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Abstracts

Critical Review of the Literature

Junior doctors (JDs) in the United Kingdom's National Health Service (NHS) are at high-risk from work-related stress, however, recent reviews have not focused exclusively on JDs or social support (SS) interventions. This review sought to examine the qualitative literature to understand the relationship between work-related SS and NHS JDs' wellbeing. EMBASE, PSYCINFO, MEDLINE, and Web of Science databases were searched using eligibility criteria around NHS JDs' experiences, findings regarding SS and wellbeing, qualitative design, and publication in peer-reviewed journals 2005 onwards. 20 papers were eligible and of variable quality, relevance, and richness, as assessed here. Five themes were developed from the thematic synthesis: JD context justifies SS; experiences of SS; factors relating to whether SS is sought; the role of others; impact of SS. However, a lack of specificity in JDs' characteristics and discussion of transferability were noted, and SS and wellbeing are broad, subjective terms subject to bias. Nevertheless, SS plays an important role in supporting JDs to cope, thrive, and continue working with the environment, demands, and impact of this training role. Organisational support is needed to overcome the barriers to SS found in JDs, in addition to further research on the heterogeneity of JDs as a population.

Keywords. Junior Doctor, Social Support, Wellbeing, Morale, Mental Health, NHS, UK

Service Improvement Project

This project sought to understand the impact of a two half-day resilience and wellbeing intervention for staff in the Child and Young People's Directorate within Oxford Health NHS Foundation Trust. The impact was evaluated using pre-post resilience and perceived stress measures alongside qualitative exploration of staff's experiences, ability to implement learning, and recommendations for future interventions. Changes in resilience

and perceived stress following the intervention were not statistically significant. However, the role of proactively building resilience as a team, increasing self-awareness of emotional responses, and a top-down permission to use strategies were key influential factors. Recommendations are suggested, and these findings contribute towards the evidence-base and recommendations for future NHS staff resilience interventions.

***Keywords*.** Resilience, Perceived Stress, Mindfulness, Compassion-focused therapy, Wellbeing Intervention, NHS, Staff, Team.

Main Research Project

Objectives

To explore the relationship between loneliness-related cognitive interpretation bias (L-CIB) and loneliness as a bidimensional concept, in the under-researched over 80s population.

Method

A novel ambiguous scenario vignette (ASV) was developed to capture L-CIB of social situations and measured alongside a range of risk factors in a non-clinical sample of 120 older adults (80-101 years).

Results

A unidimensional loneliness model, and two ASV components (self/other) were found. Self and other L-CIB were not significantly correlated to loneliness, and the regression was hence not conducted.

Discussion

Conclusions cannot be drawn as to whether the cognitive model applies to the over 80s. This is discussed in relation to key methodological issues and wider developmental

theories. This novel ASV measure provides an age-appropriate tool to measure the key variable of L-CIB in the over 80s. Areas for future research in this age group are highlighted, particularly around the role of depression and loneliness.

Keywords. Cognitive Interpretation Bias, Loneliness, Over 80s, Oldest of Old.

Critical Review of the Literature

The Relationship Between Work-Related Social Support and Wellbeing in Junior Doctors working in the United Kingdom's National Health Service: A Systematic Review

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(excluding references and appendices, tables as 100 words or less)

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Proposed Journal: BPS Journal of Occupational and Organisational psychology. This journal publishes peer-reviewed papers seeking to increase understanding of people and organisations at work (Appendix E for Author Guidelines).

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Abstract

Junior doctors (JDs) in the United Kingdom's National Health Service (NHS) are at high-risk from work-related stress, however, recent reviews have not focused exclusively on JDs or social support (SS) interventions. This review sought to examine the qualitative literature to understand the relationship between work-related SS and NHS JDs' wellbeing. EMBASE, PSYCINFO, MEDLINE, and Web of Science databases were searched using eligibility criteria around NHS JDs' experiences, findings regarding SS and wellbeing, qualitative design, and publication in peer-reviewed journals 2005 onwards. 20 papers were eligible and of variable quality, relevance, and richness, as assessed here. Five themes were developed from the thematic synthesis: JD context justifies SS; experiences of SS; factors relating to whether SS is sought; the role of others; impact of SS. However, a lack of specificity in JDs' characteristics and discussion of transferability were noted, and SS and wellbeing are broad, subjective terms subject to bias. Nevertheless, SS plays an important role in supporting JDs to cope, thrive, and continue working with the environment, demands, and impact of this training role. Organisational support is needed to overcome the barriers to SS found in JDs, in addition to further research on the heterogeneity of JDs as a population.

Keywords. Junior Doctor, Social Support, Wellbeing, Morale, Mental Health, NHS, UK

Introduction

Wellbeing of NHS Doctors

The National Health Service (NHS) faces increased pressures associated with rising life expectancy, increasing care standards, and understaffing, which have been intensified by the Covid-19 pandemic (O'Dowd, 2021). There is a high and increasing rate of burnout in UK doctors (Imo, 2017). A recent survey indicated that 44% experienced work-related depression, anxiety, and burnout (British Medical Association; BMA; 2019), seen across specialities and grades (Rimmer, 2018). The effects of burnout are marked, including presenteeism, medical errors, and attrition (Riley et al., 2018). This can impact patient care, financial cost, and long-term workforce planning (Vijendren, Yung, & Sanchez., 2015). Help-seeking barriers in doctors include a culture of invulnerability, self-stigma, and fear of litigation (Clough, et al., 2019).

Junior doctors (JDs) are described to be at particular risk of mental health difficulties. Many international studies have highlighted a negative effect of work on JDs' mental health (Petrie et al., 2019). Fewer studies have focused on UK JDs, but those that have reported them to be at the greatest risk of burnout (Halliday et al., 2017), to have the highest reporting of mental health difficulties, and the lowest life satisfaction (Bhugra et al., 2019) compared to other grades. Many JDs are choosing not to apply for specialty training, with 50% taking time out of training (BMA, 2018). Exhaustion, stress, and a desire for supportive environments are becoming common reasons for attrition (Cleland et al., 2017).

The importance of staff wellbeing is emphasised in current NHS policy (NHS England, 2019), and a specific mental health service for doctors was introduced in England in 2019 in recognition of their particular needs (Department of Health and Social Care; DoHSC, 2019).

Social Support and Wellbeing

Considering that burnout and reluctance to seek help arise within an organisational system, many have highlighted the need for organisational interventions over individual ones (Panagioti et al., 2017). Emphasis has been placed on the role of social support (SS), with many writing about its importance in the British Medical Journal (Koh, 2019; Rimmer, 2019). Doctors in general are less likely to have SS structures available compared to other NHS healthcare professions (Siddiqui, et al., 2021). Structural and policy changes in the UK have led to a focus on shift systems, moving away from clinical 'firms' whereby a well-established team is led by a named consultant. Furthermore, provision of a doctors' mess (a place to rest and debrief informally with colleagues) has become sporadic (Rimmer, 2019). There is also extensive evidence that SS can mitigate the effects of work-related stress in a range of occupations, including health professions (Velando-Soriano, 2020).

Organisational interventions for enhancing empathy, communication, and team-working are recommended to increase emotional support and sense of belonging, to challenge mental health stigma, and to enhance a culture of help-seeking (Kinman & Teoh, 2018; Petrie et al., 2019).

Definition and Models

The term JD covers all doctors between graduating from medical school and becoming fully qualified consultants. In 2005, the UK Foundation Programme (FP) was implemented. This involved two initial years of postgraduate training in a safe environment for new doctors to apply knowledge from medical school on a range of placements with increased clinical responsibility and decisions. JDs can continue to explore different specialities during this time before then applying for speciality or core training, and working up to consultant level.

SS is a complex multi-faceted concept to define and measure (Hupcey, 1998b). Indeed, almost anything relating to a social interaction may be inferred as SS. Whilst there is

little agreement around its definition, commonalities include emotional concern and assurance, and intimate interactions. Qualitative research enables researchers to operationalise SS in a way that reflects the meanings held by individuals in the context in which it is being measured, thus unconstrained by researchers' understanding (Creswell, 1998). Here, the broad definition of SS as the flow of communication involving emotional concern, caring, sharing information, and instrumental help (Williams, 2005) is used.

Burnout, described as physical and emotional depletion in response to chronic emotional stressors, is seen as a specific type of work-related stress and characterised by emotional exhaustion, depersonalisation, and reduced personal accomplishment (Maslach & Jackson, 1984).

Several models have sought to understand the influence of SS on work-related stress and burnout. Cox's (1990) transactional model of occupational stress proposes that stress occurs when one's perceived resources (external such as SS, or internal) do not equate to work demands, resulting in a perception of being unable to cope. The job demand control support theory proposes stress as a response to job demands, and this interaction can be altered through increasing perceived control and SS (Karasek, 1979). Both direct and buffering effects of SS on stress are suggested (Cohen & Wills, 1985).

Evaluation of SS Interventions

Despite many writing about the importance of SS, the research evaluating such interventions is sparse and mainly concerns individual rather than organisation-focussed interventions. A review on the role of SS on mental health highlighted SS to be a vital resource for doctors, but few studies were available at that time and no UK studies were included (Voltmer & Spahn, 2009). Later reviews included work-related SS interventions such as mentoring, discussion groups, and debriefs (Clough et al., 2017; Fox et al., 2018). However, the findings were inconclusive due to the low quantity and quality of the studies,

and UK studies were not included. A recent review on mental health strategies for doctors indicated that interventions focusing on relationship and belonging were key to wellbeing. However, this was unique to neither the UK nor JDs (Carrieri et al., 2020). Furthermore, Locke and Lees (2020) reported evidence for doctors' reflective spaces doctors but commented that the context of grade, speciality, and healthcare system may affect the effectiveness and suitability of interventions. Relevant papers on SS in doctors have since been published (Galleta-Williams et al., 2020).

Review Aim

Given JDs are at a high risk of work-related stress and burnout, and the suggested role of SS for addressing this, this review will examine the empirical qualitative literature to gain a greater understanding of the relationship between work-related SS, and work-related stress and burnout. This will focus uniquely on JDs working in the UK NHS given this has not yet been done. In response to the call for wellbeing interventions to be organisationally-focused, work-related SS will be explored, such as from supervisors and peers, as opposed to external sources, for example family and friends.

Understanding the importance of, and how to provide, a supportive environment will be key in reducing the risk of stress and burnout in future clinical leaders.

Method

Given the aim to explore JDs' experiences, and the complexities of defining SS, a comprehensive systematic review and synthesis of qualitative research was conducted. The review protocol was pre-registered on PROSPERO (CRD42021204939) and reported following PRISMA guidelines (Rethlefsen et al., 2021).

Search Strategy and Selection Criteria

Search terms were discussed and developed between JH and HJ, using an exploratory search to establish the scope of terminology and consistency across databases. Boolean and MeSH terms were used with variations of SS, wellbeing, doctors, and UK NHS (Appendix A contains the full search strategy).

Four databases (EMBASE, PSYCINFO, MEDLINE, Web of Science) were searched via HDAS from inception to October 2020 by JH. No exclusion fields were applied.

Reference lists of included studies and relevant systemic reviews were hand searched. All retrieved databases were downloaded into Mendeley and duplicates removed. Authors of papers not accessible were contacted. An update was completed in February 2021 and no new eligible papers were found.

Papers were included if they:

- Explored the experiences of JDs working in an UK NHS setting (grades between medical school student and consultant).
- Had findings on work-related SS in relation to wellbeing (including stress, mental health, burnout, and morale).
- Had qualitative designs, with sufficient data to be extracted and methodology reported.
- Were published in English, from 2005 onwards (following UK FP implementation).
- Were published in peer-reviewed journals.

Papers were excluded if participants included different grades, professions, or countries without reporting the data and quotes separately in the findings. Individual formal interventions, such as cognitive-behavioural therapy, were excluded given the individual focus, despite fitting within SS's broad definition. Purely quantitative papers were also excluded. Considering the scope of the review and the drive to include credible high-quality

research, grey literature was excluded.

Data Analysis

Screening

20% of titles and abstracts were screened independently against the inclusion criteria by JH and LJ with satisfactory inter-rater agreement of .89 kappa. Disagreements were discussed with HJ and consensus agreed. JH independently completed screening and removed duplicates.

25% of full text papers were then independently (but not blindly) screened for eligibility by JH and LJ. Satisfactory agreement of .89 kappa was calculated. Ambiguous papers were resolved by consensus, consulting with HJ when required. JH screened the remaining papers.

Quality Assessment

The CASP for qualitative studies (Critical Appraisal Skills Programme; CASP, 2018) was used to assess quality. Although there is considerable discussion around the use of rating scores to assess qualitative data (Munthe-Kaas, et al., 2019), a rating score ('High', 'Medium', 'Low') was given based on how well the paper met the CASP criteria. Appendix B details the CASP criteria and rating score cut-offs out of 20). Studies were not excluded based on the grounds of quality; however, this appraisal detailed the strengths and weakness of each study which is useful when considering the contributions towards the findings of this review.

Ratings of 'thickness' or 'thinness' were given on each paper. 'Thick' papers provided detailed descriptions of the process and explanatory factors shaping the findings, and thus the transferability to other settings (Roen et al., 2006), whereas this was limited in 'Thin' papers. This also helped to overcome the limitations of using a CASP rating. Appendix C provides further definitions of 'Thick' and 'Thin'.

Studies were also rated on their relevance ('High', 'Medium', 'Low') towards the aim of exploring the relationship between SS and wellbeing in JDs. The definition of relevance ratings are detailed in Appendix D. This was to support the understanding of the nature of the body of evidence in relation to the review's aims.

Data extraction was completed using a template to capture relevant information (Table 1). 'Findings' were extracted from within the abstract, results, and discussion (Thomas & Harden, 2008), but did not include authors' own wider interpretations. 30% of data extraction and 50% of quality appraisal were completed independently by JH and LJ. Significant agreement of .89 kappa was reached, disagreements were discussed with HJ, and JH completed the rest.

The second-rater process followed the gold standard Cochrane recommendations (Garritty et al., 2020), and all decisions were discussed and documented using Excel.

Thematic Synthesis

Included papers were imported into NVivo (Version 12). Thomas and Harden's (2008)'s thematic analysis (TA) approach was used. Papers were read in-depth before a coding tree was created, reviewed by HJ. JH coded the papers (alphabetically) using inductive coding; each line was given at least one code and equal attention, without intentional influence of the review aim. New codes were added as required.

Here, qualitative research was considered influenced by the researcher and research context (Dodgson, 2019). Thus, to increase credibility of findings, self-reflexivity and supervision was sought throughout, and triangulation was completed by HJ on a relevant and thick text early in the coding process. Saturation was reached after 20 papers.

Descriptive groupings of related codes from the findings were then organised into higher-order analytical themes, thus analysis moved beyond the original content and reflected the review aim. Themes were influenced by frequency of supporting papers, and the power

of the concept whilst considering quality. Quotes were selected to demonstrate meaning, reflect the grounding across the papers, and depict conflicting data. Texts were revisited in an iterative process with the analytical themes in mind to check their grounding in the data.

Results

20 eligible papers were found (see Figure 1 for PRISMA study selection flowchart; Moher et al., 2009).

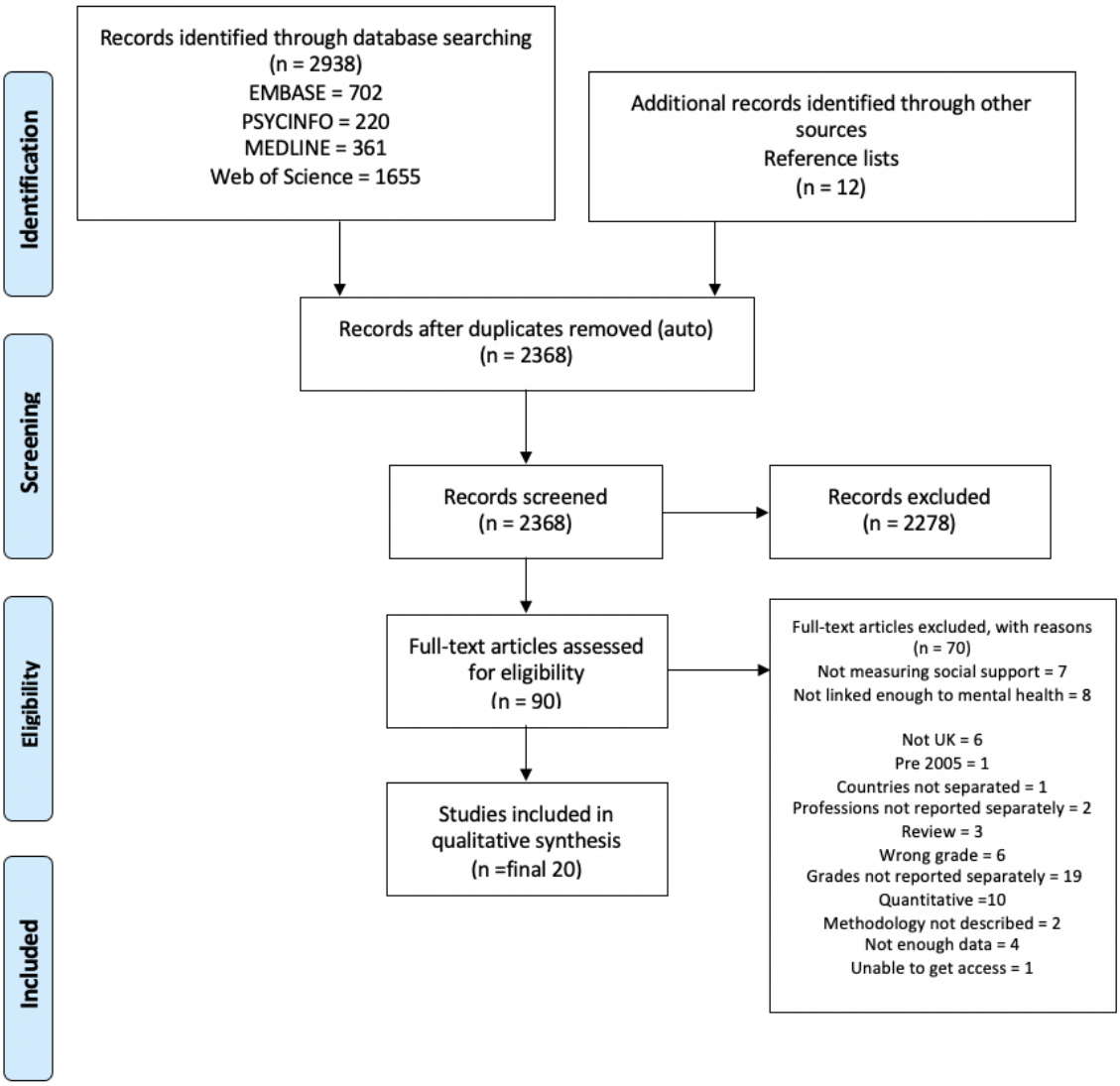
Study Characteristics

Table 1 contains a comprehensive summary of the study characteristics and quality appraisal scores, and thus there is limited in-text referencing to specific papers. Publication dates ranged from 2009 to 2020.

The included studies recruited from deaneries within the UK. Four were across England, three in the North, one in the West-Midlands, one in the East-Midlands, four in the South-West, and two in London. Four were recruited in Wales and two in Scotland.

Figure 1

PRISMA Flow Diagram of Study Selection Process



The total number of JDs across the 20 papers was 715, ranging from 8 (Fox et al., 2011) to 229 (Talash et al., 2020). Half explicitly focused on JDs in their first or second FP year. Within these, some looked exclusively at year one or two, and others a mix. Two focused on JDs at the later stages of speciality training. Two did not specify grades, whilst the rest specified a broad range.

Most papers included JDs from a range of specialities; others focused on general practice (Ansell, Read, & Bryce, 2020), emergency department (O'Keeffe, Carter, & Mason, 2017), anaesthetics (Wainwright et al., 2019), surgery and medical (Price & Lusznat, 2018), psychiatry (Beattie et al., 2017), and obstetrics and gynaecology (Gafson et al., 2017). Four papers specifically included participants with mental health difficulties (Fox et al., 2011; Grant, Rix, & Shrewsbury, 2019; Thompson et al., 2009; Wainwright et al., 2019), and some included JDs who had left training (Gafson et al., 2017).

Age of participants was only reported by seven papers, ranging from 22 to 35. Ethnicity was only reported by three, which indicated most of the participants were white-British (from 45% Caucasian to 'most' white-British). Overall, gender was well documented and ranged from 50 to 100% female.

The studies had a variety of aims. These were exploring the experiences of supportive teams and cultures (Price, et al., 2018; Scanlan et al., 2018), work-related factors related to wellbeing and stress (Ansell et al., 2020; Fox et al., 2011; Goodyear, 2014, Grant et al., 2019a; 2019b; Thompson et al., 2009; Wainwright et al., 2019; Zhou et al., 2019), views on Balint interventions (Quine & Tulinius, 2019; Sivam & Joseph, 2020), general work experiences during training (Beattie et al., 2017; Brennan et al., 2010; Brown et al., 2010; O'Keeffe et al., 2017; Rich et al., 2016), factors relating to raising concerns (Talash et al., 2020), and reasons for leaving the profession (Gafson et al., 2017; Smith et al., 2018).

Quality Appraisal

Overall, nine papers were rated as 'High' quality, (CASP ≥16; Beattie et al., 2017; Brennan et al., 2010; Fox et al., 2011; Rich et al., 2016; Scanlan et al., 2018; Sivam et al., 2020; Smith et al., 2018; Wainwright et al., 2019; Zhou et al., 2019). Two were 'Low' (CASP ≤10; Talash et al., 2020; Thompson et al., 2009), and the remaining nine 'Medium' (CASP11-15).

Richness

12 were appraised as 'Thick' (Ansell et al., 2020; Beattie et al., 2017; Brennan et al., 2010; Fox et al., 2011; Goodyear, 2014; Grant et al., 2019b; Rich et al., 2016; Scanlan et al., 2018; Sivam et al., 2020; Smith et al., 2018; Wainwright et al., 2019; Zhou et al., 2019), and the remaining eight 'Thin'.

Relevance

Six papers were rated as 'High' relevance (Fox et al., 2011; Grant et al., 2019a; Price et al., 2018; Quine et al., 2019; Scanlan et al., 2018; Sivam et al., 2020). It is important to note that Grant et al. (2019a) was rated as 'Thin' richness with 'Medium' quality. Three were 'Low' (Rich et al., 2016; O'Keeffe et al., 2017; Talash et al., 2020), and the remaining 11 'Medium' quality.

In terms of methodological flaws distinguishing 'Medium' to 'High' quality and richness, there was often limited discussion on the sample characteristics. This was particularly troubling when not acknowledged as a limitation in terms of transferability of findings. In general, JDs were treated as a homogenous group, particularly evidenced by some papers not specifying grades included.

Moreover, many lacked discussion around the influence of the relationship between the researcher and participants. This is particularly important given the nature of this research and JDs' concerns about confidentiality, stigma, and fear of consequences (Fox et al., 2011). Although most showed awareness of bias at the analysis stage through triangulation, very few adequately discuss the process and influence of the researcher on research design, recruitment, and data collection. Moreover, most provided detailed descriptions of the process of TA, but very few justified the quote selection, or showed contradictory data, in line with the CASP.

Table 1

Data Extraction Table Detailing Study Characteristics and Quality Appraisal (CASP, Richness and Relevance)

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
Ansell, Read, & Bryce (2020).	One training scheme in South West England	To identify the challenges to well-being experienced by GP postgraduate trainees and to explore how the trainees respond to those challenges.	16 Final year GP trainees 10 females (62.5%) Volunteer, convenience sample	Qualitative cross-sectional 2 semi-structured focus groups (8 people) 1.5 hours long Iterative approach. Inductive thematic analysis.	15 (Medium)	Thick	Medium
Beattie et al. (2017)	North East England 3 NHS trusts, 6 sites	To understand the lived experience of a Foundation Year 1 junior doctor psychiatry placement and to understand how job components influence attitudes.	14 FY1 doctors. Psychiatry 7 female (50%) Age range 23-34 Majority were White British Purposive sampling strategy with a criterion approach of position and training rotation.	Qualitative, cross-sectional Individual semi-structured interviews lasting 33-82 minutes. Hermeneutic phenomenology approach. Van Manen's approach to analysis (narratives around emotions).	16 (High)	Thick	Medium
Brennan et al. (2010).	5 hospital trusts in Devon and Corn-wall	To gain an understanding of how junior doctors experienced the transition from the role of student to that of practising doctor and how well their medical school education had prepared them for this.	31 FY1 at timepoint 1, 17 at both time points 10 audio recordings. 17 males (54.8%) Stratified purposive sampling strategy.	Qualitative across two time points Semi-structured individual interviews 3-4 months into FY1 and 3-4 before end. And audio diaries Thematic analysis, inductive coding (Braun and Clark).	16 (High)	Thick	Medium

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
Brown et al. (2010).	11 NHS trusts across Wales	To explore perceptions among junior doctors and hospital managers regarding the impact of the European Working Time Directive on patient care and doctors' well-being	1:1 Interviews: 10 Junior doctors (5 FY1, 3 FY2, 2 specialist training grade). 5 female (50%) Age 24-30 (M =24) Focus groups: 24: 11 FY1, 5 FY2, 1 specialist training grade, 1 specialist registrar, 1 staff grade doctor, 5 NHS managers and administrators. 17 Female (70%) Convenience sampling	Qualitative cross-sectional Individual Interviews (22-35 mins) or four focus groups Thematic analysis – inductive framework. Van Manen's approach to analysis.	13 (Medium)	Thin	Medium
Fox et al. (2011).	Severn Deanery (South West England)	To explore what happens when trainee doctors become unwell during their formative period of education and training. What support do they receive and how do they perceive that the experience of ill health affects their training trajectory?	8 FY1/ 2s 5 female (62.5%) Age range 22-35 years Significant illnesses: medical conditions (n = 4); mental health conditions (n = 2); malignancies (n = 2), and illnesses that required surgical treatment (n = 1). Self-selecting/ convenience with experience criteria	Qualitative, cross-sectional Semi-structured 1:1 interviews (45-90 minutes) Interpretative phenomenological analysis (IPA; Smith et al)	18 (High)	Thick	High
Gafson et al. (2017).	Health Educat-ion North Central and East London	To explore attitudes towards attrition in obstetrics and gynaecology training in the UK, and trainees' reasons for thinking about leaving training	Peri-attrition: 54 trainees obstetrics and gynaecology 48 female (89%), Former trainees: 8 (majority ST1-ST3) 8 female (100%) Convenience sampling with criterion	Mixed-methods. Cross-sectional Survey (free-text) A constructivist approach to analysis of free-text responses (Charmaz, 2006)	13 (Medium)	Thin	Medium

