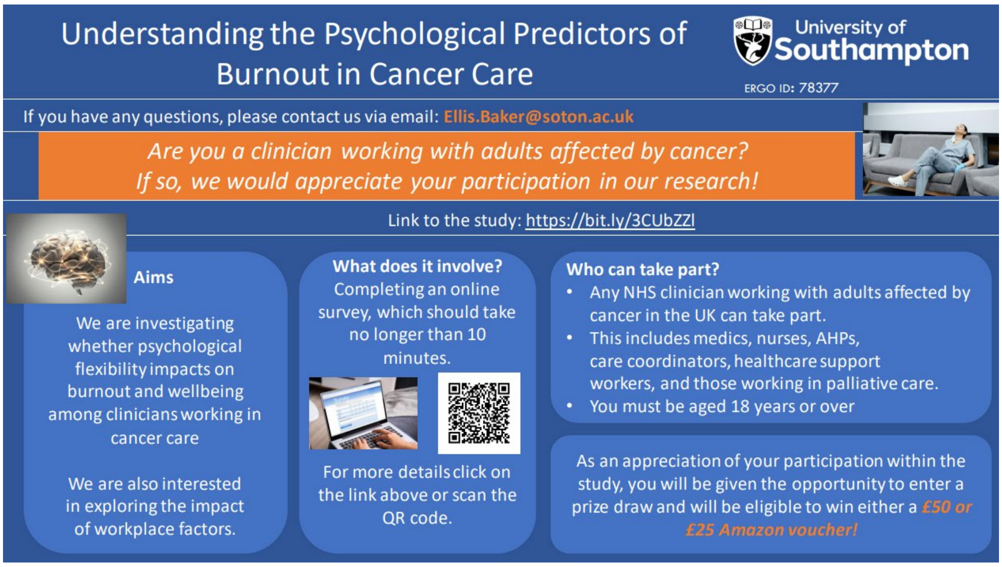
○ Monthly
○ Every 2-3 months
○ Every 4-6 months

○ Less than twice per year
○ I do not attend any form of psychological supervision

Have you experienced any difficulties with your mental health in relation to your role as a clinician working in cancer care? (Please tick one option)

○ Yes – In relation to my work life/work environment /work role
○ Yes – In relation to the impact of my personal life on my role or vice versa
○ Yes – A combination of both of the above
○ No

Appendix F: Poster Advertising the Study



Understanding the Psychological Predictors of Burnout in Cancer Care

University of Southampton

ERGO ID: 78377

If you have any questions, please contact us via email: **Ellis.Baker@soton.ac.uk**

Are you a clinician working with adults affected by cancer?
If so, we would appreciate your participation in our research!

Link to the study: https://bit.ly/3CUbZZl

Aims

We are investigating whether psychological flexibility impacts on burnout and wellbeing among clinicians working in cancer care

We are also interested in exploring the impact of workplace factors.

What does it involve?

Completing an online survey, which should take no longer than 10 minutes.

For more details click on the link above or scan the QR code.

Who can take part?

- Any NHS clinician working with adults affected by cancer in the UK can take part.
- This includes medics, nurses, AHPs, care coordinators, healthcare support workers, and those working in palliative care.
- You must be aged 18 years or over

As an appreciation of your participation within the study, you will be given the opportunity to enter a prize draw and will be eligible to win either a *£50 or £25 Amazon voucher!*

Appendix G: Email advertising the study

UNDERSTANDING THE PSYCHOLOGICAL PREDICTORS OF BURNOUT IN CANCER CARE

Are you a clinician working with people affected by cancer? If so, we would appreciate your participation in our research!

We are undertaking an exciting study, in which we hope to better understand the factors that predict burnout and psychological wellbeing among clinicians working in cancer care.

If you are a medical doctor, surgeon, nurse, AHP, care coordinator or health care support worker, working with adults affected by cancer in the UK, then please consider taking part in our study!

The study involves completing a short online survey, which should take no longer than 10 minutes. If you wish to find out more or participate in the study, please see the attached poster or click on the link below:

URL: https://bit.ly/3CUbZZl

As an appreciation of your participation within the study, you will be given the opportunity to enter a prize draw and will be eligible to win either a **£50 or £25 Amazon Voucher!**

Your feedback will also allow us to make recommendations and conduct further research about how to look after the wellbeing of cancer care clinicians in future.

