Adapting a self-affirmation intervention to support nurse wellbeing and patient safety

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Submitted in accordance with the requirements for the degree of a Doctor of Philosophy

The University of Leeds

School of Psychology, Faculty of Medicine and Health

The Collaboration for Leadership in Applied Health Research and Care (CLAHRC).

June, 2021

The candidate confirms that the work submitted is her own, except where work which has formed part of jointly-authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

The study reported in Chapter 3 has been published: Dunning, A., Louch, G., Grange, A., Spilsbury, K., & Johnson, J. (2021). Exploring nurses' experiences of value congruence and the perceived relationship with wellbeing and patient care and safety: a qualitative study. *Journal of Research in Nursing*, *26*(1-2), 135-146.

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Acknowledgements

The achievement of completing this thesis simply would not have been possible without the support of many key individuals. First and foremost I would like to thank my incredible supervisory team: Dr Judith Johnson, Dr Gemma Louch, Professor Karen Spilsbury and Dr Angela Grange for their continuous support and encouragement throughout my PhD. Jude, I can't thank you enough for providing me with so many opportunities, including: beginning my research passion of supporting nurses and healthcare staff wellbeing within my placement year, supervising my dissertation and encouraging me to apply for the PhD. Without your mentorship I would not be in the career I am in today. Gemma, thank you for encouraging looking at the bigger picture throughout the project, your positivity helped me to feel excited about the research even when there were struggles. Karen, thank you for pushing me when I needed it your guidance has definitely elevated my work and built my confidence over what I can achieve. Angela, thank you for your kindness and eagerness to help without your support with making connections with nurses much of the research would not have been possible. It has been a privilege to work with such inspiring individuals, and I have learned from their guidance and expertise. I look forward to work collaboratively with all my supervisors in the future.

I would like to thank all those who have supported my research including: CLAHRC, and the School of Psychology who sponsored my PhD. In addition to the wider teams at YQSR, and within my department at the university. In particular I would like to thank all those that gave up their time and participated in the research.

Furthermore, I would like to show my unending appreciation to my friends for their incredible moral support. To Lauren, Pauline and Daisy, I have loved sharing our

PhD journey together. To Liv and Kerrina, thank you for always being there to make me smile even at the toughest times.

To my family, thank you for all you have done to support me in getting to where I am today, Mum your phone calls of reassurance have been a lifeline throughout this period.

To Tom, thank you for your unwavering encouragement, for sorting everything at home to give me time to work without complaint and always being there to listen to me.

Finally, I want to dedicate the work in this thesis to all the nurses who have worked tirelessly throughout the COVID-19 Pandemic.

Abstract

Research demonstrates that nurses often experience low levels of wellbeing and high burnout, and that this has been exacerbated throughout the COVID-19 pandemic. This is costly not only in terms of the emotional impact on individual staff, but also in terms of the financial implications resulting from staff absences and high turnover. Importantly, poor levels of wellbeing and high burnout have been shown to have implications for patient safety and patient care quality. Whilst there have been interventions implemented to help improve nurse wellbeing, many of these have been face-to-face and thus resource-intensive to administer. Therefore, there is a requirement for low-cost interventions to be available such as those in a self-administered format to facilitate ease of implementation and enhance accessibility for the nursing workforce. An intervention that is usually self-administered is self-affirmation. This intervention focuses upon values reflection. Self-affirmation interventions have been used in research previously to help improve levels of wellbeing, but have yet to be implemented to support nurse wellbeing.

This PhD aimed to explore the potential of a self-affirmation intervention in terms of nurse wellbeing and perceptions of patient care and safety. First, a systematic review and meta-analysis (chapter 2) was conducted to explore self-affirmation interventions and wellbeing outcomes in any population. The systematic review and meta-analysis found no overall impact of the intervention on improving mood outcomes. However it did suggest a potential buffering effect of self-affirmation for stress and burnout, indicating self-affirmations may benefit people experiencing stress only. The review did not include any studies with healthcare professionals as the population of interest. Nurses often experience high levels of stress and burnout,

and may potentially benefit from an intervention such as self-affirmation. Therefore, study 1 aimed to explore the potential value of a values-based intervention such as self-affirmations in nurses. Semi-structured telephone interviews were conducted with registered nurses (study 1; chapter 3). The findings highlighted the importance of values and value congruence for nurse wellbeing and patient care and safety; supporting the potential of a values focussed intervention (i.e., self-affirmation) for registered nurses. In study 2 (chapter 4), nurses participated in a workshop to aid the adaptation of the self-affirmation intervention content and Think Aloud interviews helped refine the intervention and ensure acceptability and feasibility.

The initially planned final study of the PhD was a randomised controlled study to assess the effectiveness of the intervention alongside a qualitative evaluation. However, these plans were amended to explore the effectiveness of the intervention with the general population within the COVID-19 context to avoid adding any further demands on nurses. The randomised controlled study (chapter 5) found no effect of the intervention for improving wellbeing or patient care and safety proxy measures, demonstrating that self-affirmation is not effective for the purpose of boosting mood. These findings and their relation to the use of the intervention for supporting nurse wellbeing and patient care and safety are discussed (chapter 6).

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Abbreviations:

SA Self-affirmation

RN Registered Nurse

AD Alice Dunning

JJ Judith Johnson

GL Gemma Louch

KS Karen Splisbury

AG Angela Grange

LR Lauren Ramsey

Chapter 1 Introduction and overview

1.1 Chapter summary

This chapter presents a summary of the literature exploring the wellbeing of nurses and the wider implications of poor levels of nurse wellbeing. The relationship between nurse wellbeing and patient care and safety outlined in the literature and the importance of establishing an effective low resource intervention to support nurse wellbeing and patient care and safety are discussed. Self-affirmation interventions are introduced as a possible tool in supporting nurse wellbeing, and the underpinning theory and current evidence base are outlined. The overarching aim of this thesis was to adapt a values-based (self-affirmation) intervention to be used by nurses who work in an acute hospital setting, with a view to improving wellbeing and perceptions of patient care and safety in this population. The research conducted within this thesis is outlined and the thesis aims and objectives are presented.

1.2 Introduction

1.2.1 Nurse wellbeing

Globally, there has been an increase in demands on health services, placing increased strain on healthcare professionals, causing many to experience concerning levels of burnout, which is a work-related stress syndrome involving feelings of emotional exhaustion and an emotional detachment from patients (Demerouti & Bakker, 2008; WHO, 2019). Indeed, it is widely acknowledged that healthcare professionals are under increasing strain because of the growing demands of the job and workload (Lacobucci, 2015). This issue has been further

exacerbated by the global COVID-19 pandemic with healthcare professionals working in unprecedented situations and conditions, whilst under intense media scrutiny (Greenbern & Tracey, 2020). In 2019, the NHS Staff Survey found that the percentage of staff feeling unwell due to work related stress had increased from 36.7% (in 2016) to 40.3%, which is the highest percentage reported in five years (NHS Staff Survey, 2019). A 2015 meta-analysis which had an international focus, showed a pooled prevalence of 28.8% for depression or its symptoms among physicians (Mata et al., 2015). Similarly, statistics relating to nurses, found that nurses suffer from depressive symptoms at a rate twice as high as the general population (Letvak et al., 2012). Taken together, this previous research demonstrates the prevalence of poor mental health among healthcare professionals, particularly among nursing staff.

As a profession, nursing is physically and emotionally challenging (Olofsson et al., 2003). Indeed, the founder of modern nursing, Florence Nightingale, suffered exhaustion and depression after her work during the Crimean War (1853-1856) (Mackowiak & Batten, 2008). In present times, there is the added pressure of the aging population of the nursing workforce who have increasingly complex health, social and physical needs (Oliver et al., 2014). The current climate of austerity within the UK and a focus on efficiency measures has increased the pressure on the nursing workforce with high levels of staff shortages being commonplace (Deakin, 2022; Wray, 2013). These role expectations and demanding work environments have placed nurses at a high risk of experiencing burnout and stress related to work (De Oliveira, Alcantara Sousa, Gadelh & Nascimento, 2019; Garrosa et al., 2011, Foureur et al., 2013). The poor levels of wellbeing are concerning as there is a high suicide risk among nurses, with the ONS (2017) outlining that for females the risk of

suicide is 24% higher among healthcare professionals (in particular, nurses) than the general population within the UK. Further evidence demonstrates that nurses who work in an acute hospital setting may experience heavy workloads and low morale within teams, which may be contributing to levels of job dissatisfaction (Bally, 2007). The reported levels of depression combined with current staffing shortages mean that maintaining healthy levels of wellbeing for nurses is considered a challenging prospect (Ohler et al., 2010).

A range of concepts have been used to capture healthcare professional wellbeing, including stress, burnout and, general mental health. Stress is conceptualised as the subjective experience which occurs when the demands placed on professionals outweighs their perceived resources (Poalses & Bezuidenhout, 2018). The Perceived Stress Scale (PSS-4; Cohen, Kamark & Mermeistein., 1983) is a prominent self-report questionnaire which measures individual stress levels. Burnout is conceptualised as a psychological syndrome involving a prolonged response to chronic emotional and interpersonal job stressors (Maslach, 1982; Maslach et al., 2001). Widely used measures of burnout include the Maslach Burnout Questionnaire (Maslach, Jackson & Leiter, 1997) and the Copenhagen Burnout Inventory (CBI; Kristensen, Borrits, Vildasen, & Christenses, 2005), which aim to capture feelings of occupational and personal exhaustion. There has been less of a focus on wellbeing studied from a positive perspective in healthcare professionals, but in this thesis wellbeing will be conceptualised as a spectrum which includes poor mental health (e.g., captured by high burnout) at one end and high wellbeing (which might be reflected in low burnout) at the other (Johnson & Wood, 2016; See Table 1).

Table 1: *Key terms, definitions and measures.*

Key term	Definition	Measures used in this thesis
Wellbeing	Within this thesis wellbeing is defined as a broad concept, with a spectrum that ranges from depression to flourishing (Johnson & Wood, 2016). The different aspects of wellbeing focussed upon in this thesis include: overall wellbeing, positive affect, self-esteem, negative affect, depression, self-efficacy, resilience, burnout and stress.	The Copenhagen Burnout Inventory (CBI; Kristensen, Borrits, Vildasen, & Christenses, 2005) utilised with nurses (Montgomery, Azuero & Patrician, 2021) The Perceived Stress Scale (PSS-4; Cohen, Kamark & Mermeistein., 1983) utilised with nurses (Alsolami et al., 2021) Visual analogue scales (VAS) of stress, depression and quality of life. VAS question formats have been utilised with nurses (Meretoja et al., 2004) The Brief Resilience Scale (BRS; Smith et al., 2008) utilised with nurses (Hong et al., 2021)

Patient safety	NHS England defines patient safety as "…the avoidance of unintended or unexpected harm to people during the provision of health care" (NHS England, 2022). Within this thesis a broader view of patient safety is taken, in which both perceptions of patient safety and quality of care at the individual nurse level are included, as quality of care is an overarching concept within which patient safety resides (Mitchell, 2008). Due to adjustments taken in light of the COVID-19 pandemic, cognitive factors which can be regarded as 'proxy measures' of patient safety and quality of care were included: attention, forgetfulness and fatigue.	The Safe Practitioner measure utilised with nurses (Louch et al., 2016, 2017) Perceptions of quality of care utilised with nurses (Aiken, Clarke and Sloane, 2002) 'Proxy' measures: The Attentional Control Scale (ACS) (Derryberry & Reed, 2002) utilised with nurses (Kiyici & Koc, 2021) Forgetfulness (Mol, Ruiter, Verhey, Dijkstra & Jolles, 2006) The Modified Brief Fatigue Inventory (MBFI) (Aynehchi, Obourn, Sundaram, Bentsianov & Rosenfield, 2013)

Self-affirmation	Self-affirmation is a manipulation used in interventions to support an individual's sense of self.	Not applicable

1.2.2 Patient safety

Research suggests that one in ten patients experience an adverse event during hospital admission and nearly half of these adverse events are deemed preventable (De Vries et al, 2008).

Patient safety measurement is an ongoing area of debate and discussion within the discipline, and the challenge of developing and implementing measures of patient safety is well recognised (Pronovost et al, 2009). Relatedly, safety culture has been posed as a potentially important predictor of safety performance, whilst at the same time acknowledging that safety cannot be captured in a single measure (Vincent et al, 2013). Indeed, more favourable staff perceptions of safety (e.g., safety culture) have been shown to be associated with outcomes such as hospital-acquired pressure ulcers and patient falls (Brown & Wolosin, 2013), lower rates of in-hospital complications (Madron et al, 2010), and patients reporting more positive care experiences (Sorra et al, 2014). This reinforces the value in understanding and measuring nurse perceptions of safety.

Measuring patient safety incidents or frequency of adverse events at the individual healthcare professional level is challenging. Recent data from the Agency for Healthcare Research and Quality (AHRQ) for the hospital survey on patient safety culture, indicated the following percentages for registered nurses, licensed vocational nurse, and licensed practical nurses with regards to the number of patient safety events reported in the past 12 months: 1 or more (64%), none (36%), 1-2 (38%), 3-5 (19%), 6-10 (5%), 11 or more (2%) (Famolaro et al, 2021). This data underlines the relatively infrequent nature of adverse event experiences for nurses over a year period.

In light of the above, measures which capture nurses' perceptions of patient safety were utilised in the research presented in this thesis, as opposed to discrete numbers of incidents or adverse events (Louch et al., 2016, 2017). Amendments to the measures as a result of the impact of the COVID-19 pandemic on the planned research (presented in more detail in chapter 5) meant that 'proxy' measures of patient safety were also utilised, such as problem solving ability (Tailandier-Schmitt, Esnard & Mokounkolo, 2012) or potential for cognitive lapses, including lapses in attention (Nicholas, Copeland, Craib, Hopkins & Bruce, 2008), forgetfulness (Anselmi, Peduzzi & Santos, 2007) and fatigue (Montgomery, 2007; See Table 1 for proxy measures of patient safety and quality of care utilised in the thesis).

1.2.3 Current key issues for the nursing profession: the COVID-19 pandemic

The issues of poor staffing levels, high working demands and compromised wellbeing in nurses have been further exacerbated due to the COVID-19 pandemic, and this has been evidenced for Intensive Care Unit (ICU) nurses in particular (Huffman et al., 2021; Shanafelt, Ripp & Trockel, 2020; Shen et al., 2020). Indeed, the pandemic has profoundly affected healthcare workers, especially nurses in terms of wellbeing, job performance and retention. Amongst Singaporean nurses and anaesthetists, 37.4% reported experiencing psychological distress during the pandemic, with nurses reporting proportionately higher levels of anxiety to anaesthetists (Lee et al., 2020). The overall prevalence of burnout amongst critical care nurses in Belgium during 2020 was 68% (Bruyneel et al., 2021). In a 'snap shot' of UK healthcare workers' wellbeing in June 2020, 79% reported moderate - to - severe burnout (Ferry et al., 2021). One mixed methods study conducted with healthcare staff in the NHS in April 2020 found that 18% of nurses reported work-related stress (Gemine et al., 2021). Using an online questionnaire, the study by

Gemime et al (2021) outlined the high risk of burnout that nurses faced within the pandemic, and the consequences for retention, job performance and patient safety. Similarly, in a qualitative longitudinal study with nurses from the UK regarding their experiences in the pandemic, interview data showed that the majority of participants described experiencing moral injury, post-traumatic stress disorder (PTSD), burnout and compassion fatigue (Maben et al., 2022). Indeed many of the nurses interviewed believed that the mental health impacts of COVID-19 will last a lifetime and were therefore considering leaving their profession.

Redeployment during the pandemic has been identified as key a contributing factor to the psychological distress experienced by nurses in light of the changing practice considerations (Arntez et al., 2020; Couper et al., 2021; Ferry et al., 2021; Gemine et al., 2021; Maben et al., 2022; Rosa, Schlak & Rushton, 2020). Healthcare workers who were redeployed were twice as likely to experience burnout (Ferry et al., 2020). Likewise, in a longitudinal, quantitative online survey study which followed 2040 nurses up over three timepoints between April and August 2020, it was found that redeployed nurses or midwives who received inadequate training were significantly more likely to report probable PTSD (Couper et al, 2022). Furthermore, the same longitudinal study demonstrated that even though prevalence of PTSD waned over time, three in ten participants still reported probable PTSD three months after the first study timepoint.

Two key concerns for the nursing profession which have arisen from COVID-19 pandemic-related stressors are:

- The recovery of the workforce in terms of the current wellbeing states and retention figures following working through peaks of the pandemic. Many

studies detail the need for improved wellbeing support for nurses due to the related concerns for retention and patient safety (Arntez et al., 2020; Bruyneel et al., 2021; Couper et al., 2022; Ferry et al., 2020; Lee et al., 2020; Maben et al., 2022; Rosa et al., 2021).

- The re-establishment of professional identity, which is interlinked with nurse values, roles and ethics. Due to the unique circumstances which the COVID-19 pandemic presented, nurses faced complex ethical issues regarding their professional practice because of the long hours, working demands, patient acuity, death rates, and risk of COVID-19 for themselves and family members. These situations had the potential to negatively impact the professional identity of nurses (Shengxiao et al., 2021; Shiow-Ching, 2021; Sun et al., 2020; Tang et al., 2022; Zhang et al, 2020). Therefore another of the current challenges facing nurses following the pandemic is the reconstruction of professional identity for nurses (Shiow-Ching, 2021). Fostering a more positive professional identity may improve job satisfaction, retention and professional development (Mousazedeh at al., 2019).

1.2.4 Implications of poor levels of nurse wellbeing

Financial implications

Poorer levels of wellbeing within nursing are associated with increased absenteeism and staff turnover (Van Bogaert et al., 2014). This relationship has been described as circular; nurse shortages created by staffing pressures and workloads lead to high levels of stress and burnout which in turn lead to increased absenteeism rates (Shamian, Kerr, Laschinger, & Thomson, 2002), which puts further pressure on staffing levels. Therefore, there is a financial incentive for governments to support

nurse wellbeing as absenteeism and turnover cost on average $20,561 per nurse lost and replaced within the US and $23,711 in New Zealand (Duffield et al., 2014). Within the UK, data from the NHS taken from January 2015 to March 2016 found that midwifery, nursing and health visitor staff collectively had 5.23 million sick days a year, costing the service £443 million (NHS Digital Data, 2016).

Patient care and patient safety outcomes

Even when poorer levels of staff wellbeing does not result in turnover or sickness absence, studies suggest that it can lead to poorer work performance (Teoh, Kinman & Hassard, 2020). Previous research has established associations between facets of wellbeing and job performance including patient outcomes, such as being more prone to accidents (Letvak et al., 2012). Indeed, a systematic review which focussed on healthcare staff burnout and patient safety, concluded that in most of the reviewed studies, poor wellbeing and moderate to high levels of burnout were associated with poorer patient safety outcomes (Hall et al., 2016). While a recent NHS Staff Survey in 2019 demonstrated increased percentages of staff unwell due to work related stress, the proportion of staff who felt that they could deliver the care they aspired to fell from 68.2% to 66.8% between 2016 and 2017 (NHS Staff Survey, 2017). This evidence further demonstrates the relationship between staff wellbeing and patient safety and patient experience outcomes.

1.2.4 Patient safety and nurses

Despite nurses often being at the critical point of patient safety incidents (Hughes, 2008), measuring patient safety outcomes in this population is challenging. Whilst medication error reports have been used to assess patient safety incidents amongst nurses, there is a significant problem of under reporting of these errors within nurses

potentially for two main reasons (Wakefield et al., 1996, 2004). First, due to the shared nature of much nursing work, it can be hard to allocate responsibility for a single incident between the several healthcare professionals who may have been attending to the affected patient during the time period the error occurred. Second, there are issues regarding reporting of incidents in terms of the reasonable level of responsibility for nurses, with nurses often feeling this view is too extensive and incorporates responsibilities justifiably belonging to physicians (Danielsson et al., 2014).

To address the need for research to measure patient safety at the individual nurse level, previous research has assessed nurses' perceptions of patient safety as opposed to measuring discrete numbers of incidents (Louch et al., 2016, 2017). Furthermore, previous research has also utilised 'proxy' measures of patient safety, such as a nurses' problem solving ability (Tailandier-Schmitt, Esnard & Mokounkolo, 2012) or their potential for cognitive lapses, including lapses in attention (Nicholas, Copeland, Craib, Hopkins & Bruce, 2008), forgetfulness (Anselmi, Peduzzi & Santos, 2007) and fatigue (Montgomery, 2007).

The concerning levels of psychological distress demonstrated in the nursing population is particularly important for patient safety as healthcare staff wellbeing and patient safety are significantly associated (Hall et al., 2016). Depressive symptoms amongst nurses who work in acute hospital settings has been directly associated with poorer perceptions of patient safety at an individual and organisational level (Johnson et al., 2017). Similarly, chronic stress in nurses who work in acute hospital settings has been negatively associated with perceptions of safety and ability to practise safely (Louch et al., 2017).

There is also evidence that improving patient safety may impact nurse wellbeing. A systematic review focussing upon patient safety and healthcare professionals' wellbeing found that the evidence consistently revealed that medical errors have a negative impact on wellbeing (Harrison et al., 2021; Sirriyeh et al., 2010). Following an error, the literature suggests that healthcare professionals, including nurses, feel distress, with feelings of guilt, anxiety, self-doubt and depression regularly reported. This review additionally demonstrated the impact on an individual's professional life as well as personal wellbeing following an error, suggesting they experience: reputational damage, lack of self-confidence and breakdown in relationships with colleagues and patients (Sirriyeh et al., 2010). The moral distress exhibited by healthcare professionals following an error is also experienced by nurses. A review of the literature exploring the experiences of nurses following an error found that the main outcomes were: burnout, moral distress and intention to leave (Lewis, Baernholdt & Hamric, 2013). As such, it could be tentatively suggested that reducing the number of errors a nurse is involved in, may have a beneficial impact upon their wellbeing.

Rationale for focussing on registered nurses who work in an acute hospital setting

This thesis focuses primarily on nurses who work in a hospital setting. This focus was chosen for three key reasons:

1) Nurses are the largest single group of qualified healthcare staff within the global context (WHO, 2017) and within the NHS (NHS Workforce Statistics, 2020).

2) Nurses are often at the most critical point of patient safety incidents, as they deliver direct patient care (Hughes, 2008).

3) A growing body of studies focussing on nurses have evidenced associations between poorer wellbeing and poorer patient safety. In acute hospital settings nurses deliver direct patient care (Buerhaus et al., 2007) and therefore have an important role in early detection of complications, deterioration prevention and preventable deaths (Buerhaus et al., 2007). High levels of job dissatisfaction for nurses working in an acute hospital setting are associated with poor work performance and compromising patient outcomes (Bally, 2017).

1.2.5 Interventions to support nurse wellbeing

In light of the concerning figures around nurse wellbeing, many interventions have been proposed that target improving these levels. Psychological interventions such as cognitive behavioural therapy (Proudfoot et al., 2009) are the most common. However, such face-to-face interventions are demanding in time, labour and cost (Lambert et al., 2017). Moreover, there are issues surrounding the accessibility of face-to-face interventions as they are restricted by location and time (Lambert et al, 2017). The issues around accessibility of mental health support for nurses have been exacerbated during the COVID-19 pandemic (Maben & Bridges, 2020). The high workload and busy schedules associated with nursing (Schaufeli et al., 2009) may be a barrier to accessing such interventions. Thus, there is need for self-administered, flexible interventions. Previous meta-analyses have established the acceptability of self-administered interventions in the treatment of both anxiety and depression for general populations (Gregory et al., 2004; Haung et al., 2004). Although there is limited research comparing the use of self-administered interventions with face-to-face interventions specific to the nursing population, some research has demonstrated the acceptability and even preference for self-

administered interventions for nurses. For example, a comparison of a self-administered mindfulness intervention via a smart phone application, versus a traditionally delivered face-to-face mindfulness intervention concluded that nurses who self-administered the intervention showed greater reductions in stress (Wylde, Mahrer, Mayer & Gold, 2017). However, as there is little literature researching the use of self-administered interventions in healthcare professionals overall, there is a need to further explore the efficacy of different forms of these interventions. Furthermore, given known associations between nurse wellbeing and patient care and safety, there is also a need to test whether interventions aiming to improve nurse wellbeing also provide concomitant benefits for outcomes pertaining to quality and safety.

An intervention type that can be self-administered, and which is the focus of this thesis is self-affirmation (SA). SA manipulations are based upon reflection and the connection of an individual to their core values (Schmeichel & Vohs, 2009). A SA intervention has been chosen for use with nurses due to its focus on values, as values have always held great importance for the nursing profession (Rassin, 2008). Values are ideals that people uphold which shape individuals' behaviours and decision-making processes, serving as motivators. A well-formed value system helps reduce conflict within decision making processes, thus it is important for people to be aware of the values they hold which are influencing their behaviours (Altun, 2002). For nurses, being aware of their personal values may equip them to make decisions and solve problems. Indeed, it has been suggested that nurses who are unaware of their professional or personal values will have difficulty in understanding their role professionally (Altun, 2002). This highlights why a SA intervention may be useful with nurses in the context of improving levels of wellbeing and patient safety, as it may

increase their awareness of their values. Furthermore, Altun (2002) advises that uncovering values for nurses who are experiencing burnout is crucial to help reduce levels of burnout.

This literature therefore highlights the possible association between values, wellbeing and patient safety. However, there has been no study which has investigated these concepts or explored the relationships between them. Due to the importance of values in nursing, there is a need for research to build an understanding of the relationships between values, wellbeing and patient care and safety as this could inform future interventions designed to support nurses' wellbeing and patient care and safety.

1.3 Theoretical framework: Self affirmation

Self-affirmation is a cognitive or behavioural manipulation that provides support to self-integrity (Stapel & Van der Linde, 2011). SA theory has been shown to be beneficial for outcomes such as educational attainment, reception of health messages and stress. Through numerous studies, the theory of SA has been refined and the utilisation of the intervention has evolved (Logel & Cohen, 2012). The theory underlying this intervention is based upon the notion that people are motivated to maintain their integrity and view of the self (Steele, 1988).

According to Steele's (1988) SA theory, SA interventions connect an individual to their core values, personal beliefs and abilities, to provide protection from stressful situations. The self-concept is the construct that SA manipulations seek to protect. This construct acts as a mediator of how people see the world and formulate their core values. Threats to a person's self-concept can pose existential problems for

them, this in turn, may lead to the choice to disengage from the situation causing them stress (Aronson et al., 1999).

A central component to SA theory is the belief that human beings desire to view themselves as good, able individuals (Aronson et al., 1999). Research has asserted that self-esteem plays an integral role in providing internal strength to protect an individual's self-concept when challenged by threats (Steele, Spencer & Lynch, 1993). This demonstrates the potential therapeutic benefits of SA interventions as affirmation is a basic human need (Steele et al., 1993). SA theory proposes a psychological mechanism which allows an individual to cope with threatening situations through protecting the self, driven by personal values and integrity, buffering against the threat of psychological stress (Cohen et al., 2009).

By background, SA theory can be considered a branch of Festinger's dissonance theory (Cooper & Fazio, 1984; Thibodeau & Aronson, 1992). According to cognitive dissonance theory (Festinger, 1957), individuals have an inherent need to experience harmony between attitudes and beliefs. When individuals experience disharmony, there will be discomfort, leading to an action to restore balance to attitudes and beliefs for the individual. There is discussion within the literature over whether a distinction is required between SA and dissonance theory. As some researchers argue that dissonance theory adequately accommodates SA theory (Thibodeau & Aronson, 1992; Festinger, 1957). Nevertheless research has continued to focus specifically upon SA theory and interventions over dissonance theory (Aronson et al., 1999), therefore supporting the potential and importance of SA theory in its own right.

Research has highlighted some controversial findings relating to SA theory. Although many studies have demonstrated that SA interventions can be beneficial in improving wellbeing by helping individuals to avoid stress (McCrea & Hirt, 2011; Munroe & Stansbusy, 2009), some research has suggested that whilst SA manipulations affirm an individual's core values, they can leave them vulnerable to feeling threatened in hazardous situations. This vulnerability may then result in them failing to adequately adopt self-protection against threatening events. Consistent with this, some studies have found that SA manipulations have enabled rationalisation of negative thoughts to be supported and grown, resulting in an increase in negative behaviours (Aronson, Blanton & Cooper, 1995; Blanton, Cooper, Skurniick & Aronson, 1997). For example, individuals who were asked to complete a SA manipulation were less likely to correctly identify health risks associated with the behaviour they were affirming than those who were not exposed to a SA manipulation (Munro & Stansbury, 2009). As such, in contrast to its underpinning theory some researchers have theorised that SA may prove harmful when utilised as a coping mechanism for stress (Munroe & Stansbury, 2009; McCrea & Hirt, 2011). This view states that by focusing on maintaining a positive self-view and protecting the self, individuals are discouraged from self-improvement.

1.3.1 Manipulations

SA interventions are usually self-administered. The intervention can be brief, yet it can still produce a sustainable effect (Cohen & Sherman, 2014) making it suitable for time pressured populations such as nurses. Stressors and mistakes which challenge ones' perception of self can have detrimental effects. To protect the self-concept people will often react maladaptively to such threats (i.e., with defensiveness). SA offers an alternative indirect psychological response to these threats, by re-affirming

alternative values that are important to them, people can bolster their sense of self and thus face the threat more adaptively (Cohen & Sherman, 2014). An important function of SA interventions is the expression and connection with an individual's core values.

A SA intervention invokes SA through manipulation and interventions can be categorised according to the type of manipulation they use. For instance, some interventions provide prescribed value lists for participants to rank, and some interventions ask participants to identify values unprompted. The procedure of manipulation may also vary; from, for example, asking participants to write essays or lists about values, respond to questionnaires or through providing positive feedback. The most commonly used method is the value scale (McQueen & Klein, 2006), in which participants rate their most important values from a list provided. To date, these types of interventions have mainly been used in research and studies using them have found that SA interventions improve reception of threatening messages in healthcare (Klein et al., 2011), and close the achievement gap between different ethnicities for example, within education (Cohen et al., 2009). In practice, SA interventions have been effectively delivered online to support children's education (PERTS, 2018). However, such interventions have not yet been implemented in healthcare settings with healthcare professionals.

1.3.2 Self-affirmation and wellbeing

SA interventions have been used with a variety of populations and have aimed to achieve different outcomes. The first SA interventions focused upon education and improving achievements particularly for students facing stereotype threat. Stereotype threat describes contexts in which an individual's stereotype influences their

behaviour, for example the stereotype that Latino students achieve less academically, leads them to realising this (Cohen et al., 2006). Since this work, the area has widened and studies have started to focus upon the potential beneficial effects of SA on levels of wellbeing. Several studies have suggested that SA interventions are effective for improving wellbeing related outcomes including: subjective wellbeing (Armitage, 2016), negative affect (Lannin et al., 2017), stress coping (Walton et al., 2015) and self-esteem (Brady et al., 2016). However, not all studies have reported interventions to be effective for improving wellbeing; for example, Czech et al. (2011) found no effect of a SA intervention upon anticipatory or post task anxiety. Despite this emergent research focus within the SA literature establishing the usefulness of SA interventions in supporting wellbeing outcomes, there has not been a comprehensive synthesis of these findings conducted. Considering the mixed findings and diverse application of the intervention there is a need to establish the effectiveness of SA interventions in supporting different concepts of wellbeing.

SA enables individuals to successfully manage threatening information or events to the self without utilising defensive biases (Cohen et al., 2009; Steele, 1998). Defensive biases are the thought patterns and related actions which protect self-esteem by validating the individuals' beliefs but preventing them from accepting information may provide them a better choice (Chen et al., 2009; Logel & Cohen, 2012). For example, most individuals perceive their risk of contracting disease as lower than average (Weinstein, 1987). In addition to mitigating self-reported stress, studies have indicated that SA interventions can also mitigate the physiological indicators of stress such as triggering the sympathetic adrenal system. Symptoms

triggered by stress may be mitigated by SA manipulations (Van Koningsbrugges & Das, 2009).

Studies have shown that the use of SA manipulations to cope with stressful subjects can protect self-identity and mitigate the negative impact of stressful information (Sherman et al., 2009). One study found that women who have previously been abused are significantly less likely to experience distress when presented with violent images following SA (Sherman et al., 2009). This provides an example of how individuals who utilise SA can manage stressful situations and therefore protect their mental and physical wellbeing (Sherman et al., 2009). SA manipulations relegate impending threatening information by refocussing individuals on positive personal values which could enable them to live happier and more productive lives (Sherman at al., 2009; Slutzy & Simpkins, 2009).

How and why self-affirmation interventions may be one mechanism for addressing poor wellbeing and its relationship with patient care and safety

As stress is a common experience for nurses who work in acute hospital settings (Garrosa et al., 2011, Foureur et al., 2013), the focus within SA theory and literature on how it can support and improve responses to stress, makes it a promising tool for this population. Furthermore, given that stress is closely associated with poor wellbeing and burnout, which are in turn associated with poorer patient safety, it is possible that SA may have the potential to improve patient safety via improving stress responses.

Indeed, research has directly evidenced that SA has the potential to improve behaviours reliant on mental aptitude such as maths performance (Lokhande & Muller, 2019; Martens, Greenberg & Schimel, 2006). There is also one study in which student nurses completed a SA intervention (Tailandier-Schmitt, Esnard &

Mokounkolo, 2012). This study found that French student nurses who had self-affirmed performed better in a math task compared to their control counterparts. This study built upon previous literature which demonstrated that SA tasks deflect negative stereotype threat (Martens et al., 2006); specifically relating to the stereotype of females being poorer at maths to males. As maths ability is a key component to medication administration (McMullan, Jones & Lea, 2009), these studies show that SA may help patient care and safety, although no study has yet directly tested this. Figure 1 outlines a conceptual model which illuminates the proposed relationships between the key variables: SA, wellbeing and, patient safety. The model demonstrates the postulated relationships between wellbeing and patient safety (line 'A') when a patient safety incident has occurred (line 'B'), and then how SA is hypothesised to interact with these concepts. Figure 1 demonstrates how a SA intervention may be a mechanism in improving both wellbeing and patient safety for nurses via direct and indirect routes. The literature has outlined how SA interventions may directly improve wellbeing (line 'C'; Armitage, 2016; Brady et al., 2016; Czech et al., 2011; Lannin et al., 2017; Walton et al., 2015) and patient safety (line 'D'; Lokhande & Muller, 2019; Martens, Greenberg & Schimel, 2006; Tailandier-Schmitt, Esnard & Mokounkolo, 2012). Self-affirmation interventions may indirectly improve patient safety via improvements to wellbeing (line 'A'; Johnson et al., 2017; Louch et al., 2017) as evidence has demonstrated the association between these two concepts. Additionally the figure depicts how a SA intervention may protect wellbeing if it occurs directly after a clinical error (which is a threat to sense of self; line 'B') as it may bolster an individual's sense of self (Cohen & Sherman, 2014) and therefore prevent the negative impacts making an error can have (Jones & Treiber, 2010).

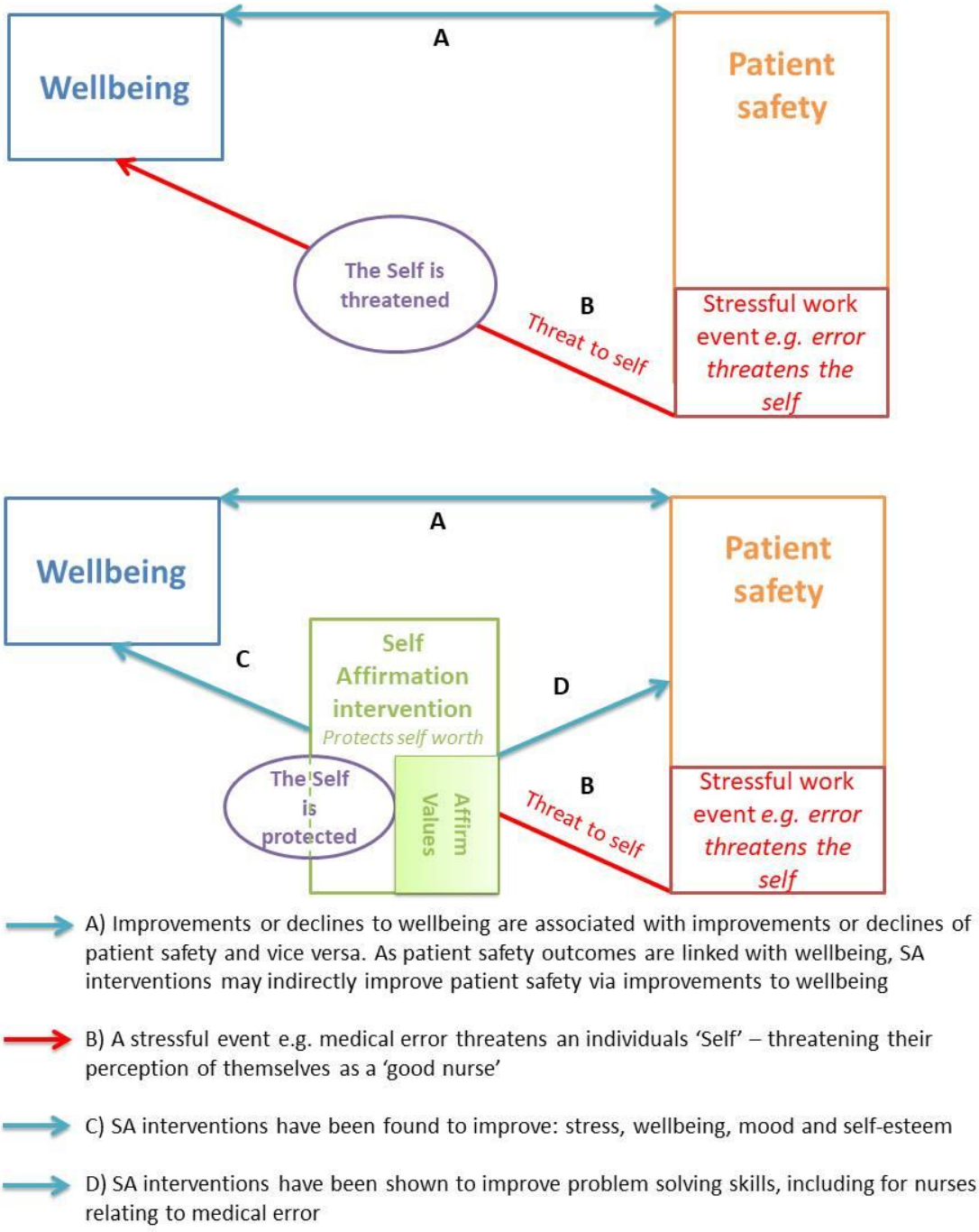


Figure 1. *A conceptual model detailing the postulated relationships between self-affirmation, wellbeing and patient safety*

The literature reflects the need for wellbeing support resources to be in place for nurses who work in acute hospital settings, and the requirement for the exploration of low cost, brief, self-administered interventions. The clear relationship between levels of nurse wellbeing and patient care and safety presents an opportunity to

utilise an intervention targeting improving both nurse wellbeing and quality and safety outcomes. SA interventions present a potential answer to these gaps in the literature and as such could respond to the needs of the healthcare service. The interventions are brief, low cost and can be self-administered. There is evidence that the intervention could be beneficial in improving wellbeing for individuals and to be a cognitive tool to respond to highly stressful environments and improve behaviours specific to quality and safety (i.e., math skills). Furthermore, the focus upon realigning core-values within the intervention is reflective of the importance of values within the nursing profession (Altun, 2002). Whilst it has been outlined how SA interventions may be useful for nurses, it is likely that adaptations to the intervention would be required to ensure the suitability for the population (Yeager &Walton, 2011). However, to date no research has attempted to adapt the SA intervention for a nursing population.

1.4 Mixed method approach

The research within this thesis adopted a mixed methods approach to adapt and establish the feasibility, acceptability and effectiveness of using a SA intervention with registered nurses (RNs). A mixed methods approach is defined as one in which qualitative and quantitative data are collected, analysed and integrated by the researcher in a sustained programme of interest (Creswell, 2003). The use of mixed methods to develop and evaluate complex interventions is advocated by the Medical Research Council (MRC) framework (Craig, Diepe, Macintyre et al., 2008) and the recently updated framework (Skivington et al., 2021). Therefore, it was important within this thesis to adopt a mixed methods approach when adapting and piloting the SA intervention. Insights gained from using mixed methods complement one another and provide deeper understanding (Farquhar, Ewig & Booth, 2011).

A sequential design, in which initial qualitative studies informed the development of later quantitative studies, has been followed within this thesis. This ensured that there was a deeper understanding of nurse perspectives when adapting the intervention and establishing the acceptability and feasibility of the intervention. A synthesis of the qualitative research (i.e., interviews, workshop and Think Aloud interviews) drove the adaptation of the SA content, to ensure that nurse's views and opinions were at the heart of the process of adaptation. This qualitative work also explored the most appropriate format and study design for the quantitative research to measure the effectiveness of the final intervention with nurses.

1.5 Thesis aims

Aim: The main aim of the PhD was to adapt a values-based (self-affirmation) intervention to be used by nurses who work in an acute hospital setting, with a view to improving wellbeing and perceptions of patient care and safety in this population.

1.5.1 Objectives

1. To understand the effectiveness of SA interventions for improving wellbeing in any population.

2. To investigate the concept of values in the context of wellbeing and patient care and safety for nurses who work in an acute hospital setting.

3. To adapt a SA intervention for use with the hospital nursing population.

4. To understand whether the adapted SA intervention is feasible and acceptable to nurses.

5. To examine the effectiveness of an online SA intervention in supporting wellbeing and influencing 'proxy' patient safety measures for the general population during the COVID-19 pandemic.

1.6 Thesis timeline and structure

This thesis includes of a systematic review and three studies which were conducted sequentially (See Figure 2).

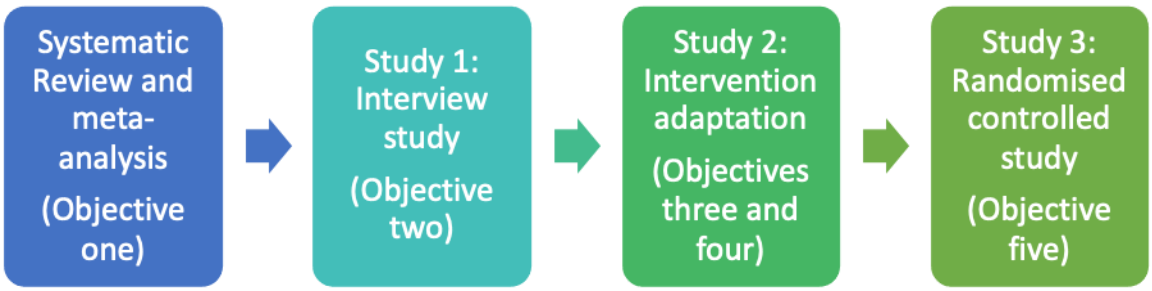


Figure 2. *A depiction of the sequence of research conducted within the thesis*

This thesis consists of six chapters:

Chapter 2- Systematic review and meta-analysis

This chapter presents a systematic review and meta-analysis which examined the effectiveness of SA interventions in supporting different concepts of wellbeing for all populations. The findings are discussed in terms of theory, methodological design, wellbeing outcomes, type of SA manipulation and the implications for using SA interventions with nurses.

Chapter 3- Interview study (Study 1)

This chapter describes Study 1, a semi-structured interview study with nurses, which in part one focussed upon the relationships between values, value congruence, wellbeing and patient care and safety. In part two, the interview explored nurses' initial impressions of the use of a SA intervention to support nurse wellbeing. The importance of values for nurse wellbeing and patient safety are discussed as well as how these findings relate to the adaptation of the intervention.

Chapter 4- Intervention adaptation (Study 2)

This chapter describes Study 2, a two-stage study conducted to adapt a SA intervention for a nursing population. Part one of Study 2 was a workshop held with nurses to co-produce the content of the intervention. For part two of Study 2, Think Aloud interviews were held to assess the engagement with, acceptability and feasibility of the adapted intervention. A synthesis of the previous chapters and an overview of the process of adapting the intervention are discussed. The adapted SA intervention is presented.

Chapter 5- Randomised controlled study (Study 3)

This chapter presents the final study within this thesis, Study 3, a multi-stage, randomised controlled study aiming to examine the effectiveness of the adapted SA intervention in supporting wellbeing and improving 'proxy' patient safety measures for the general population during the COVID-19 pandemic. The findings are discussed in relation to how the intervention may or may not hypothetically support nurse wellbeing and perceptions of patient care and safety.

Chapter 6- General discussion

This final chapter presents the main findings of the thesis overall. The strengths and limitations of the research are discussed, followed by, recommendations for future research regarding self-affirmation interventions, and nurse wellbeing and patient care and safety. The implications of the findings for nurse wellbeing and patient care and safety are outlined.

1.7 Conclusion

This chapter outlines an overview of the research undertaken within this thesis. The gaps within the literature and the importance of bridging these are highlighted. The rationale for using a SA intervention with nurses for the purpose of supporting wellbeing and improving perceptions of patient care and safety is described, as well as the methodological approach to adapting this intervention.

1.8 The next chapter/ stage of the research

The next chapter outlines a systematic review and meta-analysis looking at the effectiveness of SA interventions in improving wellbeing outcomes. The aim of the review was to collate and critically synthesise SA studies which included a concept of wellbeing as an outcome measure.

Chapter 2

Do self-affirmation interventions improve wellbeing? A systematic review and meta-analysis

2.1. Chapter summary

This chapter reports a systematic review and meta-analysis exploring the effectiveness of self-affirmation (SA) interventions in supporting wellbeing. Both peer reviewed articles and grey literature that studied the effectiveness of a SA intervention in improving different types of wellbeing (i.e., general wellbeing, depression, affect, anxiety, burnout, stress, self-efficacy, and self-esteem) were reviewed. The findings of this review and meta-analysis are discussed, along with the implications and recommendations for the adaptation of SA interventions with nurses. The results of this review informed the subsequent studies within this thesis.

2.2. Background

There has been a growing interest within the literature into the different potential utilities of SA interventions; this has led to a continued development of the evidence-base to understand how SA interventions influence individual outcomes. Research has established that SA interventions which encourage individuals to affirm their values, improve stereotype effects in education (Cohen, Garcia, Purdie-Vaughns, Apfel & Brzustoski, 2009; Cook, Purdie-Vaughns, Garcia & Cohen, 2012; Sherman et al., 2013) and increase acceptance of health messages (Sherman, Nelson & Steele, 2000). There is also growing evidence suggesting that SAs could have psychological benefits: Sherman et al. (2009) found that participants who affirmed

their values during a stressful midterm examination period had depreciated epinephrine responses compared with matched controls, indicating reduced levels of stress in the affirmed group. Indeed, a number of SA studies have included forms of wellbeing as outcome measures (Armitage & Rowe, 2008; Lopez, 1995; Smith & Citti, 2006; Walter, Demetriades, & Murphy, 2017; Wileman et al., 2014) but these have often been secondary outcomes, and not the main focus of the studies.

When wellbeing and positive affect have been the key outcome variable, the evidence has been contradictory (Howell, 2016; Czezh, Katz & Orsillo, 2011). As such, there is a possibility that SAs may have benefits for wellbeing, but this is not yet clear. In order to understand whether SA interventions could be a useful tool in supporting nurse wellbeing, it is necessary to address this gap in knowledge by synthesising the studies which have tested SA interventions and included wellbeing outcome measures. For this purpose, a systematic review and meta-analysis was conducted. Meta-analysis was chosen as the method of synthesis as it provides evidence of practical significance, and can find effects or relationships which may be obscured with other approaches (Shelby & Vaske, 2008). A meta-analytical approach also provides a more objective view of the evidence in comparison to narrative review. Through its methodological approach it produces a more precise estimate of the effect of the intervention, and can enable resolution of conflicting studies (Lee, 2019). As the literature around wellbeing and SA interventions is inconclusive, it was important to use a method which can yield conclusive results from inconclusive individual studies.

SA interventions invoke affirmation of the self through manipulation. These manipulations involve an individual reflecting on significant aspects of the self to increase their salience. To understand how SAs are effective, some studies have

investigated possible psychological mechanisms and mediating effects. One suggestion has been that affect mediates the effects of SA (Tesser, 2000), but this literature has yielded inconclusive findings (Steele, Spencer & Lynch, 1993). Although some evidence has suggested that SA interventions are effective in improving wellbeing related outcomes such as negative affect (Lannin, Vogel & Heath, 2017), stress coping (Walton, Logel, Peach, Spencer & Zanna, 2015) and self-esteem (Brady et al., 2016), not all studies have reported significant results. For example, Czech et al (2011) found no effect of a SA intervention upon anticipatory or post task anxiety.