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
Good-year. (2014)	Health Educa-tion West midlands, UK	To explore factors which affect newly qualified doctors' wellbeing and look at the implications for educational provision	9 FYDs (3 in FY1, 6 in FY2) 7 females (77.8%) Convenience sampling in teaching sessions Two Foundation programme directors	Qualitative, cross-sectional Free association narrative semi-structure interviews Grounded theory methodology (interpretive and relational paradigm hermeneutics).	15 (Medium)	Thick	Medium
Grant et al. (2019a)	Wales Deanery	To explore trainee doctors' attitudes to mental health issues among their peer group, their beliefs about causes, and explore awareness of support services for mental health and wellbeing and how to access.	34 Junior doctors "various stages of training" Convenience sampling (part of another study)	Qualitative, cross-sectional 4 focus groups (60 minutes). Semi-structured Thematic analysis using a coding framework	12 (Medium)	Thin	High
Grant et al. (2019b)	Wales Deanery	To explore the experience of mental illness during a doctor's trainee years. To understand the occupational-specific factors that may have contributed to their illness, the barriers to seeking help, and the factors influencing recovery.	10 Junior doctors F2 = 1, ST1 = 1 ST3 = 3, ST5 = 1. CT2 = 2, CT3 = 1, post CCT = 1. Anaesthetics = 2, general medicine = 1, GP = 3, orthopaedics 1, paediatrics 1 psychiatry 1 radiology 1 8 female (80%) Majority mid-to-late 20s Anxiety, depression, psychosis. Purposive sample from volunteers (seniority, speciality, gender) with mental health conditions.	Qualitative, cross-sectional Biographical narrative interviewing method (individual; BNIM; Wengraf, 2013). Thematic analysis	15 (Medium)	Thick	Medium

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
O'Keeffe, Carter, & Mason. (2017)	Four EDs in England	To examine how foundation programme training was delivered in the context of emergency medicine and its impact on F2 doctors' development (competence and performance).	30 F2s Also had interviews about FTs with 6 consultants, 2 nurse practitioner tutors. Convenience sample	Qualitative cross-sectional Semi-structured interview or A focus group (4 groups) Thematic analysis (Braun and Clark), inductive approach.	14 (Medium)	Thin	Low
Price & Lusznat. (2018)	24 hospitals across Wessex.	To explore the experiences of junior doctors and whether they feel part of a team and their role in medical education.	15 surgical and medical 10 female; (66.6%) 4 FY1, 4 FY2, 3 CT/ST variations. Purpose sampling technique.	Qualitative cross-sectional Semi-structured interviews 20-70 minutes Inductive thematic analysis (Wellington 2000)	14 (Medium)	Thin	High
Quine & Tulinius (2019)	GP training program across 48 GP practices. East Midlands & Nottingham	To evaluate a Balint group: To explore factors leading to early de-personalisation and burnout, and can Balint groups support the development of these skills to increase resistant to these?	14 GP trainees Volunteer Four educational providers	Qualitative pre and post 2 hr Balint group (N=13) Online survey pre-post (N =14) Participant observation of all BG sessions (N = 12) Semi-structured interviews pre and post (N =4) Thematic analysis. Data led and theory led (resilience; Fonagy)	14 (Medium)	Thin	High

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
Rich et al. (2016)	Post-graduate medical training across England	To investigate the work–life balance of doctors in training in the UK from the perspectives of trainers and trainees.	96 trainees, 41 trainers. Across all stages of training in 6 specialties (General Practice, Medicine, Obstetrics and Gynaecology, Psychiatry, Radiology, Surgery) and Foundation. 54 female (56.3%) 49 white (51%), 42 BME, 5 unknown Purposive sample	Qualitative, cross-sectional Semi-structured Focus groups (13), 35 semi-structured interviews 20-75 Reference Braun and Clark Thematic analysis	17 (High)	Thick	Low
Scanlan et al. (2018)	2 Scottish FP regions	To explore what a supportive culture means to UK foundation doctors and how perceptions of support may influence career decision making.	21 FY2 13 female (61.2%) Ages 25-35 'Most' white British ethnicity Region A = 8, B = 13 Maximum variation sampling	Qualitative, cross-sectional Semi-structured interviews (18-52 minutes) Narrative inquiry. Thematic analysis – perceived organisational support lens for themes. Social constructionism	18 (High)	Thick	High
Sivam & Joseph (2020)	Suburban London GP training scheme	To establish GP trainees' understanding of the purpose of Balint and perceived advantages and disadvantages.	11 GP trainees 7 female 5 pre-qualification, 6 post-qualification	Qualitative, post intervention Semi-structured telephone interviews (30-45mins) Emergent coding. Thematic analysis via phenomenological approach	16 (High)	Thick	High
Smith et al. (2018)	Deaner-ies in all four regions of Scotland	To explore the reasons that doctors choose to leave UK medicine after their foundation year two posts.	17 F2s 12 women (70.5%) Ages 24-27 8 Scottish, 4 UK, 3 Asia, 1 Africa Maximum variation sample (grade, gender, deaneries, nationality, interest, age)	Qualitative, cross-sectional Semi structured interviews (28-65 mins) Template analysis (Feldman and Ng). Constructivist approach.	18 (High)	Thick	Medium

Study a-z (Date)	Location (county, number of trusts)	Aim	Sample (grade, speciality, gender, age ethnicity, roles; recruitment method	Method: (methodology, method, analysis)	CASP /20	Richness	Relevance
Talash et al. (2020)	Across UK	To explore the perceptions of foundation doctors in the United Kingdom surrounding raising concerns in the workplace	229 FD 1 and F2 (over half F2) Majority female and 25-30. Volunteer sample	Mixed-methods. Cross-sectional Survey, one free text question. Coded into themes with gender and stage of training.	10 (Low)	Thin	Low
Thomp-son et al. (2009)	Single NHS trust in North of England 2005-2006 cohorts.	To explore how stress is experienced by junior doctors, the interaction between working environments and individual coping mechanisms	16 (7 F1s, 9 F2s) 8 females (50%) Purposive sample reporting 4+ symptoms on GHQ-12.	Qualitative, cross-sectional Semi-structured interviews Theoretical thematic analysis approach based around the transactional model of stress (Lazarus)	10 (Low)	Thin	Medium
Wain-wright et al. (2019)	3 post-graduate training Deaner-ies South West England and Wales	To explore which specific personal and professional factors are associated with the development of stress, burnout, depression, and low work satisfaction, which factors may be protective.	12 Anaesthetic trainees 4 ST6-ST7, 5 ST3-ST5, 3 CT2 8 females (66.7%) Purposive sample based on either end of questionnaire on stress and work satisfaction. 10 found things harder, 2 found things easier.	Qualitative, cross-sectional Semi-structured interviews (mean 55 mins) Thematic analysis, inductive approach, concurrent iterative analyses	19 (High)	Thick	Medium
Zhou et al. (2019)	North west England	To explore the determinants, coping mechanisms as well as the effects of stress in this group.	44 trainees FY1-2 (11%), GP (11%), ST (21), higher ST (57%) Range of specialities, at least one from each. 45% Caucasian Purposive sample, Maximum variation sample	Qualitative, cross-sectional 11 focus groups (60-90 minutes). Thematic analysis	15 (High)	Thick	Medium

Note. CT = core training; ST = speciality training; FD = foundation doctor; FY1 = foundation programme year 1; FY2 = foundation programme year 2; UK = United Kingdom; JD = junior doctor; GP = general practice; ED = emergency department; High CASP = ≥16; Medium CASP = 11-15; Low CASP = ≤10.

Thematic Synthesis

Five key overarching analytical themes were developed from the TA: the context justifies SS; experience of SS; factors relating to whether SS is sought; the role of others in providing SS, and the impact of SS. Themes and subthemes are ordered to create a coherent story of how they may link, rather than according to power or frequency.

Theme 1. Trainee Context Justifies a Need for SS

This theme encapsulated the context that NHS JDs work in, and thus the need for SS. Some related to the NHS environment in general in addition to aspects specific to JDs.

Pressurised work environment. JDs work in a challenging NHS environment, as mentioned in 15 papers. Reasons for this included high workload, understaffing, high care standards, and increased responsibility and decisions in a "… *pressurised job where the consequences of error were grave."* (Grant et al., 2019b).

Poor mental health. Poor JD mental health, including anxiety, depression, and burnout and were reported in 11 papers, and *"The working environment and staff morale within the NHS were described as poor"* (Smith et al., 2018).

JD start FP feeling underprepared. There was a sense that JDs started the FP feeling unprepared, overwhelmed, and *"…didn't have a clue what [they] were doing."* (Goodyear, 2014), as indicated in 11 papers. This was associated with self-doubt regarding decisions, procedures, and their role; "*'Well, what exactly is expected of you as an F1, I'm never certain, am I doing enough…"* (Brennan et al., 2010).

Competing demands. 13 papers mentioned competing demands, comparing the FP to "*spinning plates all the time"* (Zhou et al., 2019). *"…I then tried to book that study leave… hang on…I'm trying to do my job, I'm trying to also help you with service provision…"* (Wainwright et al., 2019). Demands included the need to learn and associated

documentation, passing exams, and choosing a training path in a competitive allocation system. Some papers also indicated this time was associated with significant life-events, including having children.

Rotations. Nine papers acknowledged that JDs rotate placements every four months. This involved changing clinical teams and sometimes *"Being separate[ing] from friends and family…"* (Rich et al., 2016), leading to disruption to personal lives.

Theme 2. Experiences of SS

This theme relates to the variety of experiences of SS reported in the papers.

Universal awareness of the need for SS. Every paper indicated that SS was important. Supportive consultants were frequently described as influential; *"…a supportive working environment…is enriched with 'enthusiastic' supervisors…and that helps to really 'make it' an enjoyable experience."* (Scanlan et al., 2018). Having a supportive team was also valued. There was an undisputed desire for more SS as "*Trainees described being desperate for help…"* (Goodyear, 2014).

Mixed experience of SS. Different experiences of the level and quality of SS were described in every paper, and included examples of inadequate SS; "*And I was put in horrific, horrific situations...I didn't know what I was doing, and I have never in my life felt so overwhelmed..."* (Scanlan et al., 2018). Certain situations were pertinent to a need for support, including: "…*being unsupported at night…"* (O'Keeffe et al., 2017), the start of training, clinical incidents including death, and weekends. However, a quarter described good experiences of SS (in terms of level and quality), *"…you and the consultant [on the] ward round every morning five days a week and that was great."* (Goodyear, 2014).

Six papers described SS as something associated with luck, and out of JDs' control. For example, *"… but provision was dependent on the good will of individual consultants."* (Grant et al., 2019a). There was an acknowledgement of differences between individual

consultants and specialities. Two papers described a good level of SS in anaesthetics whilst two others suggested inadequate levels in surgery.

Interestingly, four papers described JDs actively avoiding SS despite acknowledging its importance; "*I did not speak to anyone in the deanery until I had handed in my notice"* (Gafson et al., 2017).

Different SS acts. A variety of sources of SS were identified throughout all 20 papers. Over half referred to formal teaching and opportunities for experiential learning; *"…like they do try to get us to come in and get us to do bits [...] so that we're getting more comfortable with that type of thing..."* (Brennan et al., 2010). Feedback on performance was also frequently mentioned, including praise and direct reassurance. The absence of this included *"Just being made to feel that you're never good enough and never getting any thanks for what you do."* (Smith et al., 2018).

Three-quarters also described receiving practical support. This came in a variety of forms, from meeting basic needs to managing structural and organisational job demands; *"I felt as though I was having to fight the whole way along. No-one really helped with any of the bureaucracy."* (Fox et al., 2011). Many also reported receiving advice around careers or clinical decisions. Debriefs were identified by several, often as a deficit.

Emotional support was mentioned by most papers. This included sharing experiences, 'offloading', 'and encouraging self-care; "…*you could 'relieve some pressure' by discussing cases that had caused anxiety, whilst 'opening up about mistakes'."* (Sivam et al., 2020). 'Checking in' was also mentioned by a few; "…*good teams where senior doctors would 'check-in' at the end of the day, in person or by telephone."* (Price & Lusznat, 2018).

Another important feature of emotional support, indicated by many, was being treated respectfully by others. This included taking an interest, being attuned to, and supportive of, their needs, and not bullying or belittling; "*o.m.g, somebody actually knows my name and*

somebody cares about me and somebody is interested in my training and how I progress.'" (Ansell et al., 2020).

Range of sources. All papers referred to sources of SS. The most frequent source of support was from senior doctors (clinical or educational supervisors; on-call senior doctors; mentors). There were different preferences, for reasons identified in Theme 3, but educational supervisors were often not seen as suitable. Support from seniors included formally through regular supervision, or informally whenever needed.

Most also referred to support from peers, including informal or formal support (e.g., discussion groups). A couple mentioned feeling "…*more comfortable sharing certain cases amongst themselves over a clinical supervisor or 'family and friends'."* (Sivam et al., 2020). Four papers suggested JDs worked with different professions with meaningful involvement and learning, and overall did not mind the source's profession*;* "*it's a very level playing field there and that people have got different areas of expertise...it's the first time I have truly felt I have been in a multidisciplinary team"* (Beattie et al., 2017).

Some formal forms of SS were reported by six papers, including "*ongoing support from their occupational health service, which they greatly valued"* (Fox et al., 2011), GPs, psychiatrists, and psychologists. A couple noted preferences for sources that were not in-house due to confidentiality concerns (Grant et al. (2019a; b).

Theme 3. Factors Relating to Whether SS is Sought

Personal awareness of a need for support. Three papers identified JDs' own awareness as important; *"…those who need support were considered doubtful to have the self-insight to join."* (Quine & Tulinius, 2019). This related to recognising the warning signs of stress and fatigue in themselves, and the benefits of seeking support specific to these needs.

Knowledge of available SS. Seven papers indicated it was important for JDs to be aware of available SS, including knowing from whom to seek clinical support: "…*when you're searching for consultants and registrars you don't know, and they don't know you"* (Thompson et al., 2009). This related to whether SS sources existed, whether doctors could access them, and what was offered. A few papers mentioned a lack of knowledge about formal structures like occupational health.

Confidence in seeking support. 10 papers mentioned confidence being influential in whether JDs sought support. For example, positive experiences in which disclosure or attempts to seek support received a helpful response increased their belief in the effectiveness of SS, encouraging them to do this again; *"Yeah I know how to bleep. And if I bleep someone and they don't answer I will bleep and bleep and I will call consultants on their mobiles because I don't care if they shout at me."* (Grant et al., 2019b). In contrast, those for whom support requests had led to negative and unsuccessful interactions, such as *"…a lack of listening"* (Gafson et al., 2017), would be less likely to repeat this.

A few papers linked confidence around hierarchy to their ability to seek support. This included being increasingly able to talk to seniors or raise concerns through experience; "*I think it always sort of scared me, that part of it, you know, communicating with seniors, but since I've been doing it, I feel a lot less intimidated."* (Brennan et al., 2010).

Position of the source. Seven papers mentioned the position of the source of support as important. This related to whether the source's role was *"… more about performance management rather than providing help with mental health problems."* (Grant et al., 2019a). Confidentiality was a key factor, as JDs were deterred if their disclosure risked not being confidential; "T*he potential that reflective e-portfolio entries could be used against a trainee was seen as compromising the 'safe space' to discuss and reflect honestly on clinical work."* (Quine & Tulinius, 2019).

A few papers mentioned that it was helpful for the source to be going, or have gone, through a similar experience, such as peers and seniors; "*…the fact that people who are more senior, people who I look up to, have acknowledged and say that this happens to everyone, that makes me feel a bit better."* (Wainwright et al., 2019). This enabled the source to normalise and share optimism. Hence, although seniors were sometimes difficult to talk to due to their seniority, their position of experience could be helpful.

Rapport. 13 papers described a need for established rapport before seeking SS. Having a longstanding relationship was beneficial, hence impacted by regular rotations.

Many papers indicated that the amount of time doctors spent together influenced whether they built this required rapport; *"you don't really know team members always...you're much more likely to trust somebody that you've worked closely with…"* (Price & Lusznat, 2018). The change from 'firms' with regular teams to shifts with inconsistent teams, and the use of locums, complicated this. Moreover, physically being in the same space to rest, eat, or prepare together enabled informal time with colleagues, suited to emotional SS acts. Some specifically identified doctors' mess' as key places, in addition to joint activities (coffee breaks and discussion groups). For example, *"it's now much harder to get to know your colleagues, and therefore identify senior mentors...There's now less opportunity to talk through stressful events with senior colleagues…"* (Gafson et al., 2017). Moreover, a few described the positive impact of spending one-to-one time with a consultant throughout the day on reducing the sense of hierarchy and building rapport.

Culture. 13 papers referred to medical culture. This related to being superhuman, "*because you're the doctor and they're the patients…"* (Fox et al., 2011). Being superhuman meant being able to cope with the difficult demands without becoming unwell or needing help, and extended to basic needs such as not needing lunchbreaks. JDs feared, and sometimes experienced, seeking support to be regarded by colleagues as a failure and

weakness; "*…they would be looking down if you said you needed time out…"* (Ansell et al., 2020).

Several mentioned mental health stigma expressed by colleagues; *"…there was so much public chat amongst the consultants about how these days trainees just can't cope with the stress…"* (Grant et al., 2019b). This made it harder to seek support for mental health difficulties over physical health. A few papers identified differences between specialities, including an unhelpful culture experienced in GP, surgery, and A&E. Helpful cultures included *"…A&E consultants [being] really understanding about the fact that you just can't do everything.*" (Zhou et al., 2019).

Fear of consequences. 12 papers referred to fear of consequences as a significant barrier to the disclosure required to seek support. Feared consequence included damage to career progression in terms of competencies being signed off or "*…having a bad reputation within the department"* (Talash et al., 2020). This is important in the context of competitive placement allocation. For example, *"…this very negative reaction I had from my consultant…when I told them I was pregnant. Very negative. He chastised me for it."* (Rich et al., 2016).

Others mentioned a fear of blame and litigation in terms of General Medical Council (GMC) referrals and prosecution. This linked to confidentiality, concerns around whistleblowing, and reflection in e-portfolios or groups being used against them. A couple mentioned the role of media in exacerbating this, "*A recent high- profile criminal case involving a trainee who was struck off the medical register."* (Zhou et al., 2019).

Linked to the contextual issues in Theme 1, many also referred to concerns about adding to colleagues' workloads or letting patients down; "…we do *still fill [rotas]because we need to, the patients need us."* (Smith et al., 2018). This related particularly to taking breaks during shifts or sick leave.

Theme 4. Role of Others in Providing SS

This theme concerned how seniors directly influenced JDs' experiences of SS.

Available and approachable. 14 papers indicated that the SS required and desired was often physically unavailable; *"there are times when the senior support does not exist"* (Thompson et al., 2009). This was almost exclusively about senior support, linked to the contextual organisational factors in Theme 1.

Several papers also mentioned that the level approachability indicated by seniors themselves was important; "…*the registrar and consultants are very approachable and will help out."* (Brown et al., 2010). Some supervisors proactively offered regular one-to-one supervision (described exclusively as helpful), or explicitly said they could be contacted when needed. There was an acknowledgement in two papers that the consultant's own workload and burnout impacted their efforts, including "…*pressure to be off the ward…resulted in the perception of a less supportive team."* (Price et al., 2018).

Awareness of when SS is needed. Eight papers referred to SS needing to be initiated by others in a timely way. A few described problems with relying solely on individuals to seek their required support due to factors mentioned in Theme 3, with JDs "*not always knowing when to seek help and what help to seek"* (Brennan et al., 2010). Hence, for seniors to be able to initiate helpful support, awareness of the JD's needs and warning signs was required. Receiving support in particular situations was described as beneficial, including at the start of training, in the moment (difficult incidents or new procedures), post-incidents, before going home, and following sick leave; *"…nobody really checked that I was doing okay."* (Fox et al., 2011).

Others' views on providing SS. 15 papers emphasised that the kind and amount of SS provided by seniors was also influenced by their personal views on SS, linking to the sense of 'luck' and varied experiences described in Theme 2. This included

whether they took in interest in the JD; "…*he could have 'easily been given rubbish tasks to do' but instead received good training opportunities."* (Scanlan et al., 2018). Several papers described the boundaries seniors set around whether support was for performance or wellbeing. A couple described seniors suggesting it was inappropriate to talk about mental health; "*I had one consultant who just said to me 'ring me any time about patient stuff, but touchy feely stuff don't bring that to me."* (Grant et al., 2019a), whereas some seniors explicitly asked about wellbeing. A few papers also linked these views to whether seniors actively encouraged or discouraged JDs to do what was required for their wellbeing. For example, *"One participant was even told at induction not to take sick leave."* (Grant et al., 2019b). These points appeared related to how much seniors embodied the culture described in Theme 3, and whether this was consequently reinforced for the JD.

It was also important for the source to respond well to disclosures and requests for SS by listening, being non-judgemental, and taking things forward. For example, *"Bad experience in a department notorious for bullying, which is raised year after year on the GMC survey and nothing changes!"* (Gafson et al., 2017).

Theme 5. Impacts of SS

All papers had some discussion around the impacts of SS, both in relation to positive impacts in its presence and negative from its absence.

Learning. 16 papers referred to increased learning opportunities from others. Although not directly linked to mental health, this was associated with confidence and the ability to cope. Interestingly, two papers referred to benefits of a lack of support, namely increased opportunities for learning and confidence; "*FY1Ds felt this excessive responsibility was a two-edged sword which helped them learn…"* (Goodyear, 2014).

Confidence. 11 papers described SS increasing confidence. This related to JDs' competence to carry out procedures and make decisions following feedback, debriefs, and

reassurance; "*Having recognition from their seniors also reassured them that they were meeting expectations and gave them the confidence to cope with challenges arising in their work-life."* (Zhou et al., 2019). This also linked back to initial uncertainty regarding role expectations.

Wellbeing. 15 papers mentioned the role of SS on wellbeing and anxiety; "*I am anxious about discharging patients; if I can discuss this with a consultant I am reassured."* (O'Keeffe et al., 2017). When well received, the process of SS was described as a relief; "…a *big burden had been taken off my shoulders rather than keeping it all inside."* (Quine & Tulinius, 2019).

Many also highlighted the role of SS in normalising and validating as "*comfort was generated knowing you were 'in the same boat', 'not going off the rails…"* (Sivam et al., 2020). This played an important role towards challenging the 'superhuman' culture.

Sense of belonging. Every paper had some reference to SS increasing a sense of belonging and 'togetherness' in teams. This was counter to feeling isolated in the absence of adequate support; "*you feel supported, you don't feel out on your own which is the one of the main things I was scared about."* (Beattie et al., 2017). SS reportedly improved team spirit and morale. Being in a supportive team led to JDs feeling valued, respected, and appreciated, as opposed to dehumanised and *"…very down trodden"* (Scanlan et al., 2018).

Being in a supportive team enabled JDs to feel supported in terms of responsibility regarding decisions; *"it's that camaraderie of being in it together and sharing the burden"* (Ansell et al., 2020), rather than feeling like "…*it's all on you, you just take the whole responsibility of the patient discharge… it's all on you, no- one else."* (Thompson et al., 2009).

Ability to keep going. 16 papers indicated that SS helped JDs to cope and keep going at work. For example, SS was a buffer "*against the effects of arduous schedules and*

intense work loads, allowing junior doctors to feel more secure." (Brown et al., 2010). In addition to staying at work, SS could help JDs to take leave when they needed it, which would impact health and safety.

Attitude towards work. 12 papers spoke about the influence of SS on attitudes towards work as "…*right team could make even the busiest and most stressful clinical experiences enjoyable."* (Price et al., 2018). This also included job satisfaction and SS provided a sense of getting something back. This was important given the challenging context and personal sacrifices; "*you feel hopeless….I'm slogging my guts out literally every day and for what*?" (Wainwright et al., 2019).

Several reported SS as influential in JDs' training direction. Many mentioned a direct influence on their attitudes towards specific specialities based on how supported they felt on placement, or their likelihood to apply for speciality training at all. This expanded further to their attitudes towards working in the NHS and whether to stay in this career. There was a sense of things being 'better elsewhere'; "…*from all the feedback I've got from everyone that's in Australia and New Zealand working at the minute it appears to be quite a bit different."* (Smith et al., 2018).

Discussion

This narrative systematic review sought to understand the relationship between work-related SS and JDs' wellbeing through synthesising relevant qualitative research. 20 papers were included, and five key themes were formed through TA. These related to a work context justifying a need for SS, experiences of SS, key factors influencing whether SS is sought, the role of others, and the impacts of SS. These findings mirror research in other grades and countries (Clough et al., 2019).

Only three papers were of ‘Low’ quality, and six papers were described as ‘Thin’. However, and importantly, relevant subthemes to which these papers contributed were supported by many ‘Medium’ and ‘High’ quality, and ‘Thick’ papers. Indeed, despite variation in quality, richness, and relevance, there was considerable support for themes and subthemes across the papers, with no themes being drawn alone from ‘Low’ or ‘Thin’ papers.

The quality appraisal process found that many papers did not sufficiently describe sample characteristics in terms of grade, age, gender, or ethnicity, or acknowledge this as a limitation. Thus, the transferability of their findings, and subsequently this review, may be impacted. For example, others have found that females (Adeoye et al., 2017) or certain ethnicities (Jasmin & Binnie, 2020) are at increased risk of work challenges and lack of SS. Furthermore, JDs were treated as a homogenous group within the papers, yet a senior registrar, soon to become a consultant, may have 11 years of experience since their foundation training. Whilst some papers have focused on this more experienced group in relation to preparedness (Shaw et al., 2012), these had less of a wellbeing focus. Similarly, some papers indicated SS differences between specialities, however speciality-specific papers are lacking for comparison. The timing of the rotation may also be influential. The transferability of these findings pertaining to JD characteristics merits further exploration.

Limitations

Given the subjective nature of TA, there is a risk of the researcher’s bias influencing the findings. Whilst triangulation, self-reflexivity and supervision were used to reduce this, it is possible that the researcher’s academic, clinical, and emotional investment (indicated in author details) may have influenced the design, analysis, and reporting. Using a second-rater with less involvement in the project design helped to reduce this, particularly with the subjective and simplifying nature of using a quality appraisal tool.

Moreover, the inclusion criteria involved two broad and complex concepts: SS and wellbeing. This was to avoid excluding anything of potential relevance but may reflect the included papers with lower relevance, and ambiguity regarding direct versus indirect impacts on wellbeing. For example, in some included papers, learning was reported as an indirect impact on wellbeing, whereas other papers on preparedness that did not mention wellbeing were not included, despite the likelihood that increased preparedness through SS may well improve wellbeing. Further research should continue to be transparent about definitions of SS and wellbeing, and consider more indirect impacts.

Lastly, through the drive for high-quality literature (valued in national guidelines), grey literature was excluded. However, given the NHS focus, potentially relevant but unpublished service-based evaluations and/or without adequate methodology reporting will have been excluded. These would benefit from being included in future reviews.

Wider Implications

Defining SS

The sources of SS depicted in the papers were varied and included teaching, practical support, and emotional support. Emotional support involved the sharing of burdens and emotions, understanding, validation, and valuing and taking an interest in another. These mirror onto the definition of SS by Williams (2005) and support the role of qualitative research in defining such a complex construct (Creswell, 1998).

SS is Important

This review found an undisputed agreement that SS is needed, valued, and helpful, although reported levels of support are mixed and often lacking. JDs work clinically in a pressurised environment involving high levels of responsibility, frequently relocating and changing teams, and have competing demands (Teoh, Hassard, & Cox, 2020). It is, therefore, no surprise that this stage is associated with higher-than-average work-place stress

(Vijendren et al., 2015). Moreover, there appear to be specific moments when support is particularly needed (Gunasingam et al., 2015).

Organisational Barriers

This review found that, despite being viewed as helpful, SS was not always sought, with organisational barriers identified.

Medical culture. The culture of doctors needing to be 'superhuman', seeking help equating to weakness, and stigma around mental health noted here are documented elsewhere (Clough et al., 2019). Whilst sharing and providing validation between peers is helpful towards challenging this culture, seniors and managers play an important role given their seniority and experience. This includes modelling helpful work interactions (e.g., praise and acknowledgement of emotional responses), and initiating and encouraging the seeking of support (Kinman & Teoh, 2018).