The study has gained ethical approval (ERGO: 78377)

If you have any questions regarding the study, please contact us via email:

Ellis.baker@soton.ac.uk (Lead Researcher)

Andrew.Merwood@porthosp.nhs.uk (Primary Supervisor)

Thank you.

Appendix H: Participant Information Sheet

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. If you are happy to participate you will be asked to complete a virtual consent form.

What is the research about?

This research study is being undertaken by a Trainee Clinical Psychologist as part of her Clinical Psychology Doctorate Training under the supervision of Dr Andrew Merwood (Principal Clinical Psychologist), Dr Nick Maguire (Associate Professor in Clinical Psychology), and Dr Warren Dunger (Clinical Neuropsychologist).

Cancer care clinicians offer holistic support to patients with cancer across all stages of the cancer pathway. Working in cancer care services often involves the delivery of psychological and emotional support to patients and their families (Skilbeck, 2003). The role can often present as emotionally challenging. Literature indicates that additional workplace factors such as higher workloads (Greenglass, Burke, & Fiksenbaum, 2001), increased emotional demand, (Isikhan, Comez, & Danis, 2004), continuous exposure to illness and loss (Ekedahl & Wengström, 2007) and the ability to work in line with professional and personal values are all potential predictors of well-being and burnout in the workplace.

Psychological flexibility is the ability to respond effectively in situations with present-moment awareness, an openness to emotional experiences and an ability to be guided by personal values (Hayes, Strosahl & Wilson, 2012). Basic training on psychological flexibility is increasingly offered to cancer care clinicians to support them in their roles (e.g., Banwell et al, 2021; Hukbert-Williams et al.), while some staff support programmes seek to increase psychological flexibility among healthcare professionals (Bond & Flaxman, 2006; Bond, Flaxman, & Bunce, 2008). However, there has been little research into the association of psychological flexibility with burnout and well-being among cancer care clinicians, or into the role of other workplace factors and their relationship with flexibility, burnout and wellbeing.

Who can take part?

You can participate in this study if you are aged 18 years or older and work clinically in cancer care, including palliative care, in the United Kingdom (UK). For the purpose of this study, we have defined cancer care clinicians as those working with adults affected by cancer in any of the following roles:

- A clinical nurse specialist (CNS) working in cancer, haematology, oncology, or palliative care
- A staff nurse working with cancer patients in a hospital or hospice ward environment, or in an outpatient setting (e.g., a haematology or oncology outpatient or day unit)
- A care co-ordinator or healthcare assistant working with people affected by cancer
- An allied health professional working with people affected by cancer (e.g., a radiographer, speech and language therapist, occupational therapist, physiotherapist, or dietitian)
- A physician (e.g., an oncologist, haematologist, surgeon, or a doctor of palliative medicine) or associate physician working in cancer care.

Unfortunately, psychological professionals (e.g., clinical/counselling/health psychologists, CBT therapists, counsellors) who work clinically in cancer care are not eligible to participate in this study. This is because psychological professionals are more likely to have access to training and supervision that may affect how they cope with the psychological demands of their role.

Why have I been asked to participate?

You may have received information about this study through social media or via email. You are invited to participate in this study if you meet the study inclusion criteria outlined above.

What will happen to me if I take part?

If you choose to take part in the study, you will be asked to provide consent through ticking a box confirming that you've read the information sheet and consent form detailing what the study entails. If you consent to participate in the research, you will then be directed to a set of questionnaires.

The series of questionnaires include demographic questions, questions about your role, your wellbeing, levels of and aspects related to burnout in the workplace and questions in relation to psychological flexibility. It is estimated that these questionnaires will take no more than 10 minutes to complete.

After completing the questionnaires, you will be presented with a debrief form, which will offer further information regarding the study and contact details of the researcher and support services.

As an appreciation of your contribution and participation within the study, all participants who complete the study will be given the opportunity to enter a prize draw and will be eligible to win either a £50 or £25 Amazon voucher. If you wish to be entered into the prize draw, please follow the link provided at the end of the study to enter the prize draw.

Are there any benefits in my taking part?

Your participation in the study will offer further insight into the wellbeing and factors related to this. It will also assist with the development of future support and training and enhance our understanding of the factors that may be impacting upon your well-being.

Are there any risks involved?