Sherman (2013) has described three alternative mechanisms by which SA interventions may have their effects. First, they suggested that affirming values works by boosting psychological resources which individuals use for coping with threats. Second, they proposed that becoming affirmed broadens people's perspectives and abilities to view life events and new information in a more positive way. Third, they purported that SAs uncouple the self and threat, enabling the self-concept to less impacted by the threat. The relationships between these proposed mechanisms are unclear; whilst it is plausible that these processes could occur independently but simultaneously, further research would be needed to elucidate this. By investigating whether SAs impact wellbeing, this systematic review and meta-analysis will test the proposed mechanisms by which SAs may exert their effect.

There is a particular need to explore whether SAs improve wellbeing; aside from providing an explanatory mechanism for the effects of SA, this knowledge would help ascertain whether SA could be a useful intervention for healthcare staff and specifically nurses working in acute hospital settings. Nurses suffer with depressive

symptoms at a rate twice as high as the general population (Letvak et al., 2012). Research suggests that nurses who work in an acute hospital setting experience heavy workloads and low morale within teams, which may be contributing to concomitantly levels of job dissatisfaction (Bally, 2007). The reported levels of depression combined with current staffing shortages mean that maintaining healthy levels of wellbeing for nurses is a daunting prospect (Ohler et al., 2010).

Promoting healthy wellbeing in nurses in acute hospital settings is particularly important as it is widely acknowledged that nurse wellbeing and patient safety are linked. Nurses working in acute hospital settings who display depressive symptoms (Johnson et al., 2017), chronic stress (Louch et al., 2017) and experience high levels of job dissatisfaction (Bally, 2007) report poorer perceptions of patient safety. Historically, face-to-face therapies such as cognitive behavioural therapy (Proudfoot, Corr, Guest & Dunn 2009) have been the mainstay of psychological interventions. However, such face-to-face interventions are demanding in time, labour and cost, and are restricted by location and time (Lambert et al, 2017). The high workload and busy schedules associated with nursing (Schaufeli et al., 2009) may be a barrier to accessing such interventions. As such, there is a need for considering self-administered, flexible interventions which support wellbeing for nursing staff. SA interventions can be self-administered and brief (Cohen & Sherman, 2014).

There are various forms of SA interventions. One method provides participants with prescribed value lists to rank. Another asks participants to identify values unprompted. Procedures also vary and can include writing essays or lists about values, responding to questionnaires or providing positive feedback. The most commonly used method is the value scale SA (McQueen & Klein, 2006), in which participants rate their most important values from a list provided. This wide range of

possible interventions available represents a difficulty within the literature as it is unclear which is the most effective manipulation, or whether different manipulations are preferred for certain outcomes. This systematic review and meta-analysis will address this and explore differences in the effectiveness of the manipulation types used for the different types of wellbeing. This will help inform the next studies of the thesis, if differences are found.

Howell (2016) suggested that using SAs may be an effective method for improving levels of wellbeing, but argued that these interventions have been overlooked by positive psychology researchers. Howell (2016) conducted a topic overview of the literature looking at wellbeing and SA and outlined some of the difficulties with the literature in this topic; including the need to extend the initial empirical findings regarding SAs and wellbeing. As there are few studies that directly examine this relationship, by pooling the results across these articles, a systematic review and meta-analysis could be used to address these issues.

Mental wellbeing is a broad concept, encapsulating experiences aspects such as mood, stress and self-esteem. It has been suggested that wellbeing is a spectrum (Hall, Johnson, Watt, Tsipa & O'Connor 2016), with experiences such as elevated depression indicating low levels of wellbeing, and low levels of depression indicating high wellbeing (Johnson & Wood, 2017). As such, when investigating wellbeing, previous reviews (Goyal et al., 2015; Wang et al., 2009) have included articles measuring aspects of depression, anxiety, positive and negative affect. Consistent with this, in the present review, a broad view of wellbeing has been assumed and thus includes measures of: general wellbeing, depression, affect, anxiety, burnout, stress, self-efficacy, and self-esteem.

The systematic review aimed to establish the effectiveness of SA interventions in improving levels of wellbeing. The specific research questions were:

Are SA interventions effective for improving wellbeing?

Is the effectiveness of SA interventions dependent upon the type of manipulations used or study design?

Are there differences in the effectiveness of SA interventions for different types of wellbeing outcome measures in certain populations?

The implications of the review findings will also be discussed in the context of intervention development for use in nurses to support wellbeing and perceptions of patient care and safety.

2.3 Methods

2.3.1 Search strategy

This systematic review and meta-analysis was performed with methods and reporting based on published guidance, including Centre for Reviews and Dissemination (CRD) guidance (Khan, Ter Riet, Glanville, Soden & Kleijnen, 2001), the Cochrane Handbook (Higgins & Green, 2011) and PRISMA statement (Moher, Liberati, Tetzlaff, Altman & Prisma Grouo, 2009). The review protocol was registered on PROSPERO (registration number: CRD42018085760). Six bibliographic databases were searched: MEDLINE via Ovid, EMBASE via Ovid, CINAHL via EBSCO, PsycINFO via Ovid (Appendix A), Cochrane Register of Controlled Trials via Cochrane and Web of Science from commencement until April 2019. As research using SAs to improve wellbeing is a relatively new concept within this domain, grey literature (such as doctoral theses, masters dissertations) were also included within

the search. Grey literature were searched using OpenGrey, SCOPUS, ProQuest and Google Scholar for relevant literature within the same time period. The search strategy comprising of database indexing and free text terms for SA and types of wellbeing was developed for MEDLINE and then adapted for the other databases. Where possible, searches were restricted to humans. The searches were supplemented through additional hand-searching of reference lists of included articles.

2.3.2 Eligibility criteria and study selection

The eligibility criteria applied to the literature are defined (See Table 2).

Table 2. *The eligibility criteria for the inclusion of articles within the review and meta-analysis*

PICOS	Eligibility criteria
Population	Any population group.
Intervention	SA interventions were defined as any manipulation specifically designed to invoke SA.
Comparison	Any control group required, including: other interventions, sham interventions, tasks unrelated to affirmation.
Outcome	At least one quantitative outcome measure of wellbeing: overall wellbeing, positive affect, self-esteem, negative affect, depression, self-efficacy, burnout or stress.
Study design	Both peer reviewed and non-peer reviewed (grey literature) reports of empirical academic research were included. Articles using any study design were included. Studies only published in English were included due to limited access to translation resources.

Controlled studies evaluating a SA intervention in any population and delivered in any setting were eligible for inclusion (See Table 3). Any method of group allocation was accepted and control groups could be concurrent or historic in relation to the intervention group. The SA intervention could be defined as any experimental manipulation specifically designed to invoke SA. In addition to the term 'self-affirmation', these interventions could also be described as 'written affirmations' or 'value affirmations'. Any type of control regimen group was acceptable including other active interventions, sham interventions, tasks unrelated to SA or no intervention. Articles were required to report at least one quantitative measure of wellbeing among the review's primary outcomes (general wellbeing and positive affect, self-esteem, negative affect and depression) or secondary outcomes (self-efficacy, burnout or stress). All outcome measures could be expressed as change relative to baseline or an absolute value at a given follow-up point. Any time duration of treatment or follow-up period was acceptable. The following were excluded: uncontrolled studies; evaluations of SA interventions combined with other approaches (e.g., self-enhancement strategies), and; articles published in languages other than English.

Table 3. *The inclusion and exclusion criteria for studies included in the systematic review*

Inclusion criteria	Exclusion Criteria
Any population group Any manipulation of Self-affirmation Must be a controlled study, any control accepted Must include one quantitative wellbeing outcome Any treatment or follow up period English language	Uncontrolled studies Interventions which use a combination self-affirmation with other approaches

After duplicates were removed, articles were selected for review in two stages. For the first stage, articles were screened according to their title and abstract; secondly the remaining potentially eligible records were screened against the article selection criteria following full text retrieval. Four reviewers independently screened 10% of the titles and abstracts (AD, GL, JJ, KS; to check reliability the kappa statistic was computed to indicate level of agreement using threshold of k=0.7). Disagreements were rare; and were resolved by discussion. As there was confirmation of reliability and agreement amongst the reviewers (k =0.95), the remaining title and abstract screening was continued by one reviewer (AD). Full text screening was completed by two reviewers (AD, JJ) and any disagreements were resolved by discussion.

2.3.3 Assessment of study quality

The risk of bias assessment of the included articles was conducted by one reviewer (AD) using the Effective Practice and Organisation of Care (EPOC) risk of bias tool (EPOC Resources for review authors, 2017). One independent reviewer (LR) conducted the risk of bias assessment on 10% of the included articles to check

reliability. The EPOC risk of bias tool has nine standard criteria for use with studies with a separate control group; including: randomised trials, non-randomised trials and controlled before-after studies. The criteria assessed included: random sequence generation, allocation concealment, baseline outcome measurement similar, baseline characteristics similar, incomplete outcome data, knowledge of the allocated interventions adequately prevented during the study, protection against communication, selective outcome reporting and other risks. For each article, the criterion were scored as having low, high or unclear risk of bias. In accordance with the methods of a previous meta-analysis (Johnson & Panagioti, 2018) articles were classified as being at low risk of bias overall if at least six criteria were assessed as having low risk individually. Articles were regarded as having a moderate risk of bias overall if four or five individual criteria were assessed as low risk. Articles were considered as having a high risk of bias overall if three or fewer individual criteria were assessed as low risk. As this is the first review to look at SA and its effects on improving wellbeing, articles classified as high risk of bias were not excluded to derive an overall impression of the quality of research in this area. However, the level of bias of the different articles was considered when interpreting findings.

2.3.4 Data extraction and synthesis

The data was extracted into two files. The following data was extracted for all included articles: study identifier, study design, participant characteristics (type of population and demographic information), number of participants recruited, description of intervention and control interventions, outcome measures and results (including statistical information). All outcome variables were continuous data. For articles providing sufficient data for estimation of treatment effect/meta-analysis, the mean, standard deviation and number of participants recruited were recorded for

each treatment group of each article, in a separate file. At this stage article authors were contacted and asked to provide any missing information.

Narrative synthesis was adopted to comment upon study design, context, and quality in addition to addressing the objectives of the review. All included articles reported all review-relevant outcomes as continuous data variables. Where sufficient data were available (from article reports or via contact with authors) the mean difference in wellbeing and associated 95% confidence interval was estimated for each study. Individual study results were summarised narratively for instances where data remained unavailable. The narrative data synthesis approach summarised the data principally through words (Popay et al., 2006). The use of narrative synthesis to summarise studies where data is unavailable or unsuitable for meta-analysis is frequently used within literature (Al-Ghunaim et al., 2021; Cruz, White, Bell & Coventry, 2020; Hatala et al., 2014; Janes et al., 2021; Walker et al., 2021). Initially, an overall meta-analysis (i.e., including all populations and all variants of SA interventions) was performed for the primary outcomes: general wellbeing and positive affect; self-esteem; negative affect and depression; and anxiety. It was anticipated that measurement scales may vary within each outcome and therefore the overall (pooled) effect in each instance was estimated using standardised mean difference (Hedge's g) with associated 95% confidence interval. The diversity of the evidence base in terms of populations, interventions, comparators and study designs, suggested that instead of one singular effect there would be a spread of effects expected within the results. In light of this, all meta-analyses were performed using a random effects model which takes account of both within-study and between-study variability. In addition to sensitivity analyses, sub-group analyses were conducted to explore potential sources of statistical heterogeneity and to

explore the second and third aims of the review. Sub-groups were based upon: characteristics of intervention, length of time to follow up, control and population. The primary outcomes of the meta-analysis looked at overall wellbeing and positive affect; negative affect and depression; self-esteem and anxiety. All meta-analyses were performed using the Cochrane Collaboration's software, Review Manager (RevMan [Computer program]). This software was also used to create forest plots and to generate funnel plots for meta-analyses which included at least 10 studies (Reitsma et al., 2009)

2.4 Results

Database searches yielded 6248 records but searches through other sources did not identify any further records. De-duplication left 3628 results to be screened. Following title and abstract screening, there were 63 articles screened at full text to assess their eligibility, leaving a remaining 23 articles to be included in the systematic review and meta-analyses (See Figure 3).

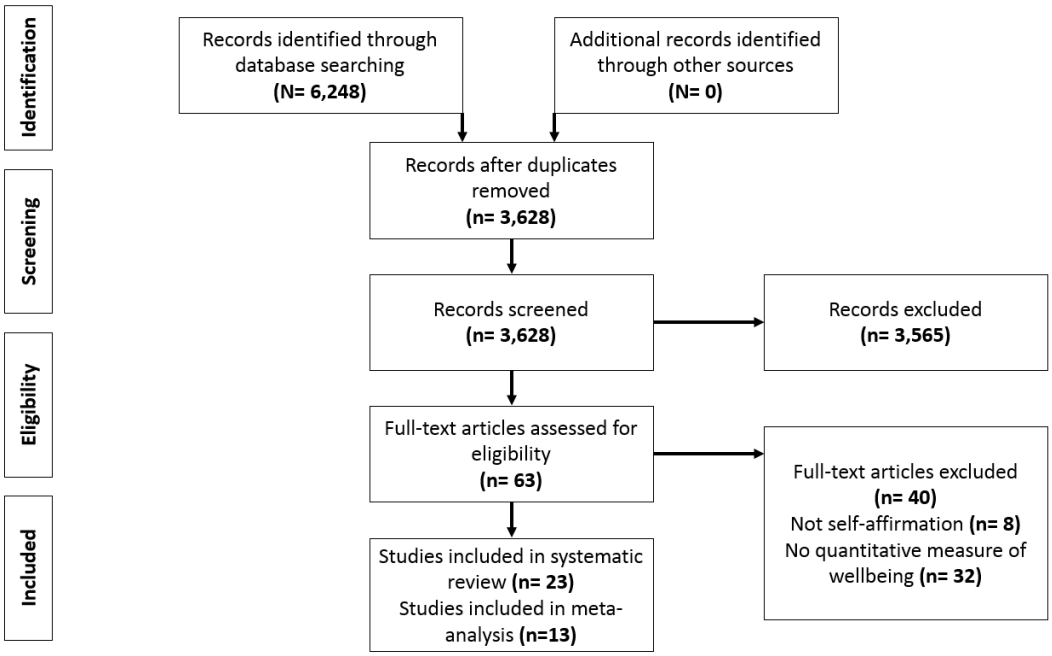


Figure 3. *PRISMA flow diagram for the article selection process*

Authors of seven articles did not respond to requests to provide missing information therefore the pertinent data could not be included in the meta-analyses. A further three articles were omitted from the meta-analysis as the specific measured outcome did not include enough data to be pooled. Therefore 13 articles were included within the meta-analysis, reporting 19 individual comparisons. Table 4 demonstrates which articles were included within the meta-analysis and how many studies (comparisons) were included in each article. As none of the meta-analyses included 10 or more studies, funnel plots were not generated.

Table 4. *Outcomes of each study with number of comparisons included within the meta-analysis*

Key: * Included in the review

✓ Included in the meta- analysis

1, 2, 4 = Number of comparisons included

	Outcome									
	Wellbeing	Depression	Positive and negative affect	Overall wellbeing and positive affect	Negative affect and depression	Anxiety	Self-esteem	Self-efficacy	Burnout	Stress
Armitage, *2016*	*			✓ **1**			✓ **1**			
Armitage, *2012*							✓ **4**			
Armitage & Rowe, *2008*							*			
Brady at al, *2016*							✓ **1**			*
Burgess et al, *2013*			*	✓ **1**	✓ **1**		✓ **2**	*		
Creswell et al, *2005*										*
Czech et al, *2011*						✓ **1**	*			

	Outcome									
	Wellbeing	Depression	Positive and negative affect	Overall wellbeing and positive affect	Negative affect and depression	Anxiety	Self-esteem	Self-efficacy	Burnout	Stress
Exline et al, *2009*			*	✓ **2**	✓ **2**					
Koole et al, *1999*			*							
Lopez, *1995*			*				*			
Nelson, *2014*	*			✓ **1**						
Park et al, *2007*			*				*			
Pauketatat et al, *2016*			*	✓ **2**			✓ **1**			
Petzall *(n.d.)*		*			✓**1**	✓ **1**	✓ **1**			
Sellen, *2015*									*	
Sherman et al, *2009*										*
Smith & Citti, *2006*			*	✓ **2**	✓ **2**		✓ **1**			
Tyler et al, *2016*							*			
Walter et al, *2017*							✓ **1**	*		
Walton et al, *2015*							✓ **1**			*
Wileman et al , *2014*								*		

	Outcome									
	Wellbeing	Depression	Positive and negative affect	Overall wellbeing and positive affect	Negative affect and depression	Anxiety	Self-esteem	Self-efficacy	Burnout	Stress
Wright, *2010*			*			*	*			
Yildirim et al, *2016*	*	*			✓ **1**	✓ **1**				

Information about each individual article is portrayed in the descriptives table (See Table 5). In total there were 3248 participants within the 23 articles reviewed. This included 1803 (55.51%) females and 1116 (34.36%) males; however, two articles did not define gender and so for 329 (10.13%) participants, gender was unknown. The most frequently studied population was university students (13 articles) (Brady et al., 2016; Creswell et al., 2005; Czech at al., 2011; Exline & Zell, 2009; Koole, Smeets, Van Knippenberg & Dijksterhuis, 1999; Lopez, 1995; Nelson, 2014; Park, 2007; Pauketat, Moons, Chen, Mackie & Sherman 2016; Sherman et al., 2009; Smith & Citti, 2006; Walton et al., 2015; Wright, 2010). Three articles recruited patients attending either: haemodialysis (Wileman et al., 2014); chemotherapy (Yildrim et al., 2016), or; waiting for an appointment in a general practice (Burgess et al., 2013). Two articles included adolescents (Armitage, 2012; Armitage & Rowe, 2008). One article was included for each of the following population types: community (Armitage, 2016), residents of California (Walter et al., 2017), workers at a further education college (Petzal, n.d.), fourth year medical students (Sellen, 2015) and a non-restricted population recruited online (Tyler, Branch & Kearns, 2016). The articles measured the following forms of wellbeing: wellbeing (three articles) (Armitage, 2016; Nelson, 2014; Yildrim et al., 2016), positive and negative affect (eight articles) (Burgess et al., 2013; Exline & Zell, 2009; Koole et al., 1999; Lopez, 1995; Park, 2007; Pauketatat et al., 2016; Smith & Citti, 2006; Wright, 2010), depression (two articles) (Petzall, n.d., Yildrim et al., 2016), anxiety (four articles) (Czech et al., 2011; Petzall, n.d.; Wright, 2010; Yildrim et al., 2016), burnout (one article) (Sellen, 2015), stress (four articles) (Brady et al., 2016; Creswell et al., 2005; Sherman et al., 2009; Walton et al., 2015), self-esteem (12 articles) (Armitage, 2016; Armitage, 2012;

Armitage & Rowe, 2008; Burgess et al., 2013; Czech et al., 2011; Lopez, 1995; Park, 2007; Smith & Citti, 2006; Tyler et al., 2016; Walter et al., 2017; Walton et al., 2015; Wright, 2010 and self-efficacy (three articles) (Burgess et al., 2013; Walter et al., 2017; Wileman et al., 2012).

Table 5. *Summary of the included articles*

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Armitage 2016	Community	United Kingdom	88	0	63.96	Subjective Wellbeing (measured using four items prescribed by ONS) Self Esteem (measured using Robins 15 item scale)	Written intervention Participants asked to complete sentences from a stem selecting one of four options.	Only completed the questionnaire measures	One Month	Low
Armitage 2012	Adolescents	United Kingdom	220	52.27	Range 13-16	Self-esteem (measured using Heatherton & Polivy (1991) 20 item scale and Robin, Hendin & Trzesniewki's (2001) single item scale)	Written intervention Participants were asked to recall past acts of kindness and elaborate upon them.	Participants were asked to provide opinions (yes or no) of unrelated topics	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Armitage & Rowe 2008	Adolescents	United Kingdom	1-84 2-344	Study 1 0% Study 2 33.43%	Study 1- range 11-16 Study 2- range 13-18	Self-esteem (measured using Robin, Hendin & Trzesniewki's (2001) single item scale)	Study 1: Questionnaire Intervention Participants provided with 10 questions in which they were asked to recall past acts of kindness. Study 2: Questionnaire Intervention Participants provided with 10 questions in which they were asked to recall past acts of kindness. Written intervention Participants asked to rank values and write description about why top value is most important personal. Written intervention Participants asked to write about why value of kindness is important to them.	Participants asked to give their opinions (yes or no) on 10 unrelated issues	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Brady at al 2016	University students	USA	143	38%	N/A	Confidence in coping with stress (measured using a seven item scale)	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Participants were asked to write about their ninth ranked value.	Two years	Moderate
Burgess et al 2013	Patients from a minority background	USA	81	N/A	30+ years	Negative and positive mood (measured using subscales of PANAS- five items each (Watson & Clark, 1997)), self-esteem (measured using subscales of Heatherton & Polvy's (1991) scale), Self-efficacy (measured using short form of the PEPPI questionnaire (Maly et al. 2015))	Survey intervention Participants were asked to rate the extent to which 32 statements described themselves.	Participants asked 32 questions about how many features in the landscape they saw on the way to the clinic.	Same day	Low

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Creswell et al 2005	University students	USA	85	58.83	19.57	Stress neuroendocrine stress responses (measured using saliva samples), cardiovascular stress responses (measured using blood pressure and heart rate monitor), psychological stress responses (measured using a three item seven point scale)	Survey intervention Participants completed the Values Questionnaire, which asked them to comment on their feelings about their top ranked value.	Participants completed the Values Questionnaire, which asked them to comment on their feelings about their fifth ranked value.	Same day	Moderate
Czech et al 2011	University students	USA	64	21.87	19	Anxiety (measured using 20 item state trait anxiety inventory state version (Speilberger et al., 1983)), self-esteem (measured using 10 item Rosenberg (1965) self-esteem scale)	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Participants asked to write about the contents of their car/ closet.	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Exline et al 2009	University students	USA	167	50.3	18.7	Positive and negative emotions (measured using a scale of 16 items rated from 0-10)	Participants were asked to describe a situation where they had positive feelings about themselves.	Participants were asked to write about what a typical week was like at this time last year.	Same day	High
Koole et al 1999	University students	Amsterdam	70	30	21.1	Positive and negative mood (measured using a scale included 10 positive and negative affect items and five filler questions)	Participants received an AVL 10 item subscale based upon their top ranked value.	Participants received an AVL 10 item subscale based upon their least favourite ranked value.	Same day	High
Lopez 1995	University students		64	N/A	21.1	Self-esteem (measured using State Self Esteem Scale with 20 items (Heatherton & Polivy, 1991)), negative affect (measured using Multiple Affect Adjective List with 18 items on a Likert scale 1-7)	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Write about why least ranked value would be important to somebody else.	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Nelson 2014	University students	South Korea & USA	1-70 2-65	1-74 2-28	1-20.67 2-19.21	Hedonic (measured using The Modified Emotions Scale (Fredrisckson et al., 2003), asked the degree to which participants felt positive and negative emotions on a scale 1-5) and eudemonic wellbeing (measured using a composite of need satisfaction, meaning and flow)	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Participants were asked to write about their activities from the previous day.	Follow up: Study 1- completed the intervention 1 and 2 weeks after baseline; measures taken immediately after intervention. Study 2- completed the intervention 1 and 2 weeks after baseline; measures taken immediately after intervention, further follow up taken 1 week after this period	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Park et al 2007	University students		129	31	19.13	Positive and negative affect (measured by participants rating how much positive and affect they felt using a seven point scale), State self-esteem (Adapted version of Rosenberg (1965) self-esteem scale with ten items)	Writing intervention Participants asked to write a list of their greatest strengths.	Participants asked to write a list of objects in the room.	Same day	Low
Pauketatat et al 2016	University students	USA	1-61 2-47	1-32.79 2-46.80	N/A	Mood (measured by asking how happy participants felt in the moment from one -nine)	Written intervention Participants asked to rank five values, then asked to assign points of agreement to 10 pairs of statements.	Asked to assign points to their least ranked value or an irrelevant statement.	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Petzall (n.d.)	Workers (survivors [1] and victims [2])		249	N/A	1- 36.6 2- 45.5	Anxiety (measured using short form of State- Trait Anxiety Inventory (Spielberger et al., 1983), using six affective states and a four point scale) job-related depression (Measured using Job satisfaction scale, 16 items with seven point scales)	Written intervention Participants were asked to finish sentence stems with four option i.e., 'think about what I value'.	Participants were provided with sentence stems to finish, but there was no opportunity to affirm within the options.	Same day	Low
Sellen 2015	Medical students		176	45.45	N/A	Burnout (measured using Maslach burnout inventory (Maslach et al., 1986)	Written intervention Participants were asked to perform in task which affirmed their abilities in medical school.	Participants asked to do pre and post measures.	Same day	Low

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Sherman et al 2009	University students	USA	54	29.63	20.11	Psychological (measured using a two item post exam appraisal rated from one-four) and physical measurements (measured using levels of catecholamine analysis from urine collection) of Stress	*Online* Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Write about the second ranked value.	Same day	Moderate
Smith & Citti 2006	University students	USA	1-59 2-66 3-71	0%	1-23.62-19.283-26.06	Positive and negative feelings (measured using PANAS (Watson & Clarke, 1997), rating ten item from one-five), Situational personal self-esteem (Measured using the Rosenberg (1965) scale, rating seven items from one-seven)	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Write about why least ranked value would be important to somebody else.	Same day	Moderate

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Tyler et al 2016	Any population (recruited on amazon)	N/A	207	50.72	32.9	Self- esteem (measured using State Self Esteem Scale (Heatherton & Polivy 1991))	Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Participants asked to rank values and write description about the least ranked value.	Same day	Moderate
Walter et al 2017	California residents	USA	91	SA 30.5 C 37.8	SA 51.39 C 45.6	Self-esteem (measured using Rosenberg (1965) 10 item scale rating from one-seven), self-efficacy (Measured using an 8 item seven point likert scale)	*Online* Written intervention Participants asked to rank values and write description about why top value is most important personal value.	Participants did no filer task in the control.	Longitudinal study in three waves. Wave one- measures taken immediately after intervention wave two- measures taken one week after intervention wave three- measures taken one month after intervention.	Low

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Walton et al 2015	University students	USA	228	40.35	N/A	Self-esteem (measured using online survey daily diary; measured the stability and level of self-esteem using 20 items and a seven point scale) Stress daily adversities (measured using online survey daily diary; measured degree of importance negative events held using two scales with 1-5 points and measured confidence in coping with stress rating 10 sources of stress on a scale of 0-3)	Written intervention Participants were asked to think about balancing their values, in saying is believing exercises.	No intervention received, students only complete the outcome measures	Daily diaries began a couple of days after the intervention every other evening for 12 days six assessments	Low

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Wileman et al 2014	Haemodialysis patients	UK	112	61.6	60.5	Self-efficacy (measured using three item seven point scale)	Written intervention Participants were given ten questions about recalling their past acts of kindness.	Matched control questions that have no affirming qualities	Same day	Low
Wright 2010	University students	UK	101	30.69	21.73	Rate positive and negative emotions (measured using Pre- State trait anxiety (measured using state trait anxiety inventory form X2 (Spielberger et al., 1983), Self-esteem measure (measured using Rosenberg (1965) self-esteem measure rated 10 statements on a four point scale) Anxiety (measured using VAS discomfort scale (Hornblow & Kidson, 1976)	Written intervention Participants were provided with a piece of paper divided into four boxes and asked to describe several times they successfully displayed their most important values.	Participants were provided with a piece of paper and asked to write down any thoughts that came into their head	Same day	Low

Source	Participants	Country	No	% Male	Age (M)	Measure	Intervention	Control	Follow up	Risk of bias
Yildirim et al 2016	Cancer patients	Spain	140	35	Range: 52-58	Depression Anxiety lack of wellbeing (all measured using ESAS (Bruera et al., 1991))	Verbal intervention Participants were asked to repeat affirmative sentences verbally or internally.	No intervention received during chemotherapy	Measures taken five minutes into infusion (typical time 20 minutes), immediately after infusion and on the further day after chemotherapy.	Low

Note. ONS, (Office for National Statistics); PEPPI (Perceived Efficacy in Patient-Physician Interactions); AVL (Allport-Vernon-Lindzey Study of Values scale); PANAS (Positive and Negative Affect Schedule); VAS (Visual Analogue Scale); ESAS (Esmonton Symptom Assessment System)

The articles assessed a variety of SA manipulations. The value ranking task was the most common form (ten articles) (Brady et al., 2016; Czech et al., 2011; Koole et al., 1999; Lopez, 1995; Nelson, 2014; Pauketatat et al., 2016; Sherman et al., 2009; Smith & Citti, 2006; Tyler et al., 2016; Walter et al., 2017). Three of the articles focused upon SA manipulations which affirmed kindness (Armitage, 2012; Armitage & Rowe, 2008; Wileman et al., 2014). The additional articles used various methods including questionnaires (two articles) (Burgess et al., 2013; Creswell et al., 2005), completing sentence stems (two articles) (Armitage, 2016; Petzall, n.d.), describing feeling positive about themselves (one article) (Exline & Zell, 2009) describing greatest strengths (one article) (Park, 2007), describing times successful in values (Wright, 2010), affirming professional values (one article) (Sellen, 2015), balancing values (one article), (Walton et al., 2015), and affirmative sentences (Yildrim et al., 2016).

There were three different types of control condition used within the articles. These included asking participants to write about unrelated topics (ten articles) (Armitage, 2012; Armitage and Rowe, 2008; Burgess et al., 2013; Czech et al., 2011; Exline & Zell, 2009; Nelson, 2014; Park, 2007; Petzall, n.d.; Wileman et al., 2014; Wright 2010); to write about a value not ranked as the most important (eight articles) (Brady et al., 2016; Creswell et al., 2005; Koole et al., 1999; Lopez, 1995; Pauketat et al., 2016; Sherman et al., 2009; Smith and Citti, 2006; Tyler et al., 2016); and participants not having a control task, asking them to only answer pre and post measures (five articles) (Armitage, 2016; Sellen, 2015; Walter et al., 2017; Walton et al., 2015; Yildrim et al., 2016).

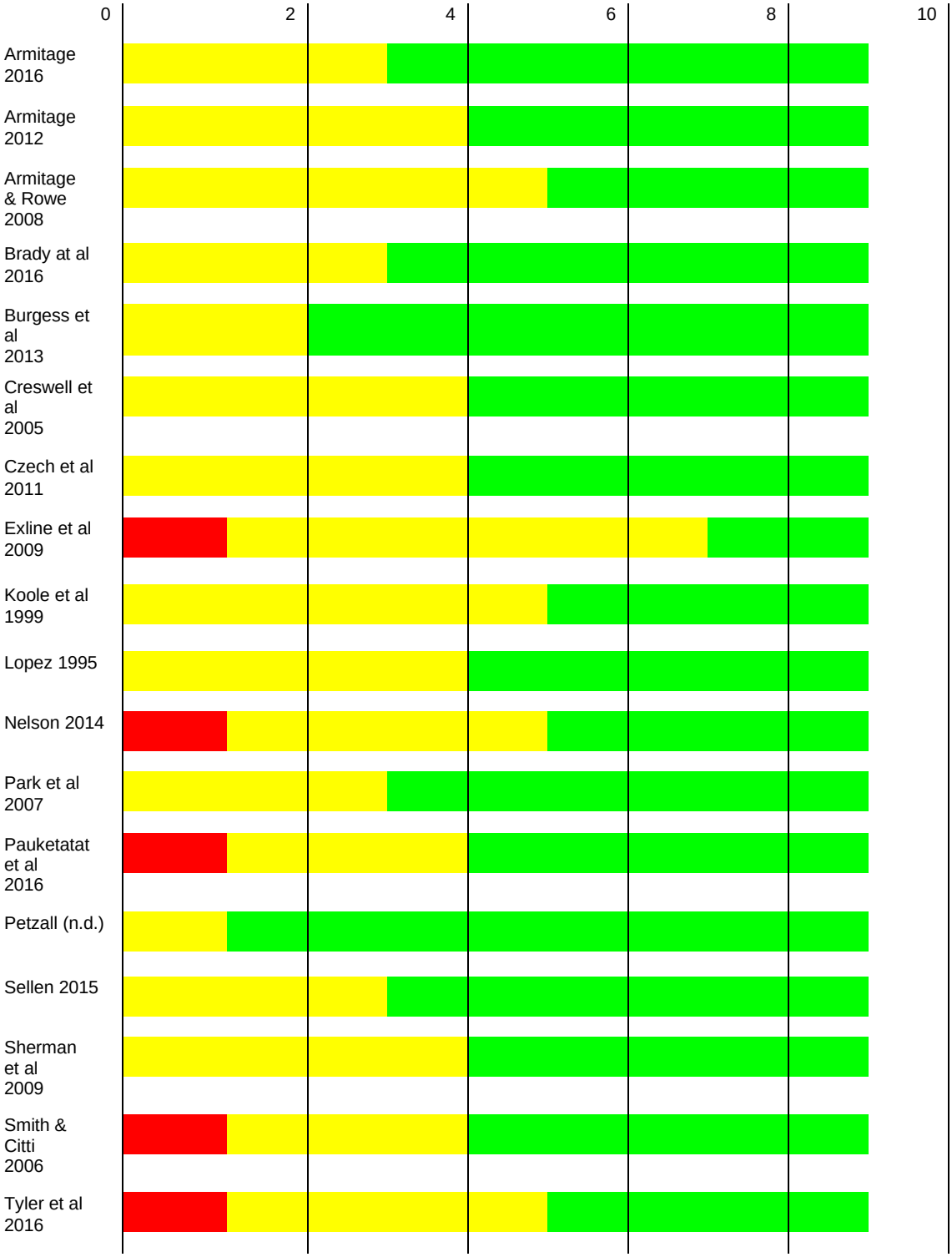
The length of follow up also differed. The majority of follow up measures were taken the same day as the intervention was undertaken (17 articles) (Armitage, 2012;

Armitage and Rowe, 2008; Burgess et al., 2013; Creswell et al., 2005; Czech et al., 2011; Exline & Zell 2009; Koole et al., 1999; Lopez, 1995; Park, 2007; Pauketat et al., 2016; Petzall, n.d.; Selen, 2015; Sherman et al., 2009; Smith and Citti, 2006; Tyler et al., 2016; Wileman et al., 2014; Wright 2010). The remaining follow up time periods were after one month (Armitage, 2016), two years (Brady et al., 2016) or taken at multiple time points (Nelson, 2014; Walter et al., 2017; Walton et al., 2015; Yildrim et al., 2016).

2.4.1 Assessment of study quality

The risk of bias scores for each of the 23 individual articles are presented (See Figure 4). Ten of the articles were scored as low risk for six or more of the criteria (Armitage, 2016; Burgess et al., 2013; Park, 2007; Petzall, n.d., Sellen, 2015; Walter et al., 2017; Walton et al., 2015; Wileman et al., 2014; Wright, 2010; Yildrim et al., 2016) demonstrating a low overall risk of bias. Eleven of the articles were scored low risk for four or five of the criteria, demonstrating a moderate overall risk of bias (Armitage & Rowe, 2008; Creswell et al., 2005; Czech et al., 2011; Lopez, 1995; Nelson, 2014; Pauketat et al., 2016; Sherman et al., 2009; Smith & Citti, 2006; Tyler et al., 2016). Two articles scored as low risk for three of the criteria demonstrating an overall high risk of bias (Exline & Zell, 2009; Koole et al., 1999). Twenty articles demonstrated high levels of rigour for participant allocations to conditions via randomisation. The remaining three articles did not report how participants were allocated to conditions (Exline & Zell, 2009; Tyler et al., 2016; Wright, 2010). All scored low risk for protection against communication and selective outcome reporting. Articles scored high risk, because the baseline and outcome measurements lacked similarity (Czech et al., 2011; Nelson, 2014) as did the baseline characteristics (Exline & Zell, 2009; Pauketat et al., 2016; Smith & Citti,

2006; Tyler et al., 2016; Walton et al., 2015; Wright 2010; Yildrim et al., 2016). A common weakness in the articles was generally poor reporting overall, which led to frequently scoring ‘unclear’ for risk of bias criteria. For example, the majority of articles were scored unclear risk for allocation concealment.



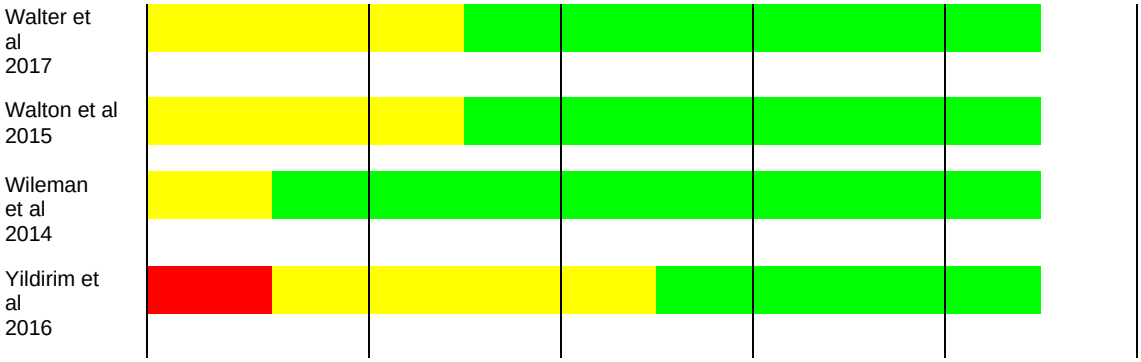
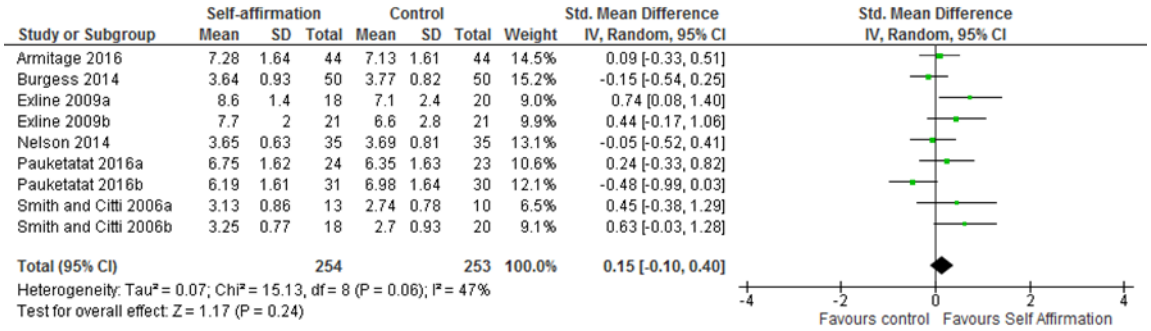


Figure 4. *Risk of bias ratings for each study included within the review on the nine EPOC criteria (Green= low risk, yellow = moderate risk, red= high risk)*

2.4.2 Main meta-analyses

To investigate the first review question into whether SA interventions are effective for improving wellbeing, meta-analyses were conducted which suggested that SAs did not result in significant improvements for any form of wellbeing. These included overall wellbeing and positive mood (nine comparisons: SMD= 0.15 [95% CI = -0.10, 0.40]; I^2 = 47%) (See Figure 5); self-esteem (nine comparisons: SMD -0.07 [95% CI =-0.28, 0.13] I^2= 66%) (See Figure 6); negative affect and depression (seven comparisons: SMD= 0.01 [95% CI = -0.37, 0.39] I^2= 64%) (See Figure 7); and anxiety (three comparisons: SMD= 0.14 [CI= -0.15, 0.42], I^2 = 0%) (See Figure 8). High levels of heterogeneity for measures of wellbeing and positive affect (90%), self-esteem (66%) and negative affect (64%) may be explained by variations in the populations, manipulations of SA and characteristics of the control condition between studies.



Note: SD (Standard Deviation); IV (Independent Variable); CI (Confidence Interval); df (degrees of freedom).

Figure 5. *Forest plot for overall wellbeing and positive affect*

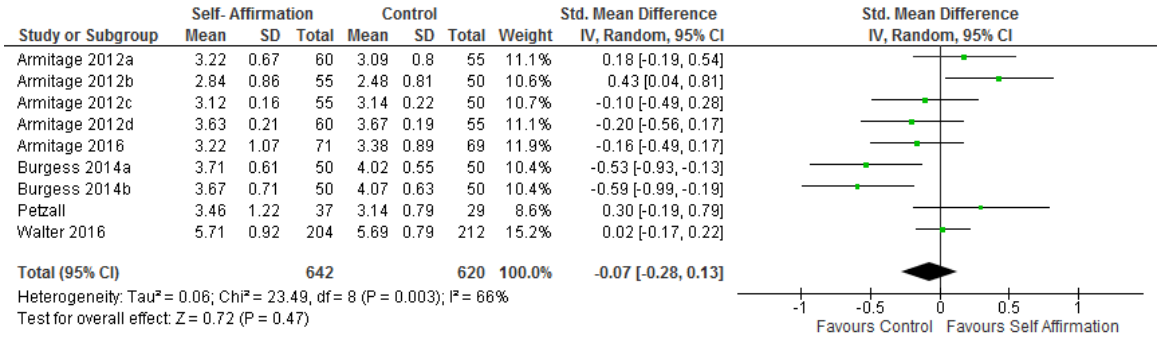


Figure 6. *Forest plot for self-esteem*

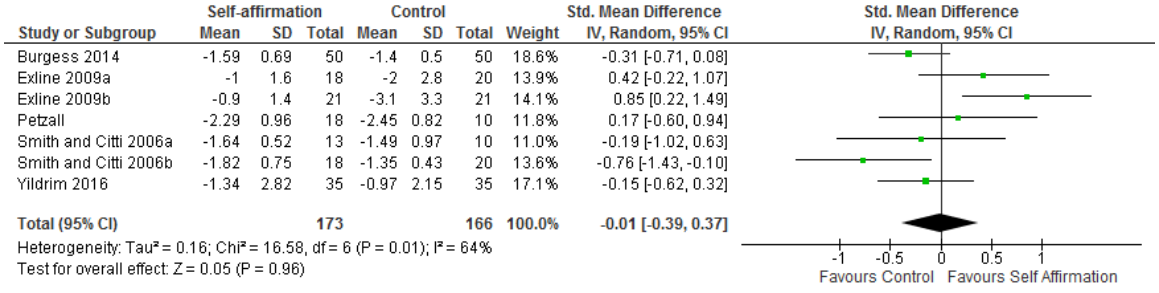


Figure 7. *Forest plot for negative affect and depression*

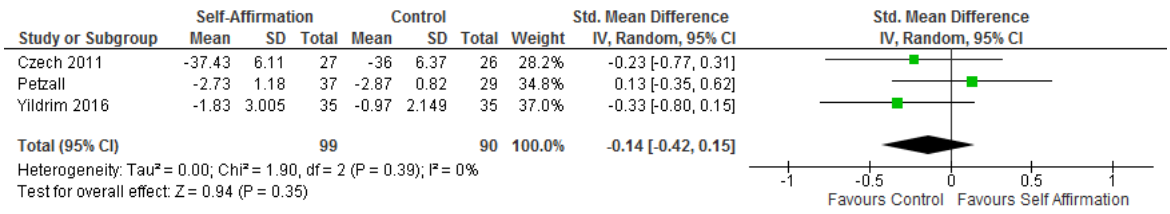


Figure 8. *Forest plot for anxiety*

Owing to there being too few eligible studies for the outcomes of stress, burnout and self-efficacy it was not possible to pool these using meta-analysis. Findings from these individual studies are summarised narratively bellow.

2.4.3 Sensitivity analyses

Sensitivity analyses were run, and articles which did not report the method of randomisation were removed from analysis. When the analysis for overall wellbeing and positive affect was restricted to only randomised controlled studies, excluding these studies did not impact upon the significance of the results (seven comparisons: SMD= -0.06 [CI= -0.78, 0.66]; I^2 = 92%) (See Figure 9). When the same sensitivity analysis was conducted for studies where negative affect and depression was the outcome, a significant overall effect was found (five comparisons: SMD= 0.27 [CI= 0.02, 0.52]; I^2 = 0%) (See Figure 10) but this showed that negative affect and depression were most reduced for the control group (Z=2.14, *p*=0.03). This subgroup analysis reduced the I^2 statistic, which demonstrated that bias within the studies was responsible for some of the heterogeneity.

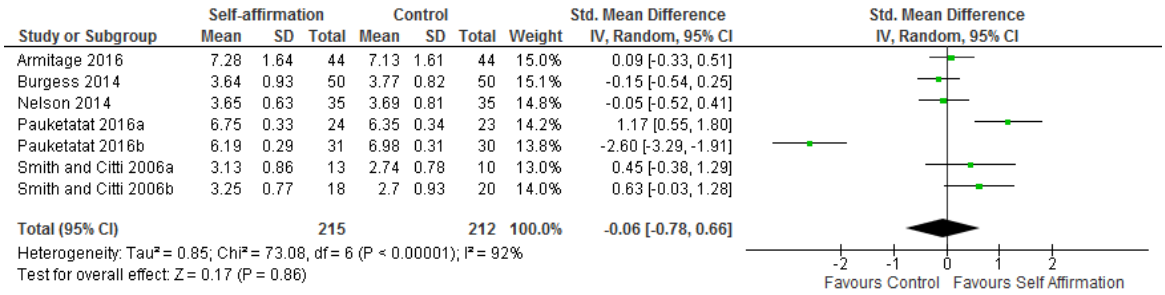


Figure 9. *Forest plot for overall wellbeing and positive affect sensitivity analysis*

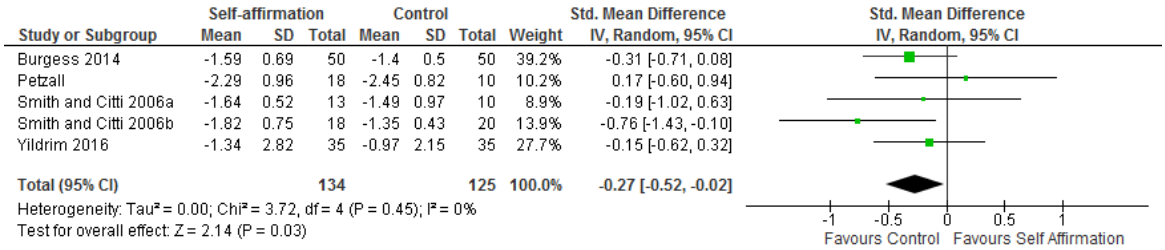


Figure 10. *Forest plot for negative affect and depression sensitivity analysis*

2.4.3.1 Subgroup analyses

Subgroup analyses were conducted to explore the impact of potential sources of heterogeneity, including manipulation type, length of follow up, control and population.

To investigate the second question of the review into whether the effectiveness of SA interventions is dependent upon the type of manipulations used or the study design, subgroup analyses were conducted looking at manipulation type, length of follow up and control type. Owing to there being too few studies for some outcomes, these subgroup analyses could only assess two manipulation types (kindness, values-rank intervention) with the outcomes of self-esteem and overall wellbeing/positive affect. When the analysis for the self-esteem outcome was restricted to studies using the kindness intervention there was no significant effect of this type of manipulation (four comparisons: SMD= 0.08 [CI= -0.20, 0.35]; I^2 = 53%) (See Figure 11). Similarly, when the analysis for overall wellbeing and positive affect outcome was restricted to studies using the value-rank intervention there was no significant effect of this type of manipulation (four comparisons: SMD= -0.09 [CI= -1.79, 1.62]; I^2 = 96%) (See Figure 12), suggesting that these manipulation types did not affect the significance of the results.

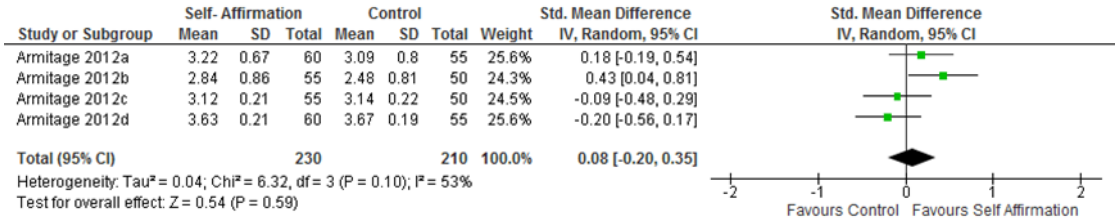


Figure 11. *Forest plot for self-esteem restricted to kindness intervention*

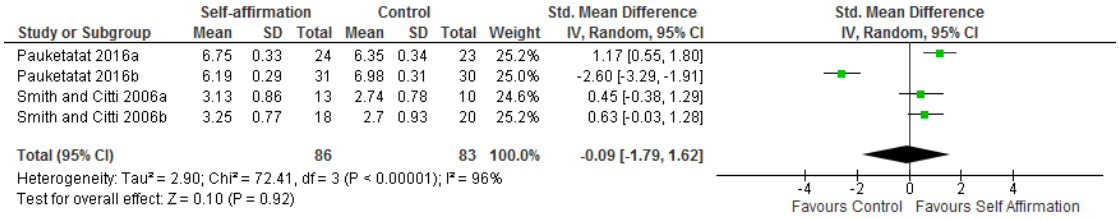


Figure 12. *Forest plot for overall wellbeing and positive affect restricted to value rank intervention*

Further subgroup analyses were conducted for studies which conducted follow-up measures on the same day as the intervention to see whether a fast dissipation of effects in studies with longer follow-up periods may have explained the overall null results of the main findings. These found no significant effects for the outcomes of overall wellbeing and positive affect (seven comparisons: SMD= 0.10 [CI= -0.74, 0.94]; I^2 = 92%) (See Figure 13), negative affect and depression (six comparisons: SMD= -0.03 [CI= -0.49, 0.44]; I^2 = 69%) (See Figure 14), or self-esteem (seven comparisons: SMD= -0.08 [CI= -0.37, 0.21]; I^2 = 73%) (See Figure 15), indicating that this restriction made no difference to the main findings.