Furthermore, the decisions and responsibility accompanying the role, potential for grave consequences, and fears of litigation also link to a culture of blame (Wise, 2018). Hence, it is important for sources of support to be confidential and seen as contributing to 'working well' rather than performance evaluation. Doctor-specific sources of support are becoming increasingly available in response to these factors (DoHSC, 2020), and the role of funded, independent, and confidential mentors with a pastoral support focus may be helpful. This may also reduce fears of disclosure impacting career progression.

Aside from the type of support offered by individuals, structural issues impact the availability of SS. It has been noted here and elsewhere that JDs are sometimes unclear of who to ask for support (GMC, 2019). The findings indicated a need to increase awareness of available support structures, including outside of induction.

Belongingness. Moreover, belongingness to a team, rapport, and feeling cared for were facilitators for seeking support as well as outcomes, also noted by others (Petrie et al.,

2019). Spending time together as a team was key for building the rapport required to seek support. This can be understood in the context of attachment-based belongingness theory (Baumeister & Leary, 1995), in which it is important for individuals to be connected to others and to belong to a social group, and thwarted belongingness can cause adverse reactions.

This review has identified having the physical space and time to be together as important, influenced by the loss of these spaces and structures (for example doctors' Mess and 'firms'). Feedback from a recent NHS JD peer support initiative during COVID-19 (Behrman et al., 2020) found that 100% of participants rated it 'helpful' and appreciated having the time, space, and permission to talk about their emotional experiences in a safe and validating environment. Others have supported the findings noted in this review that Balint peer groups are key SS interventions for creating belongingness (Player et al., 2018; Carrieri et al., 2020).

Contribution to SS Theories

The impacts of SS are broad, including wellbeing, increased clinical confidence, and career decisions. This is important given the highly demanding and pressured environment that JDs work in. Whilst the importance of SS in reducing workplace stress has been clearly documented, the mechanism in which this works has had considerable debate. Some argue that SS has a direct effect on workplace stress by meeting an essential human need (Caplan, Cobb, & French, 1975; Baumeister & Leary, 1995). Perceived organisational support through employee-organisation interactions is theorised to contribute to employees feeling valued and cared about (Eisenberger et al., 1986; Kurtessis et al., 2017). This fits with the current findings relating to JDs' desire to belong and connect, and to be acknowledged, valued, and respected. Perceived organisational support has been reported to increase job satisfaction, sense of duty and loyalty to an organisation (Kalidass & Bahron, 2015). This is an interesting issue in the context of the NHS holding a monopoly on other potential

healthcare organisations. In line with this, the current findings suggested that SS led to more enjoyment and satisfaction at work, and informed JDs' decisions to apply for speciality training.

Indirect effects of SS on workplace stress have also been suggested. The buffering hypothesis proposes that SS moderates the pathological impact of workplace demands, resulting in individuals being more able to cope (Cohen & Wills, 1985; Johnson & Hall, 1988). The present findings suggesting that JDs with SS felt less anxious and more able to cope and continue may support this, also found elsewhere (Wu et al., 2021). The meditating hypothesis, such as the SS deterioration model, suggests that unhelpful social interactions (e.g., bullying or not responding) in response to work demands result in workplace stress (Lin & Ensel, 1984; Sochos, Bowers, & Kinman, 2012). This may fit with JDs' experiences of feeling dehumanised, disrespected, stigmatised, and isolated after negative social interactions. It is also interesting to consider the current finding suggesting that SS acts such as practical assistance, teaching, and feedback reportedly increased JDs' physical resources, confidence, and role certainty. This subsequently impacted their wellbeing, thus potentially acting as mediating factors.

Future Research

Further longitudinal quantitative research exploring these mechanisms and intervention evaluations are needed in NHS JDs to understand how, when, and to whom SS would be helpful. Whilst some innovations are reported, such as lunch clubs (Robinson, 2019) and peer support groups (Behrman et al., 2020; Lightowlers, Thompson, & Hunt, 2017), these lack evaluation and high-quality methodological reporting to support their effectiveness, and therefore, their likelihood to be funded and protected. Improved reporting and consideration of the impact of the research context and process on findings are required to address the limitations and threats to validity identified here.

Conclusion

SS plays an important role in supporting JDs to cope and continue working in this challenging training role. SS comes in a variety of forms and appears to influence workplace stress via direct and indirect effects. However, organisational support is needed to overcome the barriers to accessing SS found in this population.

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Service Improvement Project

Evaluation of the Impact of a Pilot Resilience and Wellbeing Training for NHS staff. Directions for Future Training Provision

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Proposed Journal: BPS Journal of Occupational and Organisational psychology. This journal publishes peer-reviewed papers seeking to increase understanding of people and organisations at work (Appendix E for Author Guidelines).

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Abstract

This project sought to understand the impact of a two half-day resilience and wellbeing intervention for staff in the Child and Young People's Directorate within Oxford Health NHS Foundation Trust. The impact was evaluated using pre-post resilience and perceived stress measures alongside qualitative exploration of staff's experiences, ability to implement learning, and recommendations for future interventions. Changes in resilience and perceived stress following the intervention were not statistically significant. However, the role of proactively building resilience as a team, increasing self-awareness of emotional responses, and a top-down permission to use strategies were key influential factors. Recommendations are suggested, and these findings contribute towards the evidence-base and recommendations for future NHS staff interventions.

***Keywords*.** Resilience, Perceived Stress, Mindfulness, Compassion-focused therapy, Wellbeing Intervention, NHS, Staff, Team.

Introduction

Background

During 2018-2019, a series of resilience and wellbeing interventions were delivered for staff in the Child and Young People's Directorate of Oxford Health NHS Foundation Trust (CYPOX). The CYPOX service-director sought an intervention to improve staff resilience given reports of high stress levels. The Oxford Institute of Clinical Psychology Training and Research (OXICPT-R) team members developed and implemented an intervention involving compassion-focused therapy (CFT) and mindfulness approaches, based on the evidence-base and clinical experience.

Relevant Literature

Stress in the NHS

The NHS faces increased demands linked to factors such as rising life expectancy and care standards, and financial deficits (O'Dowd, 2017), which has resulted in high levels of stress in employees (Johnson et al., 2018). Stress is linked to poor mental and physical health (Hanson et al., 2017; Wang et al., 2017). Burnout, the physical and emotional depletion in response to chronic emotional stressors (Maslach & Jackson, 1984), has been documented in nurses working closely with families with chronic childhood conditions (Maytum, Heiman, & Garwick, 2004). Stress can arise from a range of sources at different levels, such as from parking issues to the wider political landscape.

Resilience

Resilience is identified as a key factor in improving staff stress (Sergeant & Laws-Chapman, 2012) and is negatively associated with burnout, anxiety, and depression (Rees et al., 2015). Different definitions of resilience exist; it can be viewed as a process, outcome, and/or protective factor (Southwick et al., 2014), relating to adapting well in the face of adversity, trauma, threats, or significant stress (American Psychological Association, 2014).

The various models of resilience emphasise risk exposure and protective factors in reducing the likelihood of negative outcomes (Bonanno, 2004). Resilience is inconsistency conceptualised in research. In this project, resilience was understood as a dynamic process of increasing self-awareness and protective factors by enabling staff to make changes beneficial to their wellbeing.

Psychological protective factors of resilience include self-efficacy, mindfulness, optimism, and cognitive flexibility (Chmitorz et al., 2018). These are reportedly modifiable (Southwick et al., 2011) by increasing individuals' control over their responses through enhancing self-awareness, emotional regulation, and social skills (Mowbray, 2011).

Resilience in the NHS

Resilience studies in the NHS have often focused on specific professional groups. Sull, Harland, and Moore (2015) examined resilience in the NHS across various professions. They found a significant positive association between age and being female with resilience. Clinical staff were also less resilient compared to administrative staff.

The NHS has increasing awareness of, and drive to develop, staff resilience, particularly given the adversities faced are difficult to change (Health Education England, 2019). Targeting organisational factors is recommended to build resilience, for example enabling control and social support (Joyce et al., 2016). Mowbray (2011) emphasised the importance of creating adaptive team cultures. The benefits of collective team reflection on resilience are also documented (Chadwick et al., 2016). Reflection serves the function of making emotional experiences from work more explicit, improving insight, connection, trust, and communication (Farr & Barker, 2017).

Staff Resilience Interventions

Few evaluation studies on psychological-based resilience interventions in healthcare staff exist. The various models used include cognitive-behavioural therapy (CBT; Mache et

al., 2015), acceptance and commitment theory (McConachie et al., 2014), mindfulness (Kemper & Khirallah, 2015) and CFT (Seppala et al., 2014). Even fewer have been evaluated in the NHS (and published). Published evaluations have included CBT and mindfulness, finding positive effects on staff wellbeing and resilience (Graham & Dewey, 2014; Strauss et al., 2018).

Robertson et al. (2015) reported no clear evidence for which model is most effective in increasing resilience and reducing mental health symptoms, and there are inconsistent results regarding changes in resilience. Cleary et al. (2018) concluded interventions that create self-awareness and understanding of the need for resilience are key for effectiveness.

Underlying CFT is the notion that behaviours are motivated by three emotional regulatory systems, serving to: protect the self from threat; compete for external validation and success (drive); and soothe the self to enable contentment and self-acceptance (Gilbert, 2010). CFT fosters a caring, warm, non-judgmental attitude towards the self during adversity, and a gentle motivation to reduce this suffering. Compassion to self and to others is considered to buffer against stress by increasing resilience (Allen & Leary, 2010). Mindfulness is described as gaining awareness of experiences in the present moment through paying attention in a non-judgmental, accepting way (Quaglia et al., 2015).

Aims

This project was split into three phases, developed collaboratively with the facilitators and CYPOX service-director.

Phase	Aim
1	Explore the context in which the intervention was requested.
2	Examine the impact of the intervention using the outcome and feedback data collected.

3 Gain richer information about participants' intervention experiences, ability to apply strategies at work, and thoughts about future interventions.

The underlying aim was to contribute towards the evidence-base and recommendations for future NHS staff resilience interventions.

Phase One Method

Aims

To establish the context in which the intervention was requested.

Design

A qualitative cross-sectional design was used.

Participants

Contributing to this phase were the CYPOX service-director, four operational team leads (OTL), the Trust's wellbeing stress lead (WBSLead) and two facilitators, all female aged between 31-40 and 61-70.

Procedure

Data collection occurred in September 2019 via:

- Minutes revisited from the initial development meeting in November 2018 with the service-director and OTL.
- Emails to the OTL requesting information about the context of development.
- An audio-taped semi-structured interview with the service-director exploring the rationale and aims of the intervention.
- A semi-structured interview with the WBSLead to establish wider trust wellbeing initiatives.

The project was approved by Oxford Health NHS Foundation Trust's Audit Committee. Written consent to take part was gained and participants' anonymity was maintained using unique identification codes.

Analysis

Thematic analysis was conducted on all the data, except the WBSLead interview which was summarised due to its factual nature. Analysis followed Braun and Clarke's (2006) methodology. Given the scope of this report, the thematic analysis processes and efforts to overcome potential bias throughout are described in Appendix F.

Phase One Results

The following three themes were formed from the thematic analysis.

1. Nature of the Job

This theme encapsulated difficulties experienced by staff given their work.

Complexity and Risk

This included safeguarding issues, and complexity involving bereavement and dealing "*with a caseload of really sick children"* (P1).

Interpersonal Difficulties

This subtheme captured the difficulties staff faced through interactions with others in various systems. Some spoke about their emotional position and boundaries as *"it can be hard for staff to separate themselves from the family"* (P4) following bereavement.

2. Practical Barriers to Meeting Demands.

Staff frequently encountered practical problems at work, impacting their ability to work.

Facilities, Equipment, and Processes

Many mentioned that problems such as *"parking was a major concern at the time"* (P3), among a lack of desks and arduous referral processes.

Short-staffing and Workload

Problems with high workloads were also commonly reported given the *"service is one where there are fairly low level but chronic vacancies"* (P2).

Problems Unlikely to Change

The difficulties faced were seen as unlikely to change and *"will keep arising as that is the nature of their work"* (P1).

3. Need for Additional Support

Several referred to the need for additional staff support.

Insufficient Current Provision

It was reported that one of the current sources of support, counselling via Occupational Health, *"don't have the resource…to meet the demand"* (P1). Future interventions needed to be from a qualified evidence-based source.

Negative Morale

A *"sense of negativity within the service"* (P2) and low morale was indicated.

Top-down Desire to Help Teams Cope

There was a drive to proactively help teams to *"develop mechanisms within themselves…to better cope with the difficult situations that they face"* (P1).

Oxford Health NHS Trust-wide Support

Mirroring the above, the Trust's WBSLead interview reflected that resilience interventions were becoming increasingly common at local and directorate-levels, but noted a lack of evidence-base grounding, evaluation, and information sharing. The Trust's primary wellbeing focus was on proactive approaches to changing cultures, particularly at managerial levels. Appendix G contains full interview summary.

Phase One Discussion

The request for such an intervention arose from the service-director who, understandably, wanted to offer something helpful to staff in response to the challenging

work context and to support low morale. However, it is interesting to consider how the hopes of the service-director and staff may have differed and what the staff themselves would have wanted as a response, i.e., intervention type, format, and duration. OTLs were invited to be involved in the intervention development process, however those who did not agree with such an intervention may not have volunteered, and younger and/or more junior staff may have had different perspectives. Collecting richer information through interviews with a range of staff would have been beneficial. However, only email contact with previously involved OTLs was made at the service-director's request due to service pressures and high turnover."

Phase Two Method

Aims

Phase two sought to examine the impact of the intervention on resilience and perceived stress (PS). It was hypothesised that the intervention would increase resilience and reduce PS scores, and these would be negatively correlated. Differences in demographics between completers and non-completers were analysed, in addition to the impact of socio-demographic variables on changes in resilience and PS. This phase also explored participants' feedback following the intervention.

Design

A mixed-methods design was used.

Participants

Spaces were offered to CYPOX health visitors (HV), school nurses, clinical child nurses (CCN), safeguarding nurses, looked after children (LAC) nurses, and integrated therapists (speech and language, physio, and occupational therapy). Most were qualified clinicians (bands 5-7), with some band 4 administrators. 219 staff members attended the first workshop.

Procedure

Staff provided written consent to take part in the evaluation, and to be contacted for phase three. The intervention consisted of two half-day workshops three months apart. Appendix H outlines the workshop content, including psychoeducation, exercises, and group discussions. Staff were encouraged to attend by management and completed measures (Qualtrics or paper) pre-and-post the workshops. The Trust's Quality and Audit committee provided approval in December 2017.

Measures

Pre measures included demographics (age, gender, ethnicity, time in service, time in current role), resilience (Connor-Davidson Resilience Scale 10-items; CD-RISC-10; Campbell-Sills & Stein, 2007), and PS (Perceived Stress Scale -10 items; PSS-10; (Cohen, Kamarck, & Mermelstein, 1983). It is valid and reliable measure, as detailed in Appendix I .

Post measures repeated the resilience and PS measures. Three rating scales and three open questions (what was helpful, least helpful, how to improve) were completed.

Analysis

Quantitative

Data was analysed on SPSS software version 26. The analysis was completed blind using unique identification codes.

Descriptive and frequency statistics described the demographic characteristics. A p value of .05 was considered statistically significant. Missing data were excluded on a pairwise basis.

Baseline demographic differences were compared, using independent t-tests and Chi-square, between those who dropped out after workshop one (W1), and those who completed workshop 2 (W2). Due to small cell sizes, categories were collapsed, Yate's continuity-

correction and odds ratio were used for ethnicity, and analysis could not be completed for profession nor gender.

Paired t-tests were used to compare resilience and PS scores from (pre-W1 to post-W2. The relationship between baseline resilience and PS was examined using Pearson's correlation analysis. Parametric tests were conducted given the relatively large sample, and the data appeared normally distributed with only minor deviations (see Appendix J for assumptions of normality).

To explore the impact of socio-demographics variables on change in resilience and PS, Wilcoxon's signed-rank test was used for all variables (using collapsed categories), and Friedman's test for profession.

Feedback ratings were examined using percentages.

Qualitative

Qualitative feedback from the three open-ended feedback questions was evaluated using thematic analysis (process detailed in Appendix F).

Phase Two Results

Quantitative

Preliminary Analysis

Table 1 displays the sample's demographics characteristics. The most common age range was 41-50, followed by 51-60. Only one male reportedly took part, however, 35 participants did not include their gender. 70.4% were White British. The most common profession included was HV, followed by Integrated Therapies.

Table 1

Demographic Characteristics and Chi-Square Statistic of those who Completed Both Workshops and those who Dropped Out, using Collapsed Categorical Variables

Variable		Completed (N = 192)	Droppedout (N = 27)	X^2	*df*	*p*	*V*
		n (% of N)					
Gender	Male	1 (0.52)	0				
	Female	161 (83.85)	20 (74.07)				
	Missing	30 (15.63)	7 (25.93)				
Age	20-50	101 (52.60)	8 (29.63)	4.21	1	.04*	.16
	51-80	46 (23.96)	10 (37.04)				
	Missing	45 (23.44)	9 (33.33)				
Ethnicity	White	145 (75.52)	18 (66.70)	0.0	1	1.0	OR 1.01
	other	8 (4.16)	1 (3.70)				
	Missing	39 (20.31)	8 (29.63)				
Profession	CCN	18 (9.40)	0				
	School nurse	47 (24.48)	3 (11.10)				
	HV	65 (33.85)	9 (33.33)				
	Integrated Therapies	29 (15.10)	7 (25.93)				
	Other	19 (9.90)	4 (14.81)				
	Missing	14 (7.29)	4 (14.81)				

Variable	Completed (N = 192)	Droppedout (N = 27)	X^2	*df*	*p*	*V*	Variable
Time in service	< 5 years	29 (15.10)	6 (22.22)	2.85	2	.24	.11
	> 5 years	118 (61.46)	12 (44.44)				
	Missing	45 (23.44)	9 (33.33)				
Time since qualified	< 5 years	89 (46.35)	11 (40.74)	5.02	2	.08	.81
	> 5 years	61 (31.78)	5 (18.52)				
	Missing	42 (21.88)	11 (40.74)				

Note. Ethnicity White = White British, White Irish; White any other background; Ethnicity Other = Black or Black British African; Asian or Asian-British; Arab, Mixed other heritage; CCN = Clinical Child Nurse; HV = Health Visitor; Other = Safeguarding; Looked after Children, Admin; * = p < .05; OR = Odds Ratio.

Attrition

27 (12.32%) participants dropped out after W1 due to work-commitments or illness. This group's demographics were not dissimilar from completers (Table 1). The only significant difference found between these groups was for age (X^2 (1, N = 165) = 4.21, p =

.04, w = .16), whereby older participants were more likely to drop out. However, this age group also had more missing data. No significant differences in resilience and PS were found between completers or non-completers (Table 2).

Table 2

Descriptive Statistics and Independent t-test Results for Differences between Completers and Non-completers in Baseline Resilience and Perceived Stress Scores

Variable	Completed (N = 192)		Dropped out (N = 27)		t	*df*	*p*	*r*
	n (% N)	M (SD)	n (% N)	M (SE)				
Baseline Resilience	162 (84.38)	26.95 (4.7)	21 (77.78)	25.86) (5.21)	0.99	181	.32	.07
Baseline Perceived Stress	162 (84.38)	16.43 (5.97)	21 (77.78)	15.76) (5.34	0.49	181	.63	.04

Resilience and PS Change

There were no significant changes in resilience or PS scores across the intervention (Table 3), not supporting the hypothesis. However, this analysis was based on 105 participants given missing data from 45.31% of total participants.

Table 3

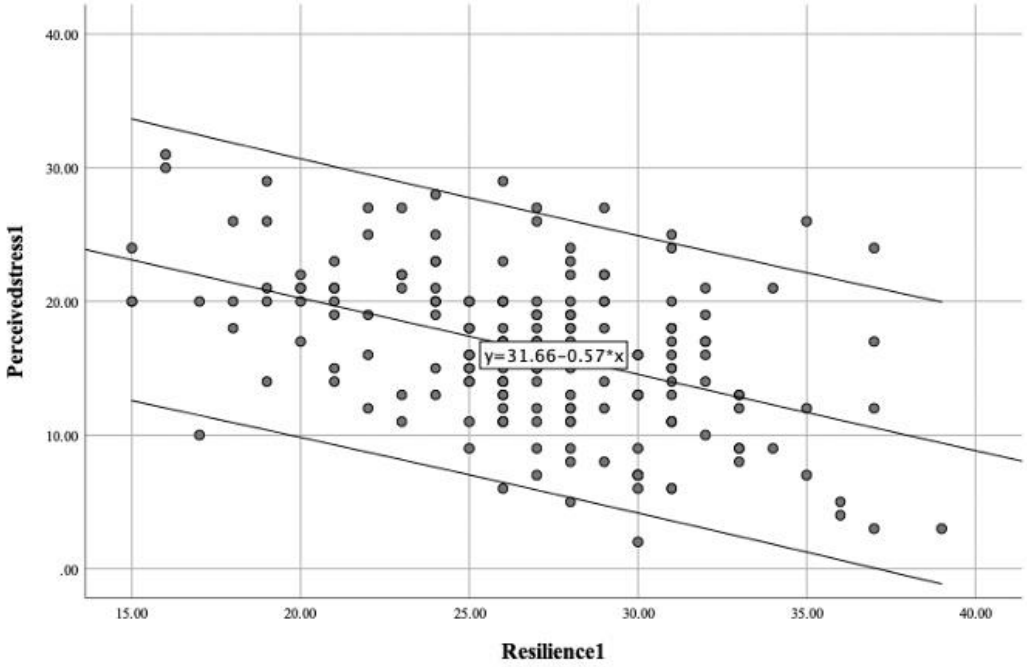
Mean, Standard Deviation, and Paired t-test Statistics for Resilience and Perceived Stress Scores across the Intervention

Variable		Pre	Post	*df*	*t*	*p*	*r*
	n	M (SD)	M (SE)				
Resilience	105	27.17 (4.53)	27.77 (5.04)	104	1.38	.17	.13
Perceived Stress	105	16.43 (5.4)	16.83 (5.65)	104	0.79	.43	.08

Relationship between Resilience and PS

Figure 1

Scatterplot Depicting Correlation between Baseline Resilience and Perceived Stress Scores



The Pearson's correlation showed a significant negative association between resilience and PS ($r(183) = -.46$, $p = <.01$; Figure 1). In line with the hypothesis, the higher the level of resilience, the lower the PS.

Impact of Socio-demographic Variables

The only significant finding found was between age and time in service on resilience (Table 4). For those aged 20-50, resilience levels were significantly higher post-intervention (*Mdn* = 28) than pre (*Mdn* =27; *z* -2.28, *p* = .02, *r* -.19). This was not found in those aged 51-80. Those in the service for more than five years had statistically significant higher resilience levels post-intervention (*Mdn* =28) than before (*Mdn* =27; *z* -2.31, *p* = .02, *r* -.18). However, the change in resilience and PS scores medians were small.

Table 4

Medians, Wilcoxon and Friedman's Statistics for the Impact of Sociodemographic Variables on the Change between Resilience and Perceived Stress Scores Before and After the Intervention

Variable		Pre Workshop 1 Resilience		Post Workshop 2 Resilience					
		n	Mdn (range)	*n*	Mdn (range)	t	z	*p*	r
Gender	Male	1	27	1	21				
	Female	181	27 (24)	104	28 (27)				
Age	20-50	109	27 (24)	69	28 (18)	562	-2.28	-.02*	-.19
	51-80	56	27 (22)	36	28 (27)	295	0.04	.97	0.0
Ethnicity	White	163	27 (24)	97	28 (27)	1407	-1.69	.09	-.12
	other	9	26 (16)	6	27.5 (9)	9	-0.32	.75	-.09
Time in service	< 5 years	18	26 (32)	23	28 (15)	21.5	-0.62	.54	-.09
	> 5 years	130	27 (24)	84	28 (25)	1019	-2.31	.02*	-.18
Time since qualified	< 5 years	100	27 (22)	60	28 (18)	616.5	-1.64	.10	-.15
	> 5 years	66	27.5 (24)	42	28.5 (25)	293.5	-1.12	.26	-.12
						X^2	*df*	*p*	
Profession	CCN	17	27 (19)	12	27 (15)				
	School N	48	26 (16)	33	28 (25)				
	HV	61	28 (18)	35	28 (17)	3.6	1	.56	
	I. Therapy	27	27 (20)	19	28 (16)				
	Other	21	28 (20)	13	26 (24)				

Variable		Pre Workshop 1 Perceived Stress		Post Workshop 2 Perceived Stress					
		n	Mdn (range)	n	Mdn range)	*t*	z	p	*r*
Gender	Male	1	17	1	19				
	Female	181	16 (29)	104	17 (29)				
Age	20-50	109	16 (26)	69	17 (26)	868	-0.76	.45	-.06
	51-80	56	16 (28)	36	18 (24)	304	-0.46	.65	-.05
Ethnicity	White	163	16 (29)	97	17 (29)		-0.10	.32	-.01
	other	9	17 (14)	6	13 (8)	1884	-0.55	.58	-.16
Time in service	< 5 years	18	17.5(22)	23	19 (19)	33	-0.47	.64	-.07
	> 5 years	130	17 (29)	84	17 (27)	1538.5	-0.20	.84	-.02
Time qualified	< 5 years	100	16 (26)	60	17 (23)	489.5	-.088	.38	-.08
	> 5 years	66	17 (29)	42	17 (24)	456	-0.06	.96	-.01

Variable		Pre Workshop 1 Perceived Stress		Post Workshop 2 Perceived Stress				
		n	Mdn (range)	n	Mdn range)	X^2	*df*	*p*
Profession	CCN	17	16 (21)	12	17 (15)			
	School N	48	17 (25)	33	17 (27)			
	HV	61	17 (26)	35	17 (19)	0.38	1	.54
	I. Therapy	27	16 (27)	19	18 (18)			
	Other	21	16 (24)	13	15 (27)			

Note. Ethnicity White = White British, White Irish, White any other background; Ethnicity Other = Black or Black British African, Asian or Asian-British, Arab, Mixed other heritage; CCN = Clinical Child Nurse; School N = School Nurse; HV = Health Visitor; I. Therapy = Integrated Therapies; Other = Safeguarding, Looked after Children, Admin; * = $p < .05$.

Workshop Ratings

161 participants (73.6%) provided data after W1, and 93 (57.4%) after W2. Both workshops were rated well; 'moderately satisfactory' by over half followed by 'extremely satisfactory'. Over half rated the presentation and content as 'good', followed by 'extremely good'. W2 was rated slightly less positively than W1 (see Appendix K for workshop rating results).

Qualitative Findings

For W1, 61% provided qualitative feedback, compared to 30% on W2. Four themes were formed in the thematic analysis.

1. Self-focus

This theme represents opportunity to focus on the self.

Increased awareness of emotional response. Some reflected on how the intervention had helped to increase their self-awareness. This was through the content taught, such as *"learning about the 3 systems [in CFT] and how they work"* (P8).

Time for reflection. Having protected time to reflect on personal experiences and responses was described as beneficial towards increasing self-awareness; *"it highlighted that I'm heading for burnout and have no self-soothing strategies"* (P46).

2. Resilience as a Team Endeavour

The importance of resilience in teams was acknowledged.

Peer discussions. From both workshops, the most reported helpful aspect were the group peer discussions allowing for concerns and ideas to be shared. From these, normalising and *"realising that everyone feels the same"* (P11) was helpful.

Building resilience as a team. Many reported that the content and discussion focus on *"the impact of team resilience on the office space was helpful"* (P28). To aid team relationships and application, some recommended the intervention be for specific teams, and for these teams to reflect together afterwards.