The nature of the research is not designed to cause discomfort or distress, although the researchers are aware that taking part in this study may cause some level of psychological discomfort when answering questions about your well-being.

Details regarding the support available to you will be detailed in the debrief form after completing the study.

What data will be collected?

We will be collecting your questionnaire responses and information about your age, gender, ethnicity, your time spent working in your role and information about access to psychological training and supervision. The personal information provided will support with the development of future support and training and enhance our understanding of the factors that may be impacting upon your wellbeing.

The online questionnaire will not require any identifiable information and therefore data collection will be anonymous. If you wish to be entered into the prize draw you will be asked to enter your email address into a separate Qualtrics link at the end of the study. This will be separate to the main study and the main Qualtrics form, to ensure that your responses to the questionnaires remain anonymous.

The questionnaires will be stored in line with the University policy. The anonymised data will be entered and stored on a password protected computer that is only accessible to the researcher and the research team.

Will my participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential. The data we collect will not be identifiable information.

Only members of the research team and responsible members of the University of Southampton will be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential. The electronic data will be stored on a secure University database which will be password protected and only accessible to the research team.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to provide consent through ticking a box confirming that you’ve read the information sheet and consent form detailing what the study entails. This confirms that you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time when completing the questionnaires without giving a reason and without your participant rights being affected. The decision to take part in the research is voluntary. If you wish to withdraw from the study whilst completing the questionnaires, please do not send or submit any further data. Please note that after submitting any questionnaire responses, your responses cannot be retrieved or removed due to the anonymous nature of the study.

Submission of your questionnaire responses will imply your consent to using the information you've shared.

If you have any queries regarding this process, please do not hesitate to contact the research team.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

The results of the study will be written up as part of a doctoral thesis and will be referred to within the write up anonymously. The research will be available on the University of Southampton's thesis database and will be distributed to the University of Southampton and disseminated via presentations and peer reviewed publication to support with the development of further academic research within this area.

On completion of the study, if you would like to receive a summary of the research findings once complete, please contact a member of the research team (see details below).

Where can I get more information?

If you have any further queries regarding the research or your participation, please contact Ellis Baker (Trainee Clinical Psychologist) via email eb3n20@soton.ac.uk or Dr Andrew Merwood (Principal Clinical Psychologist) Andrew.merwood@porthosp.nhs.uk. A.T.Merwood@soton.ac.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions.

In the first instance please contact Ellis Baker (Trainee Clinical Psychologist) via email eb3n20@soton.ac.uk.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the ‘Data Controller’ for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep information from the study for 10 years after the study has finished after which time the information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University’s data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University’s Data Protection Officer (data.protection@soton.ac.uk).

Appendix I: Consent Form

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet and have had the opportunity to ask questions about the study.	
I confirm that I am 18 years of age or above	
I confirm that I am an NHS clinician working with adults affected by cancer (including in palliative care) in the UK.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand that my data cannot be removed from the data set after I have submitted my responses.	

I understand that my responses are anonymous and only the project team will have access to the data.	
I understand that I will not receive feedback for my responses once I have submitted, as my responses will be anonymised and unidentifiable.	
I understand that any personal information collected about me such as my age, ethnicity, time in role and geographic region, will be included in analyses but will not be identifiable as coming from me or shared beyond the study team.	
I understand that if I choose to enter the prize draw I will need to submit my email address to the researchers. I understand that my email address will not be linked to the answers I provide in the questionnaire.	
I can confirm I have read and understood the information and I agree to take part in the study: - ☐ *Yes* - ☐ *No*	

Appendix J: Debrief Form

You have now successfully completed the study. Thank you for taking part.

The aim of this research was to determine whether psychological flexibility (i.e., the ability to respond effectively in situations with present-moment awareness, an openness to emotional experiences and an ability to be guided by personal values; Hayes, Strosahl & Wilson, 2012) is associated with burnout and wellbeing among cancer care clinicians. We also wanted to find out whether organizational factors (workplace factors such as workload, control, reward, community, fairness and values, as well as supervision and access to relevant training) affect the relationship of psychological flexibility with burnout and wellbeing.