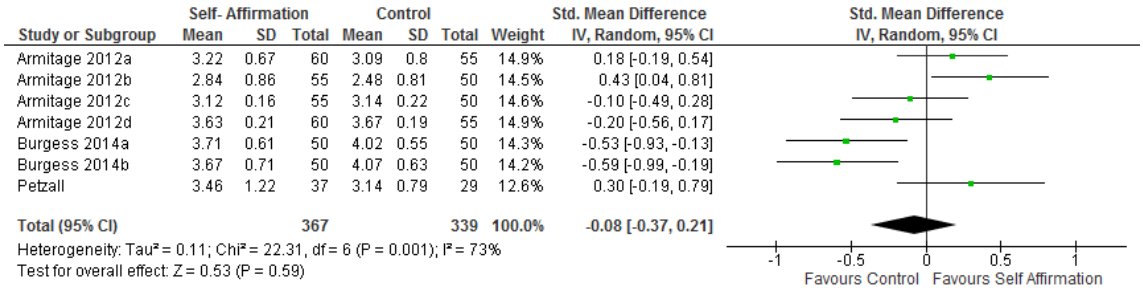


Figure 13. *Forest plot for self-esteem restricted to same day follow-up up measures*

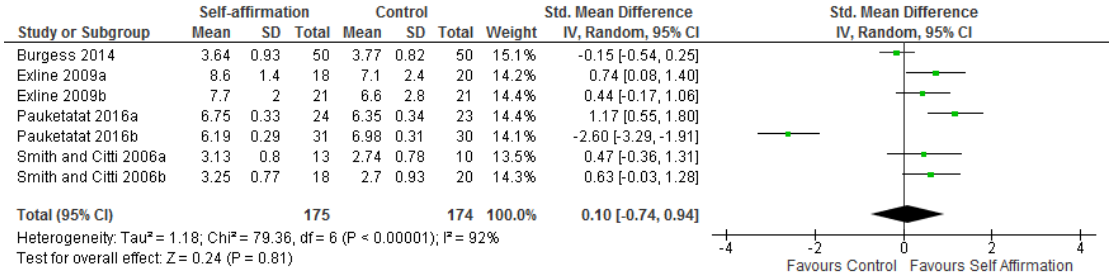


Figure 14. *Forest plot for overall wellbeing and positive affect restricted to same day follow up measures*

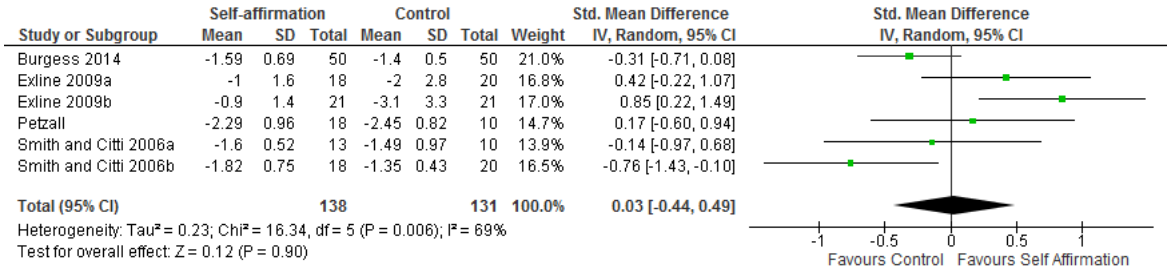


Figure 15. *Forest plot for negative affect and depression restricted to same day follow up measures*

Further subgroup analyses were conducted restricting the analyses to studies which used unrelated tasks as control conditions. This was the only control group to be tested as it was the only group which had sufficient data for the analysis. This found no significant results for the outcomes of overall wellbeing and positive affect (four comparisons: SMD= 0.18 [CI= -0.21, 0.57]; I^2 = 55%) (See Figure 16); negative

affect and depression (four comparisons: SMD= -0.25 [CI= -0.81, 0.31]; I^2 = 72%) (See Figure 17); and self-esteem (seven comparisons: SMD= 0.09 [CI= -0.22, 0.40]; I^2 = 75%) (See Figure 18). It should be noted that the I^2 statistic was slightly lower for overall wellbeing and positive affect compared to the main meta-analysis, it was possible that the variation in control regimens explained some of the statistical heterogeneity.

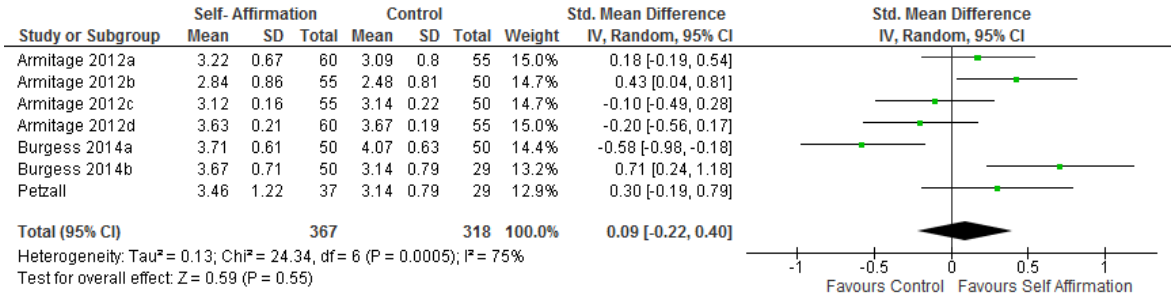


Figure 16. *Forest plot for self-esteem restricted to unrelated task control*

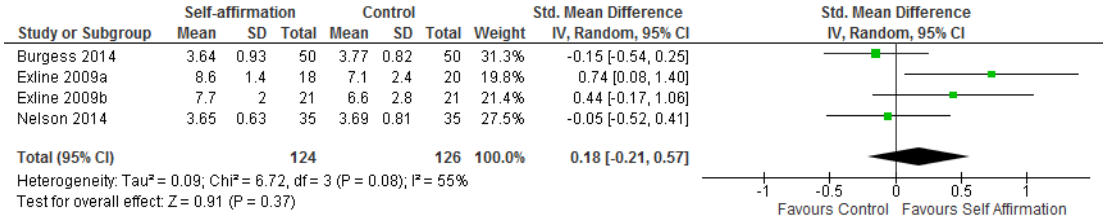


Figure 17. *Forest plot for overall wellbeing and positive affect restricted to unrelated task control*

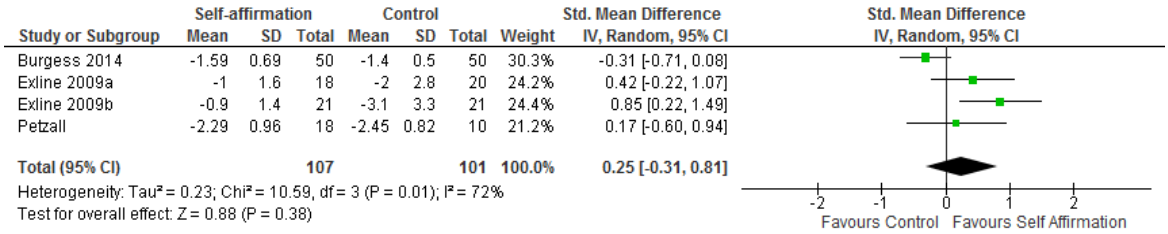


Figure 18. *Forest plot for negative affect and depression restricted to unrelated task control*

Finally subgroup analyses were conducted to investigate the third question of the review into whether there are differences in the effectiveness of SA interventions for different types of wellbeing outcome measures in different populations. There was no significant effect when the analysis was restricted to university students for overall wellbeing and positive affect (seven comparisons: SMD= 0.15 [CI= -0.74, 1.05]; I^2 = 93%) (See Figure 19) and negative affect and depression (four comparisons: SMD= -0.09 [CI= -0.82, 0.63]; I^2 = 78%) (See Figure 20). As there were fewer than ten comparisons within each analysis it was not feasible to generate funnel plots (Reitsma et al., 2009).

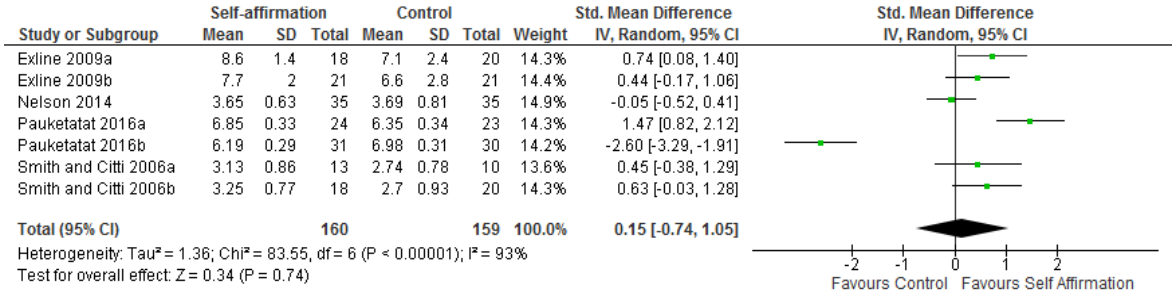


Figure 19. *Forest plot for overall wellbeing and positive affect restricted to university students*

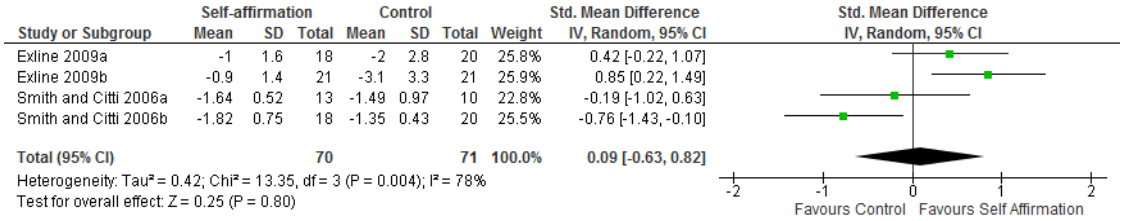


Figure 20. *Forest plot for negative affect and depression restricted to university students*

2.4.5 Articles not included within the meta-analysis

There were four articles which investigated self-esteem (Armitage & Rowe, 2008; Lopez, 1995; Tyler et al., 2016; Park, 2007), one article which investigated overall wellbeing and positive affect (Koole et al., 1999) and one article which investigated anxiety (Wright, 2010) which could not be included within the meta-analysis owing to the relevant information being unavailable. Three articles (Armitage & Rowe, 2008; Lopez, 1995; Wright, 2010) reported results in line with the meta-analysis findings, reporting that SAs did not improve upon wellbeing outcomes. However, three articles (Tyler et al., 2006; Park, 2007; Koole et al., 1999) found evidence to the contrary of the meta-analytic results. These articles reported that SA buffered self-esteem (Armitage & Rowe, 2008; Lopez, 1995) and led to improvements for overall wellbeing and positive affect (p=.03) (Koole et al., 1999). It should be noted; the articles which suggested that SA manipulations led to improvements for self-esteem had a higher risk of bias than those which found no effect, suggesting that these results should be interpreted with caution.

The outcomes stress, burnout and self-efficacy, did not include enough information to be analysed using meta-analysis. Four articles investigated the effects of SA in improving levels of stress; however, the outcomes for stress were too heterogeneous to be pooled using meta-analysis, as they included both physiological and psychological measures. These articles showed that SA reduced physiological responses to stress. In the first study, self-affirmed participants showed significantly lower cortisol levels following a stressful event compared with control participants ($p=.03$) (Creswell et al., 2005). In the second study, while there was a significant increase in epinephrine levels (epinephrine secretions are stimulated by anticipation distress and experiencing a stressful event) for control participants ($p=.04$) (Sherman

et al., 2009), there were no significant increases *(p= .66)* for the SA group. In the third study, a SA intervention helped with psychological responses to stress, as it significantly improved participants' confidence in coping with stress (*p=.01*) two years post intervention (Brady et al., 2016); and in the fourth study, participants viewed stressful daily adversities as significantly less important (*p=.006*) (Walton et al., 2015). A SA intervention significantly improved measures of burnout (*p <.001*) for medical students (Sellen, 2015). However a SA intervention did not have a significant effect in improving self-efficacy in haemodialysis patients (*p*=.14), (Wileman et al., 2014). Furthermore, self-efficacy was not improved for a population during a drought, looking to improve water conservation behaviours (Walter et al., 2017).

2.5 Discussion

The current review is the first to investigate whether SA interventions have benefits for improving wellbeing. The meta-analyses found no evidence that SAs improved overall wellbeing and positive mood, self-esteem, anxiety or negative mood and depression. There were too few studies investigating the impact of affirmations on stress, burnout and self-efficacy to synthesise using meta-analyses. However, a narrative synthesis suggested that SAs reduced stress and burnout but did not enhance self-efficacy. The review found no evidence that the effectiveness of SAs was dependent upon manipulation type, length of follow up, the form of control condition used as a comparison. The findings will be discussed in relation to the three aims of the review.

The primary aim of this review was to understand whether SA interventions improved a range of wellbeing outcomes. The meta-analysis found no evidence to support the

use of SAs for improving types of wellbeing. This clarifies previous contradictory findings (Howell, 2016; Czezh et al., 2011) by demonstrating that overall, SAs consistently fail to improve affect. The most frequently measured concept of wellbeing within this review was self-esteem. The current results bring clarity to previous mixed findings (Armitage, 2012; Armitage, 2016) by showing that overall, SAs do not appear to improve self-esteem and this is not affected by variations between studies, such as the population studied or type of manipulation used. It has been hypothesised that self-esteem may mediate the impact of SA interventions (McQueen & Klein, 2006; Sherman & Kim, 2005; Steele & Liu 1983). However, as the meta-analysis found no evidence that SAs affect self-esteem, this review does not support this hypothesis. Furthermore, self-esteem levels should not be employed as a manipulation check (Walter et al., 2017) for SA interventions, as these are unlikely to show any change.

Although the review findings suggested that SA interventions do not improve wellbeing outcomes, the narrative synthesis demonstrated that affirmations may still offer some benefits for self-esteem, stress and burnout, by maintaining levels of self-esteem and improving responses to stress despite exposure to threats. These findings are congruent with the buffering hypothesis, which suggests that SAs put life into perspective, and thus allow individuals to see any adversities or threats in context (Cohen & Sherman, 2014). This understanding that perceptions of threat are attenuated from affirmation of personal values is consistent within previous literature (Keough, 1998; Sherman & Cohen, 2002; Steele, 1998). The review findings are also in line with the view of Armitage (2012) who proposed that SA interventions do not improve self-esteem but make self-esteem more stable by shifting its basis away from the self-esteem domain under threat. This review adds to the existing

knowledge base by supporting both these aforementioned hypotheses: consistent with their predictions, SAs maintained self-esteem and improved responses to stress during threat. As no evidence was found to suggest that SA interventions improve affect or self-esteem, the findings do not support the mediation hypothesis, which suggests that increases in these factors are the mechanism by which affirmations have their impact (Tesser, 2000). As such, the findings from this review indicate that the buffering hypothesis and theory of self-esteem shift should be prioritised in future research.

The finding that a SA intervention may buffer against the effects of stress and burnout is not only important for understanding the underlying mechanisms of these interventions, but also for its utilisation with a nursing population. The intervention being beneficial for stress and burnout is particularly promising as these are prominent outcomes for nurses. There is a wealth of evidence which demonstrates that nurses are vulnerable to high levels of stress (Louch et al., 2017) and burnout (Vahey, Aiken, Sloane, Clarke & Vargas, 2004). These poor levels of stress and burnout have financial implications as they are related to increased absenteeism rates (Shamian, Kerr, Laschinger, & Thomson, 2002). They also have implications for patients as they are associated with poorer safety perceptions (Boorman, 2009; Johnson et al, 2017; Louch et al., 2017; West & Dawson, 2012) and outcomes for patients (Bally, 2007).

The second question of this review was to understand whether the effectiveness of SA interventions is dependent upon intervention type, as within the literature several different manipulations of SA have been utilised. Congruent with previous findings from individual studies (Armitage & Rowe, 2008; Dillard, McCaul & Magnan, 2005; Jessop, Simmonds & Sparks 2009) the meta-analysis suggested there is no

optimum type of SA manipulation for improving types of wellbeing as no difference in effect was shown between the two intervention types (kindness and values-rank) which were tested. While it was not possible to compare all types of intervention, these results tentatively suggest that the review's null findings are unlikely to be an artefact of a specific method of SAs used, but rather indicative that the act of self-affirming in itself does not affect wellbeing.

The final question of this review was to understand whether the effectiveness of SA interventions differed between populations. The meta-analysis provided no evidence to support this. However, the narrative synthesis for stress (Brady et al., 2016; Creswell et al., 2005; Sherman et al., 2009; Walton et al., 2015) and self-esteem (Armitage & Rowe, 2008; Lopez, 1995; Park et al., 2007; Tyler et al., 2016) suggested that the effects of SA may be dependent upon individual attributes; for example, levels of needing to belong (Tyler at al., 2016) and resilience (Harris et al., 2018). This indicates that the effectiveness of SAs vary depending upon individual differences, rather than external characteristics.

2.5.1 Strengths and limitations

The strength of this review is that despite bringing together a disparate body of literature, the findings show a consistent response to the review aims resulting in clear conclusions. Furthermore, the articles included were all controlled studies, of which 20 used randomisation. Thus, causal inferences of the intervention could be gathered and bias minimised.

There were several limitations of the articles included. The majority of articles used same-day measures when assessing the effectiveness of the manipulation. This is potentially problematic as SA theory argues that the effects of the intervention

propagate over time (Cohen & Sherman, 2014); therefore the lack of follow up measures may have concealed possible effects of the intervention. The timing of SA interventions is key, as previous literature states that this determines their effectiveness; they are most effective and more likely to lead to long-term benefits when administered at times of high vulnerability to threat (Cohen & Sherman, 2014). The timing is still important for short laboratory studies (Cohen & Sherman, 2014), which is reflective of the majority of the articles included in the review. In addition, the majority of the studies used a university student sample which is potentially problematic as generalising findings from university students to the general public or other samples is not appropriate (Hanel & Vione, 2016).

The articles included had different contexts, a high level of clinical variation, mixed methodological quality and poor reporting in some instances, which means that interpretation of the findings needs to be approached with caution. These issues with the literature meant that pooling all the data was difficult and not all the studies could be incorporated within the meta-synthesis.

2.5.2 Taking the systematic review findings forward

The meta-analysis outlined no improvements from SA interventions on wellbeing concepts: affect, depression, anxiety, overall wellbeing or self-esteem. However, the decision to continue with the adaptation of a SA intervention for the use of improving nurse wellbeing and patient care and safety was taken forward in this thesis for three key reasons.

First, the narrative synthesis of stress and burnout outlined potentially promising findings that SA interventions may buffer against stress and burnout. These findings are supported by the theory underpinning SA (Cohen & Sherman, 2014) that the

intervention may have a buffering effect. Studies included in the meta-analysis did not test this stress-buffer theory directly; instead they only tested wellbeing outcomes before and after a SA intervention. As such, the meta-analyses themselves were only able to test for improvements in wellbeing outcomes, and did not test the stress-buffer hypothesis. Therefore, the findings of this review leave open the possibility that while SA interventions may not generally improve wellbeing, they may act as a buffer for individuals experiencing stress, which could make them relevant for nurses who experience high degrees of stress.

Second, although meta-analyses provide a more objective view of the evidence (Lee, 2019) they rely on the data that is available and on the number and quality of the studies included. As there were only a small number of studies in each meta-analysis and limitations regarding the quality of the methodology and reporting of studies; the findings of the meta-analyses need to be approached with caution and should not be regarded as conclusive evidence that SA interventions offer no benefits for wellbeing.

Third, the review outlined several gaps and future research needs in the SA literature in terms of the methodology used and its relationship to the existing SA theory. At present, there are several methodological issues in studies which could be leading to the null finding. For example, most of the existing studies use immediate measures of effectiveness and do not include longer follow up measures. As the effects of SAs propagate over time (Cohen & Sherman, 2014), any effectiveness of the intervention may be being overlooked. The majority of the studies are also with student samples that may experience less stress than nurses. Future research using SAs should aim to explore the timing of the intervention and follow-up measures to ensure that the study design remains cognisant that the effects of SAs propagate over time (Cohen

& Sherman, 2014), so that any effectiveness of the intervention is not being overlooked. Furthermore, there needs to be exploration of the utility of this intervention with non-student samples. In particular, research could focus upon populations who are at risk of suffering from poor wellbeing such as individuals experiencing high stress or those with low self-resources, for example self-esteem.

In light of the gaps within the SA and wellbeing literature and the view that SA interventions may buffer against stress and burnout. It was decided that it was important to explore the utilisation of such an intervention, self-administered for nurses who work in acute hospital settings, where nurses regularly face clinically demanding work and workplace challenges.

2.6 Conclusion

In summary, this systematic review and meta-analysis has enhanced the literature and provided evidence of whether SA interventions are effective for improving wellbeing. This is the first systematic review and synthesis to address this important question and, as such, contributes to knowledge and understanding in this field. The meta-analysis provided consistent evidence that SA interventions are not effective for enhancing well-being and positive mood, self-esteem, negative mood and depression or anxiety. The narrative synthesis showed promising findings for the effectiveness of SA interventions in buffering against stress and burnout. As these are important outcomes for nurses, SA may be a useful intervention for this population.

2.7 The next chapter/stage of research

Although the review and meta-analysis did not find an overall mood boosting impact of SA interventions, there was some evidence that SA interventions might buffer

stress. As a stress buffering intervention may have benefits for nurses who face multiple stressors in their work, the next stage of the thesis was to pursue the adaptation of the intervention for nurses.

The next chapter (chapter 3) presents Study 1, in which RNs participated in a two part semi-structured telephone interview. As SA interventions focus upon values part one of the interview aimed to explore the roles of values within nursing, focussing upon the relationship between RN values, value congruence, wellbeing and patient care and safety. As the thesis also aimed to explore whether SA would impact patient care and safety, it was important within these interviews to explore whether values within nursing had a link with patient care and safety. The second part of the interview study explored the RN's initial impression of using a SA for the purpose of supporting wellbeing.

Chapter 3

Exploring nurses' experiences of value congruence and its relationships with wellbeing and patient care and safety

3.1 Chapter Summary

This chapter presents a qualitative study (Study 1) which explored RNs' perceptions of values, value congruence and the potential implications for individual nurses and organisations in terms of wellbeing and patient care and safety. The interviews also explored RNs' initial views on utilising a SA intervention to support wellbeing. Semi-structured telephone interviews were conducted with a sample of RNs working in acute hospital settings. Thematic analysis was utilised to analyse the data, taking an essentialist approach. The findings highlighted areas of value incongruence experienced by RNs, how these were perceived to impact wellbeing and patient care and safety, barriers to achieving value congruence within the work environment and initial responses to the acceptability of the intervention. There was a perceived relationship between nurses' value congruence, wellbeing and patient care and safety and a positive response to the potential use of a SA intervention to support nurse wellbeing. The interview findings informed the adaptation (Study 2) and planned randomised controlled study of a SA intervention with nurses.

3.2 Background

Before opting to adapt an intervention (SA) for use with a new population (RN) for emerging outcomes (wellbeing, burnout and patient care and safety), it is necessary to understand what is already known about the effectiveness of the intervention for

these outcomes. The systematic review and meta-analysis (reported in chapter 2) demonstrated that SA interventions may be an effective tool in supporting burnout and stress, both of which are important outcomes for RNs which have implications for patient care and safety. Therefore, it was appropriate to explore SA interventions and whether such an intervention has potential in the context of supporting RN wellbeing. SA interventions utilise value reflections within the different manipulations of the intervention. The systematic review and meta-analysis (chapter 2) found that a value ranking task is the most common form of SA intervention. Values are recognised as being incredibly important within the RN profession (Rassin, 2008), reinforcing that a SA intervention may be beneficial for this population. However, as the intervention exerts its effects through making values more salient to the individual, it is important to gain a deeper understanding of how values may interact with the proposed positive outcomes of SA interventions for RNs (i.e., burnout and stress).

Nurse wellbeing and values

While the association between poorer wellbeing, burnout and patient safety is well established, fewer studies have focused on understanding the factors that contribute to RN wellbeing and burnout (Adrianenssens, De Gucht and Maes, 2015; Khamisa, Peltzer and Oldenburg, 2013; Laschinger and Fida, 2014; Laschinger and Grae, 2012). One interesting potential contributor to RN burnout is the concept of values. Recent policy initiatives to recruit nursing staff and leaders based on their values underlines the centrality of values for the profession (DoH, 2012). All RNs hold values that will influence their attitudes, behaviours and emotions. Being aware of the values that motivate them have been found to support RNs in practice, in particular when caring for patients that may share, or have different, values to the

RN (Horton, Tschudin & Forget, 2007). RNs without self-awareness of their motivating values may struggle with their professional role; whereas RNs with an understanding of their values often achieve personal satisfaction (Altun, 2002). This evidence tentatively supports the use of SA with RNs as these interventions propose to re-align individuals to their important values. Studies have demonstrated a relationship between RN values and levels of burnout (Altun, 2002), job satisfaction, and work execution (Ravari et al., 2012; Atefi, Abdullah, Wong and Mazlom, 2014). Importantly, these studies explored either personal values (Atefi, Abdullah, Wong and Mazlom, 2014) or professional values (Ravari et al., 2012) and found both sets of values to influence RN job satisfaction.

Value congruence

Whilst professional and personal values have been studied together (Altun, 2002; Rassin, 2008), few studies have explored the relationship between these sets of values, and their association with organisational values. This is particularly important, as the relationships between wellbeing, burnout and patient care and safety are likely to be influenced by value congruence: the alignment of an individual employee's values with those of the organisation in which they work (Verplanken, 2003). Value congruence between personal and organisational values has been related to job satisfaction and intention to leave (Chatman, 1989). Conversely, value incongruence has been related to significant negative outcomes for RNs including low job satisfaction (Verplanken, 2004), higher burnout (Leiter et al., 2009), higher intention to leave, decreased patient satisfaction (Grates et al, 2013) and objectively measured staff turnover (Bragg and Boner, 2014). A survey with American nurses found a significant inverse correlation between value congruence, job satisfaction and quality of patient care (Kramer and Hafner, 1989). However, there have been

some mixed findings in this area, with one study concluding that value congruence was not related to job satisfaction for all hospital employees (Kalliath et al., 1999).

The literature to date highlights the importance of values for RNs and suggests a potential relationship between value incongruence, wellbeing and patient care and safety, as shown in Figure 21.

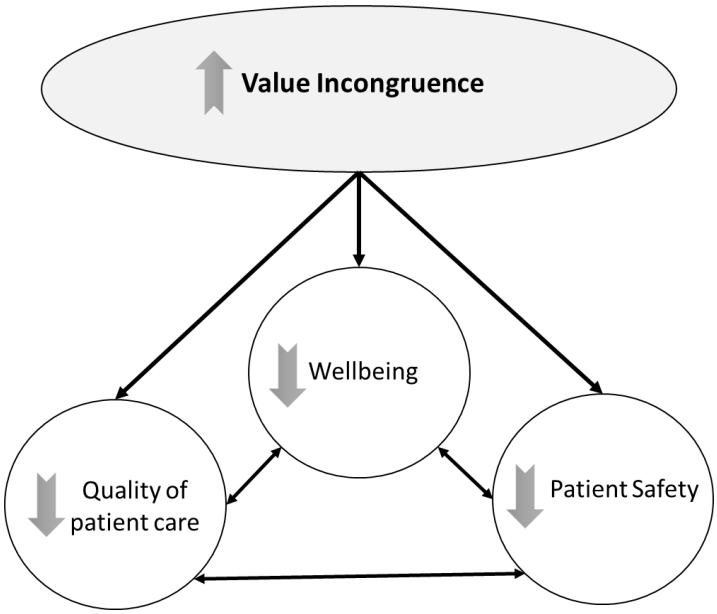


Figure 21. *The postulated relationships between the main concepts*

Previous research assessing values and value congruence of RNs has predominantly used quantitative methods. There has been no study to date exploring these concepts taking a qualitative approach; therefore, the current study addresses this gap.

The relationship between these concepts is important because if these are perceived to be linked this would support the use of SA with RNs to support wellbeing, burnout and patient care and safety. Adopting a qualitative approach, to gain a deeper understanding of how these concepts and their interplay will also facilitate the adaptation of the SA intervention for RNs.

3.2.1 Aims

1) To explore perceptions of values and value congruence with RNs employed in acute hospital settings.

2) To understand the perceived relationships between value congruence, wellbeing and patient care and safety from the perspective of RNs.

3) To explore the initial acceptability of a SA intervention for RNs.

4) To explore the most appropriate and feasible design of a SA intervention study for RNs.

3.3. Method

The study adopted an exploratory qualitative design (Sandelowski, 2000). An essentialist approach was considered most appropriate for the study as it reports the reality of the participant's experiences and views participants' accounts as directly intending to communicate their experiences and related meaning (Braun & Clarke, 2006). To guide and enhance the transparency of study reporting, the COREQ checklist (Appendix B) was applied (Tong, Sainsbury & Craig, 2007).

3.3.1 Ethical Approval

Ethical approval was granted by University of Leeds Faculty of Medicine and Health, school of Psychology Research Ethics Committee (Ethics Reference No: PSC-304; 26/03/2018). All participants consented to participating in the interview and being audio recorded.

3.3.2 Design

Semi-structured telephone interviews were conducted with RNs working in acute hospital settings. Telephone interviews are a method increasingly used with healthcare staff (Smith, 2005) due to the flexibility of time and place they offer to participants who work shifts (Carr and Worth, 2001; Fenig et al., 1993). In addition, they allow for sampling from a wider geographic area (Aday, 1996; Stephens, 2007) and research suggests that there is little difference in the responses yielded between telephone and face-to-face interviews (Carr and Worth, 2001). The interviews lasted an average of 30 minutes.

The first part of the interview schedule (Appendix C) related to aims one and two and was informed by relevant literature and theory with several areas of focus including: important values for nurses, value congruence and the implications of value congruence. The semi-structured interview style and schedule allowed for flexibility within the interview, which enabled the pursuit of issues raised by the study participants. The interview guide explored both RNs' personal and professional values and any relationship between these. This is important for the adaptation process, as the intervention utilises values lists. Therefore, it is important to incorporate values which are appropriate to the population as this may improve effectiveness (Yeager & Walton, 2011). Thus the values generated by participants within the interviews will be taken into consideration when creating the list of values for use within the intervention. The interviews also explored the potential for unintended negative consequences of utilising SA interventions with RNs. If RNs' work environments are challenging their value system, making these values more salient could increase the sense of value incongruence potentially negatively influencing RNs wellbeing. By increasing the understanding of the relationship

between value congruence, wellbeing and patient care and safety, a SA intervention can be adapted in a way which is most likely to support its potential benefit for RNs.

The second part of the interview schedule was driven by the researcher and related to aims three and four. Questions were created to guide the researcher in the early stages of the SA intervention adaptation and randomised controlled study planning. Initially nurses were provided with a description of the intervention (‘a tool which asks people to reflect on the values that are important to them’) and then asked about their initial thoughts, whether they felt that this could be beneficial for wellbeing, and how they felt RNs would receive the intervention. Following this they were asked practical questions about the intervention study design including delivery method, timing, length, acceptable dosage, and how to encourage participation within the planned randomised controlled study.

Pilot interviews, conducted with research and community nurses (n=2), helped refine the interview schedule. The interview schedule followed an iterative approach in which earlier interviews with participants influenced the interview schedule used in later interviews.

3.3.3 Participant recruitment

RNs working in acute hospital settings were recruited via opportunistic sampling, an approach often used to recruit healthcare professionals, including nurses (Murphy et al., 1998). Nurses responded to advertisements on social media platforms (Facebook and Twitter) to register their interest in participating. Recruitment was on-going until data saturation had been reached. Data saturation (Saunders et al., 2017) was considered to be achieved when new interview participants were not expressing new insights, thus leading to informational redundancy. One researcher (AD)

listened to audio recordings of completed interviews in order to establish informational redundancy.

Participants were recruited between May and November (2018). There were a total of 26 responses to the advertisements, and 15 nurses participated in an interview. The RNs who initially expressed interest in participating but did not complete an interview were not required to provide a reason for non-participation. However, changing work patterns or busy schedules were the reasons most often given for interviews that did not take place. The participants who were interviewed were based in nine different hospitals which varied in geographical location and size, across England and Scotland. The majority of participants were female (93.3%), White British (93.3%) and Band 5 (66.66%; See Table 6 for participant characteristics and specialities).

Table 6. *Participant characteristics within the sample*

Characteristic		Frequency	Percentage (%)
Gender	*Male*	1	6.66
	Female	14	93.30
Ethnicity	*White British*	14	93.30
	Mixed Other	1	6.66
Age	*21-25*	6	40
	25-34	3	20
	35-44	2	13.33
	45-54	1	6.66
	55-64	2	13.33
NHS pay band	*5 (Newly Qualified Nurse)*	10	66.66
	6 (Nursing Specialist or Senior Nurse)	1	6.66
	7 (Advanced Nurse or Nurse Practitioner)	3	20
	8 (Matron or Chief Nurse)	1	6.66
Speciality	*Palliative care*	1	6.66
	Cardiac	1	6.66
	Acute/ General diseases	1	6.66
	Infectious diseases	1	6.66
	Renal medicine	1	6.66
	Paediatrics	3	20
	Acute cardiology	1	6.66
	Critical care	1	6.66
	General surgery	1	6.66
	No speciality indicated	2	13.33

3.3.4 Procedure

Participants self-selected into the study through posts on social media and followed a link on survey software (Survey Monkey), to read the participant information sheet for the study (Appendix D), and then registered their interest to participate. The information sheet outlined the purpose of the study, what participants would be required to do, what would happen to their data, and information about study withdrawal. Additionally, the Survey Monkey link asked participants demographic questions which were recorded. Following this, participants were contacted via email (by AD) to arrange a suitable time for the telephone interview to take place. Prior to the telephone interview, AD talked through key information from the participant information sheet and verbal consent was recorded. Participants were reminded of their right to withdraw, and that the interview would be recorded at the point of giving verbal consent. Each interview was recorded using a Dictaphone, and transcribed verbatim.

3.3.5 Data analysis

The two parts of the interview were analysed separately. Reflexive thematic analysis was used to analyse part one of the interview data (addressing study aims one and two). This offers a flexible approach for analysis to provide a rich and detailed account (Braun & Clarke, 2006, 2019). This was deemed appropriate for gaining an understanding of RNs' values and their perceptions and experiences of value congruence and its impact on wellbeing and patient care and safety. A hybrid approach (Feraday & Muir-Cochrane, 2006) to thematic analysis was adopted, which incorporated a data-driven inductive approach to coding and generation of themes with a deductive premise of the concepts (i.e., wellbeing and patient care and safety)

associated with value congruence for RNs. Within this data analysis, code generation and theme identification were directed by the content of the interviews. These codes were not determined by a pre-existing coding framework (Braun & Clarke, 2006; Hayes, 2000), but the existing ideas within the literature about the proposed association between value congruence, wellbeing and patient care and safety were considered. This approach allowed the researcher to specifically examine the aims of the study but remaining open to areas raised by participants and important for the study. As part of the analysis, the researcher (AD) did not pursue any underlying assumptions that may have shaped participants explicit views provided within the interviews, and thus did not conduct thematic analysis at the latent level (Boyatzis, 1998; Braun & Clarke, 2006). The researcher chose to conduct this research within an essentialist paradigm. This essentialist or realist approach assumes that language, meaning and experience are directly linked, as language allows participants to articulate their experiences and meaning (Braun & Clarke, 2006).

Data analysis followed the six steps described by Braun & Clarke (2006, 2019). In the first step, familiarisation with the data occurred through listening to the audio recordings, reading and re-reading transcripts with initial observations being noted. In the next stage, all transcripts were read and coded by one author (AD). Additionally, two members of the supervision team independently coded a third of the transcripts (GL and JJ). After discussion and consensus between the researcher and supervisory team (AD, GL and JJ), initial codes were generated, and applied to the full dataset. In stage three, codes were gathered into potential themes. In the fourth stage, the themes were reviewed in relation to the coded extracts and the entire data set. In stage five, with further analysis, these themes were refined to

generate clear definitions and names. Finally, meaningful extracts were identified to represent the themes. Throughout the analysis stages, one author (AD) simultaneously charted the data by creating tables with initial codes, pulling data from further transcripts into this and then visually grouping these to form the final themes.

In order for the data to be most beneficial in supporting with the early adaptation of the SA intervention and randomised controlled study design, a categorical approach to analysis was used for part two of the interview data (addressing study aims three and four). This enabled the data to be organised in a meaningful manner. After data familiarisation, initial coding of the data enabled the researcher to generate categories. The data were then organised within excel under the categories: initial thoughts, implementation, mode of delivery, frequency, and, engagement. From these categories it was possible to establish what the majority of participants perceived to be the most acceptable and appropriate delivery of a SA intervention, as well as key randomised controlled study design decisions. Summaries of the responses within these categories were formed, with supporting extracts.

3.4 Results

The findings are organised around the two overarching goals of the study: to explore nurse values and the initial acceptability of SA intervention. First, the findings' pertaining to aims one and two are presented followed by the findings pertaining to aims three and four.

3.4.1 Values, value congruence, wellbeing and patient care and safety

This section of the results relates to the first two aims of the chapter.

Aim 1: To explore perceptions of values and value congruence with RNs employed in acute hospital settings.

Aim 2: To understand the perceived relationships between value congruence, wellbeing and patient care and safety from the perspective of RNs.

Four key themes were identified, which described the different aspects of value congruence experienced by RNs: organisational values incongruent with the work environment, personal and professional value alignment, nurse and supervisor values in conflict and nurses' values at odds with the work environment. These themes are considered below, with illustrative participant quotes included. Figure 21 depicts the proposed relationships between value incongruence, wellbeing, patient care and safety which are described within each theme.

3.4.2 Theme 1: Organisational values incongruent with the work environment

There was an incongruence described by most RNs across all bands, between the values that organisations stated that they had and the work environments they created in practice. The values that the RNs described as being purported by their hospital organisations included honesty, compassion, care, respect and being patient centred. However, the RNs perceived that organisations aimed to meet policy driven targets, and that managing limited resources and funding had become the most valued aspects for the organisations, as these were implicit within the work environment. These service pressures created barriers (e.g., staffing levels) which were perceived by nurses as preventing them from being able to work in line with

their values, eroding value congruence between RNs and their organisation. This incongruence was described by RNs from all bands (5-8), the only difference was the extent to which RNs could see these pressures within the wider context. Band 5 RNs often described this incongruence as being created at the organisation level, whereas higher banded RNs (i.e., 7, 8) described the incongruence as emerging due to external pressures from nationally driven policies or directives. Regardless of the origin, this incongruence impacted upon RNs' perceived levels of wellbeing and feelings of wanting to leave the profession, across all bands. It also led to RNs feeling disenfranchised: RNs described their organisations as either using values as 'buzz words' or trying to enforce these values without creating an environment where it was possible for nurses to enact these. The result was that this incongruence created tensions between the RNs and their organisations:

'If I'm being totally honest I feel like they just tap these words out to like make them look good, but they don't create an environment in order to fulfil them. So they say this is what we are striving for and this is what we are doing, but at the end of the day all it comes down to is money in the budget and that's the most important thing to them like the managers and stuff. Like if I say, 'well you know we want more staff so I can give person centred care', they would just say 'well you should be giving that anyway' erm and they say 'well we have to look at the budget' and that's all they look at, is the numbers' (P6 Female, Band 5)

'Nurses hate tick boxes they are just meaningless but governments love them but that's not what patient care is all about […] I feel as though hands-on patient care is getting compromised by some of these things' (P15 Female, Band 7)

'I think that hospitals that are under extreme pressure at the minute and I think that sometimes causes the conflict between your values and you know your actions' (P4 Male, Band 8)

3.4.3 Theme 2: Personal and professional value alignment

There was a clear perceived relationship between personal and professional values. RNs described these as being inseparable and that this one set of combined personal and professional values was integral to their role. RNs highlighted that there was a specific value set required to be a nursing professional and perform in a nursing role. The values most frequently described as being important were related to both personal and professional life, for example, compassion and respect for others. The interplay between personal and professional values with those of the workplace (or organisation) was considered important for RN wellbeing. Any value congruence or incongruence experienced by RNs within the workplace applied to their personal values, as well as professional, because these sets of values cannot be disentangled:

'I think what you bring to nursing is what you value, you know you can't draw a line in the sand between them both you know what is important to you outside of work is always going to transfer to what you do inside of work and vice versa.' (P12 Female, Band 7)

'I feel like to be considered a nurse you have to have values that match up with the professional remit otherwise there are going to be issues.' (P14 Female, Band 5)

3.4.4 Theme 3: Nurse and supervisor values in conflict

Some RNs described a lack of congruence between their own values and the values held by their supervisors. There was a difference between the positions of supervision identified between the different bands of RNs. Band 5 RNs mainly discussed their immediate leaders on their ward or unit (e.g., matron, lead nurse); whereas RNs in higher bands (Band 7) more often referred to the senior management tier of their organisation or of the NHS. RNs described some of their supervisors as holding a different set of values to themselves, which could lead to supervisors asking or expecting them to behave in a way that was not in line with their own values. For example, Band 5 RNs reported the importance (to them) of providing good quality and safe patient care, whilst they perceived their supervisor's values were related more to efficiency or numbers. Many RNs described their supervisors as prioritising the saving of money, conducting audits or managing the flow of patients through the hospital. This perceived conflict in terms of values was thought to have an impact upon patient safety, as nurses described being asked to act in a way that led to some potentially unsafe behaviours, with one nurse giving the example of caring for patients on corridors. Furthermore the perception of a different set of values held by senior nurses also impacted upon levels of wellbeing or burnout. The quality of patient care that nurses felt they could provide was considered to be closely linked with their wellbeing. Nurses who described experiencing a conflict in values with those of their supervisors' felt they were unable to provide the care they wanted to provide, and perceived this as being linked to poorer wellbeing:

'The Matron asked me to move this patient that was close to dying on to the corridor. I was just like that is ridiculous obviously that goes against all your values but then so stuff like that and when they have patients on corridors and stuff like that. That was really hard to see patients on corridors, but not in bed areas. That goes against your values, like imagine coming to see your relative in hospital and they're on the corridor' (P8 Female, Band 5)

'When it goes higher up it will always come down to money and that's where you will kind of lose your sense of values and because it's not about the care anymore it's about the business when it gets to the top of the NHS I think that upset me quite a lot because I didn't feel like it was something that I could control' (P13 Female, Band 7)

3.4.5 Theme 4: Nurse values at odds with work environment

RNs discussed that the care they were able to deliver within the current system was not in line with their own values. They valued providing high quality, compassionate patient-centred care. However, service pressures and the perceived increasing demand on staff created a work environment which was considered incongruent with RN values, as these staff were no longer able to dedicate time to provide patient care. Building upon the previous theme, the discord within the work environment described by RNs was exacerbated by incongruence with supervisors. However, the incongruence within the work environment was a culmination of many factors. The challenges described within the work environment influenced the quality and safety of care that RNs perceived they could deliver. This inability to deliver safe and good quality patient care impacted on RNs' impression of their wellbeing, and feelings of wanting to leave the profession:

'The ability to be able to deliver care that is in line with your values is a massive influence on job satisfaction and being happy at work. So yeah absolutely, it is important for those elements of staff wellbeing that they are able to deliver nursing... that they are able to feel that they are delivering nursing that's important to them.' (P12 Female, Band 7)

*'Sometimes that can really upset you because you wanna be a good nurse you know I wanna show people that I wanna care for them and I don't feel like I'm giving that to them because I haven't got the time and I think that's when you are really tested because you're not thinking about your values you've not got enough time to give the kind of care that you want to give so that's when your most tested.' (*P13 Female, Band 5)

3.4.6 Utilising a SA intervention to support RN wellbeing

This section of the results relates to the final two aims of this chapter.

Aim 3. To explore the initial acceptability of a SA intervention for RNs.

Aim 4. To explore the most appropriate and feasible design of a SA intervention study for RNs.

Four key categories were identified which related specific parts of the adaptation of the SA intervention. These included: initial impressions, timing mode, length and frequency. These themes are considered below with supporting participant quotations.

3.4.7 Initial impressions of the intervention concept

All fifteen of the participants had a positive response to the description of the proposed intervention and felt that it would be beneficial for RNs. Several reasons were provided within the nurses' descriptions for why they felt this intervention may be effective. Some described how the idea of reflection within the intervention fitted well within pre-existing training and appraisals as reflective practice features heavily within these and in revalidation processes enabling nurses to renew their registration. These nurses felt that this intervention may provide nurses with the opportunity to remind and re-affirm their values, and also professional values. This would benefit the nursing team cohesion and nurse wellbeing, as nurses perceived this re-affirmation of values could realign the team:

'yeah that's pretty good actually because you see reflection quite a lot in nursing […] the use of reflection for maybe people that are losing their values it actually can maybe stop stop them in thinking actually why do I become a nurse in the first place and they can think about what matters the patient most as opposed to what matters to them now so that's how problems could be solved because it highlights what's wrong what's maybe not going right' (P1 Female, Band 7)

Whilst still believing this intervention could be beneficial for nurses, one nurse also reflected upon a potential unintended consequence of the intervention, they indicated that affirmation of personal values may make the incongruence between their values and their work environment more salient:

'Erm like reflecting on what's important to you… erm possibly yeah it could be if you then but it might cause negative if you reflect on the fact that your values aren't being upheld then that might lead to negative effects but it's worth trying' (P8 Female, Band 5)

3.4.8 Timing of the intervention

When discussing whether there would be a particular time when the intervention may be most beneficial in supporting nurse wellbeing, some nurses proposed that any time would be suitable. Within this view, nurses discussed how the job is stressful every day therefore an intervention to support wellbeing would benefit nurses at any time. The majority of nurses described specific stressful situations at work and believed utilising the intervention closely following these situations or events would be most supportive for their wellbeing. These situations included: medication errors, medical mistakes, team disagreements, or death of a patient:

'Erm I think just generally just day to day cause obviously I find it quite stressful if there's a lot of patients and you can't deliver good patient care I find that quite stressful then day to day might be beneficial but maybe a reflective intervention for when you get home to think' (P8 Female, Band 5)

'Maybe after a death or a particular difficult situation like those with some disagreements within the team that might help or even appraisals or something like that' (P3 Female, Band 5)

3.4.9 Mode of delivery

The majority of participants felt that the intervention would be best delivered in an online format, which could be accessed easily using a laptop or Smartphone. It was

suggested that this would increase the ease and flexibility for accessing the intervention, thus improving engagement. Furthermore, as training and other tasks within the nurses' working day are often conducted online on a laptop, nurses argued that having the intervention online would fit best within these pre-existing work activities and practices. Some of the nurses provided differing views on the best mode of delivery. Whilst pointing out the potential benefits of an online intervention, they also noted that other nurses do not like the use of this type of technology. A minority of the participants felt that a face-to-face format within a one-to-one or group setting would be the best way to deliver the intervention. They did however acknowledge the difficulties of finding time to bring nurses together to deliver an intervention in this manner. A further point which was raised was whether nurses would be willing to disclose their views of values with their supervisors which would be a potential barrier to a face to face delivery if this was with a known member of staff:

'Probably something you just do on your phone it could do any computer that you could access bigger access work or home … will be quite ideal' (P1 Female, Band 7)

*'I mean I suppose it would be good to even if you did it with a senior member of staff or something and link to the intervention… because it is reflection and stuff I would personally like to do it with someone but then there's the time I don't think anyone's going to have the time I don't really know I would personally like to reflect with someone else but then even on your phone would be good for other people that would be handy' (*P5 Female, Band 5)

3.4.10 Intervention length and frequency

The majority of the participants interviewed felt that ten minutes was an appropriate length of time for the intervention. It was proposed that the intervention taking no longer than ten minutes to complete would afford the opportunity for nurses to engage with it more than once. Most of the nurses believed that they could dedicate ten minutes monthly or bi-monthly to complete the intervention. Although ten minutes was deemed the optimum amount of time, with frequent sessions, some nurses reflected that flexibility would still be needed regarding timing of access. As some days may be much busier than others, it was also argued that set times or days may not be appropriate; one nurse raised the concern that a longer period of time would be required to reflect effectively. Some nurses suggested a longer intervention session to start with, followed by shorter 'booster' sessions:

'The problem is with work it depends how busy you day is so if you have a load of jobs to do you wouldn't be able to leave the ward for ten minutes but I do think that would be reasonable and then maybe just like every couple of months or something' (P8 Female, Band 5)

'I suppose it was only a short amount of time you were given to the process of reflection I think I don't know how much you could get out of the short intervention it would perhaps need to be something half an hour an hour longer than something quite quick I don't know if you could reflect in that time' (P4 Male, Band 8)

3.5 Discussion

This is the first study to explore the relationship between value congruence, wellbeing and patient care and safety for RNs (shown in Figure 21) using in-depth, qualitative methods. It is also the first study to explore the utility and adaptation of a

SA intervention for RNs. In addition to establishing the acceptability of utilising a SA intervention with nurses, the study found there to be a perceived alignment of personal and professional values for RNs. However, there were several areas of incongruence that RNs experienced between their values, and their supervisors and work environment, and between the organisation's values and work environment. This incongruence was perceived to negatively impact upon the relationships between quality of patient care and safety, and RN wellbeing.