3. Application

This theme reflected participants learning to apply the recommended strategies into their everyday practise.

Range of strategies. Many reported to have learnt about a range of strategies, *"recognising ways in which help to overcome challenge"* (P83), namely mindfulness. Some reported to have already known the strategies and found them less helpful.

Application concerns. Several reported W2 to have provided a sense of permission to use the strategies. However, concerns were raised regarding the suitability of the intervention ("*this isn't the answer to poor morale";* P82), and whether the learning could be applied given the external threats faced at work. Many wanted managers to be aware of the concerns raised and content from the intervention, but not to join the same intervention.

More guidance. Several participants expressed a desire for further guidance and opportunities to apply the strategies. This included wanting more time to practise, further guidance in-between the workshops, and *"stronger plans made for the future"* (P88).

4. Practicalities

This theme referred to practical issues raised.

Attendees. Whilst some reported that the mix of teams and roles generated new knowledge, others suggested it would be more helpful to be in respective teams or similar roles. Some indicated a sense of lack of safety to share, finding it *"difficult to work with others about sensitive things"* (P42).

Physical location. Several participants referred to problems with the location, finding that *"having to drive through traffic for 2 hours…was stressful"* (P22). Hence, many recommended improving the location.

Learning styles. There were recommendations for different styles of learning, including work-related scenarios and *"more examples through video footage"* (P29).

Phase Two Discussion

This phase sought to explore the impact of the intervention on resilience and PS, and to examine the qualitative feedback from the intervention. Resilience and PS did not significantly change from pre workshop 1 to post workshop 2. Moreover, those who were younger and those who had in the service over five years had statistically higher levels of resilience following the intervention. Some key methodological issues are important to note here. For example, a trait PS measure, rather than state, was used. This may not have been sensitive enough to capture changes following each workshop. Furthermore, the intervention focused on compassion and mindfulness to increase self-awareness and coping strategies. Using more sensitive measures of these individual facets of resilience may have detected positive and more subtle changes. However, whilst additional questionnaires could have been added, in phases 1 and 2, staff expressed finding it unhelpful to repeatedly complete multiple questionnaires.

Furthermore, there were considerable amounts of missing quantitative and qualitative data. Staff were also sent follow-up questionnaires at three and six months, however this was

not included due to poor completion. Having this data, as well as a control/comparison group, may have helped to identify further changes.

The exploration of the role of sociodemographic variables was limited by the missing data and the need to collapse categories. For example, the collapsing of 'time in service' to less or more than five years may not have been meaningful (6-20 years range), thus limiting the conclusions drawn from the finding that those who had been in the service for more than five years had statistically significant higher resilience levels post-intervention. Further research with larger diverse sample sizes is required to understand how these findings generalise to other populations, important for tailoring interventions (Sull et al., 2015).

Phase Three Method

Aim

This phase focused on understanding:

1. How the intervention met initial aims by considering experiences and outcomes.
2. Barriers and enablers to the application and maintenance of learning.
3. How to improve future interventions.

Design

This phase used a qualitative design.

Participants

In November 2019, three rounds of emails were sent to attendees to recruit for interviews, eliciting seven volunteers. Participants were female across various professions (HV, school nurses, CCN, integrated therapies). Ages ranged from 21-30 and 61-70 years. Time since staff attended the intervention varied from 6-24 months. The CYPOX service-director supported recruitment.

Procedure

A semi-structured interview schedule was collaboratively devised with the facilitators and service-director. This sought to richly explore participants' experiences of the intervention and strategy implementation, and views on future interventions. Once written consent was gained, interviews lasted 30-60 minutes and were face-to-face in a choice of Trust facilities (information sheet and consent form, and interview prompts are shown in Appendix L). The service-director's reflections on the intervention were also sought.

Analysis

Interview recordings were transcribed by the researcher and thematic analysis was used (thematic analysis process detailed in Appendix F).

Phase Three Results

Four themes were formed from the data with the aim in mind.

1. Knowledge of Resilience

This theme reflected knowledge of resilience being a resilience outcome and facilitator.

Theoretical Background

Many found "i*t was useful to have the…theory behind it to be able to hang things on "* (P3). Issues arose when there were resulting differences in knowledge depending on which team members attended.

Self-Awareness of Emotional Response

Having insight into one's own stress responses and limits was an outcome and facilitator to strategy use, *"it was quite shocking…you just think we could keep doing it, do you know what…we can't"* (P1).

2. Expectations

This represented the influence of one's expectations about the intervention and resilience on the likelihood of strategy use.

Attitude Towards Resilience

Attitudes towards attending and engaging in the resilience intervention were more positive when it was viewed as a demonstration of the organisation listening and valuing wellbeing, and *"the organisation's confidence in the subject"* (P5) to help with the difficulties. However, others were less receptive if they believed their concerns were not understood, and the answer was to instead address key issues, *"nothing's going to change my lack of capacity."* (P7). Two participants perceived the intervention to mean that the organisation thought individuals were not coping adequately. The impact of attending on workload also influenced attitudes towards attendance.

Permission

Expectations about whether one could and should use strategies was frequently referred to. A team-focus on resilience was helpful, such as being on meeting agendas, having organisation-endorsed visual reminders, and regular use of resilience language. Teams regularly practising strategies wanted "*a culture of [resilience] just being talked about all the time, rather than a problem coming up and it being embarrassing to talk about it"* (P4). This linked to helpful expectations that using strategies at work was part of being human and working well, rather than an indication of struggling or lack of productivity.

3. Application

This represented the strategies that staff used following the workshop.

Individual-based Strategies

These included strategies involving pausing, rather than doing more; *"I'm not going to have that article for the newsletter read, because that means working extra hours"* (P3). Some also started sharing their stress in supervision.

Team-Based Strategies

These included acts of compassion for others, such as making hot drinks. It was easier to be compassionate to others than to oneself. Many strategies were also completed as a team, such as *"buddy walks, we were trying to make sure everybody did that every week."* (IN6)

4. Maintenance

This captured what kept resilience going after the workshop.

Peer Support

Peer support was frequently mentioned as important, whether it was supporting others' stress recognition, suggesting strategies, or doing strategies together. For example, *"we said what does our kindness calendar say today?...well do that to yourself"* (P5). Having 'wellbeing champions' was also helpful to support the team's actions towards resilience, e.g., through setting 'challenges'.

Physical Workload

"*Work pressure…the quantity, the intensity, the pace*" (P1) was mentioned by all as a barrier to using strategies. Factors that helped included protecting time by proactively scheduling strategies into calendars, taking breaks away from the office, and collectively practicing strategies in meetings.

5. Future Developments

This theme reflected key recommendations towards facilitating the sustainable use of strategies at work.

Role of Managers

All interviews referred to the role of managers in creating an environment where staff have the permission and physical capacity to use resilience strategies. This included talking positively about using strategies as an expectation and providing praise, and protecting time and covering workload when needed. To avoid a "*disconnect"* (P3) between managers and

staff, there was a suggestion that managers *"need to do this sort of thing themselves"* (P7) through a separate but complimentary training.

Follow-up Reviews

There were suggestions to have a review following the intervention, including reviewing personal resilience plans in supervision, and for respective teams *"who did the workshop to come back together to review our plans*" (P6).

Regular Initiative

To aid sustainability, many suggested regularly delivering the intervention during inductions; "*planting that seed earlier on"* (P2). Clear expectations about the intervention's rationale and purpose were also recommended.

Service-Director's Reflections

The intervention was acknowledged as positive at the time. Two main themes were formed.

1. Barriers to Maintaining Outcomes

Expectations. The intervention appeared less successful for staff who believed that the fundamental problems at work needed to be addressed; *"some don't appear to have changed at all in their approach to always thinking that nothing is going to work".*

Sustainability. This related to concerns about the intervention as a one-off due to difficulties recalling the content, and *"what about all the new people who have started since then?"*

2. Future Interventions

Future interventions needed to be delivered by the Trust and embedded within teams to aid sustainability, such as by training staff to train others, or to deliver something smaller but regularly to all. There was a sense that staff would be positive about this as *"they often quite like to incorporate something a bit wellbeing led as part of the away day".*

Phase Three Discussion

These additional interviews provide rich and helpful qualitative feedback on staff's views on the resilience intervention. This phase adds insight into the barriers and facilitators towards staff engaging in, and applying learning from, an intervention. When reviewing these findings, however, it is important to consider how representative the interviewees were of phase two attendees. For example, there were no interviewees aged between 31-60 years, despite the most common workshop attendee age being 41-50 years old. Moreover, only one interviewee reported to have found the workshops unhelpful, whereas several attendees said the intervention was not helpful. Initial recruitment plans had sought to overcome this by recruiting a balance of participants who found the intervention either helpful or unhelpful. Unfortunately, recruitment had to be stopped due to a lack of uptake and service pressures. The service-director also felt it was not feasible to include participants who chose not to attend. However, involving this group may have highlighted helpful attendance barriers and suggestions.

Furthermore, the interviews took place a long and varied time after the intervention (6-24 months), impacting how long staff had to develop, implement or lose habits, and apply the learning points. The views of staff who had since left were not captured, yet, they may have chosen to leave due to their dissatisfaction with the service. A helpful next step may have been to meet with the OTLs to discuss how to take things forward with the team, such as in supervision discussions.

Wider Discussion and Recommendations

This intervention aimed to improve staff resilience and reduce stress in an emotionally and physically demanding NHS setting. Understanding implementation impact and barriers is key for shaping future interventions.

Impact and Experience

Baseline resilience and PS were negatively associated, mirroring previous studies (Rees et al., 2015). However, resilience and PS did not significantly change following the two-half day intervention. Previous studies have found similar or small effect sizes of resilience and mindfulness interventions (Liu et al., 2020; Kriakous et al., 2021) on resilience. When broken down into sociodemographic categories, those who were younger (20-50) showed significant changes in resilience. This is interesting given the notion that resilience increases with age and experience, observed in the interviews and elsewhere (Sull et al., 2015), thus we may expect smaller changes in older staff. These statistical findings are limited and require further investigation.

Despite this, the qualitative feedback showed that strategies were successfully implemented, and the intervention supported teams to consider the wider team culture which was the starting point for implementing strategies. Key factors influencing effective and sustained strategy implementation were identified.

Self-Awareness of Emotional Response

Participants described the intervention as an opportunity for reflection, helping to increase self-awareness of emotional responses and knowledge of when to use the strategies. Resilience training aims to increase self-awareness (Southwick et al., 2011), perhaps contributing to the lack of a significant improvement in PS scores as participants' awareness of their stress levels and/or relevant factors increased. Future evaluation should measure other aspects of resilience, such as self-awareness (Chmitorz et al., 2018) to fully capture change, particularly given the complexity of conceptualising and operationalising resilience (Liu et al., 2020).

Attitudes Towards Resilience

A key barrier to being receptive to the intervention and subsequent implementation of learning was the belief that changes were required at an organisational rather than individual

level, and that the intervention was an insufficient answer in isolation to the difficult context staff faced.

The perceived ability to use strategies, such as insufficient time or finding them difficult was a significant barrier. Practical issues within the intervention were commonly reported, perhaps reflecting participants' description of feeling overwhelmed by practical issues at work, reducing their perceived ability to pause and use the strategies. Within CFT, this can be understood as being in 'threat' or 'drive' mode' (Gilbert, 2010). This mirrors previous research identifying attitudes towards interventions and workload as barriers to attending interventions (Zander, Hutton, & King, 2013).

Resilience as a Team Endeavour

Another key theme from this study was the value of learning and practising resilience as a team. Time for team reflections in the workshops facilitated peer learning and normalising of concerns. This reflects the literature documenting the value of team reflection (Farr & Barker, 2017) via Schwartz Rounds. A team culture viewing resilience strategies as positive and working well, developed through the encouragement and joint strategy use, was influential to instilling permission to use strategies. This has also been found elsewhere (Banerjee et al., 2017).

Furthermore, it is interesting to consider how much staff valued having time to pause, rest, and connect with their colleagues. Organisations are social communities, and this can be understood through transactional theories of stress, such as the job demand control support theory suggesting that social support can buffer against the effect of high workload and low control on stress (Karasek, 1979; Johnson & Hall, 1988). Moreover, organisational support theories suggest that perceived organisational support is the result of employee-organisation interactions and contributes to feeling valued and cared about (Kurtessis et al., 2017). Hence, the useful effects of the intervention suggested here are, perhaps, rather a reflection of social

support, connection, and a helpful culture being created, rather than the psychoeducation and individual strategies.

Implications

The negative relationship between resilience and PS may provide some support for the role of resilience interventions in response to staff stress in challenging environments. When considering the lack of statistically significant changes in resilience and PS, despite the methodological issues described earlier, this may also suggest that future resilience interventions would not be effective in this context alone.

These findings link to wider current discussions whereby the concept of resilience has been subject to growing criticism. Some warn that the focus on individuals removes attention from contextual factors and the organisation's responsibility to protect employees and can blame individuals for insufficient resilience (Gill & Orgad, 2018). The service structures and organisational issues will continue to exert pressure if they are not changed. Whilst individuals should take responsibility and ownership to develop personal strategies, a top-down organisational focus is also required to create an environment for staff to be able to develop resilience, acknowledging the importance of resilience at different levels (Trueland, 2018; Gillman et al., 2015). This mirrored the Trust's wellbeing focus on working with managers.

Creating supportive work cultures is imperative. Learning from other health promotion interventions, such as supporting staff to exercise more at work, successful organisational change strategies have included the provision of facilities, structures, and managerial support for individuals to make healthier lifestyle choices at work, in addition to psychoeducation (Blake & Lloyd, 2008). Hence, high-level managerial facilitation is crucial, in line with the phase three findings.

Recommendations

Individual

- To proactively schedule helpful resilience strategies into work schedules away from office environment.

Service

- To encourage team efforts of resilience (e.g. mindfulness, self-awareness, and compassion), such as through wellbeing champions, keeping resilience live at work through language and collaborative actions, and protected time for team reflection.
- To offer proactive strategies for teams such as regular time and space together to rest, connect, and learn from each other to work towards creating a healthy supportive workplace culture. To include clear rationale about the intentions, acknowledging wider service-related processes/structures.
- To add learning from the intervention into supervision and team discussions, led by OTLs.

Trust

- Future interventions should have a team focus, and team-specific follow-up should be offered to sustain gains.
- If training is offered to staff, managers should receive complimentary training by the Trust to create environments compatible with resilience, including workload relief and a culture of permission to use strategies through language and modelling.
- Future NHS interventions should be evaluated and published to develop the evidence-base.
- To consider appropriate and sensitive measures to base success of intervention.

Service's Response

Reflections from the OXICPT-R facilitators on these findings and recommendations were positive (facilitators' full reflections are detailed in Appendix M). These findings were shared with the CYPOX directorate (lay summary is in Appendix N). This study met its aims and provides helpful information to ensure future staff interventions are feasible and sustainable, to the service and wider NHS.

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Main Research Project

Exploring how Loneliness-Related Cognitive Interpretation Bias Affects the Experience of Loneliness in the Over 80s

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Proposed Journal: Aging and Mental Health. This journal investigates the relationship between the aging process and mental health, and explores mental changes associated with aging. Author Guidelines in Appendix Z.

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Abstract

Objectives

To explore the relationship between loneliness-related cognitive interpretation bias (L-CIB) and loneliness as a bidimensional concept, in the under-researched over 80s population.

Method

A novel ambiguous scenario vignette (ASV) was developed to capture L-CIB of social situations and measured alongside a range of risk factors in a non-clinical sample of 120 older adults (80-101 years).

Results

A unidimensional loneliness model, and two ASV components (self/other) were found. Self and other L-CIB were not significantly correlated to loneliness, and the regression was hence not conducted.

Discussion

Conclusions cannot be drawn as to whether the cognitive model applies to the over 80s. This is discussed in relation to key methodological issues and wider developmental theories. This novel ASV measure provides an age-appropriate tool to measure th**e** key variable of L-CIB in the over 80s. Areas for future research in this age group are highlighted, particularly around the role of depression and loneliness.

Keywords. Cognitive Interpretation Bias, Loneliness, Over 80s, Oldest of Old.

Introduction

Background Loneliness Literature

Loneliness has been described as a state of emotional distress due to a discrepancy between actual and desired levels of social interaction (Peplau & Perlman, 1982). Unlike social isolation, it is the subjective perception and evaluation of one's social relationships. Loneliness could, therefore, be described as a cognitive phenomenon (Young, 1982).

Factor analytic studies propose that understanding loneliness as a multi-dimensional concept is superior (Liu & Rook, 2013), although it is predominately measured as unidimensional. Weiss (1973) suggested two types of loneliness: social (SL; the absence of acceptable social networks that would provide a sense of companionship, community and belonging) and emotional (EL; lack of a significant attachment figure). These are considered related yet independent.

Associated risks of loneliness have been described as comparable with the effects of smoking (Landerio et al., 2017), and are associated with physical health difficulties including dementia and cardiovascular difficulties (Perissinotto, Cenzer, & Covinsky, 2012).

Furthermore, loneliness is associated with poor mental health, reportedly moderates depression (Cacioppo, Hawkley, & Thisted, 2010) and is associated with social anxiety (social-anxiety; Domènech-Abella et al., 2019). Loneliness can also impact recovery in therapy and is associated with suicidal ideation (Bennardi et al., 2019).

There has been increased research, public and policy interest in loneliness. This includes guidance from the National Institute of Health and Care Excellence (NICE, 2015; although not a mental health disorder), and the Local Government Association and Age UK created a framework for national stakeholders (The Campaign to End Loneliness, CTEL; 2015; 2020).

Old Age and Risk Factors

There has been much research on prevalence in loneliness across the developmental lifespan, with inconsistent results: a linear decrease (ONS, 2018); a 'U' shaped curve in which younger and older adults (OA) report higher loneliness (Luhmann & Hawkley, 2016; Victor & Yang, 2012); a particular increase in the over 80s (Dykstra, 2009; von Soest et al., 2020). Loneliness is common in individuals aged 65 years and over with 6-10% of over 65s experiencing loneliness 'often' (Age UK, 2018). There is, unfortunately, limited UK prevalence data on specific age cohorts.

Longitudinal studies show that the risk of loneliness is not driven by age, per se, but the changes in social circumstances that are associated with ageing which become risk factors. Specifically in OA, data from the Office of National Statistics (ONS, 2018) indicate that key loneliness risk factors are marital status (becoming a widow or being single), self-reported health, financial satisfaction, and living alone, all of which tend to change in older adulthood. Another recent review suggested these factors were consistently reported significant in OA, in addition to limited social network size and depression (Dahlberg et al., 2021). The authors note a lack of exploration of psychological risk factors in OA.

Factors associated with increased EL are widowhood and not receiving informal care, whereas being male, low family contact, low perceived community integration, and receiving formal care are associated with SL (Dahlberg & McKee, 2014; O'Súilleabháin, Gallagher, & Steptoe, 2019). Different types of loneliness may require different treatments and timing (Dahlberg et al., 2021).

Loneliness research in OA can include samples starting at 50 years old, with a mean of 65 (Shankar, 2020). The 'oldest of old' remain an under-researched group. The definition for the 'oldest of olds' varies in the literature, from 80 to 90 years, and are known to have

1. A variety of terms are used to describe people over the age of 80 years, with 'oldest of old' sometimes used in research studies. Here, the term 'over 80s' was chosen given feedback from the public participation involvement group and its use in relevant national frameworks and community groups.
cohort and situational differences to younger groups (Ailshire & Crimmins, 2011).

The number of people over 85 years in the UK is predicted to double by 2041 to 3.2 million (ONS, 2017). There is, therefore, a drive for research to distinguish between OA and the 'oldest of olds' (O'Rourke, Collins, & Sidani, 2018). Here, the term 'over 80s' is used.[1]

Several loneliness interventions for OA exist, ranging from befriending to addressing maladaptive cognitions. Overall, interventions have had inconsistent results, owing perhaps to methodological design flaws including inconsistent use of social isolation and loneliness concepts, unaccounted variance in factors such as socio-economic status and ethnicity, and a lack of randomised-control trials (Cohen-Mansfield & Perach, 2015). However, key reviews have reported reducing social interactions-related maladaptive cognitions as the most effective intervention (Masi et al., 2011; Fakoya, McCorry, & Donnelly, 2020; Jarvis et al., 2020). Recent research published highlight the role of cognitive-behavioural therapy-based (CBT) interventions for loneliness through behaviour activation and targeting cognitive distortions (Cohen-Mansfield et al., 2018; Käll et al., 2020). Many have called for more research to better understand the psychological mechanisms behind loneliness, so to improve intervention effectiveness (CTEL; 2020).

The Cognitive Model of Loneliness

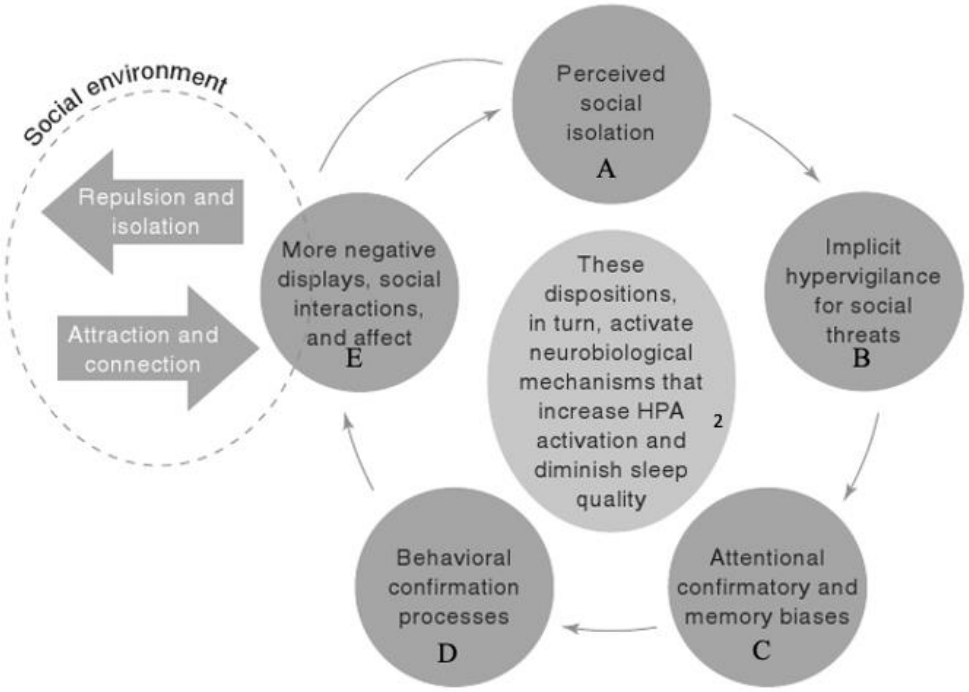
Cacioppo and Hawkley's model (2009; Figure 1) suggests that when individuals perceive a discrepancy between their desired and actual social relationships, feelings of loneliness are experienced[2]. This then elicits the motivation to seek connection. However, this can also activate an implicit hypervigilance for social threat (Figure 1; Circle B), leading to attentional, confirmatory and memory cognitive biases (Circle C).

2. HPA = hypothalamic-pituitary adrenocortical axis. Other cognitive model versions include Cacioppo et al., (2015) and Qualter et al. (2015). However, these do not provide further specificity to the model, particularly regarding attentional, confirmatory, and memory biases. Hence, Cacioppo et al.'s (2009) initial model is presented here.

The individual attends to certain social information and interprets it to mean the social world is more threatening and punitive, expect negative social interactions, and are more likely to recall negative social information. This may then lead the individual to respond in a manner that elicits expectation-confirming behaviours from others (Circle D), resulting in further negative social interactions and negative affect (Circle E). Hence, a self-reinforcing loop is suggested; loneliness is maintained by cognitive biases and behavioural confirmation processes impacting one's ability to satisfy feelings of connectedness during social interactions.

Figure 1

"The Effect of Loneliness on Human Cognition" taken from Cacioppo and Hawkley (2009)



The model has been critiqued for its lack of clarity regarding the cognitive biases in Circle C (Spithoven, Bijttebier, & Goossens, 2017). Cacioppo et al. (2015) later describe dysfunctional and irrational beliefs, false expectations and attributions, and self-defeating

negative thoughts about social interactions, however, did not update the model. Despite the evidence for loneliness interventions targeting cognitive biases (Jarvis et al., 2020), there is limited evidence examining this mechanism in relation to loneliness (Dahlberg et al., 2021), and poor consistency in measurement (Spithoven et al., 2015). For example, the evidence-base includes threat appraisals (van Winkel et al., 2017), attributions (Newall et al., 2009; Vanhlast et al., 2015), and rejection expectation (Thomas & Bowker, 2015). These also used a unidimensional model of loneliness. Spithoven et al. (2015) sought to add sepcificity to the cognitive model of loneliness and mentioned intepretation of social cues.

Drawing upon wider CBT models for specificity, cognitive distortions are seen as a tendency to interpret or distort the meaning of events in ways that are consistent with their negative views of themselves, environment, and future (Ellis, 1962; Beck et al., 1979) and specific patterns of distortions, such as dichonmous thinking. The link between these distortions, and depression and social-anxiety have been relatively well studied (Kuru et al., 2018) using measures of general cognitive distortion (e.g., Cognitive Distortions Questionnaire; De Oliverira et al., 2015). Some have included interpersonal subscales (Covin et al., 2011; Hamamci & Büyüköztürk, 2004). However these not been loneliness-related cognitive distortions. Moreover, a recent loneliness CBT intervention evaulation (Käll et al., 2020) reported the absence of measuring cognition distortions as a key study limitation, acknowledging the lack of psychometrically sound and age-appropriate tools to measure this in OA.

Problematic to applying the model to the over 80s, the majority of the loneliness-related cognitive bias literature has focused on adolescent samples (Vanhalst et al., 2015), using measurements tool not suited to OA populations given the situational relevance and length. Newall et al. (2009) measured affiliative causal attributions in a sample with a mean age of 72 years, however, this was based on Weiner's attribution theory (1985).

In sum, there is a lack of specificity regarding the cognitive bias mechanism of loneliness, and poor consistency and precision in measurement in the evidence-base. Cognitive distortions in interpretations of social situations may be of importance, but this has not been well explored in relation to loneliness. Within this limited cognitive bias evidence-base, there is a dearth of research in its application to the over 80s and a lack of suitable measurement tools.

Aim

A novel age-appropriate ambiguous social scenarios vignette tool was developed and used to examine the influence of loneliness-related cognitive interpretation bias (L-CIB) on loneliness (EL and SL) in the presence of other well established risk factors, in an over 80s sample.

Research Question

Does the cognitive model, L-CIB apply to the over 80s?

Hypotheses

1. A. L-CIB would be significantly positively associated with loneliness.

B. This effect would be maintained in the presence of other loneliness risk factors.

2. A. L-CIB and EL would be significantly positively associated.

B. This effect would be maintained in the presence of other risk factors.

3. A. L-CIB and SL would be significantly positively associated.

B. This effect would be maintained in the presence of other risk factors.

Given the lack of research within this area, this analysis was exploratory in nature.

Method

Design

A cross-sectional quantitative design was used.

Participants

120 volunteers were recruited from the general population within Oxfordshire, Buckinghamshire, and Berkshire between October 2020 and March 2021. Participants were included if they were 80 years and older, and able to speak and understand English. Participants were excluded if they reported a diagnosis of dementia, severe and enduring mental health difficulties (bipolar, psychosis, and personality disorder), or if they lived in a nursing home (i.e., required complex physical care). These criteria were applied given their potential influence on the questionnaire responses and loneliness.