As identified through previous research, cancer care clinicians are at a higher risk of experiencing fatigue and burnout (Adriaenssens et al., 2019; Woo et al., 2020). This may be related to higher workloads (Greenglass, Burke, & Fiksenbaum, 2001), the emotional demands associated with supporting patients and their families (Isikhan, Comez, & Danis, 2004), and with continuous exposure to illness and loss (Ekedahl & Wengström, 2007).

Your participation in this study will help us to understand whether psychological flexibility and other organizational factors impact upon levels of burnout and wellbeing. Understanding these relationships may help us to make recommendations and conduct further research about how to look after the wellbeing of cancer care clinicians in future.

The results of this study will not include your name or any other identifying characteristics and all information provided will be treated with confidentiality.

This research did not use deception. If you wish to read a summary of the research findings once the project is complete, please inform the researcher.

If, following your participating in the study you felt upset or distressed, please contact one of the following:

- Your NHS direct line manager or Occupational Health Department
- Your NHS Staff wellbeing Service
- Your GP or local charities such as the Samaritans (free phone number: 116 123).

If you have any further questions, please contact Ellis Baker (Trainee Clinical Psychologist) via email eb3n20@soton.ac.uk.

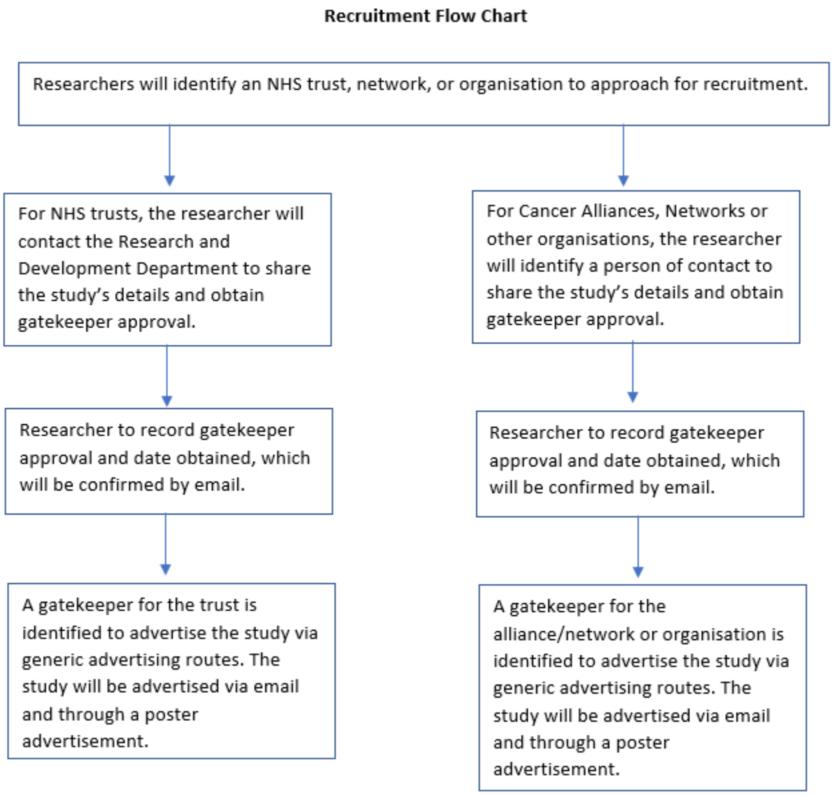
As an appreciation of your contribution and participation within the study, all participants who complete the study will be given the opportunity to enter a prize draw and will be eligible to win either a £50 or £25 Amazon voucher. If you wish to be entered into the prize draw, please follow the link provided below and enter your email address. Your email address will be stored separately to the main study and forms completed, to ensure that your responses to the questionnaires remain anonymous.

Link to enter the study's prize draw:
https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_42ewujxAcyTw2Fg

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Head of Research Integrity and Governance (023 8059 5058, rgoinfo@soton.ac.uk).

Thank you again for your participation in this research, we truly appreciate your time and commitment.

Appendix K: Recruitment Flow Chart



Recruitment Flow Chart

Researchers will identify an NHS trust, network, or organisation to approach for recruitment.

For NHS trusts, the researcher will contact the Research and Development Department to share the study's details and obtain gatekeeper approval.

Researcher to record gatekeeper approval and date obtained, which will be confirmed by email.

A gatekeeper for the trust is identified to advertise the study via generic advertising routes. The study will be advertised via email and through a poster advertisement.