This study builds upon previous literature assessing RNs' values by providing depth and understanding of the association between personal and professional values for RNs (Riklikiene, Karosas & Kaeliene, 2017). Personal and professional value alignment was reinforced: RNs believed there to be very little difference between their own personal values and professional values, and that having an inherent set of values was integral to the profession. This finding is supported by the literature which has demonstrated that RNs have overwhelmingly similar personal values with other nurses (Prothero, Marshall & Fosbinder, 1999); and repeatedly provide similar personal and professional values within research (Horton, Tschudin & Forget, 2007; Weis & Schank, 1997). This alignment of the personal and professional values for nurses may lead to further ramifications for personal wellbeing as the sources of value incongruence at work cannot be separated from professional values.

The current findings have contributed to the existing literature by describing the relationship between value congruence, wellbeing and patient care and safety. This adds to existing knowledge that value incongruence is linked with poorer staff wellbeing (Brag & Boner, 2014; Verplanken, 2004), and higher staff turnover (Grates et al., 2013) as it provides supporting accounts which show how these concepts are connected. Previous qualitative research established the relationships between

burnout and patient care and safety for physicians as being potentially circular (Hall et al., 2017); as burnout leads to poorer perception of the care and safety of patients and providing poor care or unsafe practices leads to high levels of burnout. This finding is supported by the current study, and together it suggests that value incongruence may be one catalyst for this negative cycle of high levels of burnout amongst nurses, and poorer perceptions of patient care and safety.

Further, RNs identified service pressures which they believed created work environments which were not conducive to working in line with their values. The service pressures described in this study which eroded values-based practice were also identified in a review which focussed on contributory factors to patient safety incidents (Lawton et al., 2011). Two of the contributory factors identified within this framework were external policy context and staffing levels. These factors were suggested by RNs in the current study as impeding their ability to work in line with their values. This finding highlights the relevance of value congruence in the context of the work environment and patient safety implications. An interesting novel addition to the literature was the difference in perception of the context of pressures for differently banded nurses. Nurses in higher bands seemed more able to view service pressures within the wider context of external policies.

These findings raise important implications for supporting staff wellbeing within the current healthcare system. It is important to consider how to support nurses' personal and professional values due to their close alignment. The incongruence identified by RNs between an organisation's values and their work environment was considered to be related to poorer wellbeing and a poorer quality of care and safety for patients. Currently nurses are being recruited on the basis they hold the values of the organisation, through values-based recruitment (DoH, 2012); however, this study

demonstrates if these values are not upheld within the work environment there will be a negative impact upon wellbeing and patient care and safety. This relationship is further supported by longitudinal qualitative research following students to newly qualified nurses, which found that newly qualified nurses experienced burnout, disillusionment and plans to leave the profession. This was described as being due to their work environment preventing their ability to behave in line with the ideals and values which were developed through their training (Maben & Macleod Clark, 2007). Therefore the findings of this study would suggest that organisations must support an environment that is aligned with the values of the nurses which are being recruited. If they do not do this, they risk making nurses vulnerable to this potential negative cycle of poor wellbeing and burnout leading to poor patient care and safety (Hall et al., 2017) relating to value incongruence.

3.5.1 Implications for adapting a SA intervention to support nurse wellbeing and improve patient care and safety

The findings from this study showed a perceived association between values, wellbeing and patient care and safety. This further supports the use of SA, a values-based intervention, for RNs, as it reinforces the importance of values within the nursing profession and suggests the intervention could support nurses' wellbeing and improve patient care and safety.

However, the present study also identified potential unintended consequences of a SA intervention in this context. As both personal and professional values appeared to be entwined for nurses, it would not be possible to uncouple these two sets of values during a SA manipulation. This means that nurses could be affirming values which are within the same domain as the threat, if the source of stress is their

working environment. When individuals affirm values which are in the same domain as the threatening event or information it can increase bias and resistance to change. This is a very important finding, as there needs to be clear consideration of this when adapting the SA intervention for RNs.

While the potential for unintended consequences needs to be considered, overall the findings provided a strong rationale and starting point for adapting a SA intervention for use with nursing staff. It was evident from the data that participants felt that a SA intervention could be beneficial in supporting nurse wellbeing. Therefore, the findings from this study support the conceptual model presented in chapter 1 (Figure 1) which proposed that SA intervention would support wellbeing (line 'C'). Furthermore, the data provided a clear picture for how the intervention could be delivered: online, and within ten minutes. This information supports the feasibility and acceptability of the intervention among RNs.

The nurses within this study believed that a SA intervention would suit nurses as reflecting is a behaviour which they are comfortable and familiar with. Nurses are often asked to reflect on their practice throughout their training (Glaze; 2000), via clinical supervision, within work appraisals and for re-validation purposes (Styles, Burgham-Malin & Bayliss; 2004).

Some nurses felt that this intervention would be beneficial in supporting wellbeing as they felt that affirming values could lead to more cohesive team-working, by bringing everyone back to the same set of values. This is supported by the themes which were established from the exploration of value congruence within part one of the interviews. It was shown that some nurses perceived a lack of congruence between their own values and that of their supervisors, resulting in perceived poorer wellbeing

and perceptions of patient care and safety. However, as indicated by one of the nurses, affirming values could make any incongruence for the individual and their work values more salient, therefore potentially leading to an unintended negative consequence for wellbeing. Again, this is supported by the findings in part one of this study and previous literature (Verplanken, 2004) as value incongruence between an individual's values and that of their organisation or work environment is related to poorer wellbeing.

When asked to consider if there was any specific time point which they felt that the intervention may be most beneficial, some of the nurses proposed that it would be more beneficial after a patient safety incident, such as a medication error. This aligns with the conceptual model of the proposed mechanisms presented in chapter 1 (Figure 1). This is supported by the SA literature, which states that the effectiveness of a SA intervention is increased if interventions occur in close proximity to threat (Cohen & Sherman, 2014). A patient safety incident or near miss may threaten a nurse's view of them self as an accomplished nurse, therefore an intervention taking place after this threat may support their view of the 'self'. Research has demonstrated the negative impact that making an error has upon healthcare professionals, a wealth of research has focussed on the idea of healthcare professionals being the 'Second Victim' of an incident. This refers to the emotional trauma which healthcare professionals experience after being involved in an incident (Jones & Treiber, 2010) which can often be long lasting; these emotions have been likened to PTSD (Rassin et al., 2005). Clearly, being involved in an incident can have a detrimental effect upon the wellbeing of a healthcare professional. Therefore, an intervention such as SA which manipulates an individual's response to threat (i.e.,

being involved in an incident) may serve to enhance or buffer the wellbeing of nursing staff.

The majority of the nurses believed that a short, flexible online intervention would be most accessible for their population. SA is an intervention that can be self-administered. The intervention can be brief, yet it can still produce a sustainable effect (Cohen & Sherman, 2014) which makes it suitable for time pressured groups of staff such as nurses. SA interventions have been successfully adapted for use online for different outcomes including: health behaviour interventions (Epton at al., 2014; Fielden, Sillence, little & Harris, 2016) and, improving reception of health messages (Kamboj et al., 2016). Online interventions which have incorporated SA tasks have also improved positive affect, reduced negative affect and perceived stress (Cohn, Pietrucha, Saslow, Hult & Moskowitz, 2014).

3.5.2 Strengths and limitations

A key strength of this study was the diverse representation across different specialities of RNs, a range of experience, and geographically diverse Trusts. Despite this diversity the majority of RNs included within this study were white, female and Band 5: there was not the diversity in ethnicity and nationality that exists in the current nursing workforce. The study only used social media to publicise which limited the recruited nurses to those who use these platforms. It is possible that different recruitment methods such as via NHS Trusts directly, may have resulted in different responses. Nonetheless the findings from this study give a valuable contribution to the understanding of the relationship between RN wellbeing, patient care and safety.

3.6 Conclusion

In summary, the current study has created a greater understanding of the relationship between perceived nurse wellbeing and patient care and safety, by demonstrating the influence of value incongruence upon these concepts for RNs. RNs, across bands, reported that despite personal and professional value congruence, they often experienced incongruence between their own values and the values they perceived their supervisors to have, and a mismatch between working in line with their values within the work environment. Furthermore organisational values were perceived to be challenging to uphold within the work environment, with several barriers described as preventing RNs' ability to work in line with their values. As the findings presented here show a perceived association between values, wellbeing and patient care and safety, they further support the utilisation of SA interventions in this context and provide important implications for the adaptation for its use with RNs. This is further supported by the interview findings focussing on views of SA as an intervention to support RN wellbeing, which demonstrated that nurses had a positive initial impression of using a SA intervention with nurses and felt it would be beneficial for their peers.

The next chapter/ stage of the research

This study presented in this chapter provided a rationale for adapting a SA intervention for nurses and the first information supporting how this could be operationalised. Expanding on this, the next chapter explores in further depth adaptations to ensure the intervention is feasible and acceptable for the population of interest. As such, chapter 4 describes these next steps in the process of intervention adaptation for a SA to support RN wellbeing. The synthesis of the thesis up to this point is presented, including the key decisions made for the intervention. In

addition Study 2, part 1 and 2 are presented. This study used a co-production approach with the aim of adapting the content of the SA intervention and establishing the acceptability and feasibility for nurses.

Chapter 4

Adapting a self-affirmation intervention to support nurse wellbeing

4.1 Chapter summary

This chapter first presents a synthesis of the findings from previous chapters and the wider literature relating to the adaptation of a SA intervention to support RN wellbeing. This includes the systematic review and meta-analysis (chapter 2), and Study 1 (chapter 3). It also includes Study 2, a two part study conducted to support the adaptation of a SA intervention for use with registered nurses. Part 1 (of Study 2) describes a workshop with RNs to co-produce the content of the intervention. Part 2 (of Study 2) describes Think Aloud interviews with registered nurses to establish the feasibility and acceptability of the adapted intervention. The findings are discussed in relation to adapting the intervention, and the resulting plan for the pilot of the intervention is described.

4.2 Adapting the Self-affirmation intervention

To adapt the SA intervention, an evidence scan around SA was conducted and the findings from the systematic review and meta-analysis and Study 1 (chapters 2 and 3) collated. The information from the evidence scan of the literature, systematic review and meta-analysis and Study 1 were examined in detail and synthesised. Following this, Study 2 utilised co-production methods to support with the adaptation of the intervention, and Think Aloud interviews were carried out to assess the feasibility and acceptability of the adapted intervention.

4.2.1 Overarching aims of this chapter

1. To synthesise the findings from previous chapters to support the adaptation of a SA intervention to support RN wellbeing.

2. To co-produce the content for a SA intervention with RNs and consider design and usability.

3. To assess the engagement with, and feasibility and acceptability of the adapted SA intervention.

4.3 Data synthesis of the findings from previous chapters and evidence scan

Following Study 1 (the interview study reported in chapter 3), time was taken to pause and reflect upon the findings and explore additional pertinent literature on SA interventions by undertaking an evidence scan. This was important at this stage of the project as the systematic review and meta-analysis had a specific focus which may not have captured all the relevant information from the wider SA literature that may be integral the adaptation process, for example, exploring the effectiveness of SA interventions when utilised in online settings. The findings from the evidence scan, systematic review and meta-analysis (chapter 2) and Study 1 (chapter 3) were synthesised and summarised (See Table 7) in order to support the adaptation of the SA intervention with RNs. The synthesis was focussed around the following areas of interest:

- Benefits for wellbeing or patient care and safety outcomes
- Type of manipulation
- Length of intervention

- Timing of intervention
- Mode of intervention delivery
- Potential unintended consequences
- Additional relevant information

Table 7. *A summary of the collated findings from the literature, systematic review and meta-analysis and interview study*

Source	Benefits for wellbeing or patient safety outcomes	Type of manipulation	Length of intervention	Timing of intervention	Mode of intervention	Unintended consequences	Other comments
Evidence scan	Evidence that it supports: subjective wellbeing (Armitage, 2016), negative affect (Lannin et al., 2017), stress coping (Walton et al., 2015), and self-esteem (Brady et al., 2016). Evidence that nurses' maths skills are improved through SA interventions. Within the study this was related to medication errors (Taillandier-Schmitt, Esnard & Mokounkolo, 2012).	Different forms of the manipulation described within the literature these include: Values scale ranking, essay writing, and kindness questionnaire. Most commonly used method of manipulation is value scale SA (McQueen & Klein, 2006). No evidence to suggest which is the most beneficial form of the intervention, particularly for	SA intervention can be brief, and create a sustainable effect (Cohen & Sherman, 2014). Evidence that a short intervention to support education attainment improves grades at the end of the school term (Sherman et al., 2013).	The effectiveness of SA intervention in reducing defensiveness is increased if interventions occur in close proximity to the threat (Cohen & Sherman, 2014).	The majority of SA interventions have been self-administered, delivered face-to - face, in which participants are asked to respond to questionnaire or essay questions in writing. SA interventions have been delivered online to support: education (www.perts.net, 2018), uptake of health behaviours (Epton at al., 2014; Fielden, Sillence, little & Harris, 2016) and improving reception of	When individuals affirm values which are in the same domain as the threatening event or information they increase bias and resistance to change (Cohen & Sherman, 2014). If nurses were to affirm their professional values, and this was the domain they were experiencing threat i.e., high levels of stress; this could increase their resistance to change.	To improve the effectiveness of SA interventions contextually relevant elements should be incorporated (Yeager & Walton, 2011). It has been shown that SA interventions are less effective if the participants know what the intervention is aiming to achieve (Sherman et al. 2009, Silverman et al. 2012). However, this can be overcome by providing

Source	Benefits for wellbeing or patient safety outcomes	Type of manipulation	Length of intervention	Timing of intervention	Mode of intervention	Unintended consequences	Other comments
		supporting concepts of wellbeing.			health messages (Kamboj et al., 2016).		participants with a choice of whether to affirm (Silverman et al., 2012).
Systematic review and meta-analysis (Chapter 2)	There was no evidence that SA interventions improved overall wellbeing, mood, self-esteem, anxiety, stress, depression or self-efficacy. However, it was shown that SA buffer against stress and can reduce burnout.	The sub-group meta-analysis did not identify one manipulation type which was more effective in supporting any of the concepts of wellbeing. Values scale was also found to be the most frequently used type of manipulation.	The sub-group meta-analysis did not show any particular length of intervention, or follow-up measurements as influencing the results. However, the majority of the studies only took measures immediately post intervention, only one study measured the effects at follow up.		The systematic review and meta-analysis did not look at this specifically, however all interventions were individual, face-to-face.		
Study 1: Value congruence, wellbeing and care and patient safety.	Value incongruence was found to be related to poorer wellbeing and perceived patient					It was shown that both personal and professional values are often the same set of values for	

Source	Benefits for wellbeing or patient safety outcomes	Type of manipulation	Length of intervention	Timing of intervention	Mode of intervention	Unintended consequences	Other comments
(Chapter 3)	care and safety. This finding demonstrates that focussing upon values within an intervention like SA may support nurses' wellbeing and as a result, positively influence patient care and safety.					nurses. Therefore, within a SA intervention it would not be possible to separate these sets of values. So nurses would potentially be affirming values which are within the same domain as the threat (i.e.,their work).	
Study 1: Initial SA intervention views (Chapter 4)	Nurses believed that a values based reflection task may support wellbeing.		A length of 10 minutes was deemed as reasonable and something that could be done between by-weekly and, by-monthly	Nurses believed the intervention would be most beneficial after stressful event i.e., following a death on the ward; after a patient safety incident e.g., medical error; at a time of high stress on the ward; or when an individual presents themselves at	Majority of nurses thought the most accessible mode of intervention would be via phone/ computer i.e., an online intervention.	One nurse indicated a potential unintended consequence as they felt that affirmation of personal values may make the incongruence between their values and their work environment more salient.	

Source	Benefits for wellbeing or patient safety outcomes	Type of manipulation	Length of intervention	Timing of intervention	Mode of intervention	Unintended consequences	Other comments
				occupational health.			

4.3.1 Overview of data synthesis and resulting key decisions for adapting the intervention

The systematic review and meta-analysis demonstrated that overall, SA interventions do not appear to boost mood. However, the review (chapter 2) did show evidence which supported the buffering effect of the intervention in supporting stress and burnout, as levels of stress and burnout were maintained in response to a stressor. Furthermore, the literature has demonstrated that SA interventions improve performance outcomes. For example SA interventions have been shown to improve maths skills in relation to medication errors for nurses (Taillandier-Schmitt, Esnard & Mokounkolo, 2012).

Study 1 (chapter 3) demonstrated the perceived importance of value congruence for wellbeing and patient care and safety from the RN perspective. This suggests that a SA intervention which focuses upon core values and supports individuals in viewing stress from external sources within a wider context may support RN wellbeing and as a result, have positive implications for patient care and safety. All of the RNs interviewed felt that a SA intervention could support their wellbeing, and were positive about the potential of such and intervention to support the wellbeing of the wider RN population.

One of the advantages of utilising a SA intervention for RNs is that the intervention can be brief but potentially yield sustained effects (Cohen & Sherman, 2014). Within Study 1 (chapter 3), participants suggested that a ten minute SA intervention would be optimal to fit in with their work schedules and felt it would be reasonable for RNs to commit to ten minutes, bi-weekly. The literature states that a SA intervention is most effective if undertaken immediately after a threat to the self (Cohen & Sherman,

2014). In alignment with this, the participants within Study 1 (chapter 3) felt that the intervention would be most beneficial for them at a time of increased stress, for example, after a patient safety incident or patient death. The majority of SA interventions are self-administered and ask participants to respond to questionnaire or survey tasks on paper. The participants in Study 1 (chapter 3) believed that an online delivery of the intervention would best suit their working pattern. There are several manipulation types that have been used previously; the most common form of these is where individuals are asked to rank their values. This form of the intervention has also been successfully used online (Van Koningsbruggen & Das, 2009).

Through the period of data synthesis, consideration was given to what the data specifically meant for the adaptation of the SA intervention for RNs. This led to key decisions (See Figure 22) for the intervention which were taken forward into Study 2 for further adaptation.

From the culmination of evidence, after several iterations and discussion within the supervisory team, a preliminary version of the intervention was created. It was decided that the intervention would:

- Be a values-ranking manipulation.
- Use values that are specifically relevant to the RN population.
- Take approximately ten minutes to complete.
- Be delivered online.
- Include a further follow-up measurement in addition to immediately post intervention.

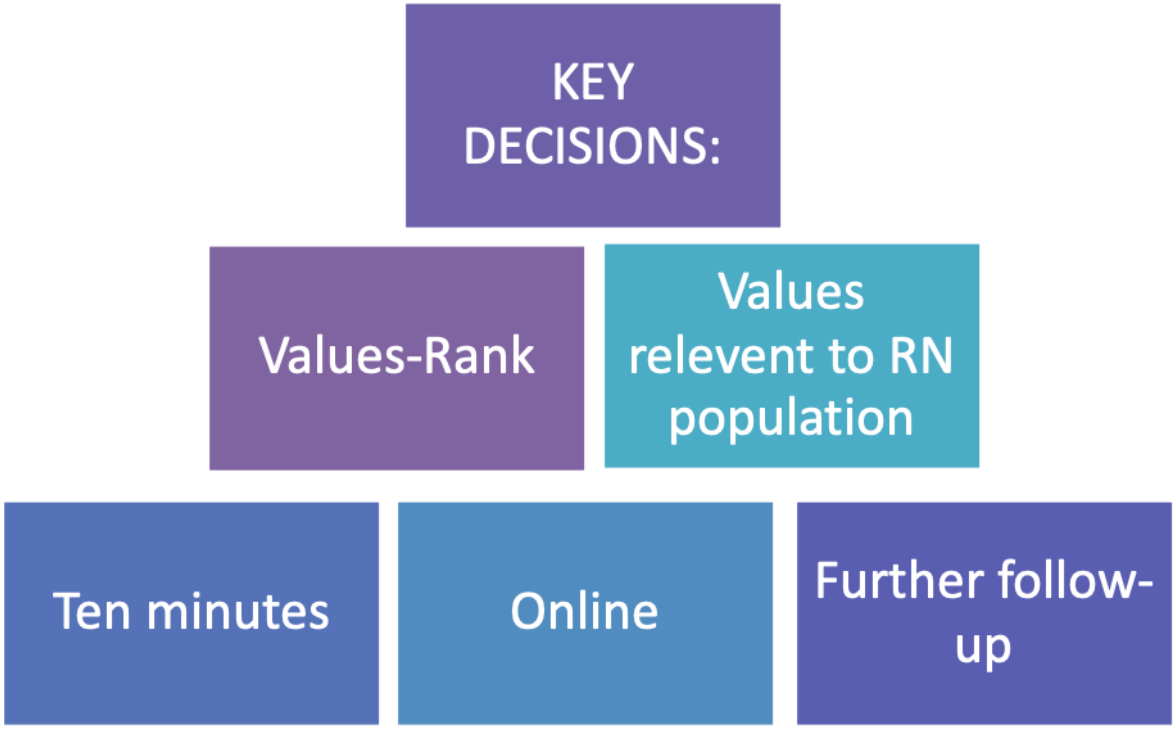


Figure 22. *Key decisions following data synthesis*

4.4 Study 2: Using co-production to adapt a SA intervention to support RN wellbeing

4.4.1 Background

Co-production is a broadly used term within research, having many different applications or definitions (Wolstenholme, Poll & Tod, 2020). Co-production was developed in response to the traditional 'top-down' approaches of putting research evidence into practice. Unlike traditional approaches in which evidence is generated in academic institutions, then translated to non-academic stakeholders, co-production engages stakeholders in generating knowledge within the context in which it will be used (Gibbons, 1994). This is important as stakeholders are an asset, as they bring relevant knowledge and skills to shape the research. Within the context of this study, co-production is defined as engaging with key stakeholders (RNs), in 1)

the adaptation of a SA intervention and 2) discussions to inform the most appropriate study design for pilot testing the intervention.

Using a co-production approach was deemed important as, for psychological interventions to be effective, it is important that contextually relevant elements are incorporated (Yeager & Walton, 2011). In order to achieve this, RNs were engaged in an iterative process of adapting the intervention by contributing to key decisions and the planning of the SA intervention pilot study design.

Study 2 was separated into two distinct parts. In part 1, RNs were invited to participate in a workshop to discuss the intervention and create the materials used within the intervention, consider the visual design, usability and acceptability of the online intervention and contributed to the pilot study design. In part 2, Think Aloud interviews were conducted to further refine the intervention prior to the randomised controlled study.

4.4.2 Ethical approval

Ethical approval was granted by University of Leeds Faculty of Medicine and Health, School of Psychology Research Ethics Committee (Reference No: PSC-304; 26/03/2018) and HRA approval was granted on 15/07/2019 (Reference No: 244028).

4.5 Study 2, Part 1: Workshop

The workshop was predominately used to adapt a values list to ensure it was contextually relevant for RNs. Additionally, the list which is cited as being used most frequently within the literature (Allport, Vernon & Lindzey, 1960) was developed in 1960, reflecting the potential need to update the language used. The workshop also

focussed on the online usability of the intervention and previous online SA interventions were explored.

4.5.1 Aims of the workshop

1. To determine an appropriate list of values for the intervention which are contextually relevant for RNs.

2. To explore the visual design, usability and acceptability of an online platform, including language and question format.

3 To contribute to the randomised controlled study design.

4.5.2 Method

A workshop was deemed the most appropriate method of data collection as this enabled discussion between the participants to explore the values to be used within the intervention and the usability and design of the online platform. Using workshops with healthcare staff to co-produce interventions has been used previously (Ward, De Brun, Bierne, Conway, Cunningham, English & McAuliffe, 2018). The discussions within this group encouraged participants to explore and clarify their ideas together, leading to a group consensus in a more effective manner than one-to-one interviews (Kitzinger, 1995). Within the workshop setting the researcher (AD) held a facilitator role and provided the participants with a task in which they needed to reach a common goal of adapting the list of values for the intervention. Within a group dynamic, participants are able to hear and explore other allied and opposing opinions. Using a group discussion technique has been used successfully previously in the adaptation of intervention materials (Reese et al., 2016).

4.5.2.1 Participant selection and recruitment

One workshop was held with six RNs in attendance. RNs employed by an acute NHS Trust in the North of England were invited to participate. An invitation was circulated to maximise reach of potential participants via a global email by the Trust communication team providing details of the workshop, and included the participant information sheet. Eight RNs responded to the email invitation and expressed an interest in attending the workshop. Six RNs attended on the day. The workshop was held on the hospital site, refreshments provided and a £10 voucher provided to participants to thank them for their time.

All participants were female and the majority were White British (83.33%) (See Table 8); the group had an average of 20.8 years' experience as a RN.

Table 8*. Participant characteristics within the sample.*

Characteristic		Frequency	Percentage (%)
Gender	*Male*	0	0
	Female	6	100
Ethnicity	*White British*	5	83.33
	Indian	1	16.66
Age	*21-25*	0	0
	25-34	0	0
	35-44	1	16.66
	45-54	4	66.66
	55-64	1	16.66

4.5.2.2 Procedure

Informed consent was obtained prior to participation, and participants were informed the workshop would be audio-recorded, with their permission. At the beginning of the workshop, the researcher (AD) presented participants with information about the project. Within this short presentation the participants were given information about SA interventions, why these might be beneficial for RNs in particular, and how the workshop would be run. The workshop was broken up into two sections. The aim of the first section was for RNs to collaboratively decide the list of values which the intervention would focus on. The RNs discussed the lists of values which had been presented within previous SA studies, including: the most commonly used values list within research; and a values list which had been adapted for use with a specific population - college students (See Table 9).

Table 9. *The lists of values presented within the workshop*

First values list used within early SA studies (Steele & Lui, 1983; adapted from; Allport, Vernon & Lindzey, 1960)	Example of an adapted values list for a student population (Bratter, Rowley & Chukhray, 2016)
Artistic skills/ aesthetic appreciation	Being good at art
Sense of humour	Sense of humour
Relations with friends/ family	Relationships with friends or family
Spontaneity/ living life in the moment	Living life in the moment
Social skills	Membership in a social group (such as community, racial group)
Athletics	Athletic ability
Musical ability/ appreciation	Music
Physical attractiveness	Creativity
Creativity	Politics
Business/ money	Religious values
Romantic values	

They were asked to discuss the appropriateness of the language used, how acceptable these values would be for the RN population and what changes or additions should be made to establish a -related values list. The discussion points included:

'What do you think about these values?'

'Can you identify with these?'

'Do you think it would be beneficial to include values aligned with the nursing profession?'

The facilitator of the workshop provided RNs with lists of values commonly associated with nursing practice to support the collaboration: the Six C's, (England NHS, 2012), NHS Constitution (Gov.uk), Principles of Nursing Practice (RCN.org) and the Nurse Midwifery Council (NMC) code (NMC.org) (See Figure 23).

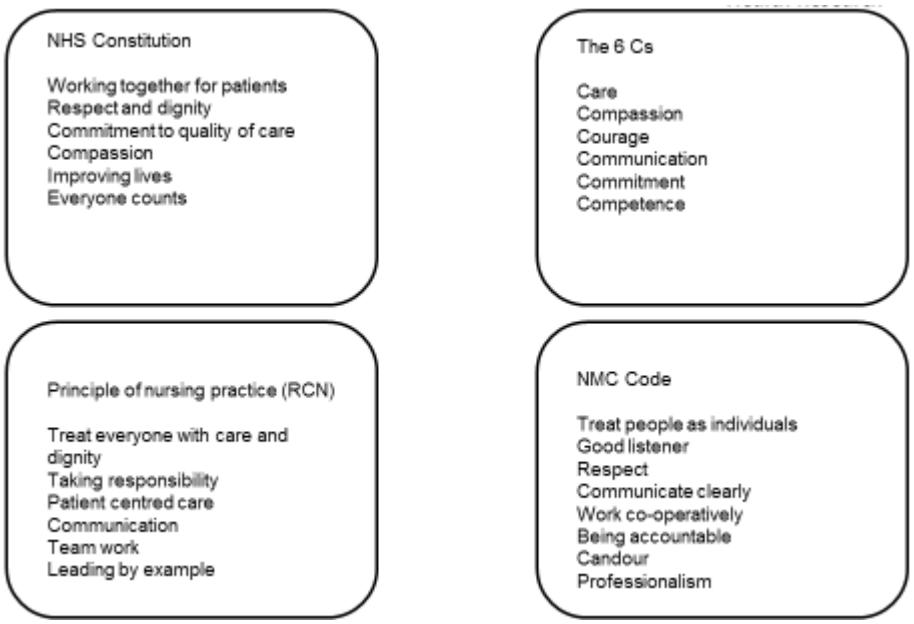


Figure 23. *Example of a slide presented at the workshop, showing participants different examples of values used within the RN profession*

In the second section of the workshop, the RNs were shown a demonstration of a preliminary version of the online intervention (See Figure 24). This demonstration included different ways of presenting the task of ranking values within the online platform. Following this they were asked to discuss specific questions about the intervention to establish the visual design, usability and acceptability. These questions included:

'Look at the description of the tasks does this make sense?

How is the language?'

'What did you think to the different options for ranking values which was most accessible?'

Any initial comments on the intervention?'

The workshop was audio-recoded, and transcribed verbatim.

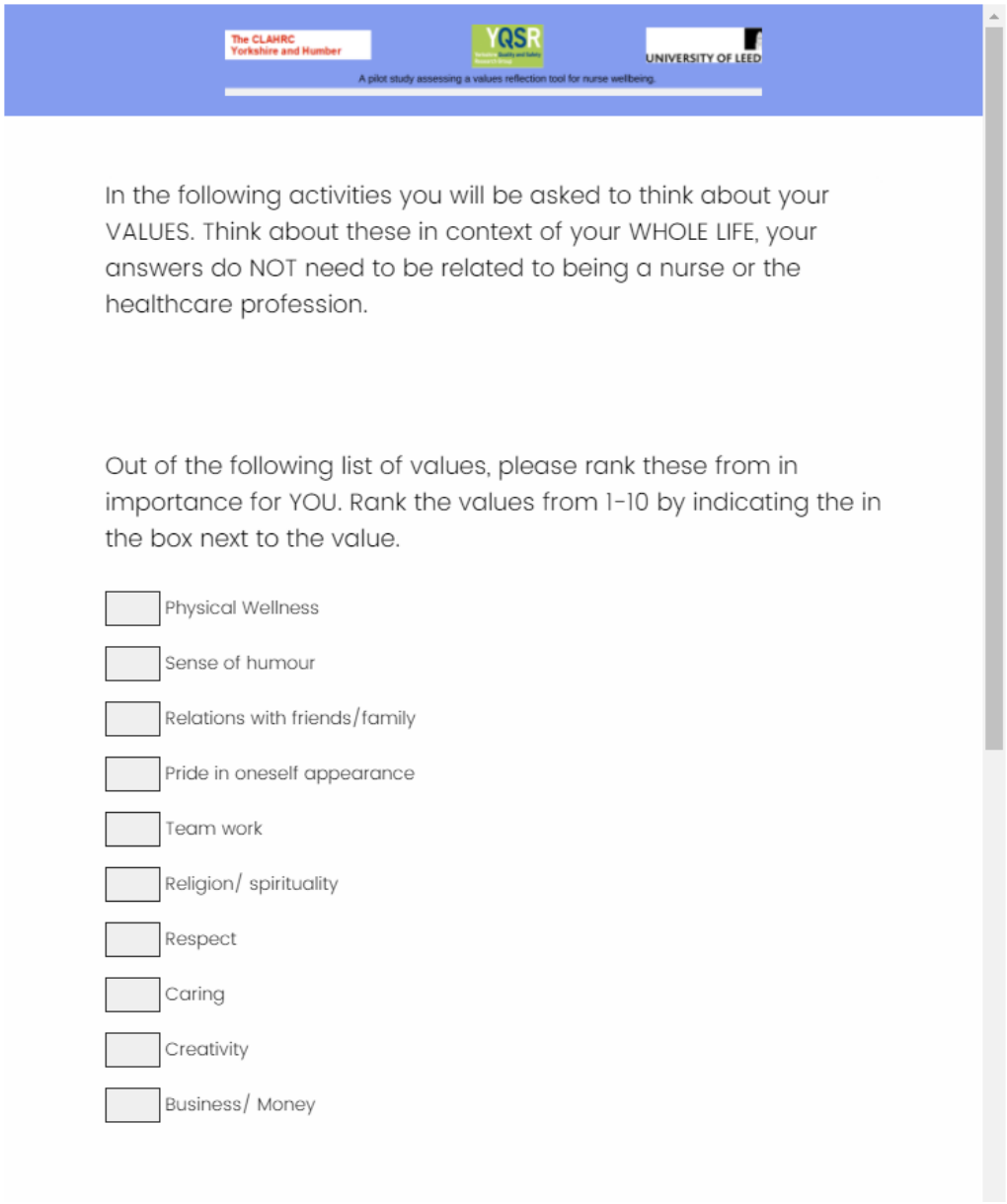


Figure 24. *Screenshots of the online prototype presented and used by participants within the workshop, including potential question formats*

In the final section of the workshop the participants were asked more specifically to discuss the design of the randomised controlled study. These discussion points included:

What are your thoughts on the suggested length of the intervention?

What do you think the best methods of engaging nurses in the research would be?

Where are the best places to advertise the study?

4.5.2.3 Data analysis

The group discussion was audio recorded and transcribed. These data were analysed thematically, following Braun and Clarke's (2006, 2019) process. Familiarisation of the data was achieved through listening to the audio recording and reading the workshop transcript. The initial coding of the transcript explored the discussion about each value. A table was created which organised the codes and quotations for each value discussed. Following this, the data exploring the visual design, usability and acceptability of the prototype intervention was coded to establish any specific amendments to the intervention. Finally, the data which supported the specific development of the randomised controlled study was coded.

4.5.3 Results

The results section is reported in sections aligned to the aims of the workshop. The first section of the results reports the findings related to development of a values list which is contextually relevant for RNs.

4.5.3.1 Values list

Within the discussion about the different values, there were some values that RNs felt were clearly very relevant or irrelevant. Regarding *spontaneity*, *musical ability* and *romantic* values, there was little to no discussion of these values as the RNs did not feel these were important:

'I don't think we need music ability and appreciation' (P1)

There were values which RNs felt were incredibly important to include. These values tended to be discussed for longer, but this discussion was based upon why they were important for RNs. These values included: *Sense of humour* and *Relationships with friends/ family*:

'I think relationships with friends and family, come in to everyone's, life, you know, and particularly when your experiencing, pressure at work, that's, that's an important value' (P4)

The other values presented led to more of a debate over their importance and relevance. These discussions would involve, merging two of the existing values, changing the language used, or creating a new value to replace it. Again, these discussions revolved around whether and how these values represented the RNs' personal and professional lives:

*'*P3: *I can't understand where being good at art or artistic skills comes anywhere in life*

P5: *Yeah*

Facilitator: *Would that be one that you would think, kind of, could be removed from the list?*

P6: *creative yeah but not artistic*

P3: *yeah, I think I put being creative because creative means like it's not about the fact I'm expecting you to put a creative poster on the ward… its more about creative*

thinking or doing things differently, or thinking outside the box or thinking with the resources you've got, so being creative, rather than

P6: *Rather than being good at art'*

In addition to the values list which RNs were asked to discuss, there were suggestions for additional values which could be added. These values often related more specifically to their professional life, for example there was discussion around the importance of being part of a team:

'But then there something about the team, of valuing your values around your team, and support, […] so its about that, kind of being valued working as a team, or even again its that being recognised' (P5)

4.5.3.2 Intervention visual design, usability and acceptability

Within the next stage of the workshop the discussion focussed on the specifics of the intervention itself, including: visual design, usability and acceptability. Focussing upon the visual design, usability and acceptability, nurses had the opportunity to engage with two different formats for how they would be able to rank values in an online platform:

'1- 10 yeah, not the dragging as its never clear what you're supposed to be doing, whereas numbering something in the order its important that's easier to understand' (P6)

The overall response to the idea of the intervention was positive, with the view that reflections sit well with nurses pre-existing appraisals. There was a perception that this method of reflection (i.e., focussing upon values) would lead to positive

reflections. They believed that this may be one specific benefit for RNs, as appraisals can lead to negative appraisals:

'Anything that stimulates good reflection is good' (P5)

4.5.3.3 Randomised controlled study design

In the final section of the workshop, the discussion focussed upon helping shape the randomised controlled study design, including: the length of the intervention and RN engagement. There was a consensus among the attendees that the length of the intervention was imperative to RN engagement. The proposed length of ten minutes was deemed acceptable, but that this should be viewed as the limit to time:

'The timing is an important issue' (P1)

'10 minutes its maximum for something like that, if you're not through it in 10 minutes your turning it off' (P4)

In terms of RN engagement, there was discussion about the usual lack of engagement with research or further initiatives outside of their job due to the high demands of their role. However, most of the RNs felt the focus upon wellbeing within the intervention and trial would negate this:

'It will be about wellbeing so that should automatically peak an interest with staff particularly if their feeling stressed and not so well' (P1)

Within this section of the workshop the RNs also provided practical advice around how to improve engagement, through increased visibility of the trial by suggesting the best places to promote the final study:

'Facebook, we do a lot of recruitment of Facebook that seems to get the biggest hit […] Nurses Roar, you know that Nurses roar on Facebook put a link on there' (P2)

4.5.4 The adapted intervention

The workshop further reinforced the potential benefits and acceptability of the intervention for RNs. It also shaped the list of values that would be used within the intervention, and provided practical support for the design of the randomised controlled study. This list of values was adapted from values lists used in previous research (Steele & Lui, 1983; adapted from; Allport, Vernon & Lindzey, 1960) with the additions of values that are contextually relevant to the nursing profession. This resulted in a list of ten values, to be used within the intervention for RNs to rank (See Table 10):

1. Sense of humour;
2. Relationships with friends/ family;
3. Physical wellness;
4. Pride in oneself/appearance;
5. Creativity;
6. Business/ money;
7. Teamwork;
8. Religion/ spirituality;
9. Respect;
10. Caring.

The following values were removed from the list:

- Artistic skills/ aesthetic appreciation
- Spontaneity/ living life in the moment
- Musical ability/ appreciation
- Romantic values

Table 10. *The adapted list of values, with supporting quotes and explanations*

Values	Quote	Explanation
Sense of humour	'I mean a good sense of humour should be there […]that's an important part of coping isn't it' (Study 2 Workshop)	Included in original values list used in most values affirmation research
Relationships with family/ friends	'I think relationships with friends and family, come in to everyone's, life, you know, and particularly when your experiencing, pressure at work, that's, that's an important value' (Study 2 Workshop)	Included in original values list used in most values affirmation research
Physical wellness (replacing athletic ability)	'it's the whole isn't it, because you've got to be physically well' (Study 2 Workshop)	Adapted from the original list through discussion with RNs that this should be holistic

Values	Quote	Explanation
Pride in oneself/ appearance (replacing physical attractiveness)	'I think that just needs rewording cos attractiveness isn't always physical is it?' 'Feeling good about yourself and feeling presentable and feeling good about yourself you know. Feeling smart isn't it yeah, and feeling happy with your personal appearance' 'Self-esteem and professional appearance' (Study 2 Workshop)	Adapted from the original list. The workshop discussion suggested that physical attractiveness per se is not important, but within nursing, having pride in ones' professional appearance is important
Creativity	'yeah, I think I put being creative because creative means like it's not about the fact I'm expecting you to put a creative poster on the ward… it's more about creative	Included in original values list used in most values affirmation research

Values	Quote	Explanation
	thinking or doing things differently, or thinking outside the box or thinking with the resources you've got' (Study 2 Workshop)	
Business/ money	'it doesn't mean, that the rest of the values are less important. It's just it was a driver, for me, at that time, and it didn't mean that, I didn't practise safely, and that when I was here I didn't give, my all, because I always did, and still do. But it, it has to be, yano, I think, personally, I'd be… it would be false of me to pretend that it didn't drive what I was doing, and it would be false of me to pretend that I	Included in original values list used in most values affirmation research

Values	Quote	Explanation
	didn't enjoy the fact that when I got seven nights I got a really good wage at the end of it and that's what paid for me to go on holiday' (Study 2 Workshop)	
Teamwork (replacing social skills)	'the team, of valuing your values around your team, and support […]so it's about that, kind of being valued working as a team' (Study 2 Workshop)	Teamwork is adaptation of social skills used in the original list, membership of social group is used on more up to date lists in replacement of social skills and this falls in line but also present in healthcare professional and nursing profession value lists i.e., Principle of Nursing Practice (RCN.org), NMC code (NMC.org), NHS Constitution (Gov.uk)

Values	Quote	Explanation
Religion/ spirituality	‘But I think again it’s like if you talked about, think about these in the context of your whole life, I think it would be remiss of us as nurses not to think about holistic, we do have to think about erm, religion. You do have to think about, whether you’d have something around Spiritual’ (Study 2 Workshop)	Included in original values list used in most values affirmation research
Respect (new value)	‘value would be respect’ (Study 1 Interviews)	One of the top reported values from the interviews with RNs. This is also a value reported within the NHS Constitution and NMC code of practice
Caring (new value)	‘your core values of care’ (Study 2	One of the top reported values from the interviews with RNs. This is also a value

Values	Quote	Explanation
	workshop) ‘you've got to have that ability to want to care and have that care and compassion for others’ (Study 1 Interviews)	in The 6Cs (England NHS, 2012).

Following Study 2 – part 1, the SA task for the final study was adapted in light of the workshop findings and previous data synthesis described in section 4.3.1. The SA task chosen was the most common form of manipulation, the values scale. The instructions for this task followed those that have been previously used successfully (McQueen & Klein, 2006) within this manipulation type. The manipulation asks participants to rank a list of values, and then typically asks them to 'Think about the value you ranked as most important'. The wording within this intervention was changed to ask participants to reflect one of the values provided or one of their own. This element of choice was included to support the intervention being as effective as possible, as research (Silverman et al., 2012) has shown that participants who are aware of the purpose of a SA intervention without a choice to affirm do not reap any benefits. Furthermore, an instruction was included for RNs to reflect in the context of their life more generally. This provides the participants with the opportunity to affirm in a different context to threat (Cohen & Sherman, 2014) and therefore reduce their resistance to change. After the participants have been asked to write a reflection on their chosen value, there were some shorter follow up tasks. This method of using multiple tasks to engage participants' in affirmation has been used previously (Von Koningsbruggen & Das, 2009). Within this section a question was added 'In general I am able to live up to this value'. This was added to establish whether levels of value congruence were interacting with the effectiveness of the study. The preliminary instructions for the intervention were:

In the following activity you will be asked to think about your values. Think about these in context of your whole life, your answers do not need to be related to being a nurse or the healthcare profession. **Out of the list provided please rank these values from 1-10**:

Sense of Humour
Relationships with family/ friends
Physical wellness
Pride in oneself appearance
Creativity
Business/ Money
Team work
Religion/ Spirituality
Respect
Caring

Select ONE of the values from the list, or a value of your own to reflect upon. Please write this value below

_____
_____

Take **10 minutes** to reflect upon this personal characteristic or life domain.

Describe why you have chosen this value, think about a time in your life where it was particularly important or meaningful and this value made you feel good about yourself. Don't worry about how it's written. Just focus upon expressing your memory of the event and the feelings that you had at that time. Please do your best to write about this event and your feelings about this chosen value.

Please write at least **150 words**

Think about the value you selected, please provide **two reasons** why you selected this value:

1._____
_____

2._____
_____

Below are four statements about the value you selected with which you may agree or disagree. Indicate your agreement with each item by indicating that response for each statement.

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
In general I try to live up to this value					
In general I am able to live up to this value					
This value is an important part of who I am					
I care about this value’					

4.7 Study 2, Part 2: Think Aloud interviews

The next stage in refining the SA intervention was a series of Think Aloud interviews.

4.7.1 Aim

1. To explore the face validity of the adapted intervention in order to further refine the intervention prior to testing the intervention in a randomised controlled study.

4.7.2 Method

Think Aloud is a method of interviewing participants that involves participants verbalising their thoughts whilst performing a task (Ericssom & Simon 1984). Think Aloud interviews have often been used to research problem solving tasks, for example, providing participants with a simple problem to solve so that they get used to verbalising their thoughts before beginning the actual Think Aloud task. This approach has been used successfully with healthcare professional groups, including nurses (Forsberg et al., 2014) in assessing clinical reasoning for educational purposes. More recently this method has been utilised by intervention designers. This enables researchers to understand how participants interpret the theoretical techniques, relate to the content of the intervention and determine understanding of the terminology. Furthermore, the Think Aloud approach has been used to assess online interventions (Yardley et al., 2010).

In summary, Think Aloud interviews are an appropriate methodology to establish the face validity of an intervention as they provide an insight into how the materials are being received and understood by the participant.

Think Aloud interviews are conducted in a quiet location in order to reduce distractions. The session starts by giving the participant standardised instructions and demonstrating the technique by completing a similar smaller task. The researcher does not generally interact with the participants after the initial instructions are provided and these instructions are usually standardised as they influence the participants' discourse. However, a critique of providing one general instruction in the beginning of the task is that participants do not know what they should articulate. Participants find it easier to discuss thought processes if they

understand which types of thoughts to focus upon (Calderhead, 1981). Therefore, in recent years researchers have been more flexible with their approach through planning prompts that could be posed during pauses within the think aloud commentary.

Within this research, participants were asked to say whatever they felt or thought as different draft pages of the intervention were presented to them in order, emphasising that critical feedback would be welcome. Further prompts and follow up questions were utilised to elicit elaboration. Additionally, follow up questions were used to ascertain opinions on page design etc. The Think Aloud method was adopted to provide insight into people's immediate reaction to each element of the intervention. This approach allowed the researcher to observe how participants were using and interacting with the intervention resources.

4.7.2.2 Participant selection and recruitment

Five RNs working in an acute hospital setting (from one Trust) were recruited to take part in the interviews. The RNs were recruited after responding to an email invite which included the study information sheet, advertising the study within the Trust. The interviews were held face to face in private rooms at a hospital site. Participants were provided with a £10 voucher incentive. All of the nurses who participated were female and White British (See Table 11), with an average of 25 years' experience.

Table 11. *Participant characteristics within the sample*

Characteristic		Frequency	Percentage (%)
Gender	*Male*	0	0
	Female	5	100
Ethnicity	*White British*	5	100
Age	*21-25*	0	0
	25-34	0	0
	35-44	1	20
	45-54	2	40
	55-64	2	40

4.7.2.3 Procedure

On the day of the Think Aloud interview, participants were provided with the information sheet again and had the opportunity to ask any questions answered prior to providing informed consent. Informed consent was obtained and participants gave their permission for the interview to be audio recorded. Participants were provided with a brief explanation of the study purpose to establish the acceptability of a SA online intervention for use with RNs and provided with the following instruction:

'I am going to ask you to talk aloud as you work through the tasks in front of you. What I mean by 'talk aloud' is that I want you to tell me everything you are thinking as you read each part of the intervention and how work through the tasks. I would like you to talk aloud constantly. I don't want you to plan out what you say or try to explain to me what you are saying. Just act as if you are alone in the room speaking

to yourself. If you are silent for any long period of time, I will ask you to talk. Please try to speak as clearly as possible, as I shall be recording you as you speak'.