A priori power analysis using G* Power software (Faul et al., 2009) was used to calculate the sample size of 119 with statistical power set to 0.80 and $p < .05$ for 10 predictors in a linear multiple regression analysis. Given the lack of previous research, a medium effect size of 0.15 was used.

Recruitment

A study poster (depicted in Appendix O) was shared via local organisations (Age UK, University of the Third Age, churches), Facebook groups, the Oxford Dementia and Aging Research database, and managers of residential carehomes and sheltered accommodation/retirement complexes. Sharing information was encouraged to reach the most isolated participants. Participants contacted the researcher (JH) to receive a study information sheet (copy in Appendix P) via email or post. Participants then called back, or agreed to be called after two weeks, to arrange a research telephone call.

Procedure

During the telephone call (due to COVID-19), the information sheet was read out, and verbal consent was gained and recorded. The assessment of participants' ability to understand what was involved and provide consent to take part formed part of the assessment for eligibility in terms of cognitive impairment. The researcher read out the questions and possible responses. Specific observations about loneliness and relevant comments were

recorded as field notes. This lasted between 0.5-1.5 hours. Participants were then verbally debriefed and sent a written debrief. Shown in Appendix Q, this contained information about the study and potentially relevant supporting organisations.

Measures

Loneliness

The De Jong Gierveld loneliness scale 6-item (Gierveld & Van Tilburg, 2006; depicted in Appendix R) was used, with two subscales for EL and SL. Three negatively-worded EL statements are rated on agreement "yes" or "more or less" = 1; "no" = 0), and three SL statements rated "yes" = 0; "more or less" or "no" = 1. Increased scores suggest higher loneliness indications. This measured loneliness indirectly, helping to overcome issues of stigma and has been previously used in OA research (Goodman et al., 2015). The subscales and total scale have been indicated to have good psychometric properties in relevant samples (de Jong Gierveld & van Tilburg, 2010).

Here, SL subscale had 'poor' internal consistency (Cronbach's $\alpha = .57$; George & Mallery, 2003) and EL 'unacceptable' ($\alpha = .30$). A principal component analysis (PCA) was completed on the 6-item scale with orthogonal rotation. Five items loaded onto one component (excluding EL_item2). EL_item2 strongly loaded onto another component. The decision was hence made to measure loneliness as a unidimensional concept, excluding EL_item2. Full PCA process and results are in Appendix S. The Cronbach's alpha for this 5-item scale improved ($\alpha = .62$; 'questionable'). Differences between EL and SL (hypotheses two and three) could, therefore, not be explored.

L-CIB

The Ambiguous Scenarios vignette (ASV; displayed in Appendix T) was developed and used to measure L-CIB. This consisted of 11 age-appropriate ambiguous social scenarios, each with a choice of three interpretations. Responses were scored as follows: 3 =

negative interpretation bias; 2 = mild negative bias or neutral interpretation; 1 = positive interpretation, randomised in order.

For each item, participants were asked to imagine themselves in the situation and to indicate which response was most like what they would think. Appendix U details the development process.

Cronbach's alpha was found to be 'poor' (α = .52). A PCA suggested that the items strongly loaded onto two main components (process and full results detailed in Appendix V). These appeared related to cognitions about the self (four items) or others (three items). Cronbach's alpha for these two factors were α = .48 ('unacceptable') and .59 ('poor'), respectively. Deleting items did not improve alpha. ASV was consequently split into two respective subscales (ASV_self; ASV_other) for the analysis. This reflected the consideration of Beck's cognitive triad (1979) in the measurement design.

Demographics

Reported as key risk factors by others (Dahlberg, 2021; ONS, 2018), age, gender, ethnicity, marital status, living situation (household size and setting), self-rated physical health and mobility (Likert scales; 1-5; "excellent" = 5), and financial satisfaction (Likert scale; 1-5; "extremely satisfied" = 5) were collected.

Objective Social Network

The Social Network Inventory (SNI; Cohen et al., 1997; shown in Appendix W) was used to measure network size across 10 social contact types (questions about parents/in-laws were removed). Total social network size was computed as the sum of individuals with whom the participant had regular contact with (at least once a fortnight) across the social contact types. This was on a Likert scale of 0 to '7 or more', thus the total score was 70 (or more). Participants were encouraged to answer based on the current situation with COVID-19 restrictions. This has been used previously in OA (Aung et al., 2016).

Quality of Relationship

The PPI focus-group consulted recommended measuring relationship quality, also supported in the literature (Yang & Bath, 2018). Quality was rated (1-5; "excellent" = 5)" for each contact type measured in the SNI and a mean score calculated.

Depression

The Geriatric Depression Scale (GDS; Yesavage & Sheikh, 1986) was used to screen for depression given the reported links with loneliness (Cacioppo et al., 2010). This shorter 15-item measure was developed as a screening tool for depression in OA, relying less on somatic features. Questions about various symptoms of depression experienced in the past week are answered "yes" or "no". Scores greater than five indicate probable depression. The GDS has been validated in various populations (Pocklington et al., 2016).

Social-Anxiety

The Social Phobia Inventory (SPIN; Connor et al., 2000) was used given the association with loneliness (Domènech-Abella et al., 2019), and indicated as important in a recent CBT intervention for loneliness (Käll et al., 2020). 17 items are rated in agreement (Likert scale; 1-5; "extremely" = 5). A cut-off of 19 indicates clinical levels. The psychometric properties of social-anxiety measures are not well validated in the literature, particularly in OA. Measures that are validated in OAs are longer to complete (Gould et al., 2012).

Vulnerability Considerations

The over 80s are viewed as a vulnerable population, with sensory and cognitive difficulties, pain, fatigue, and isolation. Several efforts were made to mitigate this, described in Appendix X and informed by the CTEL framework (2020) and PPI focus-group. This included selecting measures based on ease of completion, relevance of items, and length.

Ethical approval was gained from the Central University of Oxford Research Ethics Committee (R70900/RE003).

Analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 26 for Mac. Only time since widowed had missing data (11.5%), due to researcher error.

- Histograms, Q-Q plots, Shapiro-Wilk tests and examination of skewness and kurtosis scores were used to check the assumptions of normality.
- To decide on entry into the multiple linear hierarchical regression analysis and due to skewed distribution, Spearman's correlation coefficient was used to explore associations between continuous predictors (including ASV_self and ASV_other) and loneliness (5-item scale). Due to the high number of correlations made, Bonferroni's correction was applied, resulting in a new p value of .001, using a two-tailed test. Mann-Whitney and Kruskal-Wallis statistics were used to explore differences in loneliness between the categorical variables.

Results

Demographics

Table 1

Demographic Characteristics of Sample

Characteristic	Subgroups	N = 120 (%)
Age (years) Mean (Range, *SD*)		85.38 (80-101, *4.55*)
Gender	Male	47 (39.17)
	Female	73 (60.83)
Ethnicity	White-British	115 (95.83)
	White-other background	5 (4.16)

Characteristic	Subgroups	N = 120 (%)
Physical Health	Very Poor	2 (1.67)
	Poor	2 (1.67)
	Fair	36 (30.00)
	Good	57 (47.50)
	Excellent	23 (19.17)
Mobility	A great deal affected	4 (3.33)
	Much affected	12 (10.00)
	Somewhat affected	22 (18.33)
	A little affected	39 (32.50)
	Not at all affected	43 (35.83)
Living Situation	At home alone	67 (55.83)
	At home with one other	36 (30.00)
	At home with more than one	3 (2.50)
	Retirement living alone	9 (7.50)
	Retirement living with one	1 (.83)
	Supported living alone	4 (3.33)
Marital Status	Married	35 (29.16)
	Never Married	11 (9.16)
	Divorced	13 (10.83)
	Widowed <1 year	6 (5.00)
	Widowed 2-5 years	11 (9.16)
	Widowed 6-10 years	16 (13.33)
	Widowed 11 years plus	14 (11.67)

	Missing	14 (11.67)
Financial Satisfaction	Very dissatisfied	0
	Slightly dissatisfied	2 (1.67)
	Neither satisfied nor dissatisfied	6 (5.00)
	Slightly satisfied	37 (30.83)
	Very satisfied	75 (62.50)
Objective Social	Total Mean (Range, *SD*)	14.10 (2-61, *8.75*)
Network Size (SNI)	Children	1.88 (0-7, *1.30*)
	Relatives	1.73 (0-7, *1.76*)
	Friends	2.36 (0-7, *2.18*)
	Church	1.21 (0-7, *2.34*)
	Classes	0.37 (0-7, *1.43*)
	Work	0.06 (0-7, *0.49*)
	Neighbours	2.85 (0-7, *2.32*)
	Volunteering	0.73 (0-7, *1.84*)
	Groups	2.48 (0-7, *4.53*)
GDS Total Mean (Range, *SD*)		2.83 (0-15, *2.64*)
SPIN Total Mean (Range, *SD*)		6.67 (0-68, *6.24*)
Loneliness (5-items) Total Mean (Range, *SD*)		1.48 (0-5, *1.39*)
ASV-self Total Mean (Range, *SD*)		5.34 (4-8, *1.24*)
ASV-other Total Mean (Range, *SD*)		3.32 (3-9, *.76*)

Note. N= Number of Participants; *SD* = Standard Deviation; SNI measure Likert scale was scored ‘0’ to ‘7 or more’; GDS = Geriatric Depression Scale; SPIN = Social Phobia Inventory Network; ASV = ambiguous scenarios vignette (measuring L-CIB).

As seen in Table 1, the sample were mostly female (60.8%; mirroring population figures; ONS, 2020), white-British (95.8), and had a mean age of 85.38 years (80-101). This was a relatively able sample; most people (96.6%) self-rated their physical health as 'fair' or above, and 86.7% self-rated their mobility to only affect them 'somewhat' and above. Most people (66.7%) lived alone and at home. Approximately two-thirds of the sample were not in a marital or cohabitating relationship, with the highest proportion of these widowed (50.83%). 27.9% were widowed within the last five or less years. The average number of social contacts seen at least once in a fortnight was 14, however, this ranged from 2-61 people with a large standard deviation (8.75). The type of social contact with the highest average number of regular contacts was neighbours, followed by groups, friends, children, relatives, and church. Most (93.3%) were at least 'slightly' satisfied with their financial situation, and nobody 'very dissatisfied'.

Fourteen percent scored above the GDS clinical cut-off, and 6.6% scored above the SPIN clinical cut-off. The mean score for loneliness was relatively low 1.48 (maximum score of five).

Assumptions of Normality

Most of the data appeared to violate assumptions of normal distribution (reported in Appendix Y). Age, network size, GDS, SPIN, ASV_self, ASV_other other, and loneliness were negatively skewed, and mobility and financial satisfaction positively skewed. Performing log, square root, reciprocal, and reverse score transformations did not improve the distribution. Non-parametric tests were subsequently used.

Associations between Predictors and Loneliness

Loneliness did not significantly differ between the different levels of the categorical control variables (Table 2). With Bonferroni's correction, results of the Spearman correlation

indicated that loneliness was significantly negatively associated with physical health, mobility, and network quality, and positively associated with low mood (Table 2).

Thus, the null hypotheses that L-CIB and loneliness would not be correlated cannot be rejected.

Table 2

The Differences in Loneliness between Categorical Covariables, via Mann-Whitney U and Kruskal-Wallis H Exact Statistics, and Intercorrelations Between Continuous Covariables and Loneliness via Spearman's Rho

Variables		Loneliness					
		n	Mdn (range)	*U*	*z*	*p*	*r*
Gender	Female	73	1 (0-5)	1695.50	-.11	.92	-.01
	Male	47	1 (0-5)				
Ethnicity	White-British	115	1 (0-5)	259.00	-.39	.72	-.04
	White-other	5	1 (0-3)				
				H	*df*	*p*	
Living situation	Alone at home	67	1 (0-5)				
	Alone group setting	13	1 (0-5)	.62	2	.73	
	Living with others	40	1 (0-5)				
Marital Status	Married	35	1 (0-5)				
	Never Married	11	1 (0-2)				
	Divorced	13	1 (0-4)				
	Widowed <1 year	6	1.5(0-2)	7.80	7	.35	
	Widowed 2-5 years	11	1 (0-5)				
	Widowed 6-10 years	16	0 (0-4)				
	Widowed 11+ years	14	1.5(0-5)				

Variables	r_s										
	1	2	3	4	5	6	7	8	9	10	11
1 Age	-	-.16	-.15	.03	-.24	.11	.10	-.07	-.02	-.02	.01
2 Physical Health		-	.54*	.17	.12	.01	-.40*	-.11	-.25	.09	-.34*
3 Mobility			-	.20	.11	.16	-.39*	-.04	-.15	.02	-.46*
4 Financial Satisfaction				-	.06	.05	-.26*	-.09	-.05	-.13	-.23
5 Network Size					-	.09	-.31*	-.08	-.11	-.03	-.23
6 Network Quality						-	-.17	-.12	-.09	-.22	-.38*
7 GDS							-	.25	.20	.01	.57*
8 SPIN								-	.09	-.08	.21
9 ASV_self									-	.08	.27
10 A5V_other										-	.10
11 Loneliness											-

Note. * = P <.001, as per Bonferroni's correction; GDS = Geriatric Depression Scale; SPIN = Social Phobia Inventory; ASV = Ambiguous Scenarios Vignette; Loneliness = 5-item unidimensional scale.

Regression

Given the aim was to test the cognitive model, rather than to find the 'best predictor' of loneliness, the regression analysis was not completed in the absence of a statically significant association between L-CIB and loneliness.

Discussion

The role of the cognitive bias mechanism in the cognitive model of loneliness (Cacioppo et al., 2009) in the over 80s was explored, using a bidimensional loneliness model. A novel age-appropriate tool (ASV) to capture L-CIB was developed and measured, alongside key loneliness-related risk factors, in participants aged 80-101 years.

In this sample, the loneliness scale appeared to be measuring a unidimensional concept, as per the PCA, unlike previously seen (Liu & Rook, 2013). Differences between SL and EL therefore could not be examined. Whilst it is possible that the differences between these types of loneliness does not apply to the over 80s, this may also be because of methodological limitations, described below.

A novel ASV measure consisted of two factors: L-CIB about the self and others. To the author's knowledge, previous research has not explored how L-CIB of neutral social situations affects loneliness in OAs. L-CIB (self and other) was not significantly associated with loneliness. Therefore, the regression analysis to further explore this relationship amongst other risk factors could not be explored.

Importantly, this was the first study to measure L-CIB and attempted to add specificity to the cognitive model (Cacioppo et al., 2009) in terms of how cognitive biases might present. The findings here are contrary to previous research exploring cognitive bias and loneliness in OA, such as Newall et al., (2009)'s work on attribution bias. Interestingly a recent study found interpretation bias via an ambiguous scenarios vignette to be a maintaining factor of loneliness in 18–24-year-olds. Whilst conclusions about whether the model applies to the over 80s cannot be made, this novel ASV measure provides a much-needed age-appropriate tool to measure this key variable, L-CIB, in the over 80s. This is particularly important given the effectiveness of CBT interventions targeting maladaptive cognitions (Jarvis et al., 2020), and the call to better understand the psychological mechanisms of loneliness (CTEL, 2020).

Key factors to consider when interpreting these findings include methodological issues impacting on the measurement of the key variables, and/or the cognitive model not being applicable to the over 80s.

Methodological Considerations

Methodological issues are likely to have impacted on the ability to accurately measure the relationship between L-CIB and loneliness.

Measurement of Variables

Cognitive model. As discussed, the biases in the Cacioppo and Hawkley's (2009) cognitive model for loneliness are vague, and current measurement tools are neither precise nor age-appropriate. A novel tool was hence developed to measure L-CIB, however, some limitations are acknowledged. For example, Cronbach's alpha of the ASV scale was poor. Despite a subsequent PCA resulting in two subscales (ASV_self and ASV_other), Cronbach's alpha remained 'unacceptable' and 'poor' respectively. The use of Cronbach's alpha to measure internal consistency has had extensive debate (Sijtsma, 2009), and the impact of skew and number of scale items on Cronbach's alpha have been noted by others (Tavakol & Dennick, 2011).

Despite low internal consistency of the ASV measure, it has made progress towards addressing gaps in understanding of L-CIB, drawing upon Beck et al.'s (1979) model. This measure is in its infancy, and merits continued development to explore the impact of L-CIB more accurately. This includes continued development of self and other items, analysis of psychometric properties, and measurement in larger samples.

Loneliness models. The bi-dimensional model of loneliness is inconsistently defined and measured in the literature. Unlike in previous studies (De Jong Gierveld et al., 2010), here, Cronbach's alpha of SL was 'poor' and EL 'unacceptable', and a unidimensional model of loneliness was seen. Despite consequently measuring loneliness as a unidimensional

concept, Cronbach's alpha of the new 5-item loneliness remained 'questionable'. This was likely influenced by the COVID-19 pandemic whereby key differences between SL and EL were influenced by the period of nationally enforced intense social isolation.

Skewed Distribution of Data

The data was not normally distributed. The application of bootstrapping to regression analyses is a well-documented method of managing skewed data to increase interpretation accuracy (Efron, 1979), allowing inferences to be made from this dataset. Explanations for the skewed data distribution are considered below.

Population Complexity. This was a relatively homogenous healthy and affluent sample. This perhaps reflects the geographical recruitment areas selected to control for socio-economic confounding variables (although not measured), thus limiting transferability of findings. Individuals from ethnic minority backgrounds were underrepresented yet are reportedly at increased risk of loneliness (Cacioppo, Chen, & Cacioppo, 2017). Further complexities and skew associated with this age group also gender-based life expectancy differences (ONS, 2020).

Moreover, this appeared to be a satisfied sample from the OA population. It is possible that as people age, parameters for rating their difficulties may shift, potentially explained by developmental theories of gerotranscendence which suggest that human development continues into old age and ends in a new perspective of maturation and wisdom when optimised (Tornstam, 2011). This is also a generation born into a period of war and have known cohort rules for living; 'getting on with it' (Capstick, & Clegg, 2013). One might, therefore, expect participants to have been less likely to share or acknowledge their difficulties.

The skewed data may also be indicative of volunteer bias. The cognitive model would suggest that those holding negative biases might be less likely to hear about the study

and/or volunteer. Attempts were made to reduce this through the snowball recruitment method, however, the average loneliness score was low. Repeating this analysis in a clinical sample would likely yield different results.

In terms of inclusion affecting this skew, data collection occurred by telephone given social distancing and to address inequality in technology access. Whilst this was inclusive for visual difficulties, individuals with hearing difficulties were inadvertently excluded, despite loneliness being associated with hearing difficulties (Littlejohn et al., 2021).

Furthermore, despite recruitment efforts, the sample predominately lived at home. This is likely due to the significant impact of the COVID-19 pandemic on carehome staff. Yet, carehomes should be included in research given the proportion of over 80s living in residential care and the raised prevalence of loneliness (particularly EL; Canjuga et al., 2018).

COVID-19. The study spanned across the unprecedented COVID-19 pandemic, including varying social restrictions. Anecdotally, periods of increased hopelessness and frustration as well as creative adaption were observed. Those who could access technology and/or had assistance from others, appeared better able to adjust and connect with others. These factors have been noted elsewhere as confounding variables (CTEL, 2021) but were not captured here. COVID-19 also resulted in negative changes in participants' social network and quality of interactions, found elsewhere to be associated with loneliness (Dahlberg et al., 20211). This change was not explored given the confounding factors described above.

Clinical Implications and Future Research

In contrast to the hypothesis, the cognitive model may not apply to the over 80s. Theories of gerotranscendence (Tornstam, 2011) and disengagement (Cumming & Henry, 1961) suggest that as people age, they experience a meta-perspective shift around their social

relationships; OAs may withdraw from social roles and relationships, be more selective in their choice of company, and value solitude. Through these developmental theory lenses, it may be expected that the cognitive model (Cacioppo et al., 2009) may not apply to the over 80s, in the same way as it appeared to in younger samples (50+years; Newall et al., 2009). This also fits with the anecdotal finding that many participants reported to no longer experience the concerns included in the social-anxiety measure. Indeed, despite the methodological difficulties described above, one can suggest being low in mood and lonely was not the norm in this sample and should not be assumed when working clinically with OA. Research on ageism has demonstrated the stigma around old age (Day & Hitchings, 2011) and expectations of loneliness as inevitable (Pikhartova, Bowling, & Victor, 2016), reflecting Laidlaw's 'error of understandability' (2000). Healthcare professionals should monitor for chronic loneliness and distinguish this from 'just being old'.

Furthermore, considering theories of posttraumatic growth following exposure to adversity (Bonanno, 2004; Tedeschi, Park, & Calhoun, 1998), some individuals may develop helpful coping styles, self-efficacy, and resilience following difficult experiences of loneliness. These could be seen as potential positives of loneliness. Although such protective factors were not captured here, this may be of interest in future research.

The findings may also suggest that cognitive distortions in the over 80s do not operate in the way predicted and demonstrates a need to explore the role of the cognitive triad in L-CIB. Interestingly, the literature on the role of the cognitive triad in depression over cognitive distortion alone is mixed (Pössel & Black, 2014). Future research around this is particularly needed in the over 80s where this has not yet been explored.

The relationship between depression, social-anxiety, and loneliness is unclear in the over-80s. L-CIB self and other was not significantly correlated to depression and social-anxiety. However, depression was significantly positively correlated to loneliness, mirroring

previous research (Dahlberg et al., 2021). Individuals presenting with loneliness therefore may in fact be presenting with core mood difficulties, manifesting as loneliness. For example, Cacioppo et al. (2010) reported loneliness to moderate depression. Future research could explore the moderating roles between loneliness and depression via direct and indirect effects, in a clinical over 80s sample. Differences between L-CIB and respective psychological difficulties should also be explored.

The prominent role of depression highlights how psychological interventions for loneliness, rather than a social intervention, may prove effective. Further research is required to support the development, funding, and signposting of such interventions, and should measure L-CIB changes.

The findings seen here reflect the complexity of understanding and measuring loneliness. Whilst the literature suggests that loneliness should be measured as a bi-dimensional concept, with different risk factors and treatment implications (Dahlberg et al., 2021), this did not appear to be the case in this sample. The COVID-19 pandemic introduced limitations to evaluations of both loneliness types. Thus, ongoing evaluation of the two separate loneliness subscales is required in larger samples outside of COVID-19 to verify this bidimensional model in the over 80s. Further mixed-methodology exploration of experiences of the different types of loneliness in this age group would be beneficial.

The over 80s are an under-researched population, potentially due to misconceptions of homogeny between OA, difficulties reaching this vulnerable and isolated population, and the impact of internalised ageist views. Yet, this study has demonstrated that they are willing to engage and do so with valuable contribution. Further efforts should be made towards including this population in PPI research design and participation, and should explore cohort differences.

Conclusion

This project was novel and exploratory in its approach to explore the role of L-CIB on loneliness in the over 80s. It made way to address significant gaps in understanding and measuring the cognitive bias mechanism of loneliness in the over 80s. It highlights the complexity of measuring L-CIB and loneliness and key methodological issues which should be addressed in future research before the cognitive model (Cacioppo et al., 2009) can be accepted as relevant to the over 80s. This may have potential implications for psychological interventions.

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Executive Summary

Word count: 958

Why was the study conducted?

Loneliness has been described as emotional response to perceiving a difference between ones desired and actual social relationships (Peplau & Perlman, 1982). Two types of loneliness are suggested in research (Weiss, 1973). Social loneliness relates to not having an acceptable social network, whereas emotional loneliness is a lack of a significant attachment figure. Loneliness can have negative impacts on mental and physical health (Bennardi et al., 2019; Landerio et al., 2017).

The prevalence of loneliness increases over 80 years of age (von Soest et al., 2018). Older age is associated with an increase in loneliness risk factors, including significant bereavements, shrinking of social networks, and changes in marital status, physical health or living arrangements (Dahlberg, et al., 2021). Given this, and the presence of an aging population, understanding how loneliness presents in the over 80s is important, yet this group is underrepresented in research.

The psychological risk factors of loneliness are not commonly explored (Dahlberg et al., 2021). Despite this, the most effective loneliness interventions reportedly focused on unhelpful ways of thinking (maladaptive cognitions; Jarvis et al., 2020). The cognitive model of loneliness (Cacioppo & Hawkley, 2009) suggests that biases in how one thinks and acts in response to perceived isolation can maintain loneliness, resulting in a self-fulfilling loop making it harder to connect with others. However, the model defines these cognitive biases vaguely. To the authors knowledge, biases (distortions; Beck et al., 1979) in one's interpretation of social situations to be an indication of loneliness have not been explored. This is even more limited in older adults, with a dearth of age appropriate measures.

What was done?

This project sought to explore the relationship between loneliness-related interpretation bias (L-CIB) and loneliness (measuring both emotional and social types of loneliness) in the over 80s. Exploratory in its nature, it was hypothesised that those with higher levels of L-CIB scores would be more likely to also score higher in emotion and social loneliness.

The authors designed and used a novel ambiguous scenario vignette tool to explore the relationship between one's cognitive interpretation of neutral social situations and reports of emotional and social loneliness. This measure was co-designed in a public participation involvement (PPI) focus-group to ensure it was age-appropriate. This was measured alongside depression, social anxiety, gender, living situation, marital status, size, social network diversity and quality, and financial satisfaction. These variables were informed by the evidence-base and the PPI focus-group.

Between October and March 2021, 120 participants aged 80-101 years took part in a one-off phone call to complete some questionnaires. Participants were recruited from Oxfordshire, Buckinghamshire, and Berkshire communities. Exclusion criteria included diagnoses of dementia, severe and enduring mental health difficulties (bipolar, psychosis, and personality disorder), or living in a nursing home (i.e., required complex physical care).

Associations and differences in loneliness between variables were explored with a correlation analysis to inform entry into the linear hierarchical regression analysis. The aim of this analysis was not to find the 'best' predictor of loneliness, but to use the covariables as controls to explore the role of L-CIB on loneliness.

What was found?

Internal consistencies and principal component analyses were completed on the key variables. The loneliness scale appeared to be measuring loneliness as one single factor

(unidimensional), unlike previously seen (Liu & Rook, 2013). Differences between social and emotional loneliness therefore could not be examined as planned. Moreover, the novel ASV measure consisted of two factors: L-CIB about the self and others, in line with Beck et al.'s (1979) cognitive triad.

Neither self nor other-focused L-CIB were significantly associated with loneliness, and the regression analysis could not be carried out. It cannot, therefore, be said that the cognitive model of loneliness applies to the over 80s.

What does this mean?

Given some problematic internal consistencies and skewed data, it is important to consider how well the key variables were measured when interpreting this relationship between L-CIB and loneliness (emotional and social). Such difficulties may potentially reflect the complexity of the population, COVID-19 enforced social isolation, and the lack of precision in the cognitive and loneliness models and measurement. Efforts to overcome the skewed distribution included using non-parametric tests to inform entry into the regression, and applying Bootstrapping methods to the regression analysis.

However, and importantly, these findings may also suggest that the cognitive model of loneliness does not apply to the over 80s. They may be less lonely than the literature and society suggest, cognitive biases in the over 80s may not operate in the way predicted, or individuals may instead be presenting with depression. Indeed, some developmental theories suggest that as people age they: develop new perspectives and choose to withdraw from social roles and relationships; are more selective in their choice of company; and value being alone more. These have important implications for how loneliness in older age is treated. If further studies confirm these findings, loneliness in the over 80s should not be considered the norm, and perhaps psychological interventions (as found by Jarvis et al., 2020) would be

more effective than social interventions (e.g. befriending) given the link between cognitive biases and depression.