For Cancer Alliances, Networks or other organisations, the researcher will identify a person of contact to share the study's details and obtain gatekeeper approval.

Researcher to record gatekeeper approval and date obtained, which will be confirmed by email.

A gatekeeper for the alliance/network or organisation is identified to advertise the study via generic advertising routes. The study will be advertised via email and through a poster advertisement.

Appendix A Author Guidelines (Journal)

Journal of Occupational and Organizational Psychology

The word limit for papers submitted for consideration to JOOP is 8000 words and any papers that are over this word limit will be returned to the authors. The word limit does not include abstract, references, figures, and tables. Appendices however are included in the word limit. Editor retains discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length (e.g., a new theory or a new method). The authors should contact the Editor first in such a case.

Preparing the Submission

Before you submit, you will need: Your manuscript: this can be a single file including text, figures, and tables, or separate files – whichever you prefer (if you do submit separate files, we encourage you to also include your figures within the main document to make it easier for editors and reviewers to read your manuscript, but this is not compulsory). All required sections should be contained in your manuscript, including abstract, introduction, methods, results, and conclusions. Figures and tables should have legends. References may be submitted in any style or format, as long as it is consistent throughout the manuscript. If the manuscript, figures or tables are difficult for you to read, they will also be difficult for the editors and reviewers. If your manuscript is difficult to read, the editorial office may send it back to you for revision.

Parts of the Manuscript

The manuscript should be submitted in separate files: title page; main text file; figures/tables; supporting information.

Title Page

You may like to use **this template** for your title page. The title page should contain**:**

A short informative title containing the major key words. The title should not contain abbreviations (see Wiley's best practice SEO tips);

A short running title of less than 40 characters;

The full names of the authors;

The author's institutional affiliations where the work was conducted, with a footnote for the author’s present address if different from where the work was conducted;

Abstract;

Keywords;

Data availability statement (see Data Sharing and Data Accessibility Policy);

Acknowledgments.

Author Contributions

For all articles, the journal mandates the CRediT (Contribution Roles Taxonomy)—more information is available on our **Author Services** site.

Abstract

Please provide an abstract of between 100 and 200 words, giving a concise statement of the intention, results or conclusions of the article. The abstract should not include any sub-headings.

Keywords

Please provide appropriate keywords.

Acknowledgments

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section. Financial and material support should also be mentioned. Thanks to anonymous reviewers are not appropriate.

Your main document file should include:

A short informative title containing the major key words. The title should not contain abbreviations;

Abstract without any subheadings;

Up to seven keywords;

Practitioner Points: Authors will need to provide no more than 2-4 'key points', written with the practitioner in mind, that summarize the key messages of their paper to be published with their article.;

Main body: formatted as introduction, materials & methods, results, discussion, conclusion;

References;

Tables (each table complete with title and footnotes);

Figure legends: Legends should be supplied as a complete list in the text. Figures should be uploaded as separate files (see below)

References

This journal uses APA reference style; as the journal offers Free Format submission, however, this is for information only and you do not need to format the references in your article. This will instead be taken care of by the typesetter.

Tables

Tables should be self-contained and complement, not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend, and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡, §, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

Figures

Although authors are encouraged to send the highest-quality figures possible, for peer-review purposes, a wide variety of formats, sizes, and resolutions are accepted.

Click here for the basic figure requirements for figures submitted with manuscripts for initial peer review, as well as the more detailed post-acceptance figure requirements.

Legends should be concise but comprehensive – the figure and its legend must be understandable without reference to the text. Include definitions of any symbols used and define/explain all abbreviations and units of measurement.

General Style Points

For guidelines on editorial style, please consult the **APA Publication Manual** published by the American Psychological Association. The following points provide general advice on formatting and style.

Language: Authors must avoid the use of sexist or any other discriminatory language.

Abbreviations: In general, terms should not be abbreviated unless they are used repeatedly and the abbreviation is helpful to the reader. Initially, use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only.

Units of measurement: Measurements should be given in SI or SI-derived units. Visit the Bureau International des Poids et Mesures (BIPM) website for more information about SI units.

Effect size: In normal circumstances, effect size should be incorporated.

Numbers: numbers under 10 are spelt out, except for: measurements with a unit (8mmol/l); age (6 weeks old), or lists with other numbers (11 dogs, 9 cats, 4 gerbils).

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