All interviews were audio recorded with participants' permission and transcribed verbatim.

4.7.2.4 Data analysis

The data were analysed using thematic analysis following Braun and Clarke (2006, 2019) six step process. Previous Think Aloud studies have analysed data using this method (Perski, Blanford, Ubhi, West & Michie, 2017). Data familiarisation was achieved by listening to audio recordings, reading and re-reading and the transcripts. The transcripts were coded with two separate foci. The first explored the participant's engagement with the intervention, and their responses to the specific tasks within the intervention. This stage of coding enabled the researcher to assess whether the tasks within the intervention guided nurses to reflect upon their values. Following this the coding of the transcripts explored thoughts relating to the face validity of the intervention. These codes were described within two themes, with supporting quotations.

4.7.3 Results

4.7.3.1 Engagement with the intervention

All the participants within the study successfully engaged with the SA intervention. The participants rated *relationships with friends/ family*, *respect* and *caring* as their top rated values. Within the reflection task all the participants chose to reflect on their top rated value. Regardless of the value all participants affirmed this value in relationship to both their personal and professional life:

'I would say, for me, this one, respect, is really important because I think really when it comes to friends and family it happens and things like that, but in work, I pride myself in the fact that I'm always there for everybody.' (P5)

Within the follow up tasks in which participants were asked to endorse the statement 'In general I try to live up to this value', two of the participants discussed being unable to always live up to their chosen value:

'Sometimes time doesn't allow you to be quite as caring […]so I run this ward, so ultimately the buck stops with me for what goes on on this ward. So the care that's given, the management, everything stops with me ultimately. But I'm also a nurse, and that's what I trained to do that's what I love to do and sometimes you can't, I can't give ether job a 100%.' (P3)

4.7.3.2 Face validity

Whilst engaging with the intervention and thinking aloud, participants indicated parts of the intervention they liked and parts that needed changing or clarifying. This included the language, instructions and the values. Regarding the instructions for the intervention, generally participants found these quite clear, however there was clarity needed around the instructions for ranking the values. One of the participants required clarity on which number indicated the most important value on the scale, one or ten:

'Oh so which ones means most important to me, like being 10?' (P5)

Two of the participants initially completed the task incorrectly by providing each value a score of one to ten, rather than ranking these from one to ten:

'that's okay, that's alright, a little bit clearer on the bit about how you want grading, rather than grading each one, cos it sounds like what you want is a mark out of 10 for each value whereas what your wanting is to grade them in their importance to me as a person so but, other than that erm, its clear, and its okay, its just that little bit and it'll be spot on' (P3)

The participants felt that the intervention was a good length, and the instructions around how much to write within reflection feasible and acceptable:

'150 is not a lot, so you could easily, easily write 150 words. You might want to put a limit, cos otherwise somebody might write a lot. I could potentially write a lot… It depends how fast you're typing, mine's reasonably fast. But at least 150 words is definitely do-able' (P1)

The value list that was provided within the task for the majority was deemed an appropriately length and comprehensive by the majority of participants. However, one of the participants did suggest a couple of additions, for example, the inclusion of hobbies:

'yeah no, I think the wording of its fine, certainly I think the list is fine it covers everything, cos you've got money in there, you got physical health, you've got mental health, teamwork, spirituality has to be in there. Erm, sense of humour yeah, so you've got the big things in there' (P2)

'*Perhaps is there anything needed about hobbies and things that help you'* (P1)

The Think Aloud interviews showed promising findings for the use of a SA intervention with nurses as it demonstrated that the intervention successfully promoted their reflection around values. Furthermore, the instructions and language

were found to be acceptable to nurses. This study supported the adaptation of the intervention by providing clear feedback on the language which needed clarity. This study led to a change in instructions of the intervention to:

‘For the following list of values, please RANK these in terms of their importance for YOU. Rank the values from 1-10 (1=most important, 10=least important) by dragging the values into the rank order of your choice.’

This change was intended to prevent the confusion experienced by a number of the participants within this study when the intervention was piloted. This ensured that nurses were properly engaging with the intervention and reflecting upon their values, therefore safeguarding the results from a lack of engagement due to confusion.

4.8 Conclusion

This chapter described the co-production of the adaptation of the SA intervention for use with RNs to support wellbeing and improve patient care and safety. The synthesis of the evidence scan, systematic review and meta-analysis and Study 1, were discussed in relation to their relevance to the adaptation of the SA intervention. The workshop conducted in Study 2 part 1 with RNs adapted the content of the intervention to ensure the SA intervention was as appropriate as possible for RNs. The Think Aloud interviews conducted in Study 2, part 2, further supported the use of the SA intervention with nurses, by demonstrating the face validity of the intervention as it successfully provided RNs with the opportunity to reflect using appropriate and acceptable instructions. The key outcomes from Study 2, included: agreed list of RN related values, consensus of appropriate intervention length, RN engagement methods and clear instruction language.

Although it has been advised that SA interventions are most effective when the content is adapted to the context where they are being utilised (Yeager & Walton, 2011), limited studies have adapted the values for their recipients' contexts. Indeed, Study 2, part 1 is the first study within the SA literature where co-production has been used to adapt the intervention material with key stakeholders. This ensures that the values used within the intervention are the most acceptable for the intended user group, improving the reflection process.

The instructions used within the adapted SA intervention followed a similar set of instructions which have been used within previous SA research (McQueen & Klein, 2006). The Think Aloud interviews conducted within Study 2, part 2 are the first time that a SA intervention has been explored using this method. This research adds to the literature by demonstrating that the instructions which are used within the majority of SA interventions are appropriate and are actually guiding individuals to reflect upon their values.

In both parts of Study 2, the RNs who participated in the research were more experienced nurses, this may be because their positions mean they have increased autonomy in terms of their workload and therefore more able to attend the workshop or interviews.

At the completion of both parts of Study 2, a SA intervention tailored for RNs was created, and a randomised controlled study planned which aimed to help RNs to affirm their values. Prior to the COVID-19 pandemic, the intention of this project was that this intervention would be used in subsequent research with nurses to establish the effectiveness of the intervention. However, following amendments due to COVID-19 a randomised controlled study with the general population was conducted.

4.9 The next chapter/ stage of research

Immediately following the creation of the intervention and protocol, the COVID-19 pandemic occurred in the UK, meaning the planned randomised controlled study was no longer possible. As such, chapter 5 describes the changes that were introduced to the research plan in light of this including the conducted randomised controlled study with the general population.

Chapter 5

A randomised controlled study to assess the effectiveness of a Self-affirmation intervention in supporting wellbeing and proxy quality of care and patient safety outcomes for the general population during the COVID-19 pandemic.

5.1 Chapter summary

This chapter presents the final study and culmination of the work of the thesis. The final study brought together all the findings from the previous chapters. It aimed to test the adapted intervention and test its potential effectiveness in supporting wellbeing and the consequences for 'proxy' quality of care and patient safety outcomes during the COVID-19 pandemic. The original plan within this thesis was to conduct a randomised controlled study of the adapted SA intervention with nurses (See Appendix E). However, in response to the COVID-19 pandemic, necessary amendments to the study were made to test the intervention with a general population sample. The findings are discussed in relation to the research questions posed for the general population sample, in addition to how the findings relate to the potential use of the intervention with RNs.

5.2 Background

The impact of COVID-19

The original plan within this thesis was to conduct a randomised controlled study of the adapted SA intervention with RNs. However, the ethics approval was received three days after the first national lockdown, when the National Institute for Health and Care Research (NIHR) had suspended all non-COVID research in the NHS. To accommodate the demands of the COVID-19 pandemic for RNs (Nelson & Lee-Winn, 2020), the planned study was amended to instead recruit members of the general population within the UK. The global consequences of COVID-19 have been significant and unprecedented. It has impacted on this PhD research substantially. From the outset of the outbreak within the UK, one of the main concerns was that the NHS would become overwhelmed (Horton, 2020). The early policy directives from the UK government such as 'stay home, protect the NHS, save lives' (Gov.uk, 2020) were framed around supporting the NHS. The COVID-19 pandemic presented RNs with new challenges and stressors which have had a direct impact upon their wellbeing as they experienced an increase in the volume and intensity of work, whilst having to adapt behaviours for the 'new normal' (Maben & Bridges, 2020).

The planned randomised controlled study received ethical approval on the 13th March 2020 (See protocol, Appendix E). The Prime Minister of the UK at the time, Boris Johnson, announced that the UK would be going into 'lockdown' on the 16th March 2020 (Gov.uk, 2020) due to the rising number of reported cases and deaths. The lockdown placed restrictions on all aspects of people's lives asking everyone to stay at home, apart from essential workers, including RNs. RNs working in acute hospital settings have been the frontline response to the COVID-19 pandemic. The pandemic presented many challenges for RNs, the increase in patients and those

requiring intensive care stretched an already understaffed workforce (Forbes & Finch, 2020). The redeployment of RNs throughout the NHS meant that many staff started working within different specialities or with different teams (Dunn et al., 2020; Forbes & Finch, 2020). Due to the increased risk of infection from the virus many healthcare staff self-isolated away from their families between shifts (Forbes & Finch, 2020). A shortage of personal protective equipment (PPE) in some hospitals led to re-using or improvisation of PPE as a third of nurses reported feeling pressured to work without sufficient PPE (Hoernke et al., 2020). The pandemic also had a huge negative impact upon the mental health of nurses, in one study 87% rated their stress at work as more than usual and 90% believed their anxiety had increased since the outbreak (Ford, 2020).

Due to the increased pressure and new challenges presented to RNs due to the pandemic and the potential negative impact of this on wellbeing and mental health, following discussions with senior nurses and the supervisory team it was decided that it would not be appropriate to ask RNs to participate in the randomised controlled study. Several possibilities were explored within these discussions, including changing the population to student nurses. However, many final year students were redeployed to work within hospitals during the pandemic, and this placed them in the same situation as other nurses on the front line. Therefore, the study was amended to include the general population rather than RNs working in acute hospital settings. An ethical amendment was submitted, which was granted approval on 3rd April 2020.

Adaptions made to the study

The general population was deemed a suitable alternative group because the COVID-19 pandemic created an unprecedented situation in which the threat to

health, social and work restrictions had an impact on the mental health of the general population (Pierce et al., 2020). There was a reported increase in prolonged environmental stress, burnout (Yildrim & Solmaz, 2020), and deterioration of wellbeing (Pierce et al., 2020) of the UK population during the pandemic. This impact upon wellbeing allows for a cautious level of extrapolation of the findings of this study, to explore whether SA interventions have the potential to support wellbeing for RNs.

Although there is evidence of a clear link between wellbeing outcomes such as burnout and stress and perceived patient safety for RNs (Al Ma'mari, Sharour & Al Omari 2020; Elfering, Semmer & Grebner, 2006; Halbesleben et al., 2008; Johnson et al., 2017; Louch et al., 2017), there has been no research to date to test whether an intervention to support RN wellbeing would also impact on quality of care and patient safety. The originally planned randomised controlled study would have addressed this gap in the literature by testing whether a SA intervention could support wellbeing, and its impact on perceptions of quality of care and patient safety. Whilst this could not be directly tested within the amended study with members of the general population, proxy measures of quality of care and patient safety were taken at baseline and follow up.

Gaps in the self-affirmation literature addressed by the study

There were three key gaps in the literature which the study aimed to address. First, there is a need to assess whether SA interventions can support wellbeing in ‘real world’ contexts. Second, there is no research which has established whether a SA intervention can support wellbeing when delivered online. Thirdly, in line with SA theory, there is a need for research to establish potential long-term benefits of the intervention. All of these novel contributions to the literature will be discussed in turn.

First, studies have demonstrated the potential for SA interventions to buffer against stress (Cohen & Sherman, 2014) and burnout (Sellen, 2015), which are important outcomes for RNs (Louch et al., 2017; Vahey, Aiken, Sloane, Clarke & Vargas, 2004) and experienced by many in the general population throughout the COVID-19 pandemic (Yildrim & Solmaz, 2020). However, the majority of the evidence assessing the effectiveness of SA in supporting wellbeing outcomes such as stress and burnout has been conducted in a laboratory setting, primarily with university students (See chapter 2). As such there is a need to for ecologically valid studies to be conducted into SA.

Secondly, SA interventions have been delivered using online platforms (Epton at al., 2014; Fielden, Sillence, little & Harris, 2016), but this research area is limited. Furthermore, no online studies have investigated the role of SAs in supporting wellbeing as an outcome. In the current COVID-19 pandemic, access to face-to-face health services has been restricted and much mental health support has been moved to online delivery (Moreno et al., 2020). As such, the pandemic has had considerable consequences for the mental health of the general population (Pierce et al., 2020). There are therefore potential benefits to developing an online intervention.

Finally, in addition to the gaps within the literature described above, a further design consideration which needed to be addressed was ensuring sufficient follow up measures, as the majority of previous SA studies only measure outcomes immediately after the intervention. SA theory states that the effects of the intervention propagate over time, and have long lasting effects (e.g., improving academic achievement after a school term) therefore there is a need to establish whether SA supports wellbeing after a longer period of time.

The final study brings together all the research conducted within this PhD and addresses these gaps within the literature by incorporating these considerations in the study design. The randomised controlled study assessed whether an online SA intervention supported wellbeing during the COVID-19 pandemic. The study also aimed to establish whether a SA intervention to support wellbeing impacted on proxy quality of care and patient safety outcomes. A multi-stage randomised controlled study was conducted. Outcome measures were taken immediately post intervention (intervention delivered at three time points) and at a two-week follow up to establish whether the outcome measures were supported over time.

5.3 Research questions and aims

The primary aim of this study was to examine whether a SA intervention could support wellbeing, and the impact on proxy measures of quality of care and patient safety at a time of increased threat (COVID-19 pandemic April – June 2020).

Three research questions were posed:

Research question one: Does the SA intervention support (either by improving or maintaining wellbeing outcomes in comparison to a control condition) wellbeing outcomes at two weeks follow up?

Research question two: Does the SA intervention affect proxy quality of care and patient safety outcomes at two weeks follow up, and if so, is there a relationship between these changes and the intervention's impact on wellbeing?

Research question three: Does the SA intervention support (either by improving or maintaining wellbeing outcomes in comparison to a control condition) state wellbeing immediately post-intervention, and is there any effect of increased 'dose' of intervention over time?

In relation to the three research questions, it was hypothesised that:

Wellbeing outcomes would be supported (i.e., improved or maintained) for participants in the SA condition at two weeks follow up in relation to control participants.

No directional hypotheses were predicted in relation to the proxy quality of care and patient safety outcomes as this aspect of the research was exploratory. Any changes for proxy quality of care and patient safety outcomes will be investigated to see if they are related to the SA intervention's impact on participant wellbeing.

State wellbeing outcomes would be supported (i.e., improved or maintained) for participants in the SA condition immediately post intervention (Time points 2, 3 and 4).

5.4 Method

5.4.1 Ethical approval

Ethical approval for the randomised controlled study planned with RNs was approved on 13/03/2020 (Ref: PSYC-926) by the School of Psychology research ethics committee, University of Leeds. An ethical amendment was submitted with the changes of the study outlined. Ethical approval for the study amendment was granted on 03/04/2020 (Ref: PSYC-10).

5.4.2 Research Setting

The study was conducted using online platforms. To increase the likelihood of the study being adequately powered, the recruitment was supported using Prolific (prolific.com, 2020). Prolific is an online platform for participant recruitment which is explicitly tailored for researchers' use. The platform has successfully been used with

previous psychology experiments (Callan et al., 2016). Prolific provides clear rules for participants and researchers, and benefits from transparency for participants and researchers. Potential participants are aware they are being recruited for research as well as the study obligations and incentives, and researchers have clear information about the participant pool and are able to screen participants prior to inviting participation. Furthermore, Prolific includes features which allow for longitudinal, multi-stage research to be conducted making it appropriate for this study. The participants were initially screened as being a current UK resident. As the government response to the COVID-19 pandemic was different between countries, it was important to control for this by ensuring that all participants were experiencing similar restrictions on their lives, for example being asked to stay at home and not mix with other households.

5.4.3 Eligibility criteria

Participants were required to be a current UK resident over the age of 18 years. There were no further eligibility criteria.

5.4.4 Measures

A background questionnaire asked participants for their Prolific ID, in line with the platform's guidelines. This enabled the participants' entries at each time point to be tracked and linked, but for them to remain anonymous. Following this, participants were asked a series of demographic questions which included: age, gender, ethnicity, UK region and employment status. Participants were then informed that they would be asked a series of questions about their wellbeing and productivity.

Wellbeing outcomes

Several measures of wellbeing were chosen to study a range of wellbeing outcomes at different stages of the study.

Burnout

The Copenhagen Burnout Inventory (CBI; Kristensen, Borrits, Vildasen, & Christenses, 2005) was used to measure burnout as it measures burnout in general, rather than assuming a person is in employment. As such, it is more suitable for use in the general population, including individuals who may not be employed. For the purpose of this study only the personal burnout subscale of this measure was utilised. The CBI has three subscales: personal, work related and client related burnout. The personal burnout subscale was developed to make comparisons across individuals regardless of their employment and age. The CBI has been found to hold high internal reliability, and a low non-response rate for individual items (Kristensen, Borrits, Vildasen, & Christenses, 2005). In the CBI, participants are asked to indicate the extent to which they agree on a five point Likert scale (always, often, sometimes, seldom, never/almost never) with six different statements including: ‘how often do you feel tired?’. Higher scores (maximum score of 5) are indicative of individuals experiencing more burnout. The CBI was found to have good internal consistency in this study ($\alpha = .87$).

Perceived Stress

The Perceived Stress Scale (PSS-4; Cohen, Kamark & Mermeistein., 1983) is a validated short scale of the Perceived Stress Scale (Cohen, Kamark & Mermeistein., 1983). It measures the degree to which situations have been appraised as stressful within the previous month, by asking participants how often they have felt a certain way on a 5-point Likert scale (Never, almost never, sometimes, fairly often, very often), e.g., ‘In the last month, how often have you felt confident about your ability to

handle your personal problems?'. Higher scores (maximum score of 5) represent an increased amount of perceived stress. The PSS-4 was found to have acceptable internal consistency in this study (α = .77).

State stress, depression and quality of life

Visual analogue scales (VAS) provide a single subjective measurement of a concept in that moment by asking participants to identify where they would place themselves on a virtual ruler. VAS measures were used at all time points and directly pre and post the intervention and control tasks to pick up any immediate changes in state. Using these scales in conjunction with the longer measurements of mood (i.e., PSS-4) benefitted the analyses as they are reliable for capturing brief fluctuations in mood (Johnson, Gooding, Wood, Fair & Tarrier, 2013). The VASs measured stress, depression and quality of life. Participants were asked: 'On the ruler please indicate to what extent are you experiencing this feeling right now?'. For example, for stress, participants were asked to place themselves (0-10) from not stressed at all (0), to, most stressed I have ever felt (10). High scores (maximum score of 10) indicated a higher level of stress, depression or quality of life experienced at that moment.

Proxy quality of care and patient safety outcomes

As the study was amended to recruit the general population rather than RNs who worked in an acute hospital setting, the measures of quality of care and patient safety were substituted with proxy measures. The proxy measures were chosen by examining the literature which focusses upon patient care and safety to establish contributing cognitive factors which would also relate to a general population sample. From the literature, attention (Nicholas, Copeland, Craib, Hopkins & Bruce, 2008), forgetfulness (Anselmi, Peduzzi & Santos, 2007) and fatigue (Montgomery, 2007)

were identified as appropriate ‘proxy’ measures of patient safety. Participants were informed that they would be answering questions relating to productivity.

1. Attention

The Attentional Control Scale (ACS) (Derryberry & Reed, 2002) is a self-reported measure of attention control. Factor analysis has demonstrated that the items load onto two subscales: focus and shifting. The ACS asks participants to score statements on a four-point Likert scale from almost never to, never, including: ‘recently, when trying to focus my attention on something, I have had difficulty blocking out distracting thoughts’. Higher total scores relate to a better ability to control attention. The ACS was found to have questionable internal consistency in this study ($\alpha = .68$).

2. Perceived forgetfulness

Forgetfulness was measured using two scales. First, it was measured using a single item which has previously been successfully used to determine subjective memory complaints (Bassett & Folstein, 1993; Commissaris et al., 1998; Mol et al., 2006). Second, it was assessed using a scale which measures the behaviours leading to perceived forgetfulness (Mol, Ruiter, Verhey, Dijkstra & Jolles; 2006). This is a four-item questionnaire that measures little and much effort to remember, in which participants rate statements from never to always (five point Likert scale), including: ‘Did you ever avoid someone, because you didn’t remember his or her name?’. The perceived forgetfulness scales were found to have acceptable internal consistency in this study ($\alpha = .75$).

3. Fatigue

The Modified Brief Fatigue Inventory (MBFI) (Aynehchi, Obourn, Sundaram, Bentsianov & Rosenfield, 2013) is a nine-item questionnaire that measures the core facets of functioning and quality of life related to fatigue: general, physical, emotional, and mental. The MBFI has previously been found to have good test re-test reliability (r= 0.8, p <0.01) (Aynehchi et al., 2013). In the MBFI, participants are asked to describe how often in the last seven days (on a seven point Likert scale) fatigue has interfered with aspects of their life including mood, normal work and relationships e.g., Please indicate the number that describes how often, during the past 7 days, fatigue has interfered with your mood? Higher levels of fatigue are reflected in higher scores (maximum score of 7). The MBFI was found to have excellent internal consistency in this study (α = .90).

Resilience

Resilience was included as a control variable within the initial baseline questionnaire as previous studies have suggested participants' existing self-resources impact the effectiveness of SA intervention (Tyler et al., 2016; Harris et al., 2018). The Brief Resilience Scale BRS (Smith et al., 2008) assesses an individual's ability to recover or bounce back from experiencing stress. The BRS (Smith et al., 2008) has been found to be a reliable method for measuring resilience (Smith et al., 2008). The BRS asks participants to indicate the extent (Strongly disagree, disagree, neutral, agree and strongly agree) to which they agree with six different statements including: 'I have a hard time making it through stressful events'. Individuals who are more resilient will score higher (maximum score of 5) on the BRS. The BRS was found to have good internal consistency in this study (α = .89).

5.4.5 Procedure

Study descriptions were posted to Prolific, advertising the study as an intervention to support wellbeing, detailing what would be expected of participants. To help reduce attrition, participants were informed of the monetary incentives for each stage and of the bonus that would be allocated to completers. Completers were participants who participated in all time points of the study. This multi-stage study had five time points spread over a two-week period (See Figure 25). The study was hosted on the online platform Gorilla (Gorilla.sc, 2020). Within time point one, participants answered demographic questions and completed all baseline measures (BRS, CBI, PSS-4, VAS, ACS, perceived forgetfulness and MBFI). Within Prolific the Whitelist function was used to support the multi-stage aspect of the study. This function ensures that only participants who have completed the first stage of the study are provided with access to later stages of the study. Time points two, three and four were identical and all spaced two days after each other. At time point two, participants were randomised into the SA or control condition. Prior to and immediately following the SA condition or control condition task, participants were asked to answer the three VAS measures. At all time points (2, 3, and 4) participants remained in the condition they were allocated at time point two. Two weeks after time point four, time point five was delivered. This required participants to answer all measures relating to wellbeing and proxy quality of care and patient safety measures (CBI, PSS-4, VAS, ACS, perceived forgetfulness and MBFI).

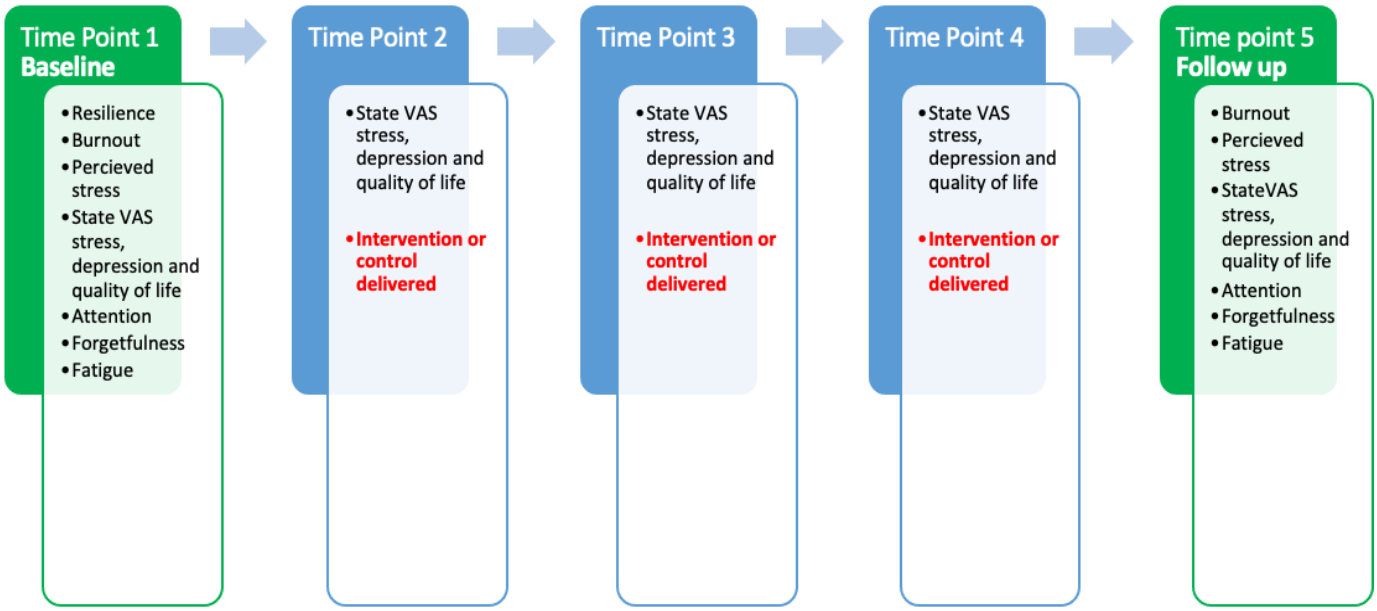


Figure 25. *The measures taken at the different time points of the study*

Manipulations:

Intervention condition:

In the intervention arm, participants were asked to take part in a number of tasks which surrounded value reflection. Within these tasks, participants were first instructed to rank a set of ten values from one to ten, with the value most important to them being placed at number one, and least at ten. Then, they were asked to select one of these values, or one of their own to reflect upon for the next task. Following this, they were asked to spend ten minutes reflecting on the value they selected, describing a time when this value was particularly important to them. They were asked to write these reflections down. Following this, they were asked to write two short reasons why this value was chosen as important to them. Finally, they were asked to rate four statements regarding their feelings towards the value from strongly disagree to strongly agree.

Control condition:
Control condition participants were asked to complete a filler task (See Appendix H). They were provided with the instruction to spend five minutes listing items they could see in the room they occupied.

5.4.6 Participants

A priori power analysis conducted in G*Power (Faul, Erdfelder, Lang & Buchner, 2007) indicated that a total sample size of 66 (with two independent groups) would be sufficient to detect a moderate effect size of 0.15 with an alpha of 0.05 and a power of 95%.

Actual recruitment exceeded this sample size, with 212 participants recruited to complete measures at baseline (See Figure 26), 161 retained at time point two, 156 retained at time point three, 153 retained at time point four and finally 115 retained at time point five. The attrition rate ranged between 23.57% (time point 2) and 54.25% (time point 5). MANOVAs were conducted to establish whether there was any bias between participants who completed all stages of the study and those that dropped out prior to completion. The results of the overall F test of the MANOVA demonstrated no significant difference between completers and non-completers in terms of demographic variables, Pillai's Trace = .030, $F(4, 196) = .1.538$, $p = .193$ and the main study outcomes, Pillai's Trace = .028 $F(11, 197) = .511$, $p = .895$.

For the sample at baseline, the majority of participants were female (78%), and the age of participants ranged between 18 –74 years old ($M = 36.12$ years). The majority of participants were white (89.3%), and in full time employment (41.6%) (See Table 12). The participants were from geographically diverse regions within the UK, covering all nine regions.

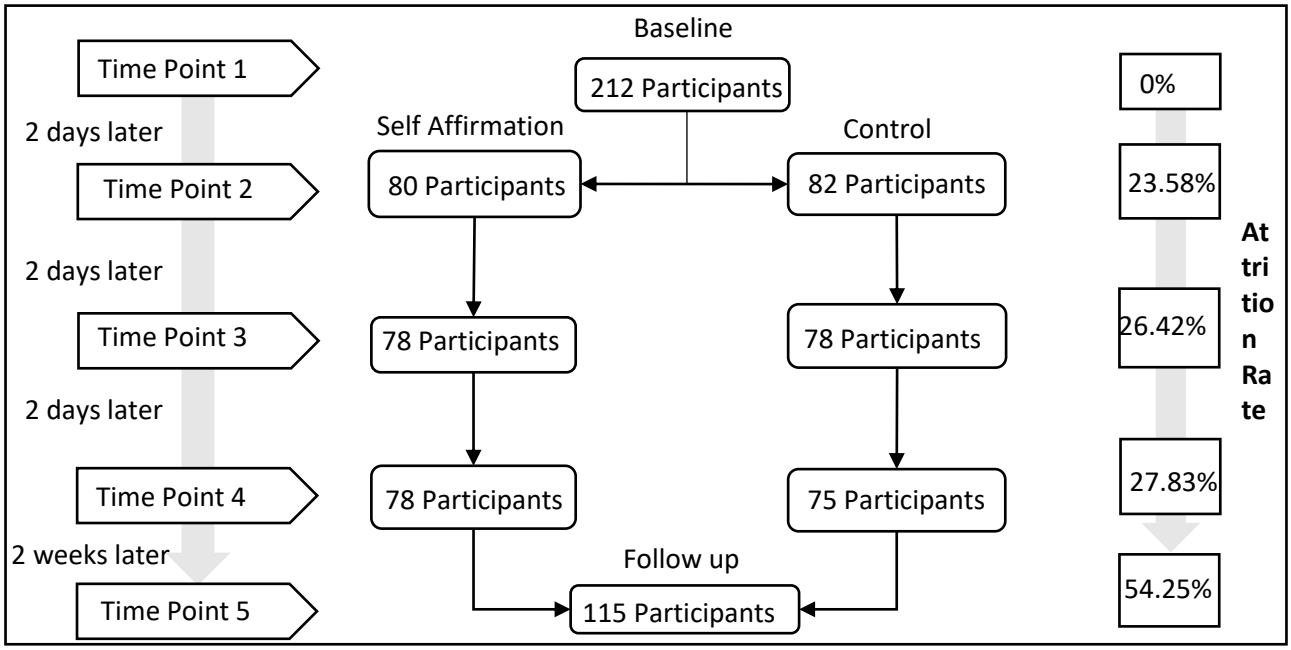


Figure 26. *A pictorial diagram of the number of participants and attrition rate at each time point*

Table 12. *Participant demographic information*

Demographic	N	Percentage	M	SD
Age				
	212		36.21	14.80
Gender				
Male	45	21		
Female	167	78		
Race/ ethnicity				
White	191	89.30		
Black or African American	3	1.40		
Asian	6	2.80		
Mixed ethnic group	7	3.30		
Prefer not to say	2	0.20		
Employment				
Full time	89	41.60		
Part time	41	19.20		
Unemployed	11	5.10		
Student	24	11.20		
Retired	12	5.60		
Self-employed	23	10.70		
Unable to work	4	1.90		
Prefer not to say	8	3.77		

Notes. M = Mean SD= Standard deviation

5.5 Data analysis plan

The data analysis plan is presented in line with each corresponding research question.

Research question one: Does the SA intervention support (either by improving or maintaining wellbeing outcomes in comparison to a control condition) wellbeing outcomes at two weeks follow up?

Research question two: Does the SA intervention affect proxy quality of care and patient safety outcomes at two weeks follow up, and if so, is there a relationship between these changes and the intervention's impact on wellbeing?

To analyse the first two research questions, mixed models were performed. The use of mixed models was deemed the most appropriate as this statistical analysis can take into account the effect of missing participant data between the five time points. Linear mixed models, with participants entered as random intercepts were conducted on the baseline and two week follow up measures (time point 1 and 5) of wellbeing and proxy quality of care and patient safety outcomes. Within these the models, age, gender, ethnicity, and employment and resilience were also adjusted for and shown to have no significant association on the outcomes.

Research question three: Does the SA intervention support (either by improving or maintaining wellbeing outcomes in comparison to a control condition) state wellbeing immediately post-intervention, and is there any effect of increased 'dose' of intervention over time?

To investigate the third research question further, mixed models were conducted using the state wellbeing outcomes (VAS measures) taken at each time point to assess the impact of the intervention immediately post-intervention and whether the different doses of the intervention (time points 2, 3, and 4) had different effects (i.e., cumulative). All mixed models were run on Rstudio using the Jamovi package (Core Team, 2017).

5.5.1 Data preparation and preliminary analysis

Data screening

Following data extraction from Gorilla and input into SPSS (Version 26; SPSS, 2019), the relevant reverse scored items from each measure were recoded from positive-negative and negative-positive. The normality of the variables was established as there were no issues for skewness and only the follow up burnout measure had a kurtosis score over the absolute value of 2.0 (2.65).

Little's chi-square statistic for testing whether values are missing completely at random (MCAR) (Little, 1988) was not significant (X^2 (1084, 212) = 640.489, *p*= 1.00). This demonstrates that there was no pattern to the missing values within the data set. Regarding the missing data, there were the following percentages of missing data for baseline measures = 1% time point 2 measures = 0.4%, time point 3 measures = 0%, time point 4 measures = 0.5%, follow up measures = 0%.

The data set was assessed for outliers. One method of identifying outliers is to multiply the interquartile range by 1.5 (Tukey, 1977). However, Hoaglin & Iglewicz (1987) demonstrated that the 1.5 multiplier was inaccurate 50% of the time and suggested a factor of 2.2 is more valid in a lot of applied cases. In light of this, when assessing the current dataset for outliers only the 'extreme' outliers (factor of 3) identified were considered. There were two items identified as outliers within follow up burnout average scores (156th & 194th data points). These scores were adjusted to the mean + two standard deviations (Field, 2009).

Preliminary analysis

The descriptive statistics for the control variables (i.e., resilience), wellbeing and proxy quality of care and patient safety outcomes at baseline (Time point 1) and two week follow up (Time point 5) time points are presented in Table 13.

Table 13. *Descriptive statistics for control, wellbeing and proxy quality of care and patient safety outcomes at baseline and follow up*

Measure	M	SD	M	SD
	Baseline		Two week follow up	
Resilience	2.80	0.81	N/A	
Burnout	3.11	0.71	3.04	0.58
Perceived Stress	11.14	2.71	11.17	2.70
VAS Depression	3.44	2.74	2.5	2.44
VAS Stress	4.32	2.59	3.17	2.50
VAS Quality of Life	5.75	2.02	6.18	2.10
Forgetfulness little effort	1.98	0.46	1.97	0.47
Forgetfulness much effort	2.54	0.86	2.58	0.86
Fatigue	3.26	1.20	3.16	1.23
Attentional Control Scale	15.95	2.67	15.53	2.67

Notes. M = Mean SD = standard deviation

5.6 Results

The results section is presented in sections following each of the research questions posed within this chapter.

5.6.1 Research question one: Does the SA intervention support wellbeing outcomes in comparison to a control condition at two weeks follow up?

All five mixed models demonstrated no main effect of the intervention on wellbeing (See Table 14) between baseline and 2 week follow up measures. For participants

across conditions, perceived stress significantly increased between baseline and two week follow up (p <.001) (See Figure 27), however VAS depression (p <.001) (see Figure 28) VAS stress (p <.001) (See Figure 28), burnout (p=0.166) (See Figure 27) and VAS quality of life (p= 0.086) (See Figure 28) decreased between baseline and two week follow.

Table 14. *Mixed model for the effect of SA and control on wellbeing outcomes from baseline to follow up*

Model for Burnout							
Variable	Estimate	SE	T	df	p	CI lower	CI upper
Intercept	3.21	0.14	22.37	127.63	<.001	2.93	3.49
Gender	0.13	0.11	1.24	140.48	0.216	-0.08	0.34
Ethnicity1	0.06	0.19	0.33	152.50	0.738	-0.30	0.42
Ethnicity2	0.46	0.38	1.22	122.36	0.225	-0.28	1.21
Employment	-0.06	0.10	-0.60	144.77	0.551	-0.26	0.14
Age	-1.49	2.74	-0.05	141.26	0.957	-5.51	5.22
Resilience	-0.31	0.06	-5.33	141.44	<.001	-0.42	-0.19
Intervention	-0.06	0.09	-0.71	144.82	0.482	-0.24	0.11
Time	-0.08	0.06	-1.39	118.23	0.166	-0.19	0.03
Interaction Intervention ✻ Time	-0.12	0.11	-1.08	117.66	0.284	-0.35	0.10
Model for Perceived Stress							
Variable	Estimate	SE	t	Df	p	CI lower	CI upper
Intercept	11.73	0.45	26.01	107.75	<.001	10.84	12.61
Gender	-0.20	0.34	-0.60	124.37	0.552	-0.88	0.47
Ethnicity1	0.28	0.61	0.47	143.11	0.642	-0.90	1.47
Ethnicity2	0.75	1.18	-0.63	100.42	0.528	-3.06	1.57
Employment	0.29	0.33	0.87	130.68	0.385	-0.36	0.93

Age	-0.00	8.80	1.17	125.57	0.243	-0.00	6.91
Resilience	0.80	0.18	4.34	125.72	<.001	0.44	1.16
Intervention	0.12	0.29	0.41	126.33	0.682	-.045	0.69
Time	1.04	0.26	4.01	121.73	<.001	0.53	1.55
Interaction Intervention ✻ Time	0.31	0.52	4.34	125.72	0.554	-.071	1.33
Model for VAS Depression							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	2.86	0.50	5.69	110.74	<.001	1.88	3.85
Gender	-0.65	0.40	-1.63	128.84	0.106	-1.44	0.13
Ethnicity1	-0.25	0.74	-0.34	162.10	0.736	-1.69	1.19
Ethnicity2	-3.19	0.40	-1.63	128.84	0.106	-1.44	0.13
Employment	0.36	0.39	0.94	137.26	0.349	-0.40	1.12
Age	-6.97	0.00	-0.67	128.00	0.507	-0.00	0.00
Resilience	0.75	0.23	3.32	138.98	0.001	0.31	1.19
Intervention	0.12	0.35	1.02	135.26	0.311	-0.33	1.04
Time	1.04	0.28	-4.14	114.96	<.001	-1.70	-0.61
Interaction Intervention ✻ Time	0.31	0.56	0.53	114.44	0.599	-0.80	1.39
Model for VAS Stress							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	3.58	0.53	6.78	120.04	<.001	2.54	4.61
Gender	-0.50	0.40	-1.24	135.46	0.216	-1.29	0.29
Ethnicity1	-0.12	0.71	-0.16	164.49	0.869	-1.51	1.28
Ethnicity2	-2.07	0.71	-1.49	111.55	0.139	-4.78	0.65
Employment	0.17	0.39	0.43	145.25	0.671	-0.60	0.93
Age	1.35	0.00	0.13	138.09	0.898	-0.00	0.00
Resilience	0.60	0.22	2.74	141.84	0.007	0.17	1.03

Intervention	-0.21	0.35	-0.61	143.83	0.541	-0.89	0.47
Time	-1.15	0.25	-4.57	114.36	<.001	-1.64	0.66
Interaction Intervention ✻ Time	-0.09	0.50	-0.17	114.39	0.863	-1.07	0.90
Model for VAS Quality of Life							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	6.54	0.42	15.61	125.72	<.001	5.72	7.36
Gender	0.76	0.32	2.40	143.51	0.018	0.14	1.39
Ethnicity1	0.40	0.55	0.72	157.54	0.472	-0.69	1.49
Ethnicity2	2.02	1.10	1.83	118.80	0.070	-0.14	4.17
Employment	-0.19	0.30	-0.62	147.36	0.536	-0.78	0.40
Age	-0.00	8.11	-1.56	142.37	0.120	-0.00	3.22
Resilience	-0.51	0.17	-1.56	142.37	0.120	-0.85	-0.18
Intervention	0.16	0.27	0.59	144.52	0.558	-0.37	0.68
Time	0.37	0.21	1.73	131.09	0.086	-0.05	0.79
Interaction Intervention ✻ Time	0.11	0.43	0.25	130.38	0.802	-0.73	0.95

Notes. SE= Standard Error, df= degrees of freedom, CI= confidence interval

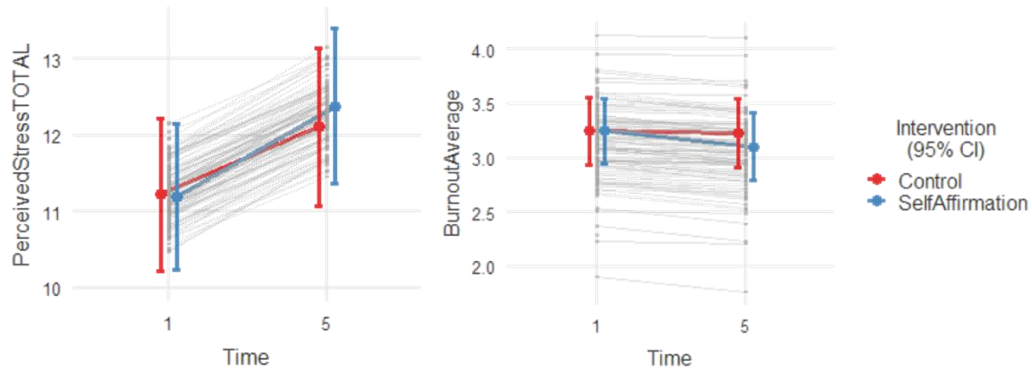


Figure 27. *The effect of SA condition and control condition on Perceived Stress and Burnout from baseline to follow up*

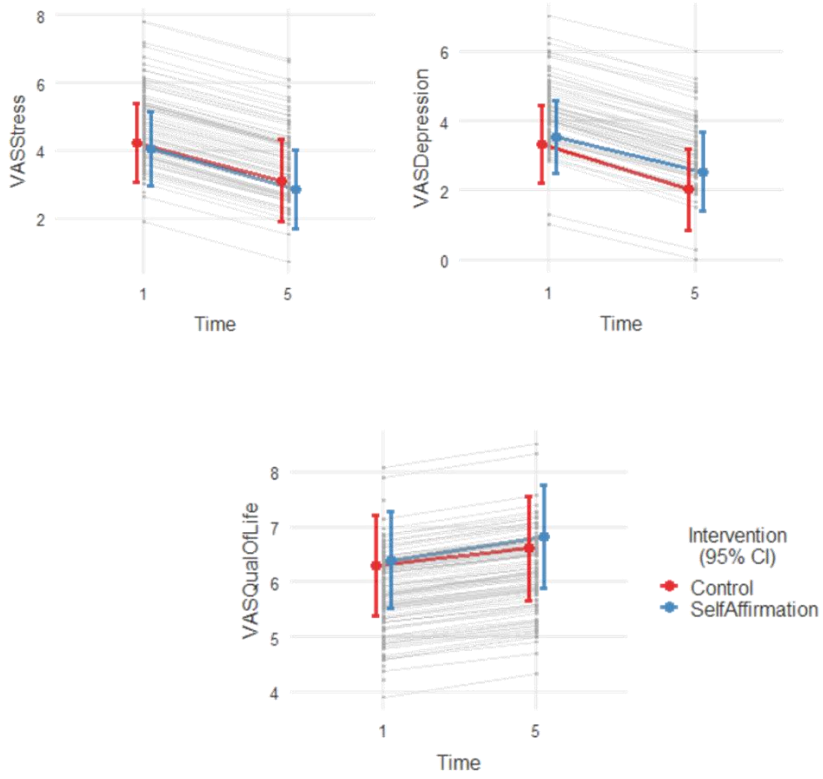


Figure 28. *The effect of SA condition and control condition on VAS Stress, Depression and Quality of life from baseline to follow up*

5.6.2 Research question two: Does the SA intervention affect proxy quality of care and patient safety outcomes at two weeks follow up, and if so, is there a relationship between these improvements and the intervention's impact on wellbeing?

Four mixed models revealed no main effect of the intervention on any of the proxy quality of care and patient safety outcomes (See Table 15) between baseline and follow up measures at two weeks. Time was significantly associated with the difference between baseline and follow up measures for both attention control measures, but not fatigue, and forgetfulness (See Figure 29) for participants in both conditions. As there was no main effect found for SA improving the proxy quality of care and patient safety outcomes, it was not possible to test the relationship between any improvements in the proxy measures and the wellbeing outcomes.

Table 15. *Mixed model for the effect of SA condition and control condition on proxy quality of care and patient safety outcomes from baseline to two week follow up*

Model for Attention Control Focus							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	7.69	0.36	21.52	131.67	<.001	6.99	8.39
Gender	0.27	0.27	1.00	146.75	0.318	-0.26	0.80
Ethnicity1	0.13	0.47	0.28	161.67	0.782	-0.79	1.05
Ethnicity2	0.23	0.94	0.25	125.20	0.804	-1.61	2.08
Employment	-0.13	0.26	-0.50	151.99	0.615	-0.63	0.37
Age	8.81	6.89	1.28	147.72	0.203	-4.69	0.00

Resilience	-0.50	0.14	-3.45	147.90	<.001	-0.78	-0.28
Intervention	0.09	0.23	0.39	150.31	0.695	-0.36	0.54
Time	-1.04	0.17	-6.08	132.98	<.001	-1.37	-0.70
Interaction Time ✻ Intervention	0.08	0.34	0.22	132.37	0.22	-0.52	0.75

Model for Attention Control Shifting							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	7.79	0.34	23.21	128.31	<.001	7.13	8.45
Gender	0.04	0.25	0.16	143.50	0.870	-0.45	0.54
Ethnicity1	-0.53	0.44	-1.20	158.66	0.232	-1.39	0.34
Ethnicity2	-0.69	0.88	-0.78	121.81	0.438	-2.42	1.05
Employment	-0.07	0.24	-0.30	148.81	0.764	-0.54	0.40
Age	-6.11	6.47	-0.94	144.49	0.347	-0.00	6.57
Resilience	-0.27	0.14	-2.01	144.67	0.046	-0.54	-0.01
Intervention	-0.09	0.21	-0.42	147.06	0.677	-0.51	0.33
Time	0.53	0.16	3.27	129.60	0.001	0.21	0.84
Interaction Time ✻	-0.07	0.32	-0.23	129.38	0.822	-0.70	0.56

Intervention							
Model for Fatigue							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	2.78	0.26	10.52	122.35	<.001	2.26	3.30
Gender	-0.51	0.20	-2.57	135.91	0.011	-0.90	-0.12
Ethnicity1	-0.47	0.34	-1.36	148.91	0.176	-1.14	0.26
Ethnicity2	-1.07	0.70	-1.53	116.78	0.129	-2.44	0.30
Employment	-0.12	0.19	0.64	140.52	0.521	-0.49	0.25
Age	1.17	5.06	0.23	136.75	0.818	-8.74	0.00
Resilience	0.45	0.11	4.22	136.94	<.001	0.24	0.66
Intervention	-0.04	0.17	-0.23	140.13	0.820	-0.37	0.29
Time	-0.14	0.11	-1.29	115.64	0.201	-0.36	0.07
Interaction Time ✻ Intervention	-0.15	0.22	-0.69	115.05	0.490	-0.59	0.28
Model for Forgetfulness							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Intercept	2.04	0.10	20.49	123.42	<.001	1.85	2.24

Gender	-0.14	0.08	-1.87	139.81	0.063	-0.29	0.01
Ethnicity1	0.13	0.13	0.98	157.20	0.330	-0.13	0.39
Ethnicity2	0.03	0.26	0.11	116.18	0.912	-0.48	0.54
Employment	-0.04	0.07	-0.59	145.79	0.557	-0.18	0.10
Age	4.02	1.94	-0.21	140.95	0.836	-0.18	0.10
Resilience	0.04	0.04	1.01	141.11	0.314	-0.04	0.12
Intervention	0.06	0.06	0.87	142.36	0.385	-0.07	0.18
Time	-0.02	0.05	-0.44	133.40	0.664	-0.13	0.08
Interaction Time ✻ Intervention	-0.24	0.11	-2.21	132.83	0.029	-0.45	-0.03

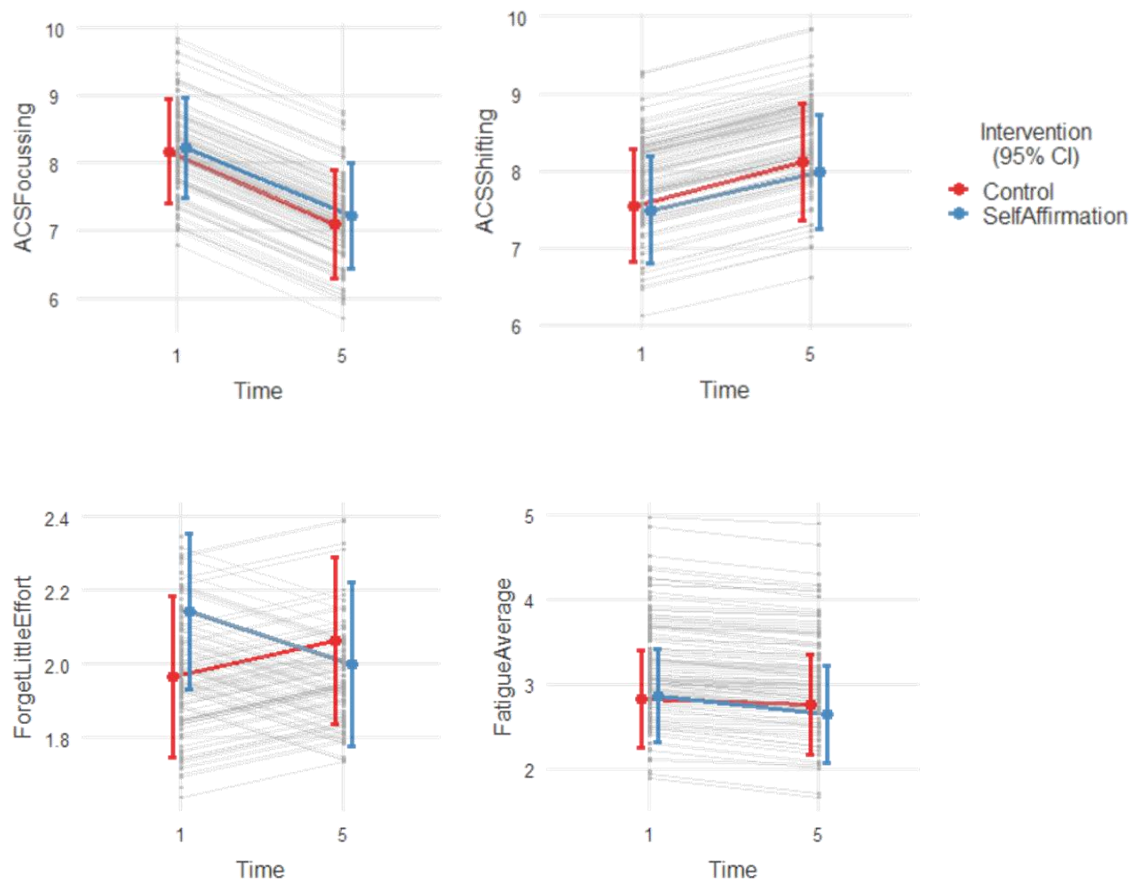


Figure 29. *The effect of SA condition and control condition on attention control, forgetfulness and fatigue from baseline to follow up*

5.6.4 Research question three: Does the SA intervention support state wellbeing outcomes in comparison to a control condition immediately post-intervention, and is there any effect of increased 'dose' of intervention over time?