This study introduced a way to address significant gaps in the literature in this important area. It was the first to measure L-CIB as a cognitive bias mechanism in loneliness, developed a novel ASV tool that provides a much-needed age-appropriate tool to measure L-CIB, in the over 80s, and included an under-represented population, demonstrating their willingness and value towards research. It also sought to explore emotional and social loneliness as two separate factors (bi-dimensional concept), and reflects the complexity of measuring these key variables. Future research is required in this age group to understand their experiences of loneliness, particularly around the role of depression and loneliness.

Narrative Statement

Word count: 1000

Initial Relationship with Research and My Projects

The integrated thesis is an integral part of the doctorate in terms of time and stress. When planning the project, I was not sure what to focus on as I was relatively new to research and did not have any clear research interests.

In the end, the topics I chose were the ones I felt most passionate about: staff wellbeing, and loneliness in old age. This was shaped by my own personal and clinical experiences, and the conversations I had with friends, colleagues, and supervisors.

I recently came across a quote from Peter Fonagy that I think nicely summarises the underpinnings of my projects: "*Adversity is ubiquitous, but it becomes traumatic when we feel we are alone"* (2019). NHS staff and the over 80s are all, in my opinion, incredibly caring and experienced groups of people, yet have also experienced various forms of adversity and have strong narratives of 'getting on with it' (based on my personal experience and societal narratives I have witnessed). For example, the 'stiff upper lip' of the over 80s, junior doctors being superhuman, and nurses being known for carrying on working hard no matter what. These populations are vulnerable but have many factors influencing their ability to seek help.

SIP

The SIP was my first project and arguably the biggest in terms of having three phases with separate methodologies and analysis. I found it the hardest to write up, trying to find the balance between covering all bases whilst doing those things justice within the wordcount. As my first experience of thematic analysis, it was challenging at times to know if I was doing it 'right'. Being in this uncertain position encouraged me to be more aware of my own

bias, and hence demonstrated the importance of supervision and self-reflexivity when doing this sort of design and analysis.

Although the intervention was individual focused, I had a particular interest in organisational interventions. My clinical interest in systemic theories increased my curiosity about the impact of the context that staff work in. It is interesting to consider what findings and recommendations somebody with more interest in individual over organisational interventions might have found.

CRL

This was one of the projects I felt most passionate about throughout. I had heard endless stories from my medic friends, including *"and this is the cupboard you cry in".* I completed this review after I did my SIP, meaning I had more experience doing qualitative analysis and this really helped. I found some of the themes quite sad and it reinforced how privileged I am to be working in a profession which values social support, disclosure, and supervision (although we still do not always get it right).

MRP

This project was the most personal. It stemmed from observing members of my family expressing negative bias, such as *"they probably do that for everyone"* and *"there's no point",* whereas others did not. I also would often feel empathy for those whom I assumed to be lonely because they were alone and old. Whilst my grandfather would not say he was lonely and enjoyed connecting with others during the day, he would describe the sadness of reaching out in the night for my late grandmother's hand. Paired with the literature, this was part of my motivation for considering the different types of loneliness. The findings definitely challenged my own ageist view of loneliness being inevitable. We had originally considered adding a qualitative element to explore ageism, unfortunately, this was not feasible given the scope of the project.

This was truly a lovely and inspiring population to work with. I was so touched but also saddened by their comments of "*thanks for wanting to hear what I have to say",* and *"I'm not sure I'll be of any use".* There were some admittedly very sad expressions of loneliness, more in line with what I had expected, but these were the exception. In these cases, it was interesting being in a position of a researcher, rather than a granddaughter or psychologist, and supervision helped with this. I also feel incredibly lucky that despite recruiting an already isolated population during COVID-19, I managed to reach my adequate sample size remotely.

This project also provided further experiences. For example, consulting the public participation involvement group was inspiring, and their kind contribution provided invaluable insight into applying research to the over 80s. I also worked with and supervised two assistant psychologists which I enjoyed immensely, as well as being asked to create a video about my project for some local organisations.

General Reflections on the Process

My integrated thesis brings together different methodologies, each one better suited to answer my research question. I sought qualitative methodologies as I had no previous experience. Whilst learning about these methodologies and designing the projects at the same time led to difficult moments, it undoubtably increased the breadth of my research skills and confidence.

A key learning experience from this thesis was the shift from whether the findings are significant or not, to really understanding how well the study is set up to be able to answer a specific question, although this did initially elicit a tendency to focus only on the limitations rather than strengths.

I started this doctorate with a strong sense of weakness regarding research and academic writing. Throughout this thesis, I battled with the balance between there not necessarily being a 'right' way of doing research (as long as you can justify what you have done), but to some extent there is a 'wrong' way.

Whilst this whole process, from proposal approvals to the write ups, highlighted many things I found difficult, I surprised myself at my passion and excitement with my findings. Doing projects that had personal meaning certainly made me more vulnerable to feeling sad, however, this provided the motivation to continue to a high standard and drive to publish all three projects soon. I now look forward to doing more research in my career as a clinical psychologist.

Acknowledgements

Thank you to my supervisors, Reena, Helen, Kathryn, and Becci, for their initial discussions to shape the projects, teaching, and feedback. I also thank them for their guidance during the more difficult moments including my self-doubt and sense of being overwhelmed and tired.

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My course tutor, Craig, for providing a regular space for me to reflect on the process of doing this doctoral research whilst 'spinning plates', and the encouragement to keep doing what I was doing.

My dear friend, Lily, for her time proof reading and for taking the time to explain why things need to written in a certain way.

My friends who are doctors for patiently getting me up to speed on the foundation programme. junior doctor training pathways, and the associated jargon. I also thank them for sharing their experiences with me, and for their thoughts on my CRL design and write up.

I thank all the kind participants who graciously gave up their time to take part in my research, and the people who helped me with recruitment. In my MRP, I was touched by the enthusiastic sharing of my recruitment resources and passionate messages of encouragement.

Despite COVID-19 keeping us apart, I thank my DClinPsych cohort and friends for being there along for the process, answering the 'silly' questions, sharing passion about my projects, and, importantly, providing the needed validation and compassion when things were difficult.

And finally, my wonderful husband, George, for his insight on the process of PhDs, and supporting me on my own journey. I thank him for compassionately catching me on my wobbles and enthusiastically celebrating my highs. Thank you for supporting me to take breaks even when I resented you for them, helping me when the words made sense in my head but not on the page, and pointing out my learning and achievements. I could not have done it without you.

Appendices

Appendix A

CRL Full search strategy

1. Social support:
Exp Social support OR ((Support OR "social support") ADJ7 (colleague OR colleagues OR team OR collegial OR peer OR peers OR work OR co-worker OR co-workers OR organisational OR organizational OR collective) OR groups" OR "small group" OR "small groups" OR "small-group" OR "small-groups" OR forum OR forums OR debrief OR debriefs OR managers OR manager OR managerial OR confidant OR confidants OR buddy OR buddies OR mentor OR mentors OR mentoring OR mentee OR mentorship OR schwartz OR balint OR supervision OR supervisor OR "reflective space" OR reflective spaces OR "reflective group" OR "reflective groups" OR "tea and empathy" OR "tea & empathy")

2. Wellbeing:
Exp exp “Occupational Stress” OR exp Burnout OR ("work place stress" OR "work-related stress" OR "work related stress" OR "occupational stress" OR wellbeing OR well-being OR "well being" OR "mental health" OR "psychological health" OR resilience OR distress OR morale OR burnout OR burn-out OR "burn out" OR depersonalisation OR depersonalization OR "emotional exhaustion")

3. Doctors:
Exp Physicians OR (doctor OR doctors OR medic OR medics OR physician OR physicians OR surgeon OR surgeons OR psychiatrist OR psychiatrists OR registrar OR registrars OR "senior house officer" OR "senior house officers" OR SHO OR GP OR "general practitioner" OR "general practitioners").

Note. Doctors was initially kept broad and then manually screened for ones related to trainees to avoid the search being too narrow.

4. UK/NHS:
England OR English OR Wales OR Welsh OR Scotland OR Scottish OR Scots OR Ireland OR irish OR GB OR NHS OR "National health service" OR London OR Liverpool OR Oxford) OR “british medical journal" OR BMJ OR "The Lancet" OR "future health journal" OR "clinical medicine")

Note. Some key UK cities were included, as well as some British medical journals to overcome limitations of some studies not referring their location or naming the NHS in their abstracts.

(Combine: 1 AND 2 AND 3 AND 4)

Appendix B

CRL Quality Appraisal Template and Rating Cut-offs

Following Critical Appraisal Skills Programme (CASP, 2018)

		HINT: Consider	Yes = 2 *(meets all bullet point criteria)* Partly = 1 *(meets some bullet point criteria but not all)* No = 0 *(does not meet any requirements/ can't tell)*	Score: 0/1/2
A. Are the results valid?	1. Was there a clear statement of the aims of the research?	• What was the goal of the research? • Why it was thought important? • If they discuss its relevance?	Yes / Partly /No Comment:	
	2. Is a qualitative methodology appropriate?	• If the research sought to interpret or illuminate the actions and/or subjective experiences of research participants? • If qualitative research was the right methodology for addressing the research goal?	Yes / Partly /No Comment:	
	3. Was the research design appropriate to address the aims of the research?	• If the researcher justified the research design (e.g. have they discussed how they decided which method to use)?	Yes / Partly /No Comment:	
	4. Was the recruitment strategy appropriate to the aims of the research?	• If the researcher explained how the participants were selected? • If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study • If there were any discussions around recruitment (e.g. why some people chose not to take part)?	Yes / Partly /No Comment:	

	5. Was the data collected in a way that addressed the research issue?	• Was the setting for the data collection was justified? •Was it clear how data were collected (e.g. focus group, semi-structured interview etc.)? • If the researcher justified the methods chosen? • If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)? • If methods were modified during the study. If so, has the researcher explained how and why? • If the form of data is clear (e.g. tape recordings, video material, notes etc.)? • If the researcher has discussed saturation of data?	Yes / Partly /No Comment:	
	6. Has the relationship between researcher and participants been adequately considered?	• If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location? • How the researcher responded to events during the study and whether they considered the implications of any changes in the research design?	Yes / Partly /No Comment:	
B. What are the results?	7. Have ethical issues been taken into consideration?	• If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained? • If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)?	Yes / Partly /No Comment:	

		• If approval has been sought from the ethics committee?		
	8. Was the data analysis sufficiently rigorous?	• If there is an in-depth description of the analysis process? • If thematic analysis is used. If so, is it clear how the categories/ themes were derived from the data? • Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process? • If sufficient data are presented to support the findings? • To what extent contradictory data are taken into account? • Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation?	Yes / Partly /No Comment:	
	9. Is there a clear statement of findings?	• If the findings are explicit? • If there is adequate discussion of the evidence both for and against the researcher's arguments (strengths and weakness)? • If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst? • If the findings are discussed in relation to the original research question?	Yes / Partly /No Comment:	

C Will the results help locally?	10. How valuable is the research?	• If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research based literature ? • If they identify new areas where research is necessary • If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used? *(relating back to the study sample characteristics)*	Yes / Partly /No Comment:	

Richness		Thin: • Limited description of how the intervention was carried out • Limited comments on, or discussion of, the ways in which factors associated with the intervention may have influenced the reported results • Reference to implementation or process issues but little/no detail presented in published report, and no supporting data. Thick: • More detailed description of the intervention • More consideration of the context within which the intervention was being evaluated (including characteristics of the sample) • Some discussion of the discrepancy between the design and orientation of an intervention and its implementation in a 'real life' setting. • Recognition, and some discussion, of the strengths and weakness of the intervention • Some attempt to explain anomalous results and findings within reference to context and to data. • More detailed descriptions of the factors affecting implementation	Thick/ Thin Comment:	
Relevance	High Medium, Low	High: Paper is specifically related to exploring and discussing the role of social support on junior doctor's mental health/wellbeing. Medium: There is a more general focus to the paper but some of the findings are directly related to the role of social support and wellbeing/mental health.	High/ Medium/ Low Comment:	

		Low: Some findings are reported but are not the main focus of the paper		
CASP score: /20 *0-10 Low* *11-15 Medium* *16-20 High* Relevant score: Richness score:				

Appendix C

CRL Relevance Criteria

Developed from (Evans et al., 2019).

High: Paper is specifically related to exploring and discussing the role of social support on junior doctor's mental health/wellbeing.

Medium: There is a more general focus to the paper but some of the findings are directly related to the role of social support and wellbeing/mental health.

Low: Some findings are reported but are not the main focus of the paper

Appendix D

CRL Richness Criteria

Developed from Roen, Arai, Roberts, and Popay (2006).

Thin:
• Limited description of how the intervention was carried out
• Limited comments on, or discussion of, the ways in which factors associated with the intervention may have influenced the reported results
• Reference to implementation or process issues but little/no detail presented in published report, and no supporting data.

Thick:
• More detailed description of the intervention
• More consideration of the context within which the intervention was being evaluated *(including characteristics of the sample)*
• Some discussion of the discrepancy between the design and orientation of an intervention and its implementation in a 'real life' setting.
• Recognition, and some discussion, of the strengths and weakness of the intervention
• Some attempt to explain anomalous results and findings within reference to context and to data.
• More detailed descriptions of the factors affecting implementation

Appendix E

CRL and SIP Journal of Occupational and Organizational Psychology Author Guidelines

AIMS AND SCOPE

The *Journal of Occupational and Organizational Psychology* **aims to increase understanding of people and organisations at work including:**

- industrial, organizational, work, vocational and personnel psychology
- behavioural and cognitive aspects of industrial relations
- ergonomics and human factors
- industrial sociology

Innovative or interdisciplinary approaches with a psychological emphasis are particularly welcome. So are papers which develop the links between occupational/organisational psychology and other areas of the discipline, such as social and cognitive psychology.

MANUSCRIPT CATEGORIES AND REQUIREMENTS

We welcome the following varieties of paper:

- empirical research papers, containing new quantitative or qualitative data which address significant theoretical and/or practical concerns;
- papers which offer new theory and conceptualisation, perhaps accompanied by a critique of existing approaches;
- narrative and/or quantitative reviews of existing research which lead to new conclusions or insights into a field of research and/or practice (all systematic reviews must be pre-registered);
- prescriptive articles advocating changes in research paradigms, methods, or data analytic techniques;
- analyses of practice in occupational and organizational psychology, where such analyses are driven by theory and/or sound data.

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. The 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

Free Format Submission

Journal of Occupational and Organizational Psychology now offers free format submission for a simplified and streamlined submission process.

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. 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.
- The title page of the manuscript, including a data availability statement and your co-author details with affiliations. *(Why is this important? We need to keep all co-authors informed of the outcome of the peer review process.)* You may like to use this template for your title page.

Important: the journal operates a double-blind peer review policy. Please anonymise your manuscript and prepare a separate title page containing author details. *(Why is this important? We need to uphold rigorous ethical standards for the research we consider for publication.)*

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.

Authorship

Please refer to the journal’s Authorship policy in the Editorial Policies and Ethical Considerations section for details on author listing eligibility. When entering the author names into Editorial Manager, the corresponding author will be asked to provide a CRediT

contributor role to classify the role that each author played in creating the manuscript. Please see the Project CRediT website for a list of roles.

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.

Practitioner Points

All articles must include Practitioner Points – these are 2-4 bullet points, following the abstract, with the heading 'Practitioner Points'. These should briefly and clearly outline the relevance of your research to professional practice. (The Practitioner Points should be submitted in a separate file.)

Main Text File

As papers are double-blind peer reviewed, the main text file should not include any information that might identify the authors.

The main text file should be presented in the following order:

- Title
- Main text
- References
- Tables and figures (each complete with title and footnotes)
- Appendices (if relevant)

Supporting information should be supplied as separate files. Tables and figures can be included at the end of the main document or attached as separate files but they must be mentioned in the text.

- As papers are double-blind peer reviewed, the main text file should not include any information that might identify the authors. Please do not mention the authors' names or affiliations and always refer to any previous work in the third person.
- The journal uses British spelling; however, authors may submit using either option, as spelling of accepted papers is converted during the production process.

References

References in published papers are formatted according to the Publication Manual of the American Psychological Association (6th edition). However, references may be submitted in any style or format, as long as it is consistent throughout the manuscript.

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).

Appendix F

SIP Thematic Analysis Process in all Phases

Thematic analysis was used to analyse the qualitative data in all phases of this study. Braun and Clarke's (2006) approach with six phases was followed. The process was dynamic, with the researcher moving between phases to review. The phases are detailed below. As can be seen, triangulation was sought at various stages given the subjective nature of such analysis, and the first author' extensive role in developing the research question, recruitment and data collection.

Phase 1: familiarising yourself with your data	The author transcribed the data and re-read transcripts.
Phase 2: generating initial codes	Transcripts were analysed separately. The process was data driven using an inductive process, meaning that all data were reviewed with full and equal attention, and coding was not completed in relation to the evaluation aims or a specific theoretical framework given there is little previous data on this. Triangulation was obtained from a randomly selected (random number generated) interview to be re-read and coded by a member of the research team. There were few disagreement, and consensus was reached through discussion among the raters, with no significant omissions.
Phase 3: searching for themes	Codes (subthemes) were then sorted into potential higher-order themes, creating categories from common patterns and dissimilarity. Extracts were collected for each code. Themes were based on the frequently but also power in relation to the question. Although the themes may have been influenced by the primary research questions held in mind, no pre-existing theories or coding frames were used (again, due to limited previous data on this). Triangulation was completed at this stage by a member of the research team reading a randomly selected (number generation) extract of the transcripts to identity potential themes. Disagreements were discussed and a census reached. Themes suggested were not dissimilar.

Phase 4: reviewing themes	The themes were reviewed to check whether their meaning made sense in relation to the data set and questions. The coding and extracts were re-visited to check how well the themes related to the data, and to allow additional data within themes to be coded if missed in earlier stages.
Phase 5: defining and naming themes	Triangulation was also sought here as two other members of the research term supported in defining and renaming themes, and identified that the quotes were congruent with the themes.
Phase 6: producing the report	Finally, the write up began, using with verbatim quotes selected based on their ability to portray meaning, reflect the grounding across a range of papers, and to depict conflicting data.

However, whilst triangulation was sought to acknowledge and reduce potential bias from the first author, this was completed by the authors who had also facilitated the intervention as well as been involved in the development of the evaluation. Thus, it is important to also consider their bias in their interpretation. This decision was made due to the time scale and resources at the time, and there was reflective discussion around this in response. However, using independent second-raters may had led to different results. The first author, like most of the sample, was female and white-British. It is interesting to consider what themes a more diverse sample, in terms of gender and ethnicity, might have been reported or not reported. It may also have been useful to feed the final themes back to the participants for their views.

Appendix G

SIP Stress Lead from the Trust Wellbeing Department Interview

At the time that the intervention was requested, trust-wide support included work-related counselling from occupational health, spiritual and pastoral care, freedom to speak up, access to support through fair treatment at work or through equality, diversity and inclusion, wellbeing champions, and the development of Schwartz Rounds. The trust was also in the process of commissioning an employee assistance programme.

Within each service, staff received peer clinical (every 8 weeks), management (every 4 weeks) and safeguarding supervision. The trust has had team stress assessments for instances when there were difficulties within specific teams.

In terms of interventions, some money to the health and wellbeing budget had been used to facilitate some mindfulness courses and to train some staff in mindfulness. Other resilience interventions were being done at local team/directorate levels. However, these was not evidenced-based, information and good practise was not shared, and there was no formal recording of outcomes. Resilience was a “buzz” work.

The wellbeing department’s focus was on having a proactive approach. This included developing frameworks and strategies to change the culture regarding bulling. There was also a drive to take away the individual blame and responsibility towards wellbeing, thinking instead about behaviours modelling by managers, and ensuring there was enough support and knowledge for managers.

Appendix H

SIP Resilience Workshop Outlines

The resilience intervention was delivered across 2 half day group workshops. There was a mix of dyadic teaching, large and small group discussions, and individual time to complete resilience plans to take away. The intervention workshops were facilitated by the authors, excluding the first author.

The aim of the training was for it to be preventative.
"You wouldn't wait to be thrown overboard in a storm to learn to swim".
The resilience training was not about enduring more and more.
It's about coping with the challenges encountered through recognition, reflection and responses

The first session focused on:

Individual and systemic demands and challenges at work
- E.g. From the emotional impact, to the current economic climate
- There was a pair/ larger group exercise to think about these

The impact on our wellbeing, including:
- Information about occupational stress
    - What is it and what is our body's response?
- Introduced the 'old brain' and 'new brain'
    - Our new brains can keep the threat going
- The dangers of long-term stress (e.g. burnout) if we're unable to switch off the threat system and don't attend to our soothing system.
- There was time to think about this alone and in a large group about how you notice your own stress, the impact and how you cope

The concept of resilience and its domains were introduced:
- Optimism
- Facing fear
- Moral compass
- Religion/spirituality
- Social support
- Role models
- Physicality
- Brain fitness
- Cognitive and emotional flexibility
- Meaning, purpose and grown

Strategies for resilience

- An exercise thinking about your own resilience and strategies, followed by sharing this in pairs

Three circles
- Information given about drive, threat and soothe systems.
- Exercise to think about what you find soothing, threatening and gives you a sense of purpose

Compassionate Mind
- Introduced the idea of having a compassionate inner self
- Exercise on imaging your own critical self-talk about having done something wrong

Mindfulness
- 5 senses mindfulness exercise.

Homework – made a personal plan to take something away to work on.

The second session focused on:

First session recapped

Exercise on how things had been for you during that week

Overview of ways to build resilience

Using Mindfulness to strengthen resilience
- Relating this to work: 'Being and Doing'
- Linking this to the soothe system
- Ways of doing mindfulness – 'one-minute mediation' and '5-finger breathing'

Using Compassion to strengthen resilience
- Recapped the three circles and Gilbert's work
- Exercise thinking about these systems in relation to work
- Thinking more about what compassion means
- How to develop the soothe system
- Soothing breathing exercise
- 'Me at my best' exercise
- Using the 'compassionate mind' – self-compassion

Developing personal resilience plans
- Time to finish it
- Discussion about whether to share it and with whom

Resilience in organisations

- Communication styles
- Supportive nurturing relationships
- Working within a team versus lone working
    - Exercise working in small teams discussing ideas

Final reflections

Appendix I

SIP Psychometric Properties of Measures in Phase Two

The Connor-Davidson Resilience Scale 10-item (Campbell-Sills & Stein, 2007; CD-RISC-10) consists of 10 items related to resilience, scored on a scale of 0-4 (0 = not true at all, 4 = true nearly all of the time). The total score is out of 40 where higher scores indicate higher resilience. This measure has not been validated in a UK sample, however, the CD-RISC showed good internal consistency and construct validity to assess reliability in American undergraduate samples (Campbell-Sills & Stein, 2007) and in Chinese employees (Wu, Tan, & Liu, 2017).

The Perceived Stress Scale (Cohen et al., 1983; PSS-10) is used as a measure of how situations in an individual's life are appraised as stressful. As a trait measure, it asks about how often an individual has experienced certain thoughts or feelings within the last month. 10 items are scored on a scale of 0-4 (0 = never, 4 = very often). The total score is 40, with higher scores indicating higher perceived stress. This was validated in US undergraduate samples and demonstrated as a reliable and valid assessment of perceived stress (Roberti, Harrington, & Storch, 2006). The PSS-10 was found to be valid and reliable in one working population; however this was translated into French (Lesage, Berjot, & Deschamps, 2012).

Appendix J

SIP Statistics from Exploration of Assumptions in Data

Testing normal distribution of baseline resilience and perceived stress variables, split between those who completed and those who dropped out

Variable	Completion	M (SD)	Trimmed mean	Range	Skewness Z score	Kurtosis Z score	Shapiro-wilk statistic	df	*p*	Histogram P-P plot
Resilience1	Completed (N = 162)	26.95 (4.70)	27.01	15 - 39	-1.29	0.7	.98	162	.032*	fine
	dropped out (N= 21)	25.86 (5.21)	25.79	17 - 36	0.19	-0.69	.98	21	.85	fine
Perceivedstress1	Completed (N = 162)	16.43 (5.97)	16.42	2 - 31	-0.15	-0.73	.99	162	.50	fine
	dropped out (N = 21)	15.76 (5.34)	15.84	4 - 26	-0.27	-0.09	.98	21	.96	fine

Testing normal distribution of baseline resilience and perceived stress variables of entire sample who attended workshop 1 with available data for correlation analysis.

Variable	N	M (SD)	Trimmed mean	Range	Skewness Z score	Kurtosis Z score	Shapiro-wilk statistic	*df*	*p*	Histogram/P-P plot
Resilience1	183	26.83 (4.76)	26.87	15 - 39	-1.17	0.23	.985	183	.05*	fine
Perceived stress1	183	16.43 (5.97)	16.42	2 – 31	-0.16	-0.75	.992	183	.47	fine

Testing normal distribution of resilience and perceived stress variables pre and post intervention

Variable	N	M (SD)	Trimmed mean	Range	Skewness Z score	Kurtosis Z score	Shapiro-wilk statistic	df	*p*	Histogram/P-P plot
Resilience1	105	27.17 (4.53)	27.31	15 - 37	-2.33*	1.34	.96	105	.004*	fine
Resilience 4	105	27.77 (5.04)	27.89	11-38	-1.85	1.84	.97	105	.03*	fine
Perceived stress1	105	16.43 (5.97)	16.42 (5.4)	2 – 29	-.85	-0.47	.99	105	.38	fine
Perceived Stress 4	105	16.83 (5.65)	16.84	2-31	-.29	-.77	.98	105	.24	fine

Appendix K

SIP Tables with Percentages for Workshop Feedback Ratings

Number and percentages for ratings given to feedback question 1 “Overall, how satisfied or dissatisfied were you with this workshop?” for both workshops.

	N (%) Slightly dissatisfied	Neither satisfied nor dissatisfied	Slightly satisfied	Moderately satisfied	Extremely satisfied
Workshop 1 N = 161	2 (1.2)	4 (2.5)	9 (5.6)	84 (52.2)	62 (38.5)
Workshop 2 N = 93	0	9 (9.7)	8 (8.6)	(50.5)	29 (31.2)

*Percentages calculated on those who provided data, those missing data were excluded.

Number and percentages for ratings given to feedback question 2“How would you rate the presentation of the workshop?” for both workshops.

Timepoint	N (%) Not good at all	Some areas need attention	Moderate	Good	Extremely good
Workshop 1 N = 161	1 (.6)	1 (.6)	7 (4.3	76 (47.2)	76 (47.2)
Workshop 2 N = 93	0	1 (1.1)	8 (8.6)	46 (49.5)	38 (40.9)

*Percentages calculated on those who provided data, those missing data were excluded.

Number and percentages for ratings given to feedback question 3 “How would you rate the workshop content?” for both workshops.

	N (%) Not good at all	Some areas need attention	Moderate	Good	Extremely good
Workshop 1 N = 161	0	1 (.6)	10 (6.2)	92 (57.1)	58 (36)
Workshop 2 N = 93	0	1 (1.1)	16 (17.2)	47 (50.5)	29 (31.2)

*Percentages calculated on those who provided data, those missing data were excluded.

Appendix L

SIP Phase Three Consent Form with Information, and Interview Prompts

CONSENT FORM

Collecting more feedback on the resilience workshops run between 2018-2019.

Study summary:
Two half day workshops on resilience were run throughout 2018-2019 by Dr Kathryn Evans, Dr Reena Vohora, Dr David Dean and Dr Nargis Islam (Oxford Institute of Clinical Psychology Training and Research; OXICPT-R) for staff within the Children and Young People's directorate of Oxford Health NHS Foundation Trust.