Three mixed models conducted to assess the differences between VAS measures taken immediately after SA or the control task (time points 2, 3 and 4) and at two week follow up (time point 5) demonstrated a significant change in the outcome variables in both groups at each time point (See Table 16). There was a reduction in depression and stress and an increase in Quality of Life (See Figure 36). However,

there was no significant difference between groups indicating no effect of the intervention.

Table 16. *Mixed model for the effect of SA condition and control condition on VAS measures taken at each time point*

Model for VAS Depression							
Variable	Estimate	SE	t	df	p	CI lower	CI upper
Time 2	-0.92	0.44	-4.09	387.90	<.001	-1.37	-0.48
Time 3	-1.05	0.29	-4.59	395.68	<.001	-1.50	-0.60
Time 4	-1.09	0.23	-4.65	395.20	<.001	-1.55	-0.63
Time 5	-1.18	0.23	-4.79	402.47	<.001	-1.67	-0.70
Model for VAS Stress							
Variable	Estimate	SE	T	df	p	CI lower	CI upper
Time 2	-1.06	0.22	-4.87	442.60	<.001	-1.49	-0.63
Time 3	-1.01	0.23	-4.47	452.04	<.001	-1.45	-0.57
Time 4	-1.30	0.23	-5.61	451.46	<.001	-1.75	-0.84
Time 5	-1.17	0.24	-4.79	457.97	<.001	-1.64	-0.69
Model for VAS Quality of Life							
Variable	Estimate	SE	t	df	p	CI lower	CI upper

Time 2	0.40	0.18	2.24	522.40	0.026	0.05	0.75
Time 3	0.36	0.18	1.98	526.70	0.049	0.00	0.71
Time 4	0.58	0.19	3.14	529.66	0.002	0.22	0.95
Time 5	0.41	0.20	2.06	534.59	0.040	0.02	0.79

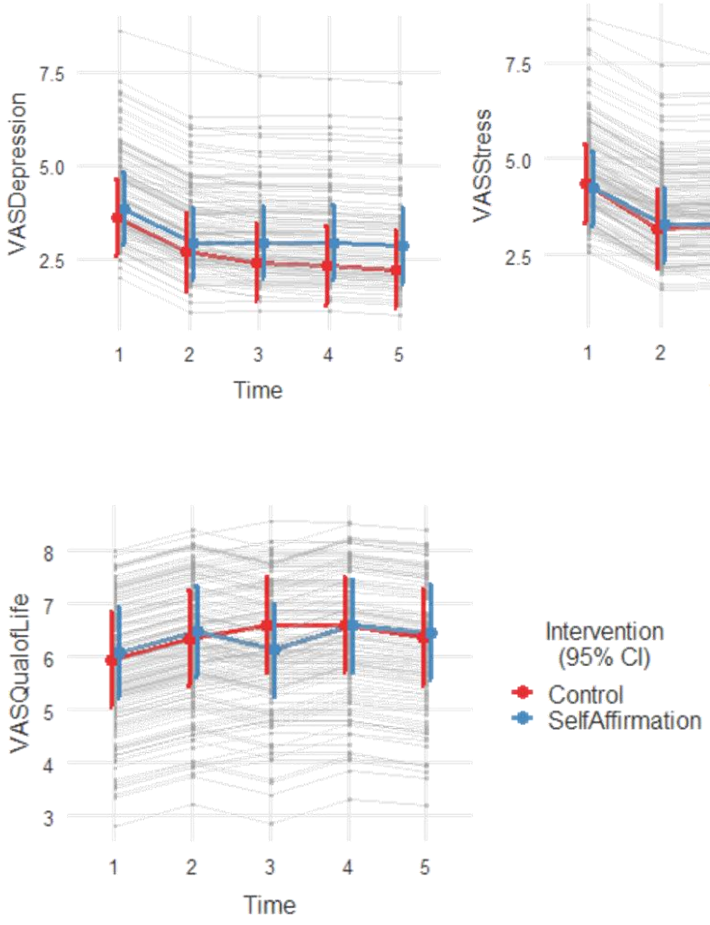


Figure 30. *The effect of SA condition and control condition on VAS measures at each time point*

5.7 Discussion

The primary aim of this study was to examine whether an online SA intervention could support stress and burnout, and improve proxy quality of care and patient safety outcomes within the general population during the COVID-19 pandemic. The results showed no significant effect of the intervention on the wellbeing or proxy quality of care and patient safety outcomes. The results will be discussed in relation to the different research questions posed at the start of this chapter.

The first research question of this study investigated whether a SA intervention could support stress and burnout in comparison to a control condition. The study found no significant effect of the intervention for any of the wellbeing outcomes including stress, burnout, depression and overall quality of life, when compared to the control condition. However, for stress and depression there was a significant decrease in scores for these outcomes for both conditions from baseline to follow up measures. This may be explained in several different ways. As there was no effect of the intervention, these differences may reflect changes in response to the changing context of the pandemic. Longitudinal research measuring the mental health of the UK general population during the pandemic conducted in the same month as this study (April 2020), found mental health, including depression, measured using 12-item General Health Questionnaire (GHQ-12) had deteriorated compared with pre-COVID-19 trends (Pierce et al., 2020). Whereas UK trends in depression showed deterioration, the current study found a significant improvement which suggests that the difference between baseline and follow up measures is not a reflection of changes due to the pandemic. Therefore, it is possible that participating in this study had a positive effect on stress and depression, either through placebo of taking part in an activity aimed to improving wellbeing, or that both the SA and control conditions

were actively effective in supporting wellbeing outcomes. However, ultimately this study found did not find evidence to support the use of SA interventions for wellbeing.

The results presented some further interesting findings for the specific measures related to wellbeing. For the measures of stress, state stress significantly decreased whereas perceived stress significantly increased from baseline to follow up. As research has shown that a VAS state measure of stress is at least as perceptive as PSS-4 perceived stress in measuring perceived stress (Lesage, Berjot & Deschamps, 2012), the resulting contradiction is surprising. This result may be a reflection of the interpretation of the items within the context of COVID-19. For example, one item in the PSS-4 asks ‘how often have you felt that were unable to control the important things in your life?’. COVID-19 presented an unprecedented situation in which people lost control over most aspects of their lives including their ability to work, socialise, attend school, access childcare and participate in leisure activities, which might explain an increase in response to this item (Dally, Sutin & Robinson, 2020). Participants may have been reporting more stressful experiences within their perceived stress responses, but an increased ability to cope with these stressors within their state stress scores. As this was evident for both conditions, it does not provide evidence to support the use of SA interventions.

A further interesting finding in considering whether SA interventions support wellbeing is that there was no significant change in reported burnout between time points. This may be because participants did not experience any increases in burnout in relation to the pandemic. However, an increase in stress has been associated with increased burnout within a COVID-19 context (Yildrim & Solmaz, 2020). Therefore, with the significant increase in PSS-4 stress scores found in this

study, it would be expected that burnout would also be negatively affected. It is possible that an aspect of participating in this study may have supported individuals' burnout or stress; however this could be an incidental finding. It is important to consider that these findings may be an example of the statistical phenomenon regression to the mean (Barnett, Van de Pols, Dobson, 2014), in which natural variations in data taken at repeated time points can look like actual change.

The second question of this study aimed to establish whether a SA intervention had an effect on proxy quality of care and patient safety outcomes. There was no effect of the intervention for any of these outcomes, suggesting that SA interventions do not improve proxy outcomes related to quality and safety. Interestingly, there was a significant change in both attention control subscales between time points: whilst focussing decreased, shifting improved. However, as this was observed in both conditions, these changes cannot be attributed to SAs.

The final question of this study was to establish whether any effects of the intervention were maintained over a period of time. There were no main effects of intervention found for this study, and therefore these were also not maintained over time. However, the results for state wellbeing outcomes were significantly different at each time point, indicating an improvement over time in both groups. The state measures for stress and depression were also significantly improved from baseline and this improvement was observed over the two weeks of follow up. As the improvements for wellbeing were seen across both conditions in this study, it does not provide any support that SA interventions improve wellbeing outcomes over time.

The findings of this study provide no supporting evidence for the conceptual model (Figure 1) proposed in chapter 1 as for both wellbeing (line 'C') and patient safety

(line ‘D’) outcomes there were no conclusive findings which demonstrated a benefit of the SA intervention for these concepts over the control condition.

5.7.1 Strengths and limitations

There were three main strengths of this study. Unlike the majority of the SA literature focussing upon wellbeing a large sample size was used ensuring the analysis was adequately powered. Furthermore, building upon the gaps within the SA literature follow up measures were used to establish any longer-term effectiveness of the intervention, and participants were exposed to multiple doses of the intervention which enabled the results to demonstrate whether more exposure to the intervention is beneficial for individuals. Finally, the study investigated the effectiveness of SA intervention in a real-world context.

There were two key limitations in this study. Participants were advised that the study was testing the effectiveness of a tool to support wellbeing prior to taking part in the study. Whilst this avoided any deceit within the study, and appropriate steps were taken to compensate for participants being aware of the purpose of the SA intervention (provided with a choice to affirm), there may have been a placebo effect of taking part in the study. As there was no difference found in results between the control and SA conditions, but significant differences reported between outcome variables over time, one explanation could be that participants being aware that they were taking part in a study to support wellbeing, in itself improved their perception of wellbeing. Further research could keep participants unaware of the purpose of the study to eliminate this as a possible influence upon the results. An active control condition was used, asking participants to list items in the room they were in. The results reflect a possible therapeutic effect of the control condition. Asking

participants to list items within their room may have created a moment of mindfulness, as one of the components of mindfulness is attention to the moment (Shapiro, Carlson, Astin & Freedman, 2006). This highlights one of the challenges in choosing the right control task for studies aiming to improve wellbeing and mental health, as active controls can appear as or more effective than the intervention condition (Zipfel, Junne & Giel, 2020). Further research should explore the use of SA to improve wellbeing with a different control condition task to establish the effectiveness of the intervention.

5.7.2 Conclusion

In summary, this study aimed to establish whether a SA intervention supported wellbeing and improved proxy quality of care and patient safety outcomes within the general population during the COVID-19 pandemic. The study found no effect of the intervention for any of the outcomes. The study found no evidence to support SA improving quality and safety, or a relationship between improvements in wellbeing outcomes and quality and safety. However, only proxy measures could be measured within the general population so extrapolation to RNs is not possible.

5.8 The next chapter

The next chapter presents the overall discussion of the PhD research. The final chapter summarises the research findings in relation to the overall aims, describes the implications and recommendations for practice and further research. The limitations of the research and reflections of undertaking applied research are also considered.

Chapter 6

General discussion

6.1 Chapter summary

This final chapter reflects on the aims of the thesis and outlines the key findings of each study in regards to the research objectives. The theoretical, research and practical implications of the findings are discussed. Furthermore, strengths and limitations of the work within the thesis are outlined. The author's reflections of conducting the research presented in this thesis are also described.

6.2 Revisiting the thesis aims and overview

Research has shown that nurses experience poor levels of wellbeing and depression, particularly in relation to high stress and burnout. The expectations and high demands within the nursing work environment have increased the likelihood of nurses suffering from work-related stress and burnout (Garrosa et al., 2011, Foureur et al., 2013). The demanding work environment and lack of resources, factors recognised as associated with stress and burnout amongst nurses, have been exacerbated during the COVID-19 pandemic (Forbes & Finch, 2020).

The concerning levels of stress, burnout and depression in nurses have several consequences. Statistics have shown there is an increased risk of suicide among nurses in comparison to other healthcare professionals (ONS, 2017). Research has also demonstrated the financial consequences of poorer levels of wellbeing for nurses. Demanding workloads and staffing pressures are known to increase levels of stress and burnout, influencing staff absenteeism, which in turn creates further pressure on staffing levels (Shamian, Kerr, Laschinger, & Thomson, 2002).

Furthermore, the literature clearly shows the potential negative consequences for the quality of patient care and safety when nurses experience poor levels of wellbeing (Al Ma'mari, Sharour,& Al Omari 2020; Elfering, Semmer & Grebner, 2006; Halbesleben et al., 2008; Johnson et al., 2017; Louch et al., 2017). Nurses who work on the frontline, in acute hospital settings experience high levels of job dissatisfaction; this dissatisfaction is related to poorer patient outcomes (Bally, 2017). In light of the consequences for poor levels of wellbeing within nursing it is important to understand the potential contributing factors. One of the potential contributing factors related to nurse wellbeing is the concept of values and value congruence. Value congruence has been associated with job satisfaction (Verplanken, 2004) and burnout (Leiter et al., 2009). However, there is very little research which explores value congruence or the relationship between value congruence, wellbeing and patient care and safety.

Despite the clear association between nurse wellbeing and quality and safety outcomes, research into interventions to support nurse wellbeing has not yet explored whether an intervention to support wellbeing would also improve patient safety. Due to the demands on staff, more established face-to-face interventions such as Cognitive Behavioural Therapy (CBT) are less accessible. Therefore, exploring types of self-administered interventions is important. An intervention which has shown promise in supporting wellbeing and stress in limited studies, which has not been explored for this purpose with nurses are SA interventions. SA was chosen for adaptation within this thesis, as the intervention focusses on an individual's core values, and values hold a high importance within the nursing profession (Rassin, 2008). Additionally, SA theory outlines how the intervention buffers against the negative effect of stress which is important as stress is a key concern for the nursing

workforce (Garrosa et al., 2011, Foureur et al., 2013). Although literature has shown some benefit of SA interventions for stress and other wellbeing outcomes, the findings have been mixed (See chapter 2). To ensure that social psychological interventions such as SAs are as effective as possible when applied to a new setting, it is important to include context specific content (Yeager & Walton, 2011). Therefore, to ensure the SA intervention was as effective as possible for a nursing population, the content of the intervention required adaptation.

This thesis explored several novel research areas which were addressed within the research aims and objectives. Overall, this thesis aimed to adapt a values based (self-affirmation) intervention to be used by nurses who work in an acute hospital setting, with a view to improving wellbeing and perceptions of patient care and safety in this population. The specific aims were:

1. To understand the effectiveness of SA interventions for improving wellbeing in any population.

2. To investigate the concept of values in the context of wellbeing and patient care and safety for nurses work in an acute hospital setting.

3. To adapt a SA intervention for use with the hospital nursing population.

4. To understand whether the adapted SA intervention is feasible and acceptable to nurses.

5. To examine the effectiveness of an online SA intervention in supporting wellbeing and improving ‘proxy’ patient safety measures for the general population during the COVID-19 pandemic.

To address the aims of the thesis, the research took a mixed methods approach. To address the first aim, a systematic review and meta-analysis (chapter 2) was conducted to explore the effectiveness of SA interventions in improving different concepts of wellbeing for any population. Study 1 (chapter 3) spanned aims 2 and 3 and explored nurse values, and the relationship between value congruence, wellbeing and patient care and safety. Study 1 also provided nurses' initial impressions of the intervention and collected preliminary information regarding the delivery method and length of the intervention to support adaptation. The use of qualitative methodology, including interviews and a workshop, enabled a co-production approach to adapting the intervention (aim 3). Building upon the information generated in the systematic review and Study 1, the intervention was further adapted in Study 2 (chapter 4) using a workshop and Think Aloud interviews to shape the intervention content and examine acceptability and feasibility. Due to the COVID-19 pandemic, it was decided that it was not appropriate to conduct research with nurses who work in acute hospital settings, and therefore the final study was adapted to be conducted with the general population (aim 5). Study 3 (chapter 5) investigated the effectiveness of the adapted SA intervention in supporting wellbeing and improving 'proxy' patient safety measures, in a multi-stage online randomised controlled trial with the general population (aim 5).

6.3 Summary of key findings

6.3.1 To understand the effectiveness of SA interventions for improving wellbeing in any population.

Research investigating SA interventions has measured different concepts of wellbeing including: stress, burnout, and anxiety. However, these have often been the secondary outcomes within the studies. Whilst SA theory outlines the benefits

that SA manipulations have for stress, there has been some contradictory evidence that the intervention supports wellbeing and positive affect (Howell, 2016; Czezh, Katz & Orsillo, 2011).

The proposed mechanisms for how SA interventions exert their effects are unclear; however the literature does outline three possible mechanisms (Sherman 2013). One of these mechanisms is that affirming values boosts the psychological resources that individuals have available to cope with stress. Alternatively, another proposed mechanism is that when individuals are affirmed, their perspectives are broadened. A final proposed mechanism is that SAs uncouple the self from threatening information.

There are several different forms of SA manipulations, including: ranking values, written essays and kindness questionnaires. The variety of manipulations of the intervention studied within the literature looking at the impact of SA on different wellbeing outcomes makes it difficult to provide a clear answer for the question of which manipulation type most effective.

As it was not yet clear from the literature whether SA could be a beneficial tool in supporting nurse wellbeing, the systematic review and meta-analysis synthesised the literature on SA interventions with a wellbeing outcome. This synthesis investigated the efficacy of the intervention in supporting different wellbeing outcomes, and the effectiveness of the intervention based upon different manipulations and populations. Utilising a meta-analytical approach provided evidence of the significance of the intervention and enabled exploration of the different outcomes, manipulations and populations through sub-group analysis.

The first key outcome of the systematic review was that SA interventions do not improve several concepts of wellbeing including mood, anxiety and depression, as shown through the meta-analysis. However, the second key outcome was that studies indicated the outcomes of stress and burnout, which were synthesised narratively (due to insufficient data for a meta-analytic synthesis), were buffered by a SA intervention. This finding supported the potential buffering hypothesis for the mechanism behind SA intervention effectiveness, in which the intervention puts life into perspective for individuals and buffers against threatening information (Cohen & Sherman, 2014). The third key outcome of the meta-analysis was that no optimum manipulation type was established, as there was no difference found between manipulation types. The review did show that the most commonly utilised form of intervention was the values-ranking exercise for studies with a wellbeing outcome. Although no difference was found between intervention types, not all manipulations could be compared and therefore these results should be viewed tentatively. The meta-analysis did suggest that the intervention's effectiveness differed between populations including: students, medical students, and the general population. Furthermore, the narrative synthesis highlighted that the intervention may be more beneficial for individuals who are less resilient (Harris et al., 2018). The fourth key outcome of the review was that no studies had yet tested a SA intervention in healthcare professionals or nursing populations and tended to over-rely on student samples.

The key implications from the systematic review and meta-analysis in relation to this thesis and the nursing population were that the narrative synthesis indicated the intervention may be effective in buffering against stress and burnout. These outcomes are important outcomes for nurses working in acute hospital settings and

known to be associated with patient care and safety. The review also outlined gaps in the current SA literature which are important to consider when researching the intervention in the future. These included exploring the timing of the intervention and using follow-up measures to establish whether the effects of the intervention do propagate over time as suggested by theory (Cohen & Sherman, 2014). There is also a need for future research to explore the utility of the intervention in non-student samples and to explore populations known to experience poor wellbeing and/or low self-resources e.g., based on individual resilience.

The systematic review examined the relationship between SA and wellbeing outlined within the conceptual model depicted in chapter 1 (Figure 1). The meta-analysis found no improvements for several wellbeing concepts and therefore does not support the improving relationship between SA intervention and wellbeing (line ‘C’). The evidence from the narrative synthesis provided some support for SA interventions buffering against threatening information to support wellbeing concepts, specifically stress and burnout. Additionally this may provide support for the indirect relationship of SA interventions improving patient safety via wellbeing (line ‘A’). This is because if SA did buffer against threatening information (Cohen & Sherman, 2014), for example medical errors, this may prevent nurses experiencing moral injury (Lewis et al., 2013; Sirriyeh et al., 2010) therefore maintaining their wellbeing. In turn, if nurses were protected from experiencing psychological distress after making an error, they would be less likely to make further errors, as poor wellbeing is associated with poorer safety of care (Hall et al., 2016; Johnson et al., 2017; Louch et al., 2017).

6.3.2 To investigate the concept of values in the context of wellbeing and patient care and safety for nurses working in an acute hospital setting.

SA interventions utilise values-reflection and exert their effects by enhancing the perceived salience of an individual's values. Therefore, it was important to explore and understand more about the relationship between values and the proposed outcomes of the intervention for this thesis, namely stress and burnout. Although associations between nurse wellbeing, stress, burnout and patient care and safety have been established, there has been less focus upon the contributing factors. One potentially important factor is values and value congruence. Value congruence is the alignment of an individual's values with those of their organisation (Verplanken, 2003). Research has shown that value congruence is associated with increased burnout (Leitner et al., 2009), job dissatisfaction (Verplankem, 2004) and decreased patient satisfaction (Grates et al, 2013). However, this research has predominately used quantitative methods, therefore a qualitative approach, in the form of an interview study (Study 1), was taken to gain a deeper understanding of the relationship between values, value congruence, nurse wellbeing and patient care and safety.

The first key finding of Study 1 was that personal and professional values were typically perceived as being aligned. This finding supported previous literature (Horton, Tschudin & Forget, 2007; Weis & Schank, 1997; Prothero, Marshall & Fosbinder, 1999; Riklikiene, Karosas & Kaeliene, 2017). The second key finding of Study 1 was the several areas of incongruence that were perceived by nurses and the negative impact that this incongruence had for wellbeing and patient care and safety. For example, nurses perceived value incongruence between their values and

their supervisors' values, between their values and the work environment, and between organisational level values and the work environment.

This study had key implications for supporting nurses' wellbeing within the healthcare service, as values-based recruitment is common practice within the NHS. That is, nurses are being recruited on the basis that they hold the values of their organisation, but then they are experiencing incongruence between their values and the values demonstrated by their organisation, supervisors or work environment, which potentially contributes to poorer levels of wellbeing and patient care and safety.

The findings from this study have also influenced wider debates within nursing around fostering a wellbeing culture. Indeed, Bosanet (2021), outlines Study 1 (reported in chapter 3) as one of six papers of note that have been published over the last two decades which explore nurse wellbeing. Bosanet's (2021) commentary outlines the need to create person-centred, creative cultures which enable a collaborative environment in order to minimise the feelings of discord which come from value incongruence within the workplace for nurses.

Furthermore, the findings of this study are even more important within the current COVID-19 context of the NHS. For example, nurses have worked through prolonged periods of redeployment in which they are required to work in new specialties, with new teams, and new managers (Dunn et al., 2020). There is a wealth of literature which has explored the psychological distress experienced by nurses within the pandemic which cites redeployment as a key contributor (Arntez et al., 2020; Couper et al., 2021; Ferry et al., 2021; Gemine et al., 2021; Maben et al., 2022; Rosa, Schlak & Rushton, 2020). The changing of practice conditions which redeployment

compounded could have placed nurses in a value incongruous environment, which may therefore explain why redeployment is a key contributor to the exacerbated levels of psychological distress currently reported among nurses.

In relation to this thesis and the use of a SA intervention with nurses, there were several key outcomes from this study. The perceived relationship between value congruence, wellbeing and patient care and safety supported the use of a values-based intervention such as SA. Furthermore, this study outlined potential unintended consequences of utilising a SA intervention with nurses. The study showed that for nurses, there was an alignment between their personal and professional values. Therefore, within a SA intervention task it may not be possible to separate these values. This is important as nurses would be affirming values which are within the same domain as the threat, which increases resistance to change and bias. In order to mitigate this and nurses being aware of the purpose of the intervention, the adapted intervention included a choice whether to affirm or not. Participants could choose the value they affirmed, as opposed to stipulating that the highest ranked value should be affirmed.

6.3.3 To adapt a SA intervention for use with the hospital nursing population; to understand whether the adapted SA intervention is feasible and acceptable to nurses.

To ensure the intervention was sensitive to the hospital nursing context and to enhance acceptability and feasibility of the SA intervention and delivery, the intervention content and randomised controlled study design were developed by drawing on reviews of the literature and findings from Study 1 and Study 2. It was important that this process of adaptation was carried out in collaboration with nurses, not only from an ethical standpoint, but because evidence suggests in order for SA

interventions to be as effective as possible, they need to be contextually relevant (Yeager & Walton, 2011).

Within Study 1, data was collected on nurses' initial impressions of the concept of SA interventions, delivery methods and study design for hypothetical testing of the intervention. All the participants in Study 1 had a positive initial impression of using a SA intervention for the purpose of improving wellbeing and patient care and safety. This study provided key insights into the practicalities of utilising the intervention to ensure its acceptability and feasibility. The nurses believed that the intervention would be best delivered online, at a time of high stress, and ten minutes in length. This online delivery and ten minute length were perceived at being the most optimal for fitting in with nursing work schedules, and therefore important to improve engagement with the intervention.

Key findings from the systematic review and meta-analysis, wider SA literature, and Study 1 were synthesised. This culmination of evidence, supported through several iterations and further discussion within the supervisory team, resulted in a preliminary version of the intervention. The key decisions from this process were: to use a values-rank manipulation; to adapt the values list to focus on nursing-specific values; to make the intervention ten minutes in length; to deliver the intervention online; and to include further follow up measures within the study design (beyond immediately post-intervention).

Co-production principles were drawn upon in Study 2, to promote collaboration with nurses in the adaptation and delivery plan of the intervention and subsequent study. Study 2 was split into two parts, a workshop (part 1) and Think Aloud interviews (part 2). The first key outcome from Study 2, part 1, was the adapted list of ten values

which would be used for the content of the intervention. Within the workshop nurses discussed values used in previous SA interventions and amended the language and removed redundant values. Additionally, well-known NHS values lists (e.g., the three C's) were discussed and appropriate values were included. This part also provided key insights into nurses' preferences for visual design, usability and acceptability. For example, the nurses decided which question format was the most functional. The final outcome from this stage of the study was the discussion focussing upon the planned randomised controlled study design including: timing, engagement and recruitment. Following this part of Study 2, a further refined SA intervention was developed for use with nurses. This refined version of the intervention was used within the Think Aloud interviews (Study 2, part 2). The Think Aloud interviews asked participants to engage with the SA intervention and speak aloud their thoughts while doing so. This explored the engagement with and feasibility and acceptability of the adapted SA intervention. This part of the study demonstrated that the SA intervention successfully promoted reflection of the nurses' values. This study also showed that the language and instructions were accessible and appropriate for a nursing population. This part of the study led to one key refinement of the intervention regarding the language used within the instruction of ranking the values; to ensure that the participants ranked the values rather than provided each value a score between one and ten.

6.3.4 To examine the effectiveness of an online SA intervention in supporting wellbeing and influencing 'proxy' patient safety measures for the general population during the COVID-19 pandemic.

The final study of the thesis explored the effectiveness of the adapted SA intervention in supporting wellbeing and influencing proxy quality and safety

outcomes for the general population during the COVID-19 pandemic. The general population was deemed to be an appropriate alternative population as the unprecedented situation represented a highly stressful time for the public (Pierce et al., 2020). This allowed a level of extrapolation of the findings of this study, to establish whether a SA intervention supports wellbeing in a 'real world' setting. To further adapt the study, the perceptions of care and safety measures were amended to include 'proxy' measures including: fatigue, forgetfulness and concentration.

The first key finding of the randomised controlled study within the general population (Study 3) was that there was no significant improvement to stress, burnout, depression or the proxy quality and patient safety measures. Although there was a significant decrease in scores of state stress and depression from baseline to follow up, this was found in both the intervention and control condition and so it did not provide support for the use of SA. Interestingly, research conducted at the same time as this study found a deterioration in the mental health of the UK general population. The fact that this study found the opposite pattern – a decrease in state stress and depression and no change in burnout, despite an increase in perceived stress (PSS-4), may indicate that being a part of this study buffered against the threatening effect of the pandemic. Such an effect could be attributable a placebo effect of participating in a study, a result of regression to the mean or might suggest that both the SA and control condition actively supported stress and depression through the pandemic. The key conclusion though, is that the SA intervention offered no benefits above a control condition regarding wellbeing or proxy patient safety measure outcomes. These findings do not present promising support for the conceptual model presented in chapter 1 (Figure 1) and provide no evidence for a direct relationship between SA, wellbeing (line 'C') and patient safety (line 'D').

6.4 Implications and future directions

The research conducted within this thesis generated considerable implications relating to SA theory, research implications and practical implications.

Implications and future directions for nurse wellbeing research

This research adds to the wealth of literature which focusses upon nurses who work in acute hospital settings, their wellbeing and patient care and safety. The importance of understanding more about nurse wellbeing is clear within the literature. Nurse wellbeing directly affects job satisfaction (Bally, 2007) and intention to stay in the workforce (Shamian, Kerr, Laschinger, & Thomson, 2002). Work related stress is also instrumental for nurses' experience of wider mental health issues (Tennant, 2001) and contributing to suicide risk (ONS, 2017). The COVID-19 pandemic has exacerbated these existing concerns for nurses. Globally the prevalence of burnout for healthcare professionals is at its highest rate (Morgantini et al., 2020) and the increased levels of stress, anxiety and burnout have negatively affected the quality of life for healthcare professionals (Celmece & Menekay, 2020). International nursing leaders have highlighted the increased levels of anxiety and stress for nurses working on the frontline through the pandemic and called for further support due to the high risk of burnout (Nursing Times, 2020).

Alongside the important implications for nurses themselves, levels of nurse stress and burnout are associated with poorer patient safety perceptions (Al Ma'mari, Sharour,& Al Omari 2020; Elfering, Semmer & Grebner, 2006; Halbesleben et al., 2008; Johnson et al., 2017; Louch et al., 2017), patient safety incidents and outcomes (Bally, 2017; Buerhaus et al., 2007). The levels of burnout reported by nurses during the COVID-19 pandemic have been related to retention (Maben et al., 2022) and patient safety concerns (Gemine et al., 2021). In light of this, there have

been calls for improved wellbeing support for nurses following the peak of the pandemic to address the retention and patient safety concerns (Arntez et al., 2020; Bruyneel et al., 2021; Couper et al., 2022; Ferry et al., 2020; Lee et al., 2020; Maben et al., 2022; Rosa et al., 2021).

One finding of the research conducted in this thesis (Study 1), is that values and value congruence appears to be a contributor to wellbeing and patient care and safety. This study has substantial practical implications for the way nurses are recruited to their role. Currently nurses are being recruited into an organisation based on the values they hold, however in Study 1, nurses perceived that these values are not being upheld by their supervisors or the work environment due to several barriers including external policy directives and workload pressures. Organisations need to ensure that the work environment is conducive to the values their nurses hold in order to support patient care and safety and poor nurse wellbeing e.g., burnout and stress. This raises key concerns for the nursing workforce during the pandemic, as nurses are working in an unprecedented environment, with increased workloads, time pressures with often limited support from organisations (Morgantini et al., 2020). These factors (increased workloads, time pressure) which have been reported as contributing to the increased rates of burnout among healthcare professionals (Morgantini et al., 2020), were also described by nurses within Study 1 (See chapter 3) as barriers to being able to work in line with their values. The redeployment of nurses within the NHS to different and unfamiliar teams and specialties (Dunn et al., 2020), may also mean that nurses are moved to work with a new team or supervisor with an incongruent set of values, increasing the likelihood of experiencing poor wellbeing and negative impacts on patient care and safety as a result.

The relationship between value congruence, wellbeing and patient care and safety is supported by literature which explores the moral injury experienced by nurses after an error (Lamiani, Dordoni & Argentero, 2018). Moral injury is defined as the psychological distress experienced when an individual's actions or inactions violate their ethical code (Williamson et al., 2020). It is experienced in situations where there is a lack of personal or professional competence (Riedel et al., 2021). An example of this would be nurses being unable to deliver safe care within the working conditions of their ward or organisation (Bartholdsom et al., 2018; Sharif et al., 2019). As value incongruence impacted on nurses' wellbeing when they felt unable to deliver the patient care or safety they desired i.e. when their values or ethical code were violated (chapter 3), this could be described as a moral stressor which leads to moral injury.

The finding that value congruence is a contributor to both nurse wellbeing and patient care and safety adds more support to the idea that these concepts are linked. This finding therefore further reflects the importance of exploring whether an intervention to support nurse wellbeing would also improve perceptions of patient care and safety. However, it should be noted that this thesis (chapter 5) did not find evidence that SA interventions improved 'proxy' patient care and safety outcomes. The evidence for nurses who work in acute hospital settings demonstrates that stress and burnout are directly associated with patient safety perceptions and outcomes. As the final study was not with nurses, it cannot be conclusively stated that SA interventions would not improve patient safety outcomes, as a result of improving wellbeing for nurses. The final study (chapter 5) only used proxy measures of patient care and safety, and with a non-nursing population. As such, future research should explore whether interventions that improve wellbeing also

affect patient care and safety perceptions in a nursing population. One study with student nurses has shown that SA interventions improved nurses' maths skills (Tailandier-Schmitt, Esnard & Mokounkolo, 2012). Therefore, future research which explores the effectiveness of utilising SA interventions with nurses to improve wellbeing and patient care and safety, could use a range of outcomes to measure patient safety such as: problem solving in addition to measures that assess safety perceptions. For example, future research could include additional practical measures of patient safety to establish whether it has an influence of improving maths skills (relating to medication administration) for example.

Furthermore, this thesis demonstrated that it is practical and beneficial to collaborate with nurses within the co-production of interventions that are developed to support them. The use of co-production principles within the development of interventions is important and improves the engagement and effectiveness of interventions (Gibbons, 1994; Williams & Caley, 2020). This thesis has shown that there is an appetite amongst nurses to get involved in this form of research. This is even more essential in the light of the COVID-19 pandemic (Nursing Times, 2020) which has created unprecedented working situations for nurses (Forbes & Finch, 2020), in which there is currently little research exploring the nurse experience. This means that getting their perspectives of the best delivery and forms of support is essential. Future research which explores intervention options to support nurse wellbeing through the pandemic and more generally, should ensure that nurses are involved in all stages of intervention development, from initial conception, to intervention development, to evaluation.

Implications for self-affirmation theory and research

In terms of implications for SA literature and theory, this thesis adds to existing knowledge in five key ways. First, the culmination of findings from the systematic review and meta-analysis and Study 3 (chapter 5) suggest that there is no evidence to support the use of SA interventions in improving mood and wellbeing. This extends previous contradictory findings regarding whether SA interventions are a beneficial tool for improving mood (See chapter 2) by clarifying that they are not. This is particularly important as researchers are still applying SA interventions to boost mood and wellbeing (Lakuta, 2021; Osborn et al., 2020), where resources would be better utilised exploring alternative intervention methods to improve mood. In the current global context of the COVID-19 pandemic, researching self-administered interventions which can improve mood is necessary, therefore being aware of which interventions would not be effective in improving mood is important in 'narrowing down' available options. Future research into the possible utilisations of SA interventions should no longer explore their efficacy in improving mood.

Secondly, the findings from this thesis provide contradictory evidence for the buffering hypothesis for SA interventions. The buffering hypothesis states that affirming values buffers against threatening information for the self. The narrative synthesis (chapter 2) found that SA interventions buffered against threats and supported levels of stress. Additionally Study 3 (chapter 5) showed that participants within the study showed improvements in state stress and no deterioration in levels of burnout, despite increased perceived stress. However, this finding was demonstrated in both the SA intervention and control arm, ultimately showing no benefit of SA over the control condition for participants.

A third consideration and implication of this research is the element of timing of the intervention. One potential reason why the SA intervention within Study 3 did not show more promising findings may be due to the timing of the intervention. Previous research, comprised of four studies found that SAs had no effect on defensive reactions to stress, once the threat was already in progress, compared to if introduced prior to threat (Critcher, Dunning and Armor, 2010). As the COVID-19 pandemic within the UK had already taken hold, and the nationwide lockdown begun, this threat to stress was already in progress prior to participants using the intervention. As such, the fact that the participants in Study 3 (chapter 5) had already been exposed to the threat of the pandemic may explain the null findings. Therefore, future research could focus more on the timing of SA interventions and explore whether their effectiveness is affected by timing in relation to threat exposure.

A fourth addition to the existing SA knowledge is that this thesis was the first to study to use Think Aloud Interviews (Study 2) to assess the acceptability and feasibility of SA intervention tasks. This supported the use of the intervention, by providing evidence to show that the manipulation tasks do actively ensure that individuals are affirming values.

Finally, Study 3 addressed several gaps within the SA literature including: using longer follow up measures, using an adapted contextually relevant intervention and exploring the effectiveness of the intervention in real world contexts with non-student samples. As Study 3 did not find conclusive evidence of the effectiveness of the intervention, or its ability to have an effect after two weeks, future research should use follow-up measures and test the intervention outside a lab setting to establish whether the intervention is an effective tool in a real world setting.

6.5 Reflections of conducting applied research in the NHS

Conducting applied research within the NHS with healthcare professionals presents a set of challenges which need to be addressed within the planning and conducting of research. Throughout the PhD, there have been several lessons learned about the approaches to research in an applied setting with nurses.

A key challenge for conducting research in the NHS is participant recruitment. Healthcare professionals, in particular nurses who work on the front line have busy schedules (Lambert et al., 2017). Study 1 and 2 within this thesis used qualitative methodology and were therefore demanding in time for participants. Within the planning stage of the research, the methods for recruitment were important to consider. As the interviews within Study 1 were conducted via telephone it enabled recruitment to be via online platforms (Twitter and Facebook). This enabled a geographically diverse population of nurses to be recruited. Whereas, Study 2 required nurses to be physically with the researcher (a workshop and Think Aloud interviews) and therefore a different approach to recruitment was required. For this stage of the study nurses were contacted directly through their Trust email to be invited to participate in the research. Additionally, to gain support for the research among the nurses at the Trust, the findings from Study 1 were presented at the Nursing and Midwifery meeting at Bradford Teaching Hospitals NHS Foundation Trust, and the requirements for participation in later studies within the research discussed. Attending such meetings, allowed for networking with ‘key contacts’ for nurses. These contacts were important and would have been further utilised within Study 3 if recruitment of nursing staff had been approved.

The biggest challenge for this research was the COVID-19 pandemic. This was an unprecedented and rapidly changing situation, in which the researcher had no

control. This presented an ethical dilemma for the researcher and supervisory team that required the review and revision of original research plans. As the intervention was short in length, self-administered, accessible and adapted to support wellbeing, if effective, it would be an ideal form of intervention to support nursing staff during the pandemic. However, as the adapted intervention had no evidence to support its use within the nursing profession; asking nurses to use their spare time, when they could be accessing established, evidence based support was not deemed appropriate. Therefore, time had to be taken to explore how the final study could be adapted, and an ethical amendment to recruit the general population as participants applied for and granted. A key lesson learned throughout the PhD and the COVID-19 pandemic was the need to be flexible in response to the needs of the population being researched.

6.5 Strengths and limitations

The specific strengths and limitations of each study have been discussed throughout the previous chapters. The more general strengths and limitations of the thesis are discussed below.

There are several overarching strengths of the work conducted within this thesis. One of the key strengths was the inclusion of nurses within each stage of the adaptation of the SA intervention. Research was undertaken with nurses to support with the understanding of the theory behind utilising a SA intervention with nurses to support wellbeing (Study 1); a co-production approach (Study 2, part 1) supported with the intervention adaptation and trial study design and the acceptability and feasibility assessed through pilots of the intervention tasks (Study 2, part 2). As the end goal of this research was to develop an intervention for nurses and to support

their wellbeing it was important that their expertise about what works for them was utilised throughout the PhD.

A further strength of this thesis is the flexibility created within the research in response to the COVID-19 pandemic. As the thesis centred on the wellbeing of nurses, the importance of being mindful of nurses' time and the impact the pandemic would have for their wellbeing was clear. In light of this, the time taken to amend the final study (Study 3) to use a different population of participants whilst ensuring the results were meaningful for the nurse population was in line with the overarching intentions of this thesis of supporting nurse wellbeing.

The thesis focussed upon nurses who work in acute hospital settings, which means that there is an issue for generalisability of the findings to nurses who work in other settings. Whilst the approach to recruitment in Study 1 (interview study) meant there was diversity in location, speciality and band of nurse, recruitment for Study 2 was via networks at one Trust. This may have implications in terms of generalisability, as findings were specific to the context of one NHS Trust. For both Study 1 and 2 there was a lack of ethnic diversity within the participants that were recruited. This is problematic within the co-production of the intervention as the discussions around the contextually relevant values may not be applicable for the wider nursing workforce.

The main aim of this thesis was to establish the effectiveness of an online SA intervention in supporting wellbeing and improving 'proxy' patient safety measures for the general population during the COVID-19 pandemic. The final study did not explore this within the nursing population, due to the amended focus. The amendment to the final study removed the qualitative evaluation that was planned

with nurses which would have enabled an exploration of participants' experience of the intervention. Such an exploration would have allowed for more considered and informed interpretation of these findings. For example, it could be explored which condition participants believed they had been assigned, and whether they felt any therapeutic effects of these. This may have supported the view that participants within the control condition as well as the intervention condition experienced a beneficial impact upon wellbeing from participating in the study. A qualitative evaluation could also explore the participants' perceptions of how the intervention affected each of the intended outcomes, to establish any possible effects that were not shown through follow up quantitative measures.

6.6. Key areas of novelty

There are five key areas of novelty discussed within this thesis that addressed gaps within the self-affirmation, wellbeing and patient safety literature:

1. This thesis included the first systematic review and meta-analysis which explored the effectiveness of SA interventions in improving different concepts of wellbeing

2. This thesis included the first study which qualitatively explored the relationship between values, value congruence, nurse wellbeing and patient care and safety

3. This thesis was the first research to use a co-production approach to adapt a SA intervention for a real-world application

4. This thesis included the first study to explore the face validity of a SA intervention using a Think Aloud interviewing technique

5. The final study within this thesis addressed three key gaps within the SA and social psychology literature:

    - One of the first SA studies to include a longer follow up measure to ensure that any effects which may have propagated over time are measured
    - The first study to include multiple time points and associated measures to explore whether intervention dosage had an impact upon effectiveness
    - One of the first studies to utilise the SA intervention for ‘real world’ application addressing a lack of SA research in real-world settings by being one of few studies conducted in the general population

6.7 Conclusion

In conclusion this research was successful in answering several gaps within the existing literature around nurse wellbeing, patient care safety and SA theory and contributed to five key areas of novelty. The specific take home messages of the research are: 1) Values and value congruence are important contributors to wellbeing and patient care and safety and 2) SA interventions do not improve mood or self-esteem but the existing literature has limitations which means these findings may not be conclusive.

References

Aday, L. A., and Cornelius, L. J. (2006). *Designing and conducting health surveys: a comprehensive guide*. John Wiley and Sons.

Adriaenssens, J., De Gucht, V., and Maes, S. (2015). Determinants and prevalence of burnout in emergency nurses: a systematic review of 25 years of research. *International journal of nursing studies*, *52*(2), 649-661.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J. A., Busse, R., Clarke, H., ... & Shamian, J. (2001). Nurses' reports on hospital care in five countries. *Health affairs*, *20*(3), 43-53.

Aiken, L.H., Sloane, D., Griffiths, P., Rafferty, A.M., Bruyneel, L., McHugh, M., Maier, C.B., Moreno-Casbas, T., Ball, J.E., Ausserhofer, D. and Sermeus, W., 2017. Nursing skill mix in European hospitals: cross-sectional study of the association with mortality, patient ratings, and quality of care. *BMJ quality & safety*, *26*(7), pp.559-568.

Akhtar, M. S. (2000). *A comparative study of job satisfaction and customer focus of Islamic elementary school teachers in Michigan* (Doctoral dissertation, Wayne State University).

Al Ma'mari, Q., Sharour, L. A., & Al Omari, O. (2020). Fatigue, burnout, work environment, workload and perceived patient safety culture among critical care nurses. *British journal of nursing*, *29*(1), 28-34.

Alexandre, K. V., Rabelo, L. M., & de Moura Rodrigues, G. M. (2019). Instruments for Diagnosing Stress in Nursing Professionals and Academics: A Systematic Review. *International Journal of Advanced Engineering Research and Science*, *6*(8).

Alexopoulus, G. S. (2005). Depression in the elderly. *The Lancet*, 365(*9275*), 1961-1097. doi: 10.1016/S0140-6736(05)66665-2

Al-Ghunaim, T. A., Johnson, J., Biyani, C. S., Alshahrani, K. M., Dunning, A., & O'Connor, D. B. (2021). Surgeon burnout, impact on patient safety and professionalism: A systematic review and meta-analysis. *The American Journal of Surgery*.

Allport, G. W., Vernon, P. E., & Lindzey, G. (1960). Study of values.

Alsolami, F. J., Ramaiah, P., Tayyib, N. A., Alshmemri, M. S., Alsulami, S. A., Lindsay, G., & Asfour, H. I. (2021). Healthcare Professionals (Nurses') Perceived Stress and Coping: Amid COVID-19. *depression and anxiety*, *5*, 12.

Altun, I. (2002). Burnout and nurses' personal and professional values. *Nursing ethics*, *9*(3), 269-278.

Anselmi, M. L., Peduzzi, M., & Dos Santos, C. B. (2007). Errors in the administration of intravenous medication in Brazilian hospitals. *Journal of clinical nursing*, *16*(10), 1839-1847.

Armitage, C. J. (2012). Evidence that self-affirmation reduces body dissatisfaction by basing self-esteem on domains other than body weight and shape. *Journal of Child Psychology and Psychiatry*, *53*(1), 81-88. doi:10.1111/j.1469-7610.2011.02442.x

Armitage, C. J. (2016). A brief psychological intervention to protect subjective well-being in a community sample. Quality of Life Research, 25(2), 385-391. doi: 10.1177/002071520204300309

Armitage, C. J., & Rowe, R. (2011). Testing multiple means of self-affirmation. *British Journal of Psychology*, *102*(3), 535-545. doi:/10.1111/j.2044-8295.2010.02014.x

Arnetz, J. E., Goetz, C. M., Arnetz, B. B., & Arble, E. (2020). Nurse reports of stressful situations during the COVID-19 pandemic: Qualitative analysis of survey responses. *International journal of environmental research and public health*, *17*(21), 8126.

Aronson, J., Blanton, H., & Cooper, J. (1995). From dissonance to disidentification: Selectivity in the self-affirmation process. *Journal of personality and social psychology*, *68*(6), 986.

Aronson, J., Lustina, M. J., Good, C., Keough, K., Steele, C. M., & Brown, J. (1999). When white men can't do math: Necessary and sufficient factors in stereotype threat. *Journal of experimental social psychology*, *35*(1), 29-46.

Atefi, N., Abdullah, K. L., Wong, L. P., and Mazlom, R. (2014). Factors influencing registered nurses perception of their overall job satisfaction: a qualitative study. *International nursing review*, *61*(3), 352-360.

Aynehchi, B. B., Obourn, C., Sundaram, K., Bentsianov, B. L., & Rosenfeld, R. M. (2013). Validation of the Modified Brief Fatigue Inventory in head and neck cancer patients. *Otolaryngology--Head and Neck Surgery*, *148*(1), 69-74.

Bajorek, Z., & Holmes, J. (2020). Health and Wellbeing Interventions in Healthcare.Bally, J. M. (2007). The role of nursing leadership in creating a mentoring culture in acute care environments. *Nursing Economics*, *25*(3), 143.

Barnett, A. G., Van Der Pols, J. C., & Dobson, A. J. (2005). Regression to the mean: what it is and how to deal with it. *International journal of epidemiology*, *34*(1), 215-220.

Bartholdson, C.; Molewijk, B.; Lützén, K.; Blomgren, K.; Pergert, P. Ethics case reflection sessions: Enablers and barriers. *Nurs. Ethics* 2018, 25, 199–211

Bassett, S. S., & Folstein, M. F. (1993). Memory complaint, memory performance, and psychiatric diagnosis: a community study. *Journal of geriatric psychiatry and neurology*, *6*(2), 105-111.

Bertaux, D. (1981). From the life-history approach to the transformation of sociological practice. *Biography and society: The life history approach in the social sciences*, 29-45.

Blanton, H., Cooper, J., Skurnik, I., & Aronson, J. (1997). Self-Justification With Self-Affirmations.

Blegen, M. A., and Vaughn, T. (1998). A multisite study of nurse staffing and patient occurrences. *Nursing Economics*, *16*(4), 196.

Blegen, M. A., Goode, C. J., and Reed, L. (1998). Nurse staffing and patient outcomes. *Nursing research*, *47*(1), 43-50.

Blegen, M. A., Goode, C. J., Spetz, J., Vaughn, T., and Park, S. H. (2011). Nurse staffing effects on patient outcomes: safety-net and non-safety-net hospitals. *Medical care*, 406-414.

Blegen, M. A., Vaughn, T., and Vojir, C. P. (2008). Nurse staffing levels: Impact of organizational characteristics and registered nurse supply. *Health services research*, *43*(1p1), 154-173.

Boorman S (2009), NHS Health and Well-being Review: Interim Report: Available at: https://webarchive.nationalarchives.gov.uk/20130103004910/http://www.dh.gov.uk/en /Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_108799 [accessed August 2020]

Bosanquet, J. (2021). Providing not prescribing: fostering a culture of wellbeing in nursing. *Journal of Research in Nursing*, *26*(5), 367-375.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. sage.

Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., & Cohen, G. L. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. Journal of Educational Psychology, 108(3), 353.

Bratter, J. L., Rowley, K. J., & Chukhray, I. (2016). Does a self-affirmation intervention reduce stereotype threat in black and Hispanic high schools?. *Race and Social Problems*, *8*(4), 340-356.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589-597.

Brennan, E. J. (2017). Towards resilience and wellbeing in nurses. *British journal of nursing*, *26*(1), 43-47.

Brown DS, Wolosin R. Safety culture relationships with hospital nursing sensitive metrics. Journal for Healthcare Quality. 2013 Jul;35(4):61-74.

Bruera, E., Kuehn, N., Miller, M. J., Selmser, P., & Macmillan, K. (1991). The Edmonton Symptom Assessment System (ESAS): a simple method for the assessment of palliative care patients. *Journal of palliative care*, *7*(2), 6-9. doi:10.1177/082585979100700202

Bruyneel, A., Smith, P., Tack, J., & Pirson, M. (2021). Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French speaking Belgium. *Intensive and Critical Care Nursing*, *65*, 103059.

Buchan, J., Charlesworth, A., Gershlick, B., and Seccombe, I. (2019). A critical moment: NHS staffing trends, retention and attrition. *Health Foundation*.

Buerhaus, P. I., and Needleman, J. (2000). Policy implications of research on nurse staffing and quality of patient care. *Policy, Politics, and Nursing Practice*, *1*(1), 5-15.

Buerhaus, P. I., Donelan, K., Ulrich, B. T., Norman, L., DesRoches, C., & Dittus, R. (2007). Impact of the nurse shortage on hospital patient care: Comparative perspectives. *Health affairs*, *26*(3), 853-862.

Burgess, D. J., Taylor, B. C., Phelan, S., Spoont, M., van Ryn, M., Hausmann, L. R., & Gordon, H. S. (2014). A brief self-affirmation study to improve the experience of minority patients. *Applied Psychology: Health and Well-Being*, *6*(2), 135-150. doi:10.1111/aphw.12015 doi:10.1111/aphw.12015

Burn-out an "occupational phenomenon": International Classification of Diseases. WHO (2019). Retrieved 1 January 2021, from https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

Calderhead, J. (1981). A psychological approach to research on teachers' classroom decision-making. *British Educational Research Journal*, *7*(1), 51-57.

Callan, M. J., Kim, H., Gheorghiu, A. I., & Matthews, W. J. (2017). The interrelations between social class, personal relative deprivation, and prosociality. *Social Psychological and Personality Science*, *8*(6), 660-669.

Caricati, L., Sala, R. L., Marletta, G., Pelosi, G., Ampollini, M., Fabbri, A., ... & Mancini, T. (2014). Work climate, work values and professional commitment as predictors of job satisfaction in nurses. *Journal of Nursing Management*, *22*(8), 984-994.

Carr, E. C., & Worth, A. (2001). The use of the telephone interview for research. *NT research*, *6*(1), 511-524.

Çelmeçe, N., & Menekay, M. (2020). The Effect of Stress, Anxiety and Burnout Levels of Healthcare Professionals Caring for COVID-19 Patients on Their Quality of Life. *Frontiers in Psychology*, *11*, 3329.

Centre for Reviews and Dissemination. (2009). *CRD's guidance for undertaking reviews in healthcare*. York Publ. Services.

Chan, C. C., McBey, K., Basset, M., O'Donnell, M., and Winter, R. (2004). Nursing crisis: retention strategies for hospital administrators. *Research and Practice in Human Resource Management*, *12*(2), 31-56.

Chatman, J. A. (1989, August). Matching people and organisations: Selection and socialization in public accounting firms. In *Academy of Management proceedings* (Vol. 1989, No. 1, pp. 199-203). Briarcliff Manor, NY 10510: Academy of Management.

Cochrane Effective Practice and Organisation of Care (EPOC). EPOC Resources for review authors, 2017. epoc.cochrane.org/resources/epoc-resources-review-authors

Cohen GL, Garcia J, Apfel N, Master A. 2006. Reducing the racial achievement gap: a social-psychological intervention. Science 313:1307–10

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual review of psychology*, *65*, 333-371.

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. science, 324(5925), 400-403. doi: 10.1126/science.1170769

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396.

Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring stress: A guide for health and social scientists*, *10*, 1-2.

Cohn, M. A., Pietrucha, M. E., Saslow, L. R., Hult, J. R., & Moskowitz, J. T. (2014). An online positive affect skills intervention reduces depression in adults with type 2 diabetes. *The journal of positive psychology*, *9*(6), 523-534.

Commissaris, C. J. A. M., Ponds, R. W. H. M., & Jolles, J. (1998). Subjective forgetfulness in a normal Dutch population: possibilities for health education and other interventions. *Patient education and counseling*, *34*(1), 25-32.

Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingent belonging: protective benefits of values affirmation on identity development. *Journal of personality and social psychology*, *102*(3), 479. doi:10.1037/a0026312

Cooper, J., & Fazio, R. H. (1984). A new look at dissonance theory. *Advances in experimental social psychology*, *17*, 229-266.

Couper, K., Murrells, T., Sanders, J., Anderson, J. E., Blake, H., Kelly, D., ... & Harris, R. (2022). The impact of COVID-19 on the wellbeing of the UK nursing and midwifery workforce during the first pandemic wave: A longitudinal survey study. *International journal of nursing studies*, *127*, 104155.

Craig P, Dieppe P, Macintyre S, et al. Developing and evaluating complex intervention: the new Medical Research Council guidance. Br Med J 2008; 337: a1655.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *Bmj*, *337*.

Creswell JW. Research design: qualitative, quantitative and mixed method approaches. Thousand Oaks, CA: Sage, 2003.

Creswell, J. D., Dutcher, J. M., Klein, W. M., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PloS one*, *8*(5), e62593.

Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological science*, *16*(11), 846-851. doi:/10.1111/j.1467-9280.2005.01624.x

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). An expanded typology for classifying mixed methods research into designs. *A. Tashakkori y C. Teddlie, Handbook of mixed methods in social and behavioral research*, 209-240.

Critcher, C. R., Dunning, D., & Armor, D. A. (2010). When self-affirmations reduce defensiveness: Timing is key. *Personality and Social Psychology Bulletin*, *36*(7), 947-959.

Cruz, J., White, P. C., Bell, A., & Coventry, P. A. (2020). Effect of extreme weather events on mental health: a narrative synthesis and meta-analysis for the UK. *International journal of environmental research and public health*, *17*(22), 8581.

Czech, S. J., Katz, A. M., & Orsillo, S. M. (2011). The effect of values affirmation on psychological stress. Cognitive behaviour therapy, 40(4), 304-312. doi:/10.1080/16506073.2011.585347

Daly, M., Sutin, A., & Robinson, E. (2020). Longitudinal changes in mental health and the COVID-19 pandemic: Evidence from the UK Household Longitudinal Study.

Danielsson, M., Nilsen, P., Öhrn, A. *et al.* Patient safety subcultures among registered nurses and nurse assistants in Swedish hospital care: a qualitative study. *BMC Nurs* **13,** 39 (2014). https://doi.org/10.1186/s12912-014-0039-5

De Oliveira, S. M., de Alcantara Sousa, L. V., Gadelha, M. D. S. V., & do Nascimento, V. B. (2019). Prevention actions of burnout syndrome in nurses: an integrating literature review. *Clinical practice and epidemiology in mental health: CP & EMH*, *15*, 64.

De Vries, E. N., Ramrattan, M. A., Smorenburg, S. M., Gouma, D. J., & Boermeester, M. A. (2008). The incidence and nature of in-hospital adverse events: a systematic review. *BMJ Quality & Safety*, *17*(3), 216-223.

Deakin, M. (2022). NHS workforce shortages and staff burnout are taking a toll. *BMJ*, *377*.

Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout and engagement. *Handbook of stress and burnout in health care*, *65*(7).

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment*, *19*(1), 12.

Department of Health (2019), Interim NHS People Plan, Available at: https://www.longtermplan.nhs.uk/wp-content/uploads/2019/05/Interim-NHS-PeoplePlan_June2019.pdf [accessed August 2020]

Department of Health (2019), The NHS Long Term Plan, Available at: https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-planversion-1.2.pdf [accessed August 2020]

Department of Health, 2012b. Nursing and Care Quality Forum — recommendations to the Prime Minister. DoH, London (Available at: http://cno.dh.gov.uk/2012/06/26/ nursing-and-care-quality-forum-recommendations-to-pm http://www.dh.gov.uk/ health/files/2012/05/NCQF-letter-to-PM.pdf).

Derryberry, D., & Reed, M. A. (2002). Anxiety-related attentional biases and their regulation by attentional control. *Journal of abnormal psychology*, *111*(2), 225.

Dillard, A. J., McCaul, K. D., & Magnan, R. E. (2005). Why is such a smart person like you smoking? Using self-affirmation to reduce defensiveness to cigarette warning labels. *Journal of Applied Biobehavioral Research*, 10, 165–182. doi:/10.1111/j.1751-9861.2005.tb00010.x

Donaldson, N., Bolton, L. B., Aydin, C., Brown, D., Elashoff, J. D., and Sandhu, M. (2005). Impact of California's licensed nurse-patient ratios on unit-level nurse staffing and patient outcomes. *Policy, Politics, and Nursing Practice*, *6*(3), 198-210.

Drennan, V. M., and Ross, F. (2019). Global nurse shortages—the facts, the impact and action for change. *British medical bulletin*, *130*(1), 25-37.

Duffield, C. M., Roche, M. A., Homer, C., Buchan, J. & Dimitrelis, S. (2014). A comparative review of nurse turnover rates and costs across countries. *Journal of Advanced Nursing,* 70, 2703-2712.

Dunn, M., Sheehan, M., Hordern, J., Turnham, H. L., & Wilkinson, D. (2020). 'Your country needs you': the ethics of allocating staff to high-risk clinical roles in the management of patients with COVID-19. *Journal of Medical Ethics*.

Egger M, Smith GD, Schneider M and Minder C. Bias in meta-analysis detected by a simple, graphical test. *BMJ*. 1997; 315: 629-34.

Eldridge, S. M., Lancaster, G. A., Campbell, M. J., Thabane, L., Hopewell, S., Coleman, C. L., & Bond, C. M. (2016). Defining feasibility and pilot studies in preparation for randomised controlled trials: development of a conceptual framework. *PloS one*, *11*(3), e0150205.

Elfering, A., Semmer, N. K., & Grebner, S. (2006). Work stress and patient safety: observer-rated work stressors as predictors of characteristics of safety-related events reported by young nurses. *Ergonomics*, *49*(5-6), 457-469.

Emanuel, L., Berwick, D., Conway, J., Combes, J., Hatlie, M., Leape, L., ... & Walton, M. (2009). What exactly is patient safety?. *Journal of Medical Regulation*, *95*(1), 13-24.

England NHS (2012). Retrieved 1 June 2020, from https://www.england.nhs.uk/6cs/wp-content/uploads/sites/25/2015/03/introducing-the-6cs.pdf

England, N. (2022). NHS England » Patient safety. Retrieved 8 July 2022, from https://www.england.nhs.uk/patient-safety/

Epton, T., Norman, P., Dadzie, A. S., Harris, P. R., Webb, T. L., Sheeran, P., ... & Naughton, D. (2014). A theory-based online health behaviour intervention for new university students (U@ Uni): results from a randomised controlled trial. *BMC Public Health*, *14*(1), 563.

(EPOC)EPaOoC. Suggested risk of bias criteria for EPOC reviews Oslo. Norwegian Knowledge Centre for the Health Services, 2014.

Exline, J. J., & Zell, A. L. (2009). Empathy, self-affirmation, and forgiveness: The moderating roles of gender and entitlement. *Journal of Social and Clinical Psychology*, *28*(9), 1071-1099. doi:/10.1521/jscp.2009.28.9.1071

Famolaro T, Hare R, Yount ND, Fan L, Liu H, Sorra J. Surveys on Patient Safety CultureTM (SOPS(R)) Hospital Survey 2.0: 2021 User Database Report. (Prepared by Westat, Rockville, MD, under Contract No. HHSP233201500026I/HHSP23337004T). Rockville, MD: Agency for Healthcare Research and Quality; March 2021. AHRQ Publication No. 21-0017.

Farquhar, M. C., Ewing, G., & Booth, S. (2011). Using mixed methods to develop and evaluate complex interventions in palliative care research. *Palliative Medicine*, *25*(8), 748-757.

Fenig, S., Levav, I., Kohn, R., & Yelin, N. (1993). Telephone vs face-to-face interviewing in a community psychiatric survey. *American Journal of Public Health*, *83*(6), 896-898.

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International journal of qualitative methods*, *5*(1), 80-92.

Ferry, A. V., Wereski, R., Strachan, F. E., & Mills, N. L. (2021). Predictors of UK healthcare worker burnout during the COVID-19 pandemic. *QJM: An International Journal of Medicine*, *114*(6), 374-380

Festinger, L. (1957). *A theory of cognitive dissonance* (Vol. 2). Stanford university press.

Field, A. (2009). Discovering Statistics Using SPSS, Third Edition.

Fielden, A. L., Sillence, E., Little, L., & Harris, P. R. (2016). Online Self-Affirmation Increases Fruit and Vegetable Consumption in Groups at High Risk of Low Intake. *Applied Psychology: Health and Well-Being*, *8*(1), 3-18.

Forbes, P., & Finch, A. Redeployed staff and better teamwork: how COVID-19 has transformed nursing. *Nursing Times.*

Ford, M., & Ford, M. (2020). Level of staff burnout 'real concern' for NHS trust leaders | Nursing Times. Retrieved 2 January 2021, from https://www.nursingtimes.net/news/workforce/level-of-staff-burnout-real-concern-for-nhs-trust-leaders-06-10-2020/

Ford, S. (2020). Exclusive: Nursing Times survey reveals negative impact of Covid-19 on nurse mental health. *Nursing Times*.

Ford, S. (2020). Mental health nurses redeployed to helpline to ‘ease emergency pressures’. *Nursing Times*, *16*.

Forsberg, E., Ziegert, K., Hult, H., & Fors, U. (2014). Clinical reasoning in nursing, a think-aloud study using virtual patients–A base for an innovative assessment. *Nurse Education Today*, *34*(4), 538-542.

Foureur M, Besley K, Burton G, Yu N, Crisp J (2013) Enhancing the resilience of nurses and midwives: Pilot of a mindfulness-based program for increased health, sense of coherence and decreased depression, anxiety and stress. Contemp Nurse 45(1): 114–25

Fredrickson, B. L., Tugade, M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology,* 84, 365-376. doi:0.1037/0022-3514.84.2.365

Frey, R., Robinson, J., Wong, C., & Gott, M. (2018). Burnout, compassion fatigue and psychological capital: Findings from a survey of nurses delivering palliative care. *Applied Nursing Research*, *43*, 1-9.

Garrosa E, Moreno-Jiménez B, Rodríguez-Muñoz A, Rodríguez-Carvajal R (2011) Role stress and personal resources in nursing: a cross-sectional study of burnout and engagement. Int J Nurs Stud 48(4): 479-89.

Gemine, R., Davies, G. R., Tarrant, S., Davies, R. M., James, M., & Lewis, K. (2021). Factors associated with work-related burnout in NHS staff during COVID-19: a cross-sectional mixed methods study. *BMJ open*, *11*(1), e042591.

Gibbons, M. (Ed.). (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. Sage.

Glaze, J. E. (2001). Reflection as a transforming process: student advanced nurse practitioners' experiences of developing reflective skills as part of an MSc programme. *Journal of Advanced Nursing*, *34*(5), 639-647.

Gloria, C. T., & Steinhardt, M. A. (2016). Relationships among positive emotions, coping, resilience and mental health. *Stress and Health*, *32*(2), 145-156.

Gormley, D. K. (2011). Are we on the same page? Staff nurse and manager perceptions of work environment, quality of care and anticipated nurse turnover. *Journal of nursing management*, *19*(1), 33-40.

Gormley, D. K., and Kennerly, S. (2011). Predictors of turnover intention in nurse faculty. *Journal of Nursing Education*, *50*(4), 190-196.

Goyal, M., Singh, S., Sibinga, E. M., Gould, N. F., Rowland-Seymour, A., Sharma, R., & Ranasinghe, P. D. (2014). Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *JAMA internal medicine*, *174*(3), 357-368. doi:10.1001/jamainternmed.2013.13018

Greenberg, N., & Tracy, D. (2020). What healthcare leaders need to do to protect the psychological well-being of frontline staff in the COVID-19 pandemic. *BMJ Leader*.

Greenglass, E. R., Burke, R. J., & Fiksenbaum, L. (2001). Workload and burnout in nurses. *Journal of community & applied social psychology*, *11*(3), 211-215.

Gregory, R. J., Schwer Canning, S., Lee, T. W., & Wise, J. C. (2004). Cognitive Bibliotherapy for Depression: A Meta-Analysis.

Griffiths, P., Ball, J., Drennan, J., Dall'Ora, C., Jones, J., Maruotti, A., Pope, C., Saucedo, A.R. and Simon, M., 2016. Nurse staffing and patient outcomes: Strengths and limitations of the evidence to inform policy and practice. A review and discussion paper based on evidence reviewed for the National Institute for Health and Care Excellence Safe Staffing guideline development. *International Journal of Nursing Studies*, *63*, pp.213-225.

Griffiths, P., Ball, J., Drennan, J., James, L., Jones, J., Recio, A., and Simon, M. (2014). The association between patient safety outcomes and nurse/healthcare assistant skill mix and staffing levels and factors that may influence staffing requirements.

Griffiths, P., Ball, J., Murrells, T., Jones, S., and Rafferty, A. M. (2016). Registered nurse, healthcare support worker, medical staffing levels and mortality in English hospital trusts: a cross-sectional study. *BMJ open*, *6*(2), e008751.

Halbesleben, J. R., & Demerouti, E. (2005). The construct validity of an alternative measure of burnout: Investigating the English translation of the Oldenburg Burnout Inventory. *Work & Stress*, *19*(3), 208-220.

Halbesleben, J. R., Wakefield, B. J., Wakefield, D. S., & Cooper, L. B. (2008). Nurse burnout and patient safety outcomes: nurse safety perception versus reporting behavior. *Western journal of nursing research*, *30*(5), 560-577.

Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff wellbeing, burnout, and patient safety: a systematic review. PloS one, 11(7), e0159015.

Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff wellbeing, burnout, and patient safety: a systematic review. *PloS one*, *11*(7), e0159015.

Hanel, P. H., & Vione, K. C. (2016). Do student samples provide an accurate estimate of the general public?. *PloS one*, *11*(12), e0168354.

Hao, S., Hong, W., Xu, H., Zhou, L., & Xie, Z. (2015). Relationship between resilience, stress and burnout among civil servants in Beijing, China: Mediating and moderating effect analysis. *Personality and Individual Differences*, *83*, 65-71.

Harris, P. R., Griffin, D. W., Napper, L. E., Bond, R., Schüz, B., Stride, C., & Brearley, I. (2018). Individual differences in self-affirmation: Distinguishing self-affirmation from positive self-regard. *Self and Identity*, 1-42. doi:/10.1371/journal.pone.0159015

Harrison, R., Johnson, J., McMullan, R., Pervaz-Iqbal, M., Chitkara, U., Mears, S., Shapiro, J. & Lawton, R. (2021). Towards constructive change after making a medical error: ReSET as a psycho-social model for clinician recovery. *Journal of Patient Safety*, in press.

Hatala, R., Cook, D. A., Zendejas, B., Hamstra, S. J., & Brydges, R. (2014). Feedback for simulation-based procedural skills training: a meta-analysis and critical narrative synthesis. *Advances in Health Sciences Education*, *19*(2), 251-272.

Hayes, N. 2000. Doing psychological research: gathering and analysing data. Open University Press.

Heatherton, T.F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology*, 60, 895–910. doi:10.1037/0022-3514.60.6.895

Hedges L and Olkin I. *Statistical methods for meta-analysis*. New York: Academic Press, 1985.

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ: British Medical Journal*, *327*(7414), 557.

Hoaglin, D. C., & Iglewicz, B. (1987). Fine-tuning some resistant rules for outlier labelling. *Journal of the American statistical Association*, *82*(400), 1147-1149.

Hoernke, K., Djellouli, N., Andrews, L. J., Lewis-Jackson, S., Manby, L., Martin, S., ... & Vindrola-Padros, C. (2020). Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. *medRxiv*.

Hong, Y., Lee, J., Lee, H. J., Kim, K., Cho, I. K., Ahn, M. H., ... & Chung, S. (2021). Resilience and work-related stress may affect depressive symptoms in nursing professionals during the COVID-19 pandemic era. *Psychiatry investigation*, *18*(4), 357.

Hornblow, A. R., & Kidson, M. A. (1976). The visual analogue scale for anxiety: a validation study. *Australian and New Zealand Journal of Psychiatry*, *10*(4), 339-341. doi:10.3109/00048677609159523

Horton, K., Tschudin, V., & Forget, A. (2007). The value of nursing: a literature review. *Nursing ethics*, *14*(6), 716-740.

Horton, R. (2020). Offline: COVID-19 and the NHS—“a national scandal”. *Lancet (London, England)*, *395*(10229), 1022.

Howell, A. J. (2017). Self-affirmation theory and the science of well-being. *Journal of Happiness Studies*, *18*(1), 293-311. doi:10.1007/s10902-016-9713-5

HSE (2017). Work-related Stress, Depression or Anxiety Statistics in Great Britain 2017. Health and Safety Executive.

Huffman, E. M., Athanasiadis, D. I., Anton, N. E., Haskett, L. A., Doster, D. L., Stefanidis, D., & Lee, N. K. (2021). How resilient is your team? Exploring healthcare providers' well-being during the COVID-19 pandemic. *The American Journal of Surgery*, *221*(2), 277-284.

Hughes, L. (2008). Nurses at the 'sharp end'of patient care (Chapter 2). *Patient Safety and Quality: Evidence-Based Handbook for Nurses. Hughes RG, editor. Rockville, MD: Agency for Healthcare Research and Quality*, 2-63.

Hunt, D. (2014). Does value congruence between nurses and supervisors effect job satisfaction and turnover?. *Journal of Nursing Management*, *22*(5), 572-582.

Hunt, D. (2014). Does value congruence between nurses and supervisors effect job satisfaction and turnover?. *Journal of nursing management*, *22*(5), 572-582.

Janes, G., Mills, T., Budworth, L., Johnson, J., & Lawton, R. (2021). The Association Between Health Care Staff Engagement and Patient Safety Outcomes: A Systematic Review and Meta-Analysis. *Journal of patient safety*, *17*(3), 207–216. https://doi.org/10.1097/PTS.0000000000000807

Jessop, D. C., Simmonds, L. V., & Sparks, P. (2009). Motivational and behavioural consequences of self-affirmation interventions: A study of sunscreen use among women. *Psychology and Health*, 24, 529–544. doi:/10.1080/08870440801930320

Jessop, D. C., Simmonds, L. V., & Sparks, P. (2009). Motivational and behavioural consequences of self-affirmation interventions: A study of sunscreen use among women. Psychology and Health, 24, 529–544.

Johnson, J., & Panagioti, M. (2018). Interventions to improve the breaking of bad or difficult news by physicians, medical students, and interns/residents: a systematic review and meta-analysis. *Academic Medicine*, *93*(9), 1400-1412. doi: 10.1097/ACM.0000000000002308.

Johnson, J., & Wood A. M. (2017). Integrating Positive and Clinical Psychology: Viewing Human Functioning as Continua from Positive to Negative Can Benefit Clinical Assessment, Interventions and Understandings of Resilience. *Cognitive Therapy and Research, 41*, 335-349. doi:10.1007/s10608-015-9728-y

Johnson, J., & Wood, A. M. (2017). Integrating positive and clinical psychology: Viewing human functioning as continua from positive to negative can benefit clinical assessment, interventions and understandings of resilience. *Cognitive Therapy and Research*, *41*(3), 335-349.

Johnson, J., & Wood, A. M. (2017). Integrating positive and clinical psychology: Viewing human functioning as continua from positive to negative can benefit clinical assessment, interventions and understandings of resilience. *Cognitive Therapy and Research*, *41*(3), 335-349.

Johnson, J., Gooding, P. A., Wood, A. M., Fair, K. L., & Tarrier, N. (2013). A therapeutic tool for boosting mood: the broad-minded affective coping procedure (BMAC). *Cognitive therapy and research*, *37*(1), 61-70.

Johnson, J., Louch, G., Dunning, A., et al. (2017a). Burnout mediates the association between symptoms of depression and patient safety perceptions: A cross-sectional study in hospital nurses *Journal of Advanced Nursing,* In press.

Johnson, J., Louch, G., Dunning, A., Johnson, O., Grange, A., Reynolds, C., Hall, L. and O'Hara, J., 2017. Burnout mediates the association between depression and patient safety perceptions: A cross-sectional study in hospital nurses. *Journal of advanced nursing*, *73*(7), pp.1667-1680.

Johnson, J., O'Connor, D. B., Jones, C., Jackson, C., Hughes, G. J., & Ferguson, E. (2016). Reappraisal buffers the association between stress and negative mood measured over 14 days: implications for understanding psychological resilience. *European Journal of Personality*, *30*(6), 608-617.

Jones, J. H., & Treiber, L. (2010). When the 5 rights go wrong: medication errors from the nursing perspective. *Journal of Nursing Care Quality*, *25*(3), 240-247.

Kalliath, T. J., Bluedorn, A. C., and Strube, M. J. (1999). A test of value congruence effects. *Journal of Organizational Behavior*, *20*(7), 1175-1198.

Kalliath, T. J., O'driscoll, M. P., & Gillespie, D. F. (1998). The relationship between burnout and organisational commitment in two samples of health professionals. *Work & Stress*, *12*(2), 179-185.

Kamboj, S. K., Place, H., Barton, J. A., Linke, S., Curran, H. V., & Harris, P. R. (2016). Processing of alcohol-related health threat in at-risk drinkers: an online study of gender-related self-affirmation effects. *Alcohol and Alcoholism*, *51*(6), 756-762.

Khamisa, N., Peltzer, K., and Oldenburg, B. (2013). Burnout in relation to specific contributing factors and health outcomes among nurses: a systematic

review. *International journal of environmental research and public health*, *10*(6), 2214-2240.

Kirkpatrick, D., & Kirkpatrick, J. (1994). *Evaluating training programs the four levels*. San Francisco [u.a.]: Berrett-Koehler [u.a.].

Kirwan, M., Matthews, A., and Scott, P. A. (2013). The impact of the work environment of nurses on patient safety outcomes: a multi-level modelling approach. *International journal of nursing studies*, *50*(2), 253-263.

Kitzinger, J. (1995). Qualitative research: introducing focus groups. *Bmj*, *311*(7000), 299-302.

Kiyici, N., & Koc, Z. (2021). Determining attention control levels of nursing students. *New Trends and Issues Proceedings on Advances in Pure and Applied Sciences*, (13), 001-011.

Klein, W. M., Harris, P. R., Ferrer, R. A., & Zajac, L. E. (2011). Feelings of vulnerability in response to threatening messages: Effects of self-affirmation. *Journal of Experimental Social Psychology*, *47*(6), 1237-1242.

Koole, S. L., Smeets, K., Van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology*, *77*(1), 111. doi:10.1037/0022-3514.77.1.111

Kovner, C., and Gergen, P. J. (1998). Nurse staffing levels and adverse events following surgery in US hospitals. *Image: The Journal of Nursing Scholarship*, *30*(4), 315-321.

Kramer, M., and Hafner, L. P. (1989). Shared values: Impact on staff nurse job satisfaction and perceived productivity. *Nursing research*.

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress*, *19*(3), 192-207.

Kristof-Brown A., Zimmerman R. &Johnson E. (2005) Consequences of individuals' fit at work: a meta-analysis of person-job, person-organisation, person- group, and person- supervisor fit *personnel psychology* 58 (2), 281- 342

Lacobucci, G. (2015). Staff burnout threatens plans for NHS, says think tank. *BMJ: British Medical Journal (Online)*, *350*.

Łakuta, P. (2021). Brief self-affirmation intervention for adults with psoriasis for reducing anxiety and depression and boosting well-being: Evidence from a randomized controlled trial. *Psychological Medicine*, 1-11.

Lambert, S. D., Beatty, L., McElduff, P., Levesque, J. V., Lawsin, C., Jacobsen, P., & Girgis, A. (2017). A systematic review and meta-analysis of written self-administered psychosocial interventions among adults with a physical illness. *Patient Education and Counseling*. doi: 10.1016/j.pec.2017.06.039.

Lambert, S. D., Beatty, L., McElduff, P., Levesque, J. V., Lawsin, C., Jacobsen, P., ... & Girgis, A. (2017). A systematic review and meta-analysis of written self-administered psychosocial interventions among adults with a physical illness. *Patient Education and Counseling*.

Lamiani, G.; Dordoni, P.; Argentero, P. Value congruence and depressive symptoms among critical care clinicians: The mediating role of moral distress. *Stress Health* 2018, 34, 135–142.

Lannin, D. G., Vogel, D. L., & Heath, P. J. (2017). Can reflecting on personal values online increase positive beliefs about counseling?. *Journal of counseling psychology,* 64(3), 261.

Lannin, D. G., Vogel, D. L., & Heath, P. J. (2017). Can reflecting on personal values online increase positive beliefs about counseling?. *Journal of counseling psychology*, *64*(3), 261.

Laschinger, H. K. S., and Fida, R. (2014). New nurses burnout and workplace wellbeing: The influence of authentic leadership and psychological capital. *Burnout Research*, *1*(1), 19-28.

Laschinger, H. K. S., and Grau, A. L. (2012). The influence of personal dispositional factors and organizational resources on workplace violence, burnout, and health outcomes in new graduate nurses: A cross-sectional study. *International journal of nursing studies*, *49*(3), 282-291.

Lawton, R., McEachan, R. R., Giles, S. J., Sirriyeh, R., Watt, I. S., and Wright, J. (2012). Development of an evidence-based framework of factors contributing to patient safety incidents in hospital settings: a systematic review. *BMJ Qual Saf*, *21*(5), 369-380.

Lee, M. C., Thampi, S., Chan, H. P., Khoo, D., Chin, B. Z., Foo, D. P., ... & Jacob, R. (2020). Psychological distress during the COVID-19 pandemic amongst anaesthesiologists and nurses. *BJA: British Journal of Anaesthesia*, *125*(4), e384.

Leiter, M. P., Jackson, N. J., & Shaughnessy, K. (2009). Contrasting burnout, turnover intention, control, value congruence and knowledge sharing between Baby Boomers and Generation X. *Journal of nursing management*, *17*(1), 100-109.

Lesage, F. X., Berjot, S., & Deschamps, F. (2012). Clinical stress assessment using a visual analogue scale. *Occupational medicine*, *62*(8), 600-605.

Letvak, S., Ruhm, C. J., and McCoy, T. (2012). Depression in hospital-employed nurses. *Clinical Nurse Specialist*, *26*(3), 177-182.

Lewis, E. J., Baernholdt, M., & Hamric, A. B. (2013). Nurses' experience of medical errors: An integrative literature review. *Journal of Nursing Care Quality*, *28*(2), 153-161.

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American statistical Association*, *83*(404), 1198-1202.

Logel, C., & Cohen, G. L. (2012). The role of the self in physical health: Testing the effect of a values-affirmation intervention on weight loss. *Psychological Science*, *23*(1), 53-55.

Logel, C., & Cohen, G. L. (2012). The role of the self in physical health: Testing the effect of a values-affirmation intervention on weight loss. *Psychological Science*, *23*(1), 53-55.

Lok, P., & Crawford, J. (2000). The application of a diagnostic model and surveys in organisational development. *Journal of Managerial Psychology*, *15*(2), 108-124.

Lokhande, M., & Müller, T. (2019). Double jeopardy–Double remedy? The effectiveness of self-affirmation for improving doubly disadvantaged students' mathematical performance. *Journal of school psychology*, *75*, 58-73.

Lopez, E. (1995). *The immigrant experience of latin Americans in the U.S.: is self-affirmation paving the way to a successful adaptation?* (PhD). State University of New York at Buffalo.

Louch, G., O'Hara, J., Gardner, P., & O'Connor, D. B. (2016). The daily relationships between staffing, safety perceptions and personality in hospital nursing: A longitudinal on-line diary study. *International journal of nursing studies*, *59*, 27-37.

Louch, G., O'Hara, J., Gardner, P., & O'Connor, D. B. (2017). A Daily Diary Approach to the Examination of Chronic Stress, Daily Hassles and Safety Perceptions in Hospital Nursing. *International Journal of Behavioral Medicine*, 1-11.

Maben, J., & Bridges, J. (2020). Covid-19: Supporting nurses' psychological and mental health. *Journal of clinical nursing*.

Maben, J., Conolly, A., Abrams, R., Rowland, E., Harris, R., Kelly, D., ... & Couper, K. (2022). 'You can't walk through water without getting wet'UK nurses' distress and psychological health needs during the Covid-19 pandemic: A longitudinal interview study. *International journal of nursing studies*, *131*, 104242.

Maben, J., Latter, S., and Clark, J. M. (2007). The sustainability of ideals, values and the nursing mandate: evidence from a longitudinal qualitative study. *Nursing Inquiry*, *14*(2), 99-113.

Mackowiak PA, Batten SV (2008) Post-Traumatic Stress Reactions before the Advent of Post-Traumatic Stress Disorder: Potential Effects on the Lives and

Legacies of Alexander the Great, Captain James Cook, Emily Dickinson, and Florence Nightingale. MILITARY MEDICINE, 173, (12) pp 1158.

Maly, R. C., Frank, J. C., Marshall, G. N., DiMatteo, M. R., & Reuben, D. B. (1998). Perceived efficacy in patient-physician interactions (PEPPI): validation of an instrument in older persons. *Journal of the American Geriatrics Society*, *46*(7), 889-894. doi:/10.1111/j.1532-5415.1998.tb02725.x

Mardon, R. E., Khanna, K., Sorra, J., Dyer, N., & Famolaro, T. (2010). Exploring relationships between hospital patient safety culture and adverse events. *Journal of patient safety*, *6*(4), 226-232.

Martens, A., Johns, M., Greenberg, J., & Schimel, J. (2006). Combating stereotype threat: The effect of self-affirmation on women's intellectual performance. Journal of Experimental Social Psychology, 42, 236–243. doi:10.1016/j.jesp.2005.04.010.

Martens, A., Johns, M., Greenberg, J., & Schimel, J. (2006). Combating stereotype threat: The effect of self-affirmation on women's intellectual performance. *Journal of Experimental Social Psychology*, 42, 236-243.

Maslach, C. (1982). Burnout: the cost of caring. Englewood Cliffs, NJ: Prentice-Hall. Reprinted in 2003. Cambridge, MA: Malor Books.

Maslach, C., Jackson, S. E., Leiter, M. P., Schaufeli, W. B., & Schwab, R. L. (1986). *Maslach burnout inventory* (Vol. 21, pp. 3463-3464). Palo Alto, CA: Consulting psychologists press.

Maslach, C., Schaufeli, W.B. & Leiter, M.P. (2001). Job burnout. In S.T. Fiske, D.L. Schacter & C. Zahn-Waxler (Eds.). Annual review of psychology. Vol. 52 (pp. 397–422).

Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guille, C., Di Angelantonio, E., & Sen, S. (2015). Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *Jama*, *314*(22), 2373-2383.

Mayo, A. M., & Duncan, D. (2004). Nurse perceptions of medication errors: what we need to know for patient safety. *Journal of nursing care quality*, *19*(3), 209-217.

McCrea, S. M., & Hirt, E. R. (2011). Limitations on the Substitutability of Self-Protective Processes. *Social Psychology*.

McMullan, M., Jones, R., & Lea, S. (2010). Patient safety: numerical skills and drug calculation abilities of nursing students and registered nurses. *Journal of advanced nursing*, *66*(4), 891-899.

McQueen, A., & Klein, W. M. (2006). Experimental manipulations of self-affirmation: A systematic review. *Self and Identity*, 5(4), 289-354. doi:/10.1080/15298860600805325

Meretoja, R., Isoaho, H., & Leino-Kilpi, H. (2004). Nurse competence scale: development and psychometric testing. *Journal of advanced nursing*, *47*(2), 124-133.

Mitchell PH. Defining Patient Safety and Quality Care. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 1.

Mol, M. E., Ruiter, R. A., Verhey, F. R., Dijkstra, J., & Jolles, J. (2008). A study into the psychosocial determinants of perceived forgetfulness: implications for future interventions. *Aging and Mental Health*, *12*(2), 167-176.

Mol, M. E., van Boxtel, M. P., Willems, D., & Jolles, J. (2006). Do subjective memory complaints predict cognitive dysfunction over time? A six-year follow-up of the Maastricht Aging Study. *International Journal of Geriatric Psychiatry: A journal of the psychiatry of late life and allied sciences*, *21*(5), 432-441.

Montgomery, A. P., Azuero, A., & Patrician, P. A. (2021). Psychometric properties of Copenhagen Burnout Inventory among nurses. *Research in nursing & health*, *44*(2), 308-318.

Montgomery, V. L. (2007). Effect of fatigue, workload, and environment on patient safety in the pediatric intensive care unit. *Pediatric Critical Care Medicine*, *8*(2), S11-S16.

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., ... & Chen, E. Y. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*.

Morgan, J. I., & Harris, P. R. (2015). Evidence that brief self-affirming implementation intentions can reduce work-related anxiety in downsize survivors. *Anxiety, Stress, & Coping*, *28*(5), 563-575. doi: 10.1080/10615806.2015.1004665

Morgantini, L. A., Naha, U., Wang, H., Francavilla, S., Acar, Ö., Flores, J. M., ... & Weine, S. M. (2020). Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey. *PloS one*, *15*(9), e0238217.

Mousazadeh S., Yektatalab S., Momennasab M., Parvizy S. (2019). Impediments to the formation of intensive care nurses' professional identify. *Nursing Ethics*, 26(6), 1873–1885. https://doi.org/10.1177/0969733018786059

Munnangi, S., Dupiton, L., Boutin, A., & Angus, L. D. (2018). Burnout, perceived stress, and job satisfaction among trauma nurses at a level I safety-net trauma center. *Journal of Trauma Nursing*, *25*(1), 4-13.

Munro, G. D., & Stansbury, J. A. (2009). The dark side of self-affirmation: Confirmation bias and illusory correlation in response to threatening information. *Personality and Social Psychology Bulletin*, *35*(9), 1143-1153.

Murphy, E., Dingwall, R., Greatbatch, D., Parker, S., and Watson, P. (1998). Qualitative research methods in health technology assessment: a review of the literature.

Needleman, J., Buerhaus, P., Pankratz, V. S., Leibson, C. L., Stevens, S. R., and Harris, M. (2011). Nurse staffing and inpatient hospital mortality. *New England Journal of Medicine*, *364*(11), 1037-1045.

Nelson, S. K., Fuller, J. A., Choi, I., & Lyubomirsky, S. (2014). Beyond self-protection: Self-affirmation benefits hedonic and eudaimonic well-being. *Personality and Social Psychology Bulletin*, *40*(8), 998-1011.

Nelson, S. M., & Lee-Winn, A. E. (2020). The mental turmoil of hospital nurses in the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*.

NHS Constitution for England. (2012). Retrieved 9 May 2020, from https://www.gov.uk/government/publications/the-nhs-constitution-for-england

NHS Staff Survey (2017). National Briefing Published March 2018. NHS Survey Coordination Centre.

Nichols, P., Copeland, T. S., Craib, I. A., Hopkins, P., & Bruce, D. G. (2008). Learning from error: identifying contributory causes of medication errors in an Australian hospital. *Medical Journal of Australia*, *188*(5), 276-279.

Ohler, M. C., Kerr, M. S., & Forbes, D. A. (2010). Depression in nurses. *CJNR (Canadian Journal of Nursing Research)*, *42*(3), 66-82.

Ólafsson, R. P., Smári, J., Guðmundsdóttir, F., Ólafsdóttir, G., Harðardóttir, H. L., & Einarsson, S. M. (2011). Self reported attentional control with the Attentional Control Scale: Factor structure and relationship with symptoms of anxiety and depression. *Journal of anxiety disorders*, *25*(6), 777-782.

Oliver D, Foot C, Humphries R (2014) Making Our Health and Care Systems Fit For An Ageing Population. The King's Fund, London. http://tinyurl.com/ hygxbus (accessed 6 December 2016

Olofsson B, Bengtsson C, Brink E (2003) Absence of response: a study of nurses' experience of stress in the workplace. J Nurse Manag 11(5): 351-8

Omery, A. (1989). Values, moral reasoning, and ethics. *The Nursing clinics of North America*, *24*(2), 499-508.

Opdenakker, R. (2006, September). Advantages and disadvantages of four interview techniques in qualitative research. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 7, No. 4).

Ormel, J., Raven, D., van Oort, F., Hartman, C. A., Reijneveld, S. A., Veenstra, R., & Oldehinkel, A. J. (2015). Mental health in Dutch adolescents: a TRAILS report on prevalence, severity, age of onset, continuity and co-morbidity of DSM disorders. *Psychological Medicine*, 45(2), 345-360.

Osborn, T. L., Rodriguez, M., Wasil, A. R., Venturo-Conerly, K. E., Gan, J., Alemu, R. G., ... & Weisz, J. R. (2020). Single-session digital intervention for adolescent depression, anxiety, and well-being: Outcomes of a randomized controlled trial with Kenyan adolescents. *Journal of consulting and clinical psychology*, *88*(7), 657.

Palan, S., & Schitter, C. (2018). Prolific. ac—A subject pool for online experiments. *Journal of Behavioral and Experimental Finance*, *17*, 22-27.

Pálsson, S. P., Östling, S., & Skoog, I. (2001). The incidence of first-onset depression in a population followed from the age of 70 to 85. *Psychological medicine*, 31(7), 1159-1168. doi: 10.1017/S0033291701004524

Park, L. E. (2007). Appearance-based rejection sensitivity: Implications for mental and physical health, affect, and motivation. *Personality and Social Psychology Bulletin*, *33*(4), 490-504. doi: 10.1177/0146167206296301

Patrician, P. A., Loan, L., McCarthy, M., Fridman, M., Donaldson, N., Bingham, M., and Brosch, L. R. (2011). The association of shift-level nurse staffing with adverse patient events. *JONA: The Journal of Nursing Administration*, *41*(2), 64-70.

Pauketatat, J. V., Moons, W. G., Chen, J. M., Mackie, D. M., & Sherman, D. K. (2016). Self-affirmation and affective forecasting: Affirmation reduces the anticipated impact of negative events. *Motivation and Emotion*, *40*(5), 750-759. doi: 10.1007/s11031-016-9562-x

Perski, O., Blandford, A., Ubhi, H. K., West, R., & Michie, S. (2017). Smokers' and drinkers' choice of smartphone applications and expectations of engagement: A think aloud and interview study. *BMC medical informatics and decision making*, *17*(1), 25.

PERTS (2018) *Evidence- based Education for Everyone*. [Online] Available at: https://www.perts.net/ [accessed on 22/02/2018].

Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., ... & Abel, K. M. (2020). Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*.

PLoS Medicine (OPEN ACCESS) Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *Preferred Reporting Items for Systematic Reviews and Meta-Analyses:* The PRISMA Statement. doi: 0.1371/journal.pmed.1000097

Poalses, J. & Bezuidenhout, A. (2018). Mental Health in Higher Education: A Comparative Stress Risk Assessment at an Open Distance Learning University in South Africa. International Review of Research in Open and Distributed Learning, 19(2). https://doi.org/10.19173/irrodl.v19i2.3391

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., ... & Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *A product from the ESRC methods programme Version*, *1*, b92.

Powerful easy-to-use software for online behavioural research. (2020). Retrieved 4 April 2020, from https://gorilla.sc/?gclid=Cj0KCQjw8IaGBhCHARIsAGIRRYre9PAtWFlICiqn6NIfpAGBApVjiSx8tscXkVxhny1qiibj_oPCL9kaApwIEALw_wcB

Prime Minister's statement on coronavirus (COVID-19): 16 March 2020. (2020). Retrieved 16 May 2020, from https://www.gov.uk/government/speeches/pm-statement-on-coronavirus-16-march-2020

Principles of nursing practice | Royal College of Nursing. Retrieved 5 March 2020, from https://www.rcn.org.uk/professional-development/principles-of-nursing-practice

Prolific | Online participant recruitment for surveys and market research. (2020). Retrieved 1 April 2020, from https://www.prolific.co/

Pronovost, P. J., Goeschel, C. A., Marsteller, J. A., Sexton, J. B., Pham, J. C., & Berenholtz, S. M. (2009). Framework for patient safety research and improvement. *Circulation*, *119*(2), 330-337.

Prothero, M. M., Marshall, E. S., and Fosbinder, D. M. (1999). Implementing differentiated practice: personal values and work satisfaction among hospital staff nurses. *Journal for Nurses in Professional Development*, *15*(5), 185-192.

Proudfoot, J. G., Corr, P. J., Guest, D. E., & Dunn, G. (2009). Cognitive-behavioural training to change attributional style improves employee well-being, job satisfaction, productivity, and turnover. *Personality and Individual Differences*, 46(2), 147-153. doi:10.1016/j.paid.2008.09.018

Rassin, M. (2008). Nurses' professional and personal values. *Nursing ethics*, *15*(5), 614-630.

Rassin, M., Kanti, T., & Silner, D. (2005). Chronology of medication errors by nurses: accumulation of stresses and PTSD symptoms. *Issues in mental health nursing*, *26*(8), 873-886.

Ravari, A. L. I., Bazargan, M., Vanaki, Z., and Mirzaei, T. (2012). Job satisfaction among Iranian hospital-based practicing nurses: examining the influence of self-expectation, social interaction and organisational situations. *Journal of Nursing Management*, *20*(4), 522-533.