As part of evaluating this workshop, we want to collect further feedback in face to face interviews. We will ask questions related to your thoughts about the workshop, what you may have found was helpful or unhelpful, if you think the workshop could be improved and how, and whether there were factors that either supported or made it difficult to implement the learning from the workshop into your everyday working day? (both individual and organisational factors).

You may stop this interview at any point without there being any consequence. The data will not be used if you request so. You may ask for your data to be withdrawn from the analysis until two weeks after the interview. After this it will not be able to be withdrawn due to the process of writing up the analysis of the themes.

This information will be written up as part of the evaluation of the project and shared with the director of the service. It will also form part of the researcher's doctorate dissertation and could be put forward for publication.

The interview will be recorded for the themes to be analysed. This will be kept on an encrypted device and stored securely on a password protected Oxford health NHS Foundation Trust computer. Demographics of those who take part in the interviews (i.e. age, profession, time in service, time since qualified) will be summarised in the write up but no names or localities will be mentioned. Quotes may be provided throughout the report but these will be anonymised, thus your identity will not be evident from the quotes used.

Please ask the researcher if you have any further questions. Then, if you are happy to continue, please read and complete the consent form below. Thank you.

Name of Researcher: *If you agree, please initial box*

1. I confirm that I have read the information sheet for this study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason prior to data being analysed.	
3. I understand that the interview will be audio recorded and I agree to this.	
4. I understand that anonymised quotes may be used in the report provided to the service director, research reports and/or publications.	
5. I agree to take part in this study.	

Phase Three Semi-structured Interview Prompts

- **Prior to attending the training, what was your understanding of the concept of 'resilience'?**
  - Is resilience a useful concept?
  - Does the concept make sense?
  - Understanding of CFT and applying this?
  - What are people's thoughts about the domains of resilience?
  - Which areas of the training have captured people the most that have led to action?
  - Were there any changes in your understanding of the concept of 'resilience' over the course of the training?
- **How did you feel about attending the resilience workshops?**
  - Was your attendance mandatory for you to attend?
- **Are there any concepts from the training that particularly fit with your life (at home and at work)?**
  - How did you take these forward/implement them?
  - Was there anything that made this easier/more difficult to implement?

_____	_____	_____
Name of Participant	*Date*	*Signature*
_____	_____	_____
Name of Person taking Consent	*Date*	*Signature*

  - Consider individual and team
- **Were there any ideas that were less useful from the training?**
  - Why do you think that this was?
- **Can you tell me about anything that you might have done *personally* as a result of the training?**

- Carried on?
- Started up?
- Impact on self?
- Impact on team/service?
- Use of personal resilience plan?

- **Was there anything that helped you to keep 'x' going (personally)?**
  - Who helps you to do this? (Internally held or supported by others?)
- **Was there anything that made keeping 'x' going more difficult (personally)?**
- **Can you tell me about anything that you might have done at work as a result of the training?**
  - E.g. team or with a colleague or individually
  - Carried on?
  - Started up?
  - Impact on self?
  - Impact on team/service?
- **Was there anything that helped you to keep 'x' going (team based)?**
  - Who helps you to do this? (Internally held or supported by others? Immediate team and wider service?)
  - Supervision, PDRs, language used in the team?
- **Was there anything that made keeping 'x' going more difficult (personally)?**

- **Was there anything that wasn't covered in the training that you think may have been helpful?**
  - E.g. thoughts about future training?
- Who do think should attend this training?

- **What were your thoughts on the format of the training?**
  - E.g. two sessions, length of time between
- **Is there anything else that you would like to add?**

Appendix M

SIP Service Feedback from the Facilitators

This was collected by email from two of the facilitators in response to specific open questions:

- How well do the outcomes (qualitative and quantitative) of the intervention fit alongside your hopes and initial impressions of the intervention?
- Did any of the themes surprise you?
- What are the benefits to this project?
- From the results, if you were to do this intervention again, would you change anything?
- Is there anything else that you think might be helpful to include?

Both facilitators were pleased that a significant negative relationship between perceived stress and resilience was found as this supported the rationale for a resilience-focused intervention for staff wellbeing. While the facilitators expressed some sense of disappointment that there were not significant changes in scores following the intervention, they felt that it had met their initial aims to *"offer some new skills and understanding about resilience for staff to manage the pressures of work and life as well as growing opportunities to develop a culture of supporting well-being and resilience within teams".* The intervention was seen as a "*starting point"* to encourage the importance of considering resilience. The facilitators described the feedback from this project to have emphasised the important role of the *"wider team, service and organisational demands and culture of working in the NHS",* rather than just a focus on individuals. They also noticed an empathises on the practical factors affecting staff which, they too as NHS staff, face in their daily roles.

Both facilitators found the link between age, time in service and resilience interesting as this was evident in the room during the intervention, whereby more senior staff *"shared more experiences and modelled coping within the group".* The facilitators were not surprised by the themes and found them interesting. The facilitators particularly enjoyed reading the feedback on how staff found ways to support each other.

The facilitators viewed this service-improvement project as something that adds to the evidence-base for resilience interventions for NHS staff, emphasising the required balance between individual and team-based approaches. The feedback and recommendations provide guidance for the planning of future interventions.

If the facilitators were to re-run the intervention, they would consider *"not mixing teams where possible, holding a separate training for managers and service leads, more time for sustaining and supporting resilience within the team culture".* The second facilitator elaborated on this final point, suggesting a further consideration of how to build on resilience and to keep it *"on the agenda"* in teams, such as through supervision or team training days. One facilitator also reflected on how they would think further about how to support staff with the everyday demands and structures at work; this linked to supporting and involving managers. Both facilitators also spoke about wanting to think further in future interventions about attendee's attitudes and expectations, particularly in relation to the intervention being linked to not coping.

Overall, the facilitators were pleased with this project for its evaluation and recommendations on the service that they provided to the Child and Young People's Directorate of Oxford Health NHS Foundation Trust (CYPOX) in the form of the resilience intervention.

Appendix N

SIP Lay Summary given to CPYOX service

What was this project about?

- In 2018, the service-director of the Child and Young People's Directorate of Oxford Health NHS Foundation Trust requested resilience training for staff.

- Two half-day workshops were provided and evaluated by the Oxford Institute of Clinical Psychology Training and Research (OXICPT-R) team.

- Resilience was understood as a process of increasing a person's awareness of their emotional experiences during difficult moments, and becoming aware of possible strategies to help with wellbeing both at home and at work. There was also a proactive aim of recognising triggers and early warnings signs to avoid burnout.

- Around 200 staff completed the training. Attendees included health visitors, school nurses, clinical child nurses, safeguarding nurses, looked after children nurses, integrated therapists, and administrative staff.

What did we (OXICPT-R) want to know and how we did do it?

1. What was happening in the service when the training was requested? We spoke with the service-director and operational team about this.

2. Was the training helpful? We looked at the responses on questionnaires on resilience and perceived stress completed before and after the training and the feedback given by staff.

3. Were staff able to use the strategies at work, and what helped? We met with seven staff from various teams who had attended the training.

What did we find?

Part 1 (*before the training)*

<u>There were a range of things that contributed to staff feeling stressed at work:</u>

- Staff were working with complex cases with children involving bereavement.

- Staff had to manage saying goodbye to families and moving on after developing relationships with them.
- There were some practical challenges identified. For example, parking, hot desking, staff vacancies and KPI targets.
- These problems were not likely to change as they were linked to the nature of the job, and given the financial constraints within the NHS.
- The service-director was aware of this and wanted to help staff to maintain well-being and cope in these difficult moments.

Part 2 (*the training itself)*

- Scores. Before the intervention, the higher a person scored on a measure of resilience, the lower they rated their level of stress. Therefore, resilience and perceived stress appear to be inversely linked.
- Self-ratings of resilience and perceived stress did not significantly change after the training.
- Even so, staff said that they liked the training and found it helpful.

- The training helped attendees to:
    - Understand the theory behind resilience.
    - Learn and practise strategies relating to resilience, self-compassion, and mindfulness.
    - Understand emotional experiences during difficult moments and become aware of triggers.
    - Build resilience as individuals and as a team, and develop team relationships via discussion.

- What was less helpful?
    - Some staff reported practical problems with parking and location of the training.
    - Some were already familiar with some of the content due to the nature of their jobs.
    - Some felt the training was not the appropriate resolve to staff stress.

Part 3 (*applying the training)*

Several months on, the learning was used well at work.

- Individual examples:
    - Some staff were felt more able to identify and discuss stress in supervision.
    - Taking moments to ‘pause’ at work.
- Team examples:
    - Staff were eating and exercising together at work.
    - Compassionate acts towards others in times of need.

- Change in team culture: Resilience viewed as important and regularly spoken about.
- Staff were encouraging and supporting each other to use strategies at work.

<u>What helped staff to apply the learning from the training whilst at work?</u>
Individual level:

- Knowing when, why, and which strategies to use: recognising own emotional response.
- Thinking positively about resilience: Seeing it as a helpful intervention and a sign that the organisation had listened to staff's concerns.
- Having the time to use the strategies and practising them regularly.
- Proactively scheduling in activities into calendar and doing these away from the office environment.

Team/service level:

- Resilience being a team effort. Peer encouragement to use strategies and/or doing them together.
- Building strategies in proactively within the day, e.g., in team meetings.
- Feeling 'allowed' to use strategies without judgement: Team culture of seeing regular resilience strategies as working well, not 'weak' or 'lazy'.
- Wellbeing champions keeping resilience on the agenda, setting challenges and rewards.
- Time for team reflection discussions.
- The support of managers in creating a positive environment which helped staff to use the strategies (encouragement and praise).

<u>Recommendations made to the Trust to consider:</u>

- Offer proactive regular resilience interventions to all staff:
  - To create a sustainable culture of resilience as the norm and shared knowledge in teams.
  - This to be introduced with clear rational for the intervention in context of the difficult situation.
  - Team-specific follow-up interventions to be offered to sustain gains.

- Managers to receive complimentary training by the Trust to create environments compatible with resilience, including a culture of permission to use strategies and protected time to do so.

What are the implications of this project?

- The main outcome of this project is the idea that although it is evidently important and helpful for individuals to develop personal strategies through such resilience training, the NHS as an organisation also needs to create a work environment to help staff to use resilience strategies.

- This project provides recommendations for future NHS staff training. These recommendations will help to make sure staff not only find the intervention helpful but are able to apply and maintain the strategies at work.

Thank you to all who kindly took part.

Appendix O

MRP Study Recruitment Poster

Title: Appendix B Poster for telephone data collection Version 3: Date: 16.12.2020
Understanding how people over 80 years of age experience loneliness
CI: Reena Vohora REC Reference number: R70900/RE003



Jessica Hilton
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07340201452 jessica.hilton@hmc.ox.ac.uk
Supervised by Dr Reena Vohora reena.vohora@hmc.ox.ac.uk
01865 226431

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Are you over the age of 80 years?

Can you help us? Would you be interested in taking part in a research study?

We know that many people may experience loneliness, however, we would like to learn more about this. We would like to explore the experience of loneliness in people over the age of 80 years in particular. We are interested in hearing from both people who feel lonely and those who do not.

Participating in the research will involve a session with the researcher by telephone to complete some questionnaires. This will last around an hour.

One of these will ask you to look at common scenarios and tell us what you would think in that situation. There will also be some questions about your mood, social relationships, living situation and physical health. There are no right or wrong answers.

To take part, you must be 80 years old or over, read and speak English, and have an Oxfordshire, Buckinghamshire or Berkshire postcode.

Unfortunately, you will not be able to take part if you have a diagnosis of dementia, psychosis, bipolar or personality disorder, or if you live in a nursing home (this is when you require complex medical care).

Can you help us? Please contact us to find out more:
jessica.hilton@hmc.ox.ac.uk or call 07340201452

Appendix P

MRP Easy Read Information Sheet

The Oxford Institute of Clinical Psychology Training and Research
University of Oxford, Isis Education Centre, Warneford Hospital, Oxford, OX3 7JX

Jessica Hilton (main researcher). jessica.hilton@hmc.ox.ac.uk 07340201452
Dr Reena Vohora (supervisor) reena.vohora@hmc.ox.ac.uk. 01865 226431

Participant Information Sheet for telephone data collection

Understanding how people over 80 years of age experience loneliness.

What is this study about?



This study will be exploring the experience of loneliness in people over the age of 80 years.

We are trying to understand whether different factors may be associated with whether a person is more or less likely to experience loneliness.

We know that experiencing loneliness can be a detrimental to a person's wellbeing. It is thought to be common in people over the age of 80, however there is little research on this age group. It is important to explore this to improve interventions (and/or support) for loneliness.

Who can take part in the study?

People who:

- ✓ Are over the age of 80 years
- ✓ Can speak and read English
- ✓ Do not have a known diagnosis of dementia
- ✓ Do not have a known diagnosis of a psychosis, bipolar or personality disorder.
- ✓ Have an Oxfordshire, Buckinghamshire or Berkshire postcode
- ✓ Do not live in a nursing home (where complex medical care is required)

What will I do if I take part?



- A researcher will phone you to complete some questionnaires.



- You will be asked questions relating to your mood, physical health and social relationships.
- You will also be asked to imagine yourself in certain situations and think about how you would respond.



- The questionnaires will be read out to you and can be repeated.



- This will last around an hour. You can take breaks when needed.

Do I have to take part?

- No, there is no pressure to take part
- You do not have to do this study. It is your choice.
- Taking part, or not, will not change the support you get from services.

Can I change my mind?



- Yes.
- You can change your mind at any time when we talk. We will stop talking and your data will be deleted/removed from the study.
- You do not have to tell me why you want to stop.
- After we talk you will have 4 weeks when you can still change your mind. After four weeks, you will not be able to remove your data.

What happens to my information?

- Your answers will not have your name, address or date of birth on it.
- Your information will be kept private and safe.
- We will delete your name, email address and home address after 3 months
- We will delete your answers after 3 years.
- Only the research team will see your answers, not any NHS services.
- If I think you, or someone else, is not safe I will need to inform other relevant people. I will discuss this with you before sharing any information.



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Good things about taking part?

✓ You will be helping us to better understand loneliness.

Risks when taking part?

✗ Some people may feel sad or upset.
You can tell the researcher if you feel sad or upset and can take a break or stop. The research team members have experience of working with people when they are upset and can support you to get more help if you feel very upset.

What will you do with the results?

- I will write the results up as part of my doctoral research.
- I will send this to the University of Oxford.
- I will send it to a journal so other people can read about it.
- I can distribute the findings to community centres for you to see.

Who approved this study?

- The University of Oxford Central University Research Ethics Committee.

What if there is a problem?

- If you are not happy at any time please tell me.
- You can also speak to Dr Reena Vohora or Dr Becci Dow
- If you want to complain formally you can do this by contacting the Medical Sciences Interdivisional Research Ethics Committee. ethics@medsci.ox.ac.uk. Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD

Contact details

Main Researcher Jess Hilton (Trainee Clinical Psychologist)
Address: Isis Education Centre, Roosevelt Drive, Headington, Oxford, OX3 7JX.
Email: jessica.hilton@hmc.ox.ac.uk
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Supervisors

Dr Becci Dow (Clinical Psychologist) rebecca.dow@oxfordhealth.nhs.uk
Dr Reena Vohora (Clinical Psychologist) reena.vohora@hmc.ox.ac.uk
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Appendix Q

MRP Easy Read Debrief Sheet

The Oxford Institute of Clinical Psychology Training and Research
University of Oxford, Isis Education Centre, Warneford Hospital, Oxford, OX3 7JX

Jessica Hilton jessica.hilton@hmc.ox.ac.uk 07340201452
Dr Reena Vohora (supervisor) reena.vohora@hmc.ox.ac.uk. 01865 226431

Participant Debrief Sheet

Understanding how people over 80 years of age experience loneliness

Thank you!
We are very grateful of your participation. Thank you.

What was the study about?

In this study, we are trying to understand whether different factors may be associated with whether a person is more or less likely to experience loneliness.

We asked you a range of questions to help us to understand this. There was a questionnaire in which you had to imagine yourself in a certain situation. This was designed to explore whether the way a person interprets a situation impacts upon their experience of loneliness. Some research suggests that it is not solely the situation that can lead to loneliness, but also how one thinks about the situation.

Our study is looking into whether this is the case, and if this effect is over and above the other risk factors of loneliness (such as changes to physical health and social network).

We know that experiencing loneliness can be a detrimental to a person's wellbeing. It is thought to be common in people over the age of 80, however there is little research on this age group. It is important to explore this to improve interventions (and/or support) for loneliness.

Your contribution has helped towards a better understanding of loneliness.

Please remember:

- Your answers will not have your name, address or date of birth on it.
- Your information will be kept private and safe.
- You can ask for your data to be withdrawn up to 4 weeks after taking part.
- We will delete your name, email address and home address after 3 months.
- We will delete your answers after 3 years.
- Only the research team will see your answers, not any NHS services.
- If I think you, or someone else is not safe I will have to tell other people about this.

It is possible that you may have found some questions upsetting.
Please let us know if this is the case.

If you are concerned about your mental health, we encourage you to speak to your General Practitioner (GP) who can then refer you for further specialist help. This may include talking therapies.

You can also refer yourself for free NHS talking therapies online or by telephone.

Oxfordshire: TalkingspacePlus	www.oxfordhealth.nhs.uk/talkingspaceplus Telephone: 01865 901 222
Buckinghamshire: Healthy Minds	www.oxfordhealth.nhs.uk/healthyminds/ Telephone: 01865 901600
Or ask your GP to make the referral.	

If you are experiencing significant distress or suicidal thoughts:
We would suggest that you take this up with your GP.

If you need to speak to somebody now, you can call 111 or Samaritans 116 123.

If you should feel in immediate risk of harming yourself or someone else, we strongly recommend you visit your local A&E.

John Radcliffe Hospital Emergency Department	Headley Way, Headington, Oxford OX3 9DU
Horton General Hospital, Accident and Emergency Department	Oxford Road, Banbury, OX16 9AL
Stoke Mandeville Hospital Accident and emergency	Mandeville Road, Aylesbury, Buckinghamshire HP21 8AL

Samaritans Provides confidential, emotional support 24 hours a day, seven days a week, to those experiencing despair, distress or suicidal feelings.	 116 123  jo@samaritans.org  www.samaritans.org
Mind Produces information on mental health issues and gives details of local support services	 0300 123 3393 (text 86463)  www.mind.org.uk
Silverline The Silver Line is a free confidential helpline providing information, friendship and advice to older people, open 24 hours a day, every day of the year	 0800 470 8090  www.thesilverline.org.uk
SANE A leading UK mental health charity working to improve the quality of life for anyone affected by mental illness.	 0300 304 7000  www.sane.org.uk/

Age UK Provide a range of information guides and contacts for areas such as money/legal, wellbeing (including local social groups), care and support, travel and hobbies.	 0800 169 65 65  www.ageuk.org.uk
The Compassionate Friends Self-help organisation providing peer support and friendship to bereaved parents, grandparents and their families.	 0345 123 2304  www.tcf.org.uk
Cruse Bereavement Care Offers information, advice and support to bereaved people through a telephone helpline and face-to-face support.	 0808 808 1677  www.cruse.org.uk

What if there is a problem relating to this study? You can:

- Let the researcher know (details below)
- Speak to supervisors: Dr Reena Vohora or Dr Rebecca Dow (details below)

- If you want to complain formally you can do this too by contacting: *Medical Sciences Interdivisional Research Ethics Committee; University of Oxford. Email: ethics@medsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford, OX1 2JD*

Contact details

Researcher Jess Hilton (Trainee Clinical Psychologist)
Address: Isis Education Centre, Roosevelt Drive, Headington, Oxford, OX3 7JX.
Email: jessica.hilton@hmc.ox.ac.uk
Telephone: 07340201452



Supervisors
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Dr Reena Vohora (Clinical Psychologist) reena.vohora@hmc.ox.ac.uk
01865 226431

Appendix R

MRP De Jong Loneliness 6-item Scale

3-item emotional and social loneliness subscales indicated.

Title: Appendix J Study measures
Understanding how people over 80 years of age experience loneliness. Version2: date:28.10.2020
CI: Reena Vohora REC Reference number: R70900/RE001

Unique identifier:

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(The De Jong Gierveld 6-Item Loneliness Scale)

Ok, now moving on to some different questions. We would like you to please listen the following statements and indicate your agreement with the statement the relevant answer: Yes, more or less, or no. Yes would be this definitely true and happens all the time, more or less would be this is sometimes true and you sometimes experience this, no is this does not apply to you and is not something you experience.

When answering the questions, please consider:

- *There are no right or wrong answers*
- *We would like you to be completely honest*
- *When answering, it is best to think of your life as it generally is now (we all have some good or bad days)*

1. I experience a general sense of emptiness (EL_1)
   Yes (1) More or less (1) No (0)

2. There are plenty of people I can rely on when I have problems (SL_1)
   Yes (0) More or less (1) No (1)

3. There are many people I can trust completely (SL_2)
   Yes (0) More or less (1) No (1)

4. I miss having people around me (EL_2)
   Yes (1) More or less (1) No (0)

5. There are enough people I feel close to (SL_3)
   Yes (0) More or less (1) No (1)

6. I often feel rejected (EL_3)
   Yes (1) More or less (1) No (0)

Appendix S

MRP Loneliness Scale Principal Component Analysis

Given the unacceptable levels of Cronbach's alpha, a principal component analysis (PCA) was conducted on the 6-items with orthogonal rotation (varimax), using the Anderson-Rubin method, suppressing coefficient absolute values less than .4, and 30 maximum iterations for convergence (Field, 2009). The communalities of the variables included are overall rather low, with two emotional loneliness items (1 and 3) having a small amount of variance (35-37%) in common with the other variables in the analysis (Table 1). Whilst this may indicate that the variables chosen for this analysis are only weakly related with each other, the Kaiser-Meyer-Olkin measure verified the sampling adequacy required for the analysis (KMO = .66; 'mediocre'; Hutcheson & Sofroniou, 1999) and Barlett's test of sphericity X^2 (15) = 68.23, p <.001, indicating correlations between nevertheless items were sufficient large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data, two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 52.67% of the variance (Table 1). This was also supported by the Spree Plot (Figure 1). Thus, two components were taken forward in the analysis, and Table 1 shows the factor loadings after rotation. EL_2 related to 'I miss having people around me", likely impacted by COVID-19.

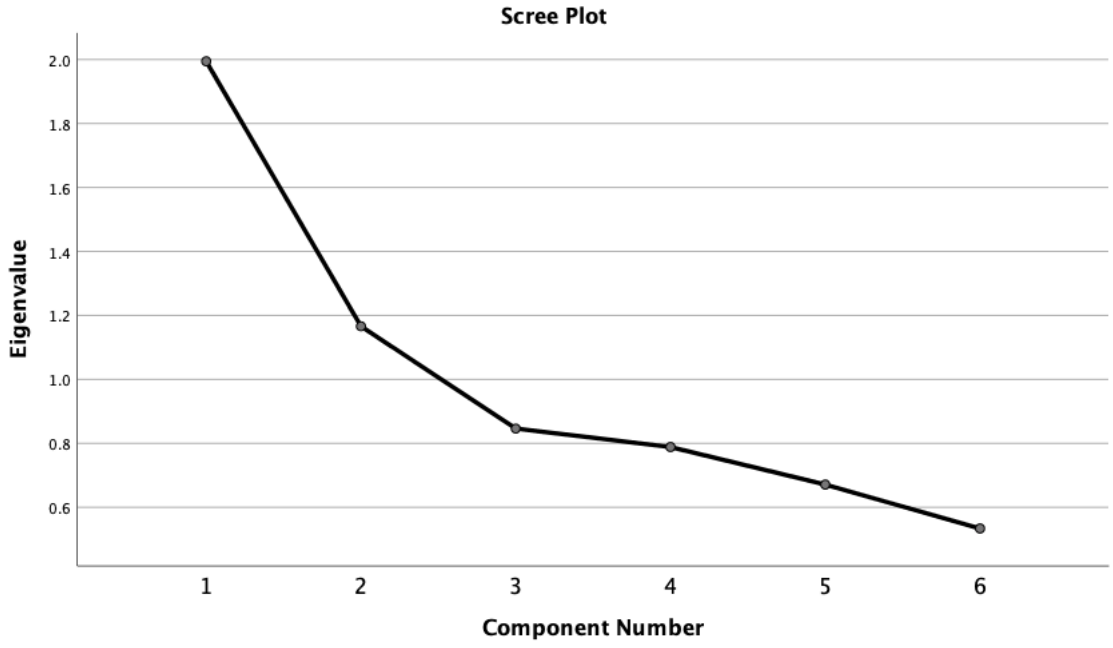
Table 1

Rotated Component Matrix from Principal Component Analysis on the 6-tiem Loneliness Scale, using Varimax Rotation Method with Kaiser's Normalization

Item	Component		
	1	2	Commonalties
SOCI1	**.66**		.45
SOCI2	**.66**	-.50	.69
SOCI3	**.66**		.47
EMOT3	**.61**		.37
EMOT1	**.54**		.35
EMOT2		**.90**	.82
Eigenvalue	2.0	1.17	
% of Total Variance	33.24	19.43	
Total Variance	33.24	52.67	

Figure 1

Spree Plot from Principal Component Analysis on the 6-tiem Loneliness



Appendix T

MRP L-CIB Ambiguous Scenarios Vignette (ASV)

Title: Appendix J Study measures
Understanding how people over 80 years of age experience loneliness. Version2: date:28.10.2020
CI: Reena Vohora REC Reference number: R70900/RE001

Unique identifier:

UNIVERSITY OF OXFORD

Ambiguous scenarios vignette

I am going to read out some scenarios and a choice of possible responses. For each one, I would like you to imagine yourself in that situation. Please choose the option that is most similar to what you would think if you were in that situation. Please ask me to repeat the questions or options as much as you need.

1. *Because you are in self- isolation you have to ask someone to shop for you. What are you most likely to think?*

1. It's fine to ask for help, I need this (1)
2. Being on my own makes it so difficult for other people, I shouldn't have to ask for help (3)
3. Even though I have to ask for help because I'm alone, I think they'll help me (2)

2. *You are walking alone along the village green appreciating the flowers. A group of people in front of you are looking towards you. What are you most likely to think?*

1. They think I'm odd for being on my own (3)
2. They might think I'm odd, but they see I like flowers (2)
3. It doesn't matter if they think I'm on my own (1)

3. *You see an advert for a social group to connect people during COVID, but you need to make the first contact by calling. What are you most likely to think?*

1. I wouldn't imagine they would care if I joined or not (2)
2. They are not thinking about people like me joining (3)
3. It's nice that people are trying to connect with everyone including me (1)

4. *You can see that the neighbours have posted a note through the door offering to help out with errands like collecting a prescription whilst in self-isolation. What are you most likely to think?*

1. What a lovely thing for them to do for me (1)
2. It was a nice thing to do, but they are probably doing it for everyone else too (2)
3. They did that to feel better about themselves, not because they wanted to help me (3)

5. *You are looking at old photo albums and feel sad when looking at photos of a loved one who passed away last year. What are you most likely to think?*

1. It makes me feel so sad and alone, I'll always feel like this as I have no one left (3)
2. It is sad, but I don't feel alone because I know that I have good friends who will keep in touch with me and I look forward to that (1)
3. It is sad, but maybe there will be some days where I see friends again and am not alone (2)

6 *You have received an invitation to a close friend's birthday party and are deciding whether to attend. What are you most likely to think?*

1. I doubt I'll be missed if I don't go, but it's nice they invited me (2)
2. They don't really want me to come. It won't make much difference if I'm there or not as nobody will notice (3)
3. I'm sure they would have wanted me to be there, it will be a pity if I don't go (1)

7. *You are watching TV alone one evening and a film that you usually enjoy and watch with others comes on. What are you most likely to think?*

1. I can't enjoy anything if I'm by myself (3)
2. It's not as enjoyable when I'm by myself (2)
3. Doing things on your own is quite nice sometimes, and I've got lots of other opportunities to catch up with people (1)

8*. You are in hospital staying on a busy ward. The person in the bed next you receives a call from their family. What are you most likely to think?*

1. I am sure somebody will check how I am eventually as they think they have to (2)
2. That's nice, I know someone will check how I am later as well (1)
3. No one would ever check how I am like that (3)

9. *You wake up in the night worrying about your health and would find it helpful to speak to somebody about it the next day. What are you most likely to think?*

1. I can't, I have no one to talk to about this type of thing (3)
2. I can think of a few people I could call but I'm not sure they would be interested, or I might bother them (2)
3. I have a few people to call and even though I might bother them, I'm sure they'll understand (1)

10. *You are leaving the opticians and after chatting to a person in the waiting room, they say that they enjoyed their conversation with you. You enjoyed it too. What are you most likely to think?*

1. What a nice comment to have made, it's easy to find out about new people (1)
2. Even when you talk to people, they don't really want to get to know you (3)
3. Maybe they were being polite, but it's possible they enjoyed the conversation too (2)

11. *You are sitting alone in the garden during self-isolation and hear neighbours talking together. What are you most likely to think?*

1. It's much harder to get through this without living with someone close to me (2)
2. We are all having to work hard to cope with this (1)
3. It's impossible for me to cope without having somebody close to me (3)

COMPLETED.

The end, thank you. Any reflections? How was it completing these? Any upsetting or difficult moments?

Appendix U

MRP Creating the Ambiguous Scenarios Vignette (ASV)

As part of the study developed, local and national academics and clinical psychologists with relevant interests were contacted (Kendall Laidlaw, Christopher Allen, Louise Hawkley, Anton Käll) regarding cognitive distortion measures and the cognitive model. No measures of cognitive distortions were suggested, particularly linked to loneliness. JH searched for other measures of cognitive bias that might be relevant, and contacted Zeynep Hamamci regarding the Interpersonal cognitive distortions scale. This included subscales of Interpersonal Rejection, Unrealistic Relationship Expectation and Interpersonal Misperception, however, this did not appear age appropriate given the content and length. JH also requested the 2007 paper by Hamamci on the use of this scale to measure loneliness in adolescents but was unable to get article.

Anton Käll was contacted regarding the measurement of cognitive distortions in their 2020 paper evaluating an internet-based CBT intervention for loneliness in older adults. Käll explained that generic cognitions had been targeted but not measured given a lack of measures. They also suggested to include a social anxiety measure given the anecdotal link in cognitions.

Scenario development

An ambiguous scenario's structure was chosen as it appeared to be a relevant, novel, and age-appropriate tool to test the cognitive model and other papers have used this approach in other settings (Cooper, 1997; Vanhlast et al., 2015).

Through the PPI focus-group, many different social scenarios commonly experienced in this age group were generated: home alone and in company; in the community alone and in company; with friends and family; routine and special events; pandemic and non-pandemic

related. These were purposely created to suit both people in their own home as well as in residential care, and regardless of marital status. Consideration was given around the length to ensure enough detail was given without too much information to retain, as discussed within the PPI group and from previous vignettes (Cooper, 1997; Vanhalst et al., 2015). These social situations were meant to be ambiguous, i.e., neutral, indicating neither strong social inclusion nor exclusion (Appendix T).

Interpretation Generation

As the cognitive model of loneliness (Cacioppo et al., 2009) is vague and the term 'cognitive bias' is inconsistently conceptualised or operationalised, the authors looked to Beck's (1979) writing on cognitive distortion in interpretations of situations. Cognition content was generated from clinical experiences and qualitative research on loneliness (Roos & Malan, 2012; Schoenmakers & Tindemans, 2017). This aimed to be distinguished from those characteristic of depression or social anxiety, but rather relating to the meaning of being lonely (discrepancy between actual and desired relationships). Clinical experience was also drawn upon to think about the specific types of distortions, namely overgeneration, jumping to conclusions/selective arbitrating, black and white thinking, minimizing/discounting positives, and emotional reasoning. Others have used similar methods to create suitable measures of cognitive distortions (Peters et al., 2014; psychosis and cognitive distortions). We originally considered having three scenarios per distortion (one of these being related to COVID; and considering Beck's cognitive triad), resulting in 15-items in total. However, a lack of specificity between measures of cognitive errors was here and elsewhere, whereby a 'thought' intended to measure a specific error/distortion may bear resemblance to another types of distortion, hence indicating overlaps between cognitive distortion categories (Maric et al., 2011). Therefore, 11 cognitions appearing most relevant from clinical work and their relation to loneliness in particular were selected over specific types of distortion. Within

these 11 items, Beck's (1979) cognitive triad was considered: self, others, the world. Aimed for answers to be scored as 3 – highest level of negative intepretation bias, 2 = mild or neutral or 1 = a positive intepretation; see Appendix E for examples. These were presented in a randomised error.

The vignette was sent via email to the older adults' special interest group (FPOP) for expert feedback, and changes were made following responses, particularly regarding the distinction between the different types of interpretation. However, feedback was returned from one individual only.

In terms of anecdotal reflections on the use of this measure, overall, this appeared well received. Participants appeared able to distinguish differences between the items. The consistency in responses and requests for repetition suggested that the participants were able to accurately recall the options and the nuanced differences between these. Participants reported to relate to the scenarios. Given the non-clinical sample and low rates of loneliness scene, many reflected on feeling 'lucky' to not think 'like the person in the scenario' (i.e., response option 3).

Appendix V

MRP Ambiguous Scenarios Vignette Principal Component Analysis

Given the unacceptable levels of Cronbach's alpha, a principal component analysis (PCA) was conducted on the 11-item Ambiguous Scenarios Vignette (ASV), using orthogonal rotation (varimax), the Anderson-Rubin method, suppressing coefficient absolute values less than .4, and 30 maximum iterations for convergence (Field, 2009). The communalities of the variables included are overall rather low (Table 1), with one variable (item 6) having a small amount of variance (38%) in common with the other variables in the analysis. This may indicate that the variables chosen for this analysis are only weakly related with each other. However, the Kaiser-Meyer-Olkin measure verified the sampling adequacy required for the analysis (KMO = .57; 'mediocre'; Hutcheson & Sofroniou, 1999) and Barlett's test of sphericity X^2 (55) = 122.50, p <.001, indicating correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data, four components had eigenvalues over Kaiser's criterion of 1 and in combination explained 54.21% of the variance. This was also supported by the Spree Plot (Figure 2). However only two components had all items strongly loaded, thus two components were taken forward in the analysis (accounting for 33.1% of the variance; Table 1). Table 1 shows the factor loadings after rotation. Items 1, 5, 7, and 11 related to cognitions about the self, whereas items 2, 4, and 8 related to cognitions about others.

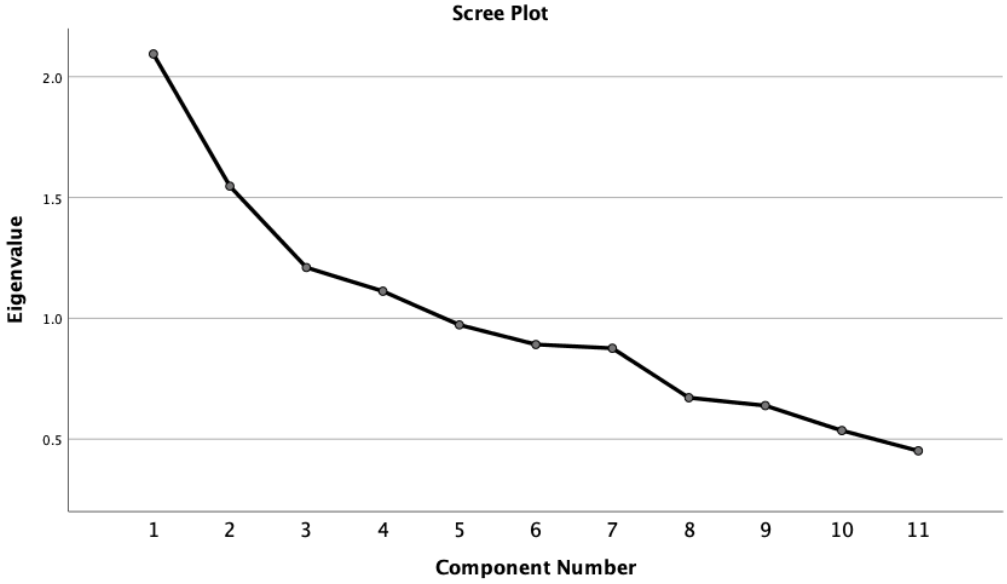
Table 1

Rotated Component Matrix from Principal Component Analysis on 11-item ASV, using Varimax Rotation Method with Kaiser's Normalization

Item	Component				
	1 (other)	2 (self)	3	4	Communalities
ASV8	**.75**				.60
ASV2	**.73**				.57
ASV4	**.68**				.47
ASV5		**.64**	-.43		.65
ASV11		**.63**	.34		.57
ASV7		**.63**			.41
ASV1		**.56**		.31	.44
ASV9			.77		.64
ASV3			.63	-.31	.56
ASV10				.81	.68
ASV6				.57	.39
Eigenvalue	2.09	1.55	1.21	1.11	
% of Total Variance	19.04	14.06	11.00	10.11	
Total Variance	19.04	33.10	44.10	54.21	

Figure 1

Spree Plot from Principal Component Analysis on the 11-item ASV


Scree Plot
Eigenvalue
2.0
1.5
1.0
0.5
1
2
3
4
5
6
7
8
9
10
11
Component Number

Appendix W

Social Network Inventory (Cohen et al., 1997)

Given the situation with the COVID-19 pandemic has required self-isolation, we will ask you for answers both in relation to the current situation, as well as before COVID-19.

1a. How would you describes your marital status? (if not in a relationship, move to question 2).

____ (1) currently married & living together, or living with someone in marital-like relationship
____ (2) never married & never lived with someone in a marital-like relationship
____ (3) separated
____ (4) divorced or formerly lived with someone in a marital-like relationship
____(5) widowed

A. Overall, how would you rate the quality of the relationship (please circle)

___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

2a. How many children do you have? (If you don't have any children, check '0' and skip to question 3.)

____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

2b. Before COVID-19: How many of your children did you see or talk to on the phone at least once every 2 weeks?

____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

2c. Extra question (for qualitative purposes)
Before COVID-19: In a two week period, in total how often did you see or talk to your children?

____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

2d. Now: How many of your children do you see or talk to on the phone at least once every 2 weeks?

____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

2e. Extra question (for qualitative purposes):
Now: In a two week period, in total how often do you see or talk to your children?

____0 ____1 ____2 ____3 ____4 **____5** ____6 ____7 or more

B. Overall, how would you rate the quality of the relationship(s) (please circle)

___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

3a. How many other relatives (other than your spouse & children) do you feel close to? (meaning people that you feel at ease with, can talk to about private matters, and can call on for help). If '0', tick that space and skip to question 4.)
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

3b. Before COVID-19: How many of these relatives did you see or talk to on the phone at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

3c. Extra question (for qualitative purposes)
Before COVID-19: In a two week period, in total how often did you see or talk to your relatives?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

3d. Now: How many of these relatives do you see or talk to on the phone at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

3e. Extra question (for qualitative purposes)
Now: In a two week period, in total how often do you see or talk to your relatives?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

C. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

4a. How many close friends do you have? (meaning people that you feel at ease with, can talk to about private matters, and can call on for help) (If 0, go to question 5).
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

4b. Before COVID-19: How many of these friends did you see or talk to at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

4c. Extra question (for qualitative purposes)
Before COVID-19: In a two week period, in total how often did you see or talk to your friends?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

4d. Now: How many of these friends do you see or talk to at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

4e. Extra question (for qualitative purposes)

Now: In a two week period, in total how often do you see or talk to your friends?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

D. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

5a. Do you belong to a church, temple, or other religious group?
_____ no (skip to question 6) _____ yes

5b. Before COVID-19: How many members of your church or religious group did you talk to at least once every 2 weeks? (This includes at group meetings and services.)
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

5c. Extra question (for qualitative purposes)
Before COVID-19: In a two week period, in total how often did you see or talk to your church or religious group members?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

5d. Now: How many members of your church or religious group do you talk to at least once every 2 weeks? (This includes at group meetings and services.)
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

5e. Extra question (for qualitative purposes)
Now: In a two week period, in total how often do you see or talk to your church or religious group members?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

E. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

6a. Do you attend any classes (school, university, technical training, or adult education) on a regular basis?
_____ no (skip to question 7) _____ yes

6b. Before COVID-19: How many fellow students or teachers did you talk to at least once every 2 weeks? (This includes at class meetings.)
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more
6c. Now: How many fellow students or teachers do you talk to at least once every 2 weeks? (This includes at class meetings.)
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

F. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

7a. Are you currently employed either full or part-time?
____ (0) no (skip to question 8). _____ (1) yes, self-employed _____ (2) yes, employed by others

7b. How many people do you supervise?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

7c. Before COVID-19: How many people at work (other than those you supervise) did you talk to at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

7d. Now: How many people at work (other than those you supervise) do you talk to at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

G. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

8a. Before COVID-19: How many of your neighbours did you visit or talk to at least once every 2 weeks?
_____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

8b. Extra question (for qualitative purposes)
Before COVID-19: In a two week period, in total how often did you see or talk to your neighbours?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

8c. Now: How many of your neighbours do you visit or talk to at least once every 2 weeks?
_____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

8d. Extra question (for qualitative purposes)
Now: In a two week period, in total how often do you see or talk to your neighbours?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

H. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

9a. Are you currently involved in regular volunteer work?
_____ no (skip to question 10) _____ yes

9b. Before COVID-19: How many people involved in this volunteer work did you talk to about volunteering-related issues at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

9c. Now: How many people involved in this volunteer work do you talk to about volunteering-related issues at least once every 2 weeks?
____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 or more

I. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) = *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

10a. *Not including things already spoken about*: Do you belong to any groups in which you talk to one or more members of the group about group-related issues at least once every 2 weeks? Examples include social clubs, recreational groups, trade unions, commercial groups, professional organizations, groups concerned with children like the PTA or Boy Scouts, groups concerned with community service, etc.
_____ no (skip the next section) _____ yes

10b. Before COVID-19: Consider those groups in which you talked to a fellow group member at least once every 2 weeks. Please provide the following information for each such group: A) the name or type of group. B) the total number of members in that group that you talked to at least once every 2 weeks.
1. A. B.
2. A. B.
3. A. B.
4. A. B.
5. A. B.
6. A. B.

10c. Now: Consider those groups in which you talk to a fellow group member at least once every 2 weeks. Please provide the following information for each such group: A) the name or type of group. B) the total number of members in that group that you talk to at least once every 2 weeks.
1. A. B.
2. A. B.
3. A. B.

J. Overall, how would you rate the quality of the relationship(s) (please circle)
___(1) *Very Poor* ___(2) = *Poor* ___(3) = *Fair*
___ (4) = *Good* ___(5) = *Excellent* ___(6) = *Not applicable*

Appendix X

MRP Efforts to Support Vulnerable Population; Research in the Over 80s

The over 80s can be viewed as a vulnerable population with sensory and cognitive difficulties, pain, fatigue, isolation, and exclusion. Several efforts were made to mitigate this following guidance from the CTEL (2020). Consultation from a PPI focus group was also sought, with four members in their 80s and 90s of both genders.

Recruitment

To overcome the likelihood of the most isolated not learning about this study and therefore being inadvertently excluded, those viewing the recruitment information were asked to share with others including friends, family, and neighbours. Moreover, to increase inclusion and overcome stigma, as informed by the PPI group, recruitment information stated that a range of views were desired, both from those who experienced loneliness and those who did not.

To support visual and potential cognitive difficulties, the poster, information, and debrief sheets were in easy read format with large print (size 16). Participants were given time between reading the study information sheet and deciding whether to take part or not. Most called the researcher back themselves to book in a call following having read the information sheet. Others agreed for the researcher to call them back in case they forgot. Reassurance was given that there would be no pressure or consequence if participants chose not to take part. Only three participants chose not to take part. For several participants, their children led the initial contact and sharing of information. For people reporting visual difficulties, the information sheet was read out at two separate time points to support the process of deciding the take part.

In advance of the call, participants were given the name of the researcher calling them, and the number the researcher would be calling on when requested. They were

reminded that their personal information would be deleted after three months and stored confidentiality. This age group often worried about needing to pay for the telephone call, so reassurance was given that the researcher would be calling them. A couple requested reminders of appointments, which was facilitated. There were no missed or cancelled appointments.

Procedure

The study resources and order had been piloted within the PPI focus-group, and the measures selected based on their previous use in research and ease to administer. The debrief form included relevant organisations (such as AGE UK) to support loneliness, bereavement, and mental health or practical difficulties.

At the start of the call, the researchers introduced themselves and the purpose of the call. Information was repeated as much as required, including a verbal recap at the start of the call. Other helpful considerations included the call duration (average one hour), a gentle pace allowing for processing, breaks and repetition (as required and reassurance given around this), participants were reminded of their right to end before completion, and regularly given opportunities to decide whether to continue. On some measures with many responses (e.g. the SPIN), participants were given the opportunity to write down the possible responses. Feedback was sought and participants reported this duration to be appropriate. Whilst having family members present was helpful for some in terms of anxiety or hearing difficulties, this was not set as a requirement to avoid excluding those isolated. The debrief sheet included potentially relevant helpful organisations.

Informal feedback was sought from participants at the end of the call and this was overwhelming positive. Participants appeared to tolerate the call duration and format well. Many reported to have enjoyed the conversation, were pleased that younger generations showed interested in their views, and thought this was an important topic.

Capacity

Although participants with severe cognitive impairment were excluded, it was beyond the scope of the research to complete formal dementia screening and is a limitation. To overcome this, organisational contacts were asked to pass on the information to eligible participants, and assessment of the participant's ability to understand what is involved and provide consent to take part formed part of assessment for eligibility. No participants were excluded based at this stage. Anecdotally, no participants appeared to have significant difficulty completing the measures, seeming to answer consistently and able to ask for repetition and clarification when required.

Appendix Y

MRP Psychometric Properties of the Study Variables

Table of Psychometric Properties of the Major Study Variables including Mean, Standard Deviation, Cronbach's Alpha, Skewness, Kurtosis, Shapiro-Wilk, Q-Q Plots and Histogram Interpretation. N =120.

				Range						
	M	*SD*	*α*	Potential	Actual	Skewness	Kurtosis	Shapiro-wilk p	Histogram	Q-Q plot
Age	85.38	4.55		80+	80-101	1.07	.86	<.001	Negative skew	Deviation
Physical health	3.81	.82		1-5	1-5	-.55	.92	<.001	ok	Straight
Mobility	3.88	1.11		1-5	1-5	-.79	-.17	<.001	Positive skew	Deviation
Financial satisfaction	4.54	.67		1-5	2-5	-1.50	2.28	<.001	Positive skew	Deviation
Network Size	14.08	8.75		N/A	2-61	1.94	6.67	<.001	Slight negative skew	Deviation
Quality	4.17	.43		1-5	2.8-5	-.54	.22	.01	ok	Deviation
GDS	2.83	2.64	.74	0-15	0-12	1.15	1.10	<.001	Negative skew	Deviation
SPIN	6.67	6.24	.79	0-68	0-34	1.38	2.46	<.001	Negative skew	Deviation
ASV (11item)	13.51	2.01	.52	11-33	11-24	1.62	5.56	<.001	Negative	Deviation
ASV-self	5.34	1.24	.48	4-12	4-8	.53	-.74	<.001	Negative Skew	Deviation
ASV-others	3.32	.76	.59	3-9	3-9	4.27	26.64	<.001	Negative Skew	Deviation
5-item Loneliness	1.48	1.39	.62	0-5	0-5	.80	-.17	<.001	Negative Skew	Deviation
EL	1.08	.79	.51	0-3	0-3	.36	-.29	<.001	ok	Deviation
SL	1.10	1.05	.33	0-3	0-3	.47	-1.04	<.001	Negative Skew	Deviation

Note. GDS = Geriatric Depression Scale; SPIN = Social Phobia Inventory; ASV = Ambiguous Scenarios Vignette; EL = Emotional Loneliness; SL = Social Loneliness.

Appendix Z

MRP Aging and Mental Health Journal Submission Guidelines

1.1 Aims & Scope

The **Journal of Aging and Health** is a peer-reviewed, interdisciplinary forum for the presentation of research findings and scholarly exchange in the area of aging and health. Manuscripts are sought that deal with social and behavioral factors related to health and aging. Disciplines represented include the behavioral and social sciences, public health, epidemiology, demography, health services research, nursing, social work, medicine, and related disciplines. Although preference is given to manuscripts presenting the findings of original research, review and methodological pieces will also be considered.

1.2 Writing your paper

- Double space all manuscripts, including references, notes, abstracts, quotations, and tables, on 8 1/2 × 11 paper.
- The title page should be a separate document and include all authors' names and affiliations and highest professional degrees, the corresponding author's address and telephone number, and a brief running headline.
- Place acknowledgments in a separate document under the heading AUTHOR'S NOTE. The title page should be followed by a structured abstract of 100 to 150 words that includes the following subheadings: Objectives, Methods, Results, and Discussion.
- On the abstract page include 3 to 5 words or short phrases for indexing purposes. The abstract page as well as the first page of the text should include the manuscript's title without the authors' names to facilitate blind review.
- Tables and references should follow APA style and be double-spaced throughout. Ordinarily manuscripts will not exceed 30 pages (double-spaced), including tables, figures, and references. Authors of accepted manuscripts will be asked to supply camera-ready figures.
- Submission of a manuscript implies commitment to publish in the journal. Authors submitting manuscripts to the journal should not simultaneously submit them to another journal, nor should manuscripts have been published elsewhere in substantially similar form or with substantially similar content.

> Authors in doubt about what constitutes prior publication should consult the editor.

2. Editorial policies

2.1 Peer review policy

Journal of Aging and Health adheres to a rigorous double-blind reviewing policy in which the identity of both the reviewer and author are always concealed from both parties.

Journal of Aging and Health is committed to delivering high quality, fast peer-review for your paper, and as such has partnered with Publons. Publons is a third party service that seeks to track, verify and give credit for peer review. Reviewers for JAH can opt in to Publons in order to claim their reviews or have them automatically verified and added to their reviewer profile. Reviewers claiming credit for their review will be associated with the relevant journal, but the article name, reviewer's decision and the content of their review is not published on the site. For more information visit the Publons website.

The Editor or members of the Editorial Board may occasionally submit their own manuscripts for possible publication in the journal. In these cases, the peer review process will be managed by alternative members of the Board and the submitting Editor/Board member will have no involvement in the decision-making process.

2.2 Authorship

Papers should only be submitted for consideration once consent is given by all contributing authors. Those submitting papers should carefully check that all those whose work contributed to the paper are acknowledged as contributing authors.

The list of authors should include all those who can legitimately claim authorship. This is all those who:

> (i) Made a substantial contribution to the concept or design of the work; or acquisition, analysis or interpretation of data,

(ii) Drafted the article or revised it critically for important intellectual content,

(iii) Approved the version to be published,

(iv) Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

Authors should meet the conditions of all of the points above. When a large, multicentre group has conducted the work, the group should identify the individuals who accept direct responsibility for the manuscript. These individuals should fully meet the criteria for authorship.

Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship, although all contributors who do not meet the criteria for authorship should be listed in the Acknowledgments section. Please refer to the International Committee of Medical Journal Editors (ICMJE) authorship guidelines for more information on authorship.

2.3 Acknowledgements

All contributors who do not meet the criteria for authorship should be listed in an Acknowledgements section. Examples of those who might be acknowledged include a person who provided purely technical help, or a department chair who provided only general support.

Please supply any personal acknowledgements separately to the main text to facilitate anonymous peer review.

2.3.1 Third party submissions

Where an individual who is not listed as an author submits a manuscript on behalf of the author(s), a statement must be included in the Acknowledgements section of the manuscript and in the accompanying cover letter. The statements must:

- Disclose this type of editorial assistance – including the individual's name, company and level of input
- Identify any entities that paid for this assistance

- Confirm that the listed authors have authorized the submission of their manuscript via third party and approved any statements or declarations, e.g. conflicting interests, funding, etc.

Where appropriate, SAGE reserves the right to deny consideration to manuscripts submitted by a third party rather than by the authors themselves.

2.3.2 Writing assistance

Individuals who provided writing assistance, e.g. from a specialist communications company, do not qualify as authors and so should be included in the Acknowledgements section. Authors must disclose any writing assistance – including the individual's name, company and level of input – and identify the entity that paid for this assistance. It is not necessary to disclose use of language polishing services.

2.4 Funding

Journal of Aging and Health requires all authors to acknowledge their funding in a consistent fashion under a separate heading. Please visit the Funding Acknowledgements page on the SAGE Journal Author Gateway to confirm the format of the acknowledgment text in the event of funding, or state that: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

2.5 Declaration of conflicting interests

It is the policy of *Journal of Aging and Health* to require a declaration of conflicting interests from all authors enabling a statement to be carried within the paginated pages of all published articles.

Please ensure that a 'Declaration of Conflicting Interests' statement is included at the end of your manuscript, after any acknowledgements and prior to the references. If no conflict exists, please state that 'The Author(s) declare(s) that there is no conflict of interest'. For guidance on conflict of interest statements, please see the ICMJE recommendations here

2.6 Research ethics and patient consent

Medical research involving human subjects must be conducted according to the World Medical Association Declaration of Helsinki

Submitted manuscripts should conform to the ICMJE Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals, and all papers reporting animal and/or human studies must state in the methods section that the relevant Ethics Committee or Institutional Review Board provided (or waived) approval. Please ensure that you have provided the full name and institution of the review committee, in addition to the approval number.

For research articles, authors are also required to state in the methods section whether participants provided informed consent and whether the consent was written or verbal.

Information on informed consent to report individual cases or case series should be included in the manuscript text. A statement is required regarding whether written informed consent for patient information and images to be published was provided by the patient(s) or a legally authorized representative. Please do not submit the patient's actual written informed consent with your article, as this in itself breaches the patient's confidentiality. The Journal requests that you confirm to us, in writing, that you have obtained written informed consent but the written consent itself should be held by the authors/investigators themselves, for example in a patient's hospital record. The confirmatory letter may be uploaded with your submission as a separate file.

Please also refer to the ICMJE Recommendations for the Protection of Research Participants

2.7 Clinical trials

Journal of Aging and Health conforms to the ICMJE requirement that clinical trials are registered in a WHO-approved public trials registry at or before the time of first patient enrolment as a condition of consideration for publication. The trial registry name and URL, and registration number must be included at the end of the abstract.

2.8 Reporting guidelines

The relevant EQUATOR Network reporting guidelines should be followed depending on the type of study. For example, all randomized controlled trials submitted for publication should include a completed CONSORT flow chart as a cited figure and the completed CONSORT checklist should be uploaded with your submission as a supplementary file. Systematic reviews and meta-analyses should include the completed PRISMA flow chart as a cited figure and the completed PRISMA checklist should be uploaded with your submission as a supplementary file. The EQUATOR wizard can help you identify the appropriate guideline.

Other resources can be found at NLM's Research Reporting Guidelines and Initiatives

2.9. Research Data

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