Reese, J. B., Porter, L. S., Casale, K. E., Bantug, E. T., Bober, S. L., Schwartz, S. C., & Smith, K. C. (2016). Adapting a couple-based intimacy enhancement intervention to breast cancer: A developmental study. *Health Psychology*, *35*(10), 1085.

Reitsma, J. B., Rutjes, A. W. S., Whiting, P., Vlassov, V. V., Leeflang, M. M. G., & Deeks, J. J. (2009). Assessing methodological quality. *Cochrane handbook for systematic reviews of diagnostic test accuracy version*, *1*(0).

REPORT OF THE POLICY DIALOGUE MEETING ON THE NURSING WORKFORCE. (2017). Retrieved 3 January 2021, from https://www.who.int/hrh/news/2017/NursingApril2017-2.pdf

Review Manager (RevMan) [Computer program]. Version 5.3. Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2014

Richardson, A., and Storr, J. (2010). Patient safety: a literative review on the impact of nursing empowerment, leadership and collaboration. *International nursing review*, *57*(1), 12-21.

Riedel, P.-L.; Kreh, A.; Kulcar, V.; Lieber, A.; Juen, B. A Scoping Review of Moral Stressors, Moral Distress and Moral Injury in Healthcare Workers during COVID-19. *Int. J. Environ. Res. Public Health* 2022, 19, 1666

Riklikiene, O., Karosas, L., and Kaseliene, S. (2018). General and professional values of student nurses and nurse educators. *Journal of advanced nursing*, *74*(3), 666-676.

Robins, R.W., Hendin, H.M., & Trzesniewski, K.H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg self-

esteem scale. *Personality and Social Psychology Bulletin*, 27, 151–161. doi:10.1177/0146167201272002

Rosa, W. E., Schlak, A. E., & Rushton, C. H. (2020). A blueprint for leadership during COVID-19: minimizing burnout and moral distress among the nursing workforce. *Nursing management*, *51*(8), 28.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Rutter, M. (2005). How the environment affects mental health. *British Journal of Psychiatry* 186, 4–6. doi:10.1192/bjp.186.1.4

Sandelowski, M. (2000). Whatever happened to qualitative description?. *Research in nursing and health*, *23*(4), 334-340.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C., 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & quantity*, *52*(4), pp.1893-1907.

Schaufeli, W. B., Bakker, A. B., Van der Heijden, F. M., & Prins, J. T. (2009). Workaholism, burnout and well-being among junior doctors: The mediating role of role conflict. *Work & Stress*, *23*(2), 155-172.

Sellen, D. (2015). *The Effectiveness of Self-affirmation of Professional Values for the Reduction of Fourth-year Medical Students' Burnout* (Doctoral dissertation, Northcentral University).

Shahriari, M., Mohammadi, E., Abbaszadeh, A., & Bahrami, M. (2013). Nursing ethical values and definitions: A literature review. *Iranian journal of nursing and midwifery research*, *18*(1), 1.

Shamian, J., O'Brien-Pallas, L., Thomson, D., Alksnis, C., & Kerr, M. S. (2003). Nurse absenteeism, stress and workplace injury: what are the contributing factors and what can/should be done about it?. *International Journal of Sociology and Social Policy*.

Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *Jama*, *323*(21), 2133-2134.

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of clinical psychology*, *62*(3), 373-386.

Sharif Nia, H.; Shafipour, V.; Allen, K.-A.; Heidari, M.R.; Yazdani-Charati, J.; Zareiyan, A. A Second-Order Confirmatory Factor Analysis of the Moral Distress Scale-Revised for Nurses. *Nurs. Ethics* 2019, 26, 1199–1210

Shelby, L. B., & Vaske, J. J. (2008). Understanding meta-analysis: A review of the methodological literature. *Leisure Sciences*, *30*(2), 96-110.

Shen, X., Zou, X., Zhong, X., Yan, J., & Li, L. (2020). Psychological stress of ICU nurses in the time of COVID-19. *Critical Care*, *24*(1), 1-3.

Shengxiao, N. I. E., Chao, S. U. N., Lei, W. A. N. G., & Xia, W. A. N. G. (2021). The professional identity of nursing students and their intention to leave the nursing profession during the coronavirus disease (COVID-19) pandemic. *Journal of Nursing Research*, *29*(2), e139.

Sherman DK, Cohen GL, Nelson LD, Nussbaum AD, Bunyan DP, Garcia J. 2009. Affirmed yet unaware: exploring the role of awareness in the process of self-affirmation. J. Personal. Soc. Psychol. 97:745–64

Sherman, D. A., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, *26*(9), 1046-1058. doi:10.1177/01461672002611003

Sherman, D. K. (2013). Self-affirmation: Understanding the effects. *Social and Personality Psychology Compass*, *7*(11), 834-845. doi: 10.1111/spc3.12072

Sherman, D. K., & Kim, H. S. (2005). Is there an “I” in “team”? The role of the self in group-serving judgments. *Journal of Personality and Social Psychology*, 88, 108–120. doi:10.1037/0022-3514.88.1.108

Sherman, D. K., Cohen, G. L., Nelson, L. D., Nussbaum, A. D., Bunyan, D. P., & Garcia, J. (2009). Affirmed yet unaware: exploring the role of awareness in the process of self-affirmation. *Journal of personality and social psychology*, *97*(5), 745. doi: 10.1037/a0015451.

Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: how self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, *104*(4), 591. doi: 10.1037/a0031495.

Shiow-Ching, S. H. U. N. (2021). Covid-19 pandemic: The challenges to the professional identity of nurses and nursing education. *Journal of Nursing Research*, *29*(2), e138.

Silverman A, Logel C, Cohen GL. 2012. Self-affirmation as a deliberate coping strategy: the moderating role of choice. J. Exp. Soc. Psychol. 49:93–98

Silverman, A., Logel, C., & Cohen, G. L. (2013). Self-affirmation as a deliberate coping strategy: The moderating role of choice. *Journal of Experimental Social Psychology*, *49*(1), 93-98.

Sirriyeh, R., Lawton, R., Gardner, P., & Armitage, G. (2010). Coping with medical error: a systematic review of papers to assess the effects of involvement in medical errors on healthcare professionals' psychological well-being. *Quality and safety in health care*, *19*(6), e43-e43.

Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., ... & Moore, L. (2021). A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj*, *374*.

Slutzky, C. B., & Simpkins, S. D. (2009). The link between children's sport participation and self-esteem: Exploring the mediating role of sport self-concept. *Psychology of Sport and Exercise*, *10*(3), 381-389.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, *15*(3), 194-200.

Smith, H., & Citti, D. (2006). Making the sexual harassment of others self-relevant: The roles of identity salience and value affirmation. *Social Justice Research*, *19*(4), 500-526. doi: 10.1007/s11211-006-0027-3

Sorra, J., Khanna, K., Dyer, N., Mardon, R., & Famolaro, T. (2014). Exploring relationships between patient safety culture and patients' assessments of hospital care. *The Journal of nursing administration*, *44*(10), S45-S53.

Sovie, M. D., and Jawad, A. F. (2001). Hospital restructuring and its impact on outcomes: nursing staff regulations are premature. *JONA: The Journal of Nursing Administration*, *31*(12), 588-600.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Stapel, D. A., & van der Linde, L. A. (2011). What drives self-affirmation effects? On the importance of differentiating value affirmation and attribute affirmation. *Journal of Personality and Social Psychology*, *101*(1), 34.

Steele, C. M. & Liu, T. J. (1983). Dissonance processes as self-affirmation. .*Journal of Personality and Social Psychology*, 45, 5–19. doi:10.1037/0022-3514.45.1.5

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in experimental social psychology*, 21, 261-302. doi: 10.1016/S0065-2601(08)60229-4

Steele, C. M., & Liu, T. J. (1981). Making the dissonant act unreflective of self: Dissonance avoidance and the expectancy of a value-affirming response. *Personality and Social Psychology Bulletin,* 7, 393 – 397

Steele, C. M., Spencer, S. J., & Lynch, M. (1993). Self-image resilience and dissonance: the role of affirmational resources. *Journal of personality and social psychology*, *64*(6), 885. doi: 10.1037//0022-3514.64.6.885

Stephens, N. (2007). Collecting data from elites and ultra elites: telephone and face-to-face interviews with macroeconomists. *Qualitative research*, *7*(2), 203-216.

Styles, J. A., Burgham-Malin, M., & Bayliss, S. (2004). Practice nurse appraisal: a systematic approach. *Practice Nursing*, *15*(7), 351-355.

Suicide deaths among nurses aged 20 to 64 years, deaths registered in England and Wales between 2011 and 2017 - Office for National Statistics ONS. (2017). Retrieved 1 January 2021, from https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/adhocs/009209suicidedeathsamongnursesaged20to64yearsdeathsregisteredinenglandandwalesbetween2011and2017

Sun, Y., Wang, D., Han, Z., Gao, J., Zhu, S., & Zhang, H. (2020). Disease prevention knowledge, anxiety, and professional identity during COVID-19 pandemic in nursing students in Zhengzhou, China. *Journal of Korean Academy of Nursing*, *50*(4), 533-540.

Sutcliffe, K. M., Paine, L., and Pronovost, P. J. (2017). Re-examining high reliability: actively organising for safety. *BMJ Qual Saf*, *26*(3), 248-251.

Taillandier-Schmitt, A., Esnard, C., & Mokounkolo, R. (2012). Self-affirmation in occupational training: Effects on the math performance of French women nurses under stereotype threat. *Sex Roles*, *67*(1-2), 43-57.

Tang, M., Sun, Y., Zhang, K., Luo, R., Liu, Y., Sun, H., & Zhou, F. (2022). Associated factors of professional identity among nursing undergraduates during COVID-19: a cross-sectional study. *International journal of nursing sciences*, *9*(1), 107-113.

Team, R. C. (2017). R: A language and environment for statistical com-putting.

Tennant, C. (2001). Work-related stress and depressive disorders. *Journal of psychosomatic research*, *51*(5), 697-704.

Teoh, K. R. H., Kinman, G., & Hassard, J. (2020). The relationship between healthcare staff wellbeing and patient care: it's not that simple. In *Integrating the Organization of Health Services, Worker Wellbeing and Quality of Care* (pp. 221-244). Springer, Cham.

Teresi, J., Abrams, R., Holmes, D., Ramirez, M., & Eimicke, J. (2001). Prevalence of depression and depression recognition in nursing homes. *Social psychiatry and psychiatric epidemiology*, 36(12), 613-620. doi: 10.1007/s127-001-8202-7

Tesser, A. (2000). On the confluence of self-esteem maintenance mechanisms. *Personality and Social Psychology Review*, *4*(4), 290-299. doi: 10.1007/s127-001-8202-7

The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates - The Nursing and Midwifery Council. Retrieved 10 June 2020, from https://www.nmc.org.uk/standards/code/

Thibodeau, R., & Aronson, E. (1992). Taking a closer look: Reasserting the role of the self-concept in dissonance theory. *Personality and Social Psychology Bulletin*, *18*(5), 591-602.

Tong, A., Sainsbury, P., and Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International journal for quality in health care*, *19*(6), 349-357.

Tukey, J. W. (1977). *Exploratory data analysis* (Vol. 2, pp. 131-160).

Twigg, D., Duffield, C., Thompson, P. L., and Rapley, P. (2010). The Impact of Nurses on Patient Morbidity and Mortality - the Need for a Policy Change in Response to the Nursing Shortage.

Tyler, J. M., Branch, S. E., & Kearns, P. O. (2016). Dispositional Need to Belong Moderates the Impact of Negative Social Cues and Rejection on Self-Esteem. *Social Psychology*. doi:10.1027/1864-9335/a000271

Van Agteren, J., Iasiello, M., & Lo, L. (2018). Improving the wellbeing and resilience of health services staff via psychological skills training. *BMC research notes*, *11*(1), 924.

Van Bogaert, P., Timmermans, O., Weeks, S. M., van Heusden, D., Wouters, K. & Franck, E. (2014). Nursing unit teams matter: Impact of unit-level nurse practice environment, nurse work characteristics, and burnout on nurse reported job outcomes, and quality of care, and patient adverse events—A cross-sectional survey. *International journal of nursing studies,* 51, 1123-1134.

Van Koningsbruggen, G. M., Das, E., & Roskos-Ewoldsen, D. R. (2009). How self-affirmation reduces defensive processing of threatening health information: evidence at the implicit level. *Health Psychology*, *28*(5), 563.

Vansteenkiste, M., Neyrinck, B., Niemiec, C. P., Soenens, B., De Witte, H., & Van den Broeck, A. (2007). On the relations among work value orientations,

psychological need satisfaction and job outcomes: A self-determination theory approach. *Journal of occupational and organisational psychology*, *80*(2), 251-277.

Vedanthan, R., Blank, E., Tuikong, N., Kamano, J., Misoi, L., Tulienge, D., ... & Were, M. C. (2015). Usability and feasibility of a tablet-based Decision-Support and Integrated Record-keeping (DESIRE) tool in the nurse management of hypertension in rural western Kenya. *International journal of medical informatics*, *84*(3), 207-219.

Verplanken, B. (2004). Value congruence and job satisfaction among nurses: a human relations perspective. *International journal of nursing studies*, *41*(6), 599-605.

Vincent, C., Burnett, S., & Carthey, J. (2013). *The measurement and monitoring of safety: drawing together academic evidence and practical experience to produce a framework for safety measurement and monitoring*. The Health Foundation.

Wakefield J, Uden-Holman T, Wakefield S. Development and validation of the medication administration error reporting survey*. Advances in Patient Safety* 2004; 4:475-89.

Wakefield S, Wakefield J , Uden-Holman T , Blegen A. Perceived barriers in reporting medication administration errors. *Best Practices and Benchmarking in Health Care* 1996; 1(4):191-7. 15-

Walker, S., Barnett, P., Srinivasan, R., Abrol, E., & Johnson, S. (2021). Clinical and social factors associated with involuntary psychiatric hospitalisation in children and adolescents: a systematic review, meta-analysis, and narrative synthesis. *The Lancet Child & Adolescent Health*, *5*(7), 501-512.

Walter, N., Demetriades, S. Z., & Murphy, S. T. (2017). Involved, United, and Efficacious: Could Self-Affirmation Be the Solution to California's Drought?. *Health communication*, *32*(9), 1161-1170. doi: 10.1080/10410236.2016.1217451.

Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology*, 107(2), 468. doi:10.1037/a0037461

Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology*, *107*(2), 468.

Wang, C., Bannuru, R., Ramel, J., Kupelnick, B., Scott, T., & Schmid, C. H. (2010). Tai Chi on psychological well-being: systematic review and meta-analysis. *BMC complementary and alternative medicine*, *10*(1), 23. doi: 10.1186/1472-6882-10-23.

Ward, M. E., De Brún, A., Beirne, D., Conway, C., Cunningham, U., English, A., ... & McAuliffe, E. (2018). Using co-design to develop a collective leadership intervention for healthcare teams to improve safety culture. *International journal of environmental research and public health*, *15*(6), 1182.

Watson, D., & Clark, L. A. (1997). The measurement and mismeasurement of mood: Recurrent and emergent issues. *Journal of Personality Assessment, 68*, 267–296 doi:10.1207/s15327752jpa6802_4

Weinstein, N. D. (1987). Unrealistic optimism about susceptibility to health problems: Conclusions from a community-wide sample. *Journal of behavioral medicine*, *10*(5), 481-500.

Weis, D., and Schank, M. J. (1997). Toward building an international consensus in professional values. *Nurse education today*, *17*(5), 366-369.

Wileman, V., Farrington, K., Chilcot, J., Norton, S., Wellsted, D. M., Almond, M. K. & Armitage, C. J. (2014). Evidence that self-affirmation improves phosphate control in hemodialysis patients: A pilot cluster randomized controlled trial. *Annals of Behavioral Medicine*, *48*(2), 275-281. doi: 10.1007/s12160-014-9597-8.

Williams S.J., Caley L. (2020) Defining Co-production. In: Improving Healthcare Services. Palgrave Pivot, Cham. https://doi.org/10.1007/978-3-030-36498-4_4

Williamson, V., Murphy, D., Greenberg, N. (2020). COVID-19 and experiences of moral injury in front-line key workers. *Occupational Medicine*, 70(5), 317-319

Wolstenholme, D., Poll, R., & Tod, A. (2020). Innovating access to the nurse-led hepatitis C clinic using co-production. *Journal of Research in Nursing*, *25*(3), 211-224.

Wray J (2013) The impact of the financial crisis on nurses and nursing. J Adv Nurs 69(3): 497–9

Wright, E. C. (2010). *A cognitive dissonance approach to understanding and treating obsessive-compulsive disorder* (Doctoral dissertation, George Mason University).

Wylde, C. M., Mahrer, N. E., Meyer, R. M., & Gold, J. I. (2017). Mindfulness for novice pediatric nurses: smartphone application versus traditional intervention. *Journal of pediatric nursing*, *36*, 205-212.

Yardley, L., Morrison, L. G., Andreou, P., Joseph, J., & Little, P. (2010). Understanding reactions to an internet-delivered health-care intervention: accommodating user preferences for information provision. *BMC medical informatics and decision making*, *10*(1), 1-10.

Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education: They're not magic. *Review of educational Research*, *81*(2), 267-301.

Yıldırım, M., & Solmaz, F. (2020). COVID-19 burnout, COVID-19 stress and resilience: Initial psychometric properties of COVID-19 Burnout Scale. *Death Studies*, 1-9.

Yildirim, M., Gulsoy, H., Batmaz, M., Ozgat, C., Yesilbursali, G., Aydin, R., & Ekiz, S. (2017). Symptom Management: The Effects of Self-Affirmation on Chemotherapy-Related Symptoms. *Clinical Journal of Oncology Nursing*, *21*(1), E15-E22. doi: 10.1188/17.CJON.E15-E22.

Yin, J. C. T., & Yang, K. P. A. (2002). Nursing turnover in Taiwan: a meta-analysis of related factors. *International journal of nursing studies*, *39*(6), 573-581.

Zhang, Y. D., Gao, Y. Q., Tang, Y., & Li, Y. H. (2021). The role of workplace social capital on the relationship between perceived stress and professional identity among clinical nurses during the covid-19 outbreak. *Japan Journal of Nursing Science*, *18*(1), e12376.

Zhu, X.W., You, L.M., Zheng, J., Liu, K., Fang, J.B., Hou, S.X., Lu, M.M., Lv, A.L., Ma, W.G., Wang, H.H. and Wu, Z.J., 2012. Nurse staffing levels make a difference on patient outcomes: a multisite study in Chinese hospitals. *Journal of Nursing Scholarship*, *44*(3), pp.266-273.

Zipfel, S., Junne, F., & Giel, K. E. (2020). Measuring Success in Psychotherapy Trials: The Challenge of Choosing the Adequate Control Condition. *Psychotherapy and Psychosomatics*, *89*(4), 195-199.

Appendices

Appendix A - A search strategy example used in the PsycInfo database

1	"Self Affirmation".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
2	"Value* Affirmation*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
3	"Positive affirmation*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
4	"Written Affirmation*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
5	Affirmation*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
6	Well being.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
7	exp PHYSIOLOGICAL STRESS/ or exp PSYCHOLOGICAL STRESS/ or exp "STRESS AND COPING MEASURES"/ or exp STRESS/ or exp OCCUPATIONAL STRESS/ or exp STRESS MANAGEMENT/
8	exp ANXIETY DISORDERS/ or exp ANXIETY/ or exp ANXIETY MANAGEMENT/

9	Depress*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
10	Anxie*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
11	Strain*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
12	Burden*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
13	Burnout.mp.
14	"psychological Load".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
15	"Job Stress*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
16	"Mental Health".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
17	exp "Quality of Life"/

Appendix B - COREQ Checklist used in Study 1

Item	Guide questions/ description	My paper
Domain 1: Research team and reflexivity		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Alice Dunning (First Author)
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	BSc Psychology (with industry), undergoing PhD
3. Occupation	What was their occupation at the time of the study?	PhD Student
4. Gender	Was the researcher male or female?	Female
5. Experience and training	What experience or training did the researcher have?	Prior experience in conducting qualitative research in conducting focus groups, telephone interviews, transcribing, data analysis and write up

6. Relationship established	Was a relationship established prior to study commencement?	Prior to the interviews there was a relationship developed over email in the sense that conversations took place to arrange the interviews.
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	The participants knew that the researcher was undergoing a PhD at the time of the interview, and that the interviews were part of a research project (within a PhD) which aimed to support the development of a wellbeing tool as well as explore nurse values
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons	None (at present), But no apparent bias present i.e. researcher not a nurse themselves

	and interests in the research topic	
Domain 2 Study design		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	An essentialist approach to epistemology was taken as participants accounts were taken as relaying true meaning. Thematic analysis was chosen as the analysis method.
10. sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Opportunistic sampling was used- participants self-identified from social media posts
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Participants were approached online, via social media adverts
12. sample size	How many participants were in the study?	15
13. Non-participation	How many people refused to	26 nurses responded to

	participate or dropped out? Reasons?	adverts but 15 took part in the interviews. They were not required to give a reason for not taking part in the interview but it was assumed this was to do with busy schedules
14. setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Data collection was Via a telephone
15. presence of non-participants	Was anyone else present besides the participants and researchers?	Not on the phone line, or with the researcher. It cannot be said for certain that there was no one present in the room that the participant made the phone call from.
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Participants were all nurses working in acute hospital settings, but there was a spread in hospitals, nurse

		speciality, years' experience and bands. There was also a spread in age, gender and ethnicity
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	The interview guide was piloted with two nurses, and an iterative approach was also taken to the guide, whereby further questions were added as the interviews were conducted.
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No
19. Audio/ visual recording	Did the research use audio or visual recording to collect the data?	Audio recorded
20. Field notes	Were field notes made during and/or after the interview or focus group?	No

21. Duration	What was the duration of the interviews or focus group?	Average length 30 minutes
22. Data saturation	Was data saturation discussed?	Yes data saturation was discussed between the research team as part of a PhD supervision meeting
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
Domain 3: analysis and findings		
24. Number of data coders	How many data coders coded the data?	1 (additional coding of 4 transcripts was done by 2 of the research team)
25. Description of the coding tree	Did authors provide a description of the coding tree?	No
26. Derivation of themes	Were themes identified in advance or derived from the data?	Derived from the data
27. Software	What software, if applicable,	Excel was used the

	was used to manage the data?	chart the data
28. Participant checking	Did participants provide feedback on the findings?	No
29. Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes- where there were differences in responses from different bands for example within themes these were described

Appendix C - The interview schedule used within Study 1

Exploring perceptions of nurse values: an interview study

Interview Schedule

Stage one:

Opening

Hello, my name is Alice. I'm a researcher from the University of Leeds, Is now still a good time to talk? Before we begin I thought I would give you some further information about this research. Values have always been important in nursing, but there hasn't been much research that has asked nurses about values and their practice. Within this interview, I will be asking questions about the values that are important to you. The interview will also be used to help develop a tool to help enhance job satisfaction and wellbeing and so some of the questions will also focus upon this. Does this sound okay to you? I would also like to remind you that if at any point you would not like to answer a question or continue the interview please just advise me so.

Timeframe: This interview should take approximately 45 minutes to complete.

I will need to record your consent for taking part in the interview, for this I will read out a few statements and ask you to state if you agree to all of these.

(If demographics have not been received through survey monkey) I'm also going to ask you a couple of questions to get an idea of you as a person, this will all be kept confidential and will not be linked to your answers today. This is just so that when the

findings of this research are reported we can give an average age, for example, of all the participants. This information will be used to provide demographics of the participants, for example, the average age of participants, in addition this may be used within the analysis.

Q. To begin with, can you tell me a little bit about yourself? (Demographics)

-What is your age?

-What is your gender?

-What is your ethnicity?

-Which NHS organisation/ trust do you work in?

-How long have you been working as a registered nurse?

-Which NHS pay Band are you in?

- Do you have a speciality, if so what is this?

I will now begin recording the interview is this okay?

Values:

Q. What do you understand the word values to mean?

Q. What do you value?

PROMPTS

- What values are important to you?
- Can I ask why you feel these values are particularly important to you?

- Do you see these as values that are important for nurses?
- Are there any differences in things that are important to you at home (personally) to things that are important for being a nurse?
- Of the values we have been talking through, which would you say are most important to you?

Q. On a day to day basis are you able to work in line with the values that are important to you/what you value?

PROMPTS

- Could you give some examples of this (being able to/not being able to)?
- How does this make you feel?
- Can you think of some things that might help you to work in line with your values?
- Can you think of some things that may prevent you from working in line with your values?
- What types of things might help/ or might hinder being able to work in line with your values e.g. the work environment?

Q. Do you know what the values or your trust/Organisation are?

PROMPTS

- How were you made aware of these?
- Would you know where to look to find your trust/organisation values?

- Do you feel these values are upheld within your work place and the environment that you work in?
- Are these similar to the values of the team you work in? Are any at odds?
- Are there any differences within your team in terms of the things that people feel are important to them? If there is, how does this affect the ways in which you work or the environment you work within?
- What do you think are the positive and negative impacts of shared values, for you and patient care?

Q. Do you think that if you felt more assured in your values (that are important to you) this might help with job satisfaction and wellbeing?

Acceptability and Feasibility:

There is evidence to suggest that a tool (short task) which asks people to reflect on the values that are important to them, can help enhance wellbeing, this tool has been used in other areas but has not yet been used with healthcare staff for this purpose.

Q. What are your initial thoughts about using a values reflection task to promote wellbeing?

PROMPT

- Are there any particular circumstances (or times) when you think this type of tool would be useful?

Q. What would you envision a tool with this purpose to look like?

Q How would you prefer this type of tool/short task to be delivered?

PROMPT

- Online, via smartphone
- Face to face? Or within a group environment?
- Where – work environment or home?

Q. How much time do you think is reasonable for a tool or short task to take?

PROMPT

- If the task takes around 10 minutes, is this reasonable? How often could nurses /you commit to this?

Q. Is there anything that you could think of that would encourage nurses to engage with the tool?

Q. Are there any issues you can think of that we may have overlooked which may be a barrier for nurses using the tool?

PROMPT

- If so, how might these be overcome?

Closing

I appreciate the time you took out to take part in this interview. Is there anything else you would like to add before we finish this interview?

Would you be interested in hearing about later parts of this research? We are going to be conducting Focus Groups with Nurses once the tool has been developed to look at how appropriate it is and give nurses the opportunity to shape it. In addition we will be piloting the tool once it has been developed.

If you are interested please could you provide your email address that I should contact?

Would you like to be contacted with the findings of this research? Please let me know your email address if so?

I would also like to confirm where you would like you're Love2Shop voucher sending?

Thank you once again, your responses will be very helpful.

Appendix D - The participant information sheet provided in Study 1.

Exploring perceptions of nurse values: an interview study

Participant Information Sheet

Invitation to take part:

We would like to invite you to take part in a research study about nurse values, to support the development of a wellbeing intervention. This information sheet tells you more about the study.

What is the purpose of this study?

The purpose of this study is to understand more about nurse values, we are interested in understanding what you value personally and what you believe are values held within the nursing profession. This research will influence the development of an intervention for nurses that aims to improve levels of wellbeing by focusing and reflecting on important values. This research is part of a PhD and is funded by the University of Leeds and National Institute for Health Research (NIHR) (Collaboration for Leadership in Applied Health Research and Care (CLAHRC).

Why have I been chosen?

You are a registered nurse working in an acute hospital in the NHS and therefore

have views that are of interest for this study.

What will happen if I take part?

If you consent to participate in the research, you will be asked to take part in a telephone interview which will be recorded and last approximately 45 minutes. You will be asked questions about your background including how long you have been in your profession. The interview will focus on questions about values which you think are important, to help inform the development of an intervention which aims to improve levels of wellbeing by focusing and reflecting on important values. Additionally, you will be asked questions regarding potential delivery methods and availability of time for nurses taking part in an intervention aimed at improving levels of wellbeing. Whilst taking part in this study, you have the right to refuse to answer any of the interview questions.

It is up to you to decide whether or not you wish to take part in this study. If you decide to take part, you are free to withdraw your data from the study up until a month after the interview has taken place.

What are the possible benefits of taking part?

To thank you for taking the time to participate in this research, you will receive a **£20 Love2Shop voucher**. The research findings will be used to help with the development of an intervention which aims to improve levels of nurse wellbeing. After taking part in this interview you can choose to become further involved in the development of this intervention and potentially take part in the intervention pilot.

What are the possible disadvantages and risks of taking part?

We appreciate that you have a very busy schedule, we aim to minimise this

disruption by organising the telephone interview at a time most convenient for you. If you feel upset about any aspect of this study you may wish to contact Cavell Nurses Trust who provide support for nurses, midwives and healthcare assistants (01527 595999), or discuss concerns with your GP.

What will happen to the information I provide in the interview?

All interviews will be recorded, however all information which is collected from you will be kept secure and your identity will remain anonymous at all times. This research will be written up into a report and will also be published in the future in academic journals and presented at conferences. However, all the information you provide will be anonymised, any potentially identifiable information will be removed, including the use of pseudonyms for the name of people and places.

If you disclose information that indicates professional negligence, a risk of harm to yourself or others, confidentiality will have to be broken and the matter would have to be reported. This may include the decision to disclose the information that you have provided, your identity, and the identity of any individuals you have named, to an appropriate person at your organisation, who may decide to take further action. You will also be encouraged to discuss the disclosure with your own line-manager, who may also decide to take further action.

All recordings will be password protected and stored securely. Data will only be accessible by the researcher and supervisors for a period of five years, after which the data will be destroyed, where all copies of the data will be deleted.

You have the right to withdraw your data from the study without having to provide a reason, until a month after your interview has been conducted. If you wish to

withdraw from the study, or you have any other questions regarding the study please contact Alice Dunning by email (ps13ad@leeds.ac.uk).

The University of Leeds is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Leeds will keep identifiable information about you for 5 years if you agree to be contacted for future studies. If you do not wish to participate in any further research your identifiable information will be kept for 12 months.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information http://www.leeds.ac.uk/secretariat/data_protection.html

If you are interested, we will be happy to provide you with anonymised feedback about the findings of this study.

Who has reviewed the study?

This study has received ethical approval from the School of Psychology Research Ethics Committee at the University of Leeds on 13/06/2018 and (Ethics Reference No: PSC-346)

What if there is a problem?

The study researcher will be available to resolve any problems (contact details below).

Researcher: Alice Dunning ps13ad@leeds.ac.uk

Based at: University of Leeds, School of Psychology &

Bradford Institute for Health Research

Study supervisors:

Dr Judith Johnson j.johnson@leeds.ac.uk

Based at: University of Leeds, School of Psychology

& Bradford Institute for Health Research

Professor Karen Spilsbury k.spilsbury@leeds.ac.uk

Based at: University of Leeds, School of Healthcare

Dr Angela Grange angela.grange@bthft.nhs.uk

Dr Gemma Louch gemma.louch@bthft.nhs.uk

Based at: Bradford Institute for Health Research

If you are unhappy about any aspect this study and you do not want to discuss this with the researchers, you can contact the School of Psychology Ethics Committee: psyc-ethics@leeds.ac.uk

Thank you for taking the time to read this information sheet.

Appendix E – A Self-affirmation intervention to support RN wellbeing, patient care and safety: protocol for a randomised controlled study with qualitative evaluation

Background

RNs in acute hospital settings deliver direct patient care and have an important role in the early detection of complications for patients, deterioration prevention and preventable deaths (Buerhaus et al., 2007). Research has shown alarming levels of depression and poor wellbeing among nurses, which, in turn, has been associated with poorer perceptions of patient care and safety from the nurse perspective (Buerhaus et al., 2007; Johnson et al., 2017; Louch et al., 2017). RNs may experience a high workload and low morale which can contribute to high levels of job dissatisfaction (Bally, 2007). High levels of job dissatisfaction for RNs working in acute hospital settings have been associated with poor work performance and negative patient outcomes (Bally, 2017). With the constraints that shift work creates for RNs, in terms of flexibility, time and location (Lambert et al, 2017), it is important to consider how to promote access by RNs to interventions targeted at improving wellbeing. This highlights the need to explore the usefulness of self-administered interventions.

SA interventions are suitable for self-administration methods (Cohen & Sherman, 2014). SA theory suggests that people are motivated to maintain their sense of ‘self’; when this is threatened people are more likely to act maladaptively (e.g., defensively). If people affirm their beliefs, they can bolster their sense of ‘self’ which (theoretically) enables them to face threats more adaptively (e.g., change their behaviour). This type of intervention is based upon experimental manipulations

aimed at specifically invoking SA. Research has demonstrated the effectiveness of SA interventions in improving wellbeing across many different populations, including college (Brady et al., 2016; Creswell et al., 2005; Czech at al., 2011) and medical students (Sellen, 2015). However, SA interventions have not yet been specifically tailored for the RN profession with the aim of supporting levels of wellbeing. In light of this, to enhance the acceptability and usefulness of the use of SA for RNs, a previous phase of work involving a systematic review and meta-analysis, interviews with RNs, co-production workshop and Think Aloud interviews informed the adaptation of this type of intervention for use with RNs.

It was decided that a randomised controlled study was necessary at this stage, given the novel focus on RNs, wellbeing and patient care and safety. This study aimed to establish whether the adapted SA intervention was effective, and if further implementation should be conducted and if so, how (Eldridge et al., 2016). A mixed methods approach was adopted, including a randomised controlled study to evaluate the adapted SA intervention and its effectiveness in supporting levels of stress, burnout, wellbeing and perceptions of patient care and safety and a qualitative evaluation framed around feasibility and acceptability.

As it was not possible to carry out the research outlined in the following protocol (due to the COVID-19 pandemic), the study remains planned but not completed. Therefore, the following section is written in the future tense, to be consistent with published protocols.

Methods/ design (randomised controlled study)

Primary aim: To assess the effectiveness of a SA intervention in supporting RN wellbeing and improving perceptions of patient care and safety.

A randomised controlled trial will be conducted. Nurses will be randomised into the intervention or control condition in a 1:1 ratio.

The Self-affirmation intervention

In the intervention arm, participants will be asked to take part in a series of tasks focussing on value reflection. In these tasks participants will be instructed to focus upon their values in their life holistically i.e., not just focus upon professional values. Participants will initially be asked to rank a list of values from 1-10 on their importance to them personally. Following this they will be asked to choose a value (one of their own choosing or from a list presented) to reflect on. This reflection will occur via several tasks, including: an essay, short answer questions and a short questionnaire (Appendix F).

Within the control arm, participants will be asked to read a neutral article about the structure of a hospital organisation (Appendix G).

Setting and sample

The study will be conducted on an online platform (Qualtrics, Provo, UT) and participants will access the intervention through a website address. The participants will be RNs who work in an acute hospital setting in the NHS.

The data collection for each participant will take place at three different time points (See Figure 31). When participants first access the study website, they will be presented with the participant information sheet and asked to provide their consent and an email address before continuing with the study. At this first stage of data collection, baseline measures will be taken (resilience, perceived stress, burnout, state depression, stress and overall quality of life, perceptions of quality of care and

patient safety). Two days after this, participants will be sent an email with the link to the intervention. Within this email, participants will be advised to access the intervention a minimum of once over the following two weeks, ideally after a challenging day. Once participants access the link (second stage of the study) they will be asked to complete measures of state depression, stress and overall quality of life. Participants will then be randomly allocated to the control or intervention condition on a 1:1 ratio using a secure online platform (Qualtrics, Provo, UT). At this stage, participants in both arms will complete measures of state depression, stress and overall quality of life, and perceptions of quality of care and patient safety. Final data collection will occur one week later. Participants will be emailed and provided with a link to access follow up measures of wellbeing (perceived stress, burnout, state depression, stress and overall quality of life) and perceptions of quality of care and patient safety.

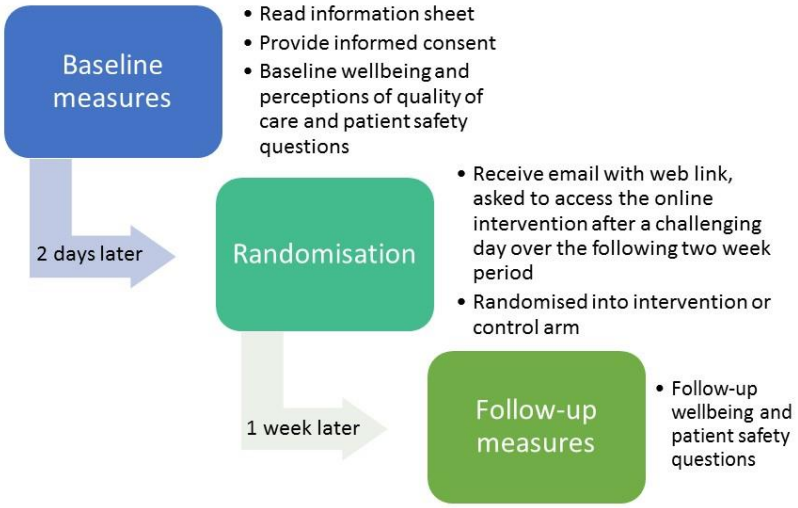


Figure 31. *The timeline of the online randomised controlled study*

Recruitment and informed consent

Participants will be recruited via social media (including Twitter) and through known nursing organisations and groups e.g., Royal College of Nursing, Nursing Times and online forums. Participants will self-select by responding to posts on these platforms via adverts. Participants will be required to read the information sheet before they are able to access the next stages of the study and provide informed consent. The recruitment phase will be ongoing until a satisfactory sample size has been achieved to adequately power the statistical analysis. Participants will receive a £20 voucher for their time on completion of the online study

Blinding

The research team and participants will be blind as to which participants are in the intervention or control arm. The online platform (Qualtrics, Provo, UT) will automatically randomly allocate participants to the intervention or control condition of the study.

Inclusion and exclusion criteria

Participants must be an RN working in an acute hospital setting in the NHS. Participants will not be excluded for any other reason.

Estimate of sample size

The randomised controlled study will be powered to detect a moderate effect size (effect size = 0.15) between the intervention and control arms with respect to the wellbeing and quality of care and patient safety outcomes. A moderate effect size was deemed appropriate as in order to achieve 95% power (with alpha= 0.05) a total

sample size of 66 (33 per arm) would be sufficient. The a priori power analysis was conducted in G*Power (Faul, Erdfelder, Lang & Buchner, 2007).

Measures and rationale for inclusion

Wellbeing

Resilience

Rationale: Previous research has suggested that SA interventions are most effective for individuals who are low in self-resources including resilience. Therefore, a measure of resilience will be included as a control variable within the initial questionnaire.

Measure: The Brief Resilience Scale (BRS; Smith et al., 2008) measures an individual's ability to cope with or recover from stress. The BRS asks participants to indicate the extent (Strongly disagree, disagree, neutral, agree and strongly agree) to which they agree to six items on a five point Likert scale. Higher scores are related to higher levels of resilience.

Burnout

Rationale: Research has demonstrated that burnout is an important issue facing the current nursing workforce in acute hospitals (Frey, Robinson, Wong & Gott, 2018; Greenglass, Burke & Fiksenbaum, 2001). Furthermore, higher levels of burnout have been associated with poorer perceptions of patient safety for RNs in an acute hospital setting (Johnson et al., 2017). One study has examined whether SA is an effective intervention for supporting levels of burnout in student doctors and found promising results (Sellen, 2015). Therefore, this randomised controlled study may

identify whether the adapted SA intervention is effective in reducing burnout and in turn positively influencing perceptions of quality of care and patient safety.

Measure: The Oldenburg Burnout Inventory (OLBI) (Demerouti, Bakker, Vardakou & Kantas, 2003) is a reliable burnout scale that includes both the negative and positive frames to assess the two core dimensions of burnout. To prevent the participants from fatigue whilst answering the measures, for this scale the two items which load the highest from each subscale will be used (Halbesleben & Demeroutie, 2005). The OLBI asks participants to indicate their level of agreement on a 4-point scale (Strongly agree, agree, disagree, strongly disagree) to four statements including: 'I always find new and interesting aspects in my work'. Higher scores on the OLBI are indicative of increased burnout.

Perceived Stress

Rationale: Previous research has demonstrated that SA interventions are effective in buffering the effect of stress (Walton et al., 2015).

Measure: The Perceived Stress Scale (PSS-4) (Cohen, Kamark & Mermeistein, 1983) is a validated short scale of the PSS (Cohen, Kamarck & Mermelstein, 1994) that has been used previously with the nursing population (Alexandre, Rabelo & Moura Rodrigues, 2019). The PSS-4 measures the degree to which situations have been appraised as stressful within the previous month by asking participants how often they have felt a certain way in relation to a five-point scale (Never, almost never, sometimes, fairly often, very often), e.g., 'In the last month, how often have you felt that you were unable to control the important things in your life?'. Higher scores represent an increased level of perceived stress.

State depression, stress and quality of life

Rationale: To measure any potential immediate effects of the SA intervention, state measures of depression, stress and quality of life were taken directly prior and post the intervention.

Measure: Visual Analogue Scales (VAS), provide a single subjective measure of a concept in that moment by asking participants to identify where they would place themselves on a ruler. These type of scales will be used to measure state depression, stress and overall quality of life. Participants will be asked: 'On the ruler please indicate to what extent are you experiencing this feeling right now?'. For depression, participants will be asked to place themselves (0-10) from not depressed at all (0), to, most depressed I have ever felt (10). Higher scores indicate a higher level of depression perceived at that time point. For stress participants, will be asked to place themselves (0-10) from not stressed at all (0), to, most stressed I have ever felt (10). Higher scores indicate a higher level of stress perceived at that time point. For quality of life, participants will be asked to place themselves (0-10) from worst quality of life possible (0), to, best quality of life possible (10). Higher scores indicate a higher level of quality of life perceived at that time point.

Perceptions of quality of care and patient safety

Rationale: Research has demonstrated a link between levels of burnout, stress and perceptions of patient safety for RNs in acute hospital settings (Halbesleben, Wakefield, Wakefield & Cooper, 2008; Johnson et al., 2017; Louch et al., 2017). Furthermore, SA theory shows that the intervention enables individuals to learn from their mistakes or errors and improve in a positive cycle (Cohen & Sherman, 2014), as well as improving problem solving abilities (Creswell, Dutcher, Klein, Harris &

Levine, 2013). A study conducted with nurses found that after the intervention, nurses performed significantly better at maths problems, which were related to prescribing medications (Tailandier-Schmidtt, Esnard & Mokounkolo, 2012). Therefore, the adapted SA intervention may improve perceptions of quality of care and patient safety through improvements to wellbeing concepts, or directly by learning from errors and improvements in problem solving.

Measures:

Perceptions of patient safety: The Safe Practitioner measure (Louch et al., 2016, 2017) was developed to capture a shift/daily level representation of whether nurses perceive they are able to practise safely, taking the conditions on shift into account. In this study the framing and wording of the measure will be amended to focus on: 'On my last shift' and 'In general'. Participants will be asked to indicate their level of agreement on a 5-point scale (Strongly agree, agree, neither, disagree, strongly disagree) to the following two statements: 'On my last shift my practice was not as safe as it could have been because of work related factors/ conditions (e.g., staffing, patient factors, teamwork)' and 'In general, my practice is not as safe as it could be because of work related factors/conditions (e.g., staffing, patient factors, teamwork)'. Higher scores on these items represented more favourable perceptions of safety.

Perceptions of quality of care: In an international, cross-sectional study of hospital staffing, organisation, and quality of care Aiken, Clarke and Sloane (2002) asked nurses to assess the quality of care on their unit. In this study the framing and wording of the measure will be amended to focus on: 'On your last shift' and 'In general'. Participants will be asked to rate the following two statements on a 4-point scale (Excellent, Good, Fair, Poor): 'In general, how would you describe the quality

of nursing care you deliver to patients on your unit?' and' 'How would you describe the quality of nursing care you delivered on your last shift?'. Higher scores indicate more positive perceptions of the quality of care they could deliver to patients.

Ethical approval

The study received ethical approval from the School of Psychology, University of Leeds on 13th March 2020 (Ref: PSC-926).

Small-scale testing

Prior to recruiting RNs who work in an acute hospital setting to participate in the randomised controlled study, small-scale testing will be carried out to check the structure of the study as a whole, and to ensure the reliability of the online systems including: usability of platform/functions and, receipt of email invites etc. The wider research team will support this effort and RNs will be invited to participate in the small-scale testing.[1]

Analysis

Data analysis will be conducted using SPSS (IBM SPSS Statistics for Windows, Version 21.0). Descriptive statistics of the characteristics of the participants and the measures will be computed. The skewness and kurtosis of the data will be measured to examine the distribution of the data. Inferential statistical analysis will be conducted to establish the effectiveness of the intervention in supporting wellbeing and improving perceptions of quality of care and patient safety. As measurements will be taken at three time points (baseline, immediately post treatment and follow

[1] One registered nurse participated in a full test of the study process and provided feedback on completion. The positive feedback received meant that no changes were required prior to the recruitment phase.

up) through the course of the trial, a mixed-effects regression model will be used to assess the changes in wellbeing and perceptions of quality of care and patient safety over time among the intervention and control arms.

Following the randomised controlled study of the intervention, participants from the intervention condition will be invited to participate in an interview to explore their experience of using the intervention.

Methods/ design (qualitative evaluation)

Primary aim: To evaluate the feasibility and acceptability of a SA intervention in supporting RN wellbeing and improving perceptions of patient care and safety.

This adapted SA intervention will be evaluated using qualitative methodology, in the form of semi-structured interviews. This evaluation will explore the implementation and utility of the intervention. The evaluation will assist with understanding the feasibility and acceptability of the intervention and provide contextual information to support understanding and explaining the randomised controlled study findings.

Setting and sample

Semi-structured telephone interviews will be conducted one week after participants in the intervention condition have completed the follow up measures. The interview schedule will focus on several areas: the utility and feasibility of the intervention, including how RNs' perceptions of how the intervention would fit within their work schedules, and the usability of the online interface. Further, the interview will examine perceptions of how the intervention influenced the different intended outcomes (wellbeing, quality of care and, patient safety perceptions). In particular, whether RNs considered the intervention had an effect on these outcomes, and

explore why they felt the intervention was successful or not for each outcome. The final topic will explore any improvements that RNs feel may be useful and how the intervention could be implemented on a larger scale.

Recruitment and informed consent

Upon completion of the online randomised controlled study, participants who are in the intervention condition will be sent an email invitation to participate in a telephone interview. The email will include the participant information sheet, and participants will be asked to contact the researcher if they are happy to take part. The interviews will be conducted using a convenience sample, whereby the individuals who approach the researcher to participate in the interview first will participate. Once data collection has been fulfilled any additional participants who offer to participate will be sent an email thanking them for their time but advising recruitment is full. Informed consent will be taken verbally and recorded separately prior to the start of the interview. Participants will consent to having the interviews audio recorded. Participants will receive a £5 voucher to thank them for their time.

Inclusion and exclusion criteria

Only participants who were allocated to the intervention condition of the trial will be eligible to participate in the interviews.

Estimate of sample size

A minimum of 15 participants (Bertaux, 1998) will be initially recruited for the telephone interviews, recruitment will continue until the researcher feels data saturation (Saunders et al., 2017) has been reached, specifically when no novel insights from further interviews are gained.

Analysis

Data analysis will be conducted following Braun and Clarke's (2006, 2019) steps for reflexive thematic analysis. All audio recordings will be transcribed verbatim, at this stage the researcher (AD) will become familiar with the data by reading and re-reading transcripts to generate initial codes and develop a preliminary coding framework. Following this, the transcripts will be coded in relation to the preliminary coding framework. The analysis will involve a mix of deductive and inductive code generation. As there are three clear areas of questioning looking at the overall feasibility and acceptability and the outcomes of the intervention there will be initial areas of coding, prior to a further exploration of the data for further codes. These codes will be gathered into potential themes. The themes will be refined by reviewing the related codes and full transcripts. The themes will be defined, and relevant example quotations will be selected.

Discussion

This study will determine the effectiveness of a tailored online SA intervention in supporting wellbeing and improving perceptions of quality of care and patient safety for RNs working in acute hospital settings by piloting the intervention within a randomised controlled study. The study will also evaluate the acceptability and feasibility of the SA intervention with RNs within interviews with participants in the SA intervention arm. The study will provide a number of novel contributions to the health and social psychology literature.

This will be the first study to establish whether an adapted SA intervention aiming to support RN wellbeing will also influence perceptions of quality of care and patient safety. This will also add to the quality and patient safety literature by demonstrating

whether it can be possible to improve perceptions of quality of care and patient safety through an intervention aiming to support RN wellbeing. The evidence generated regarding the feasibility and acceptability of using SA intervention within a healthcare setting through the randomised controlled study and evaluation of SA intervention will be extremely useful for designing a larger trial of the intervention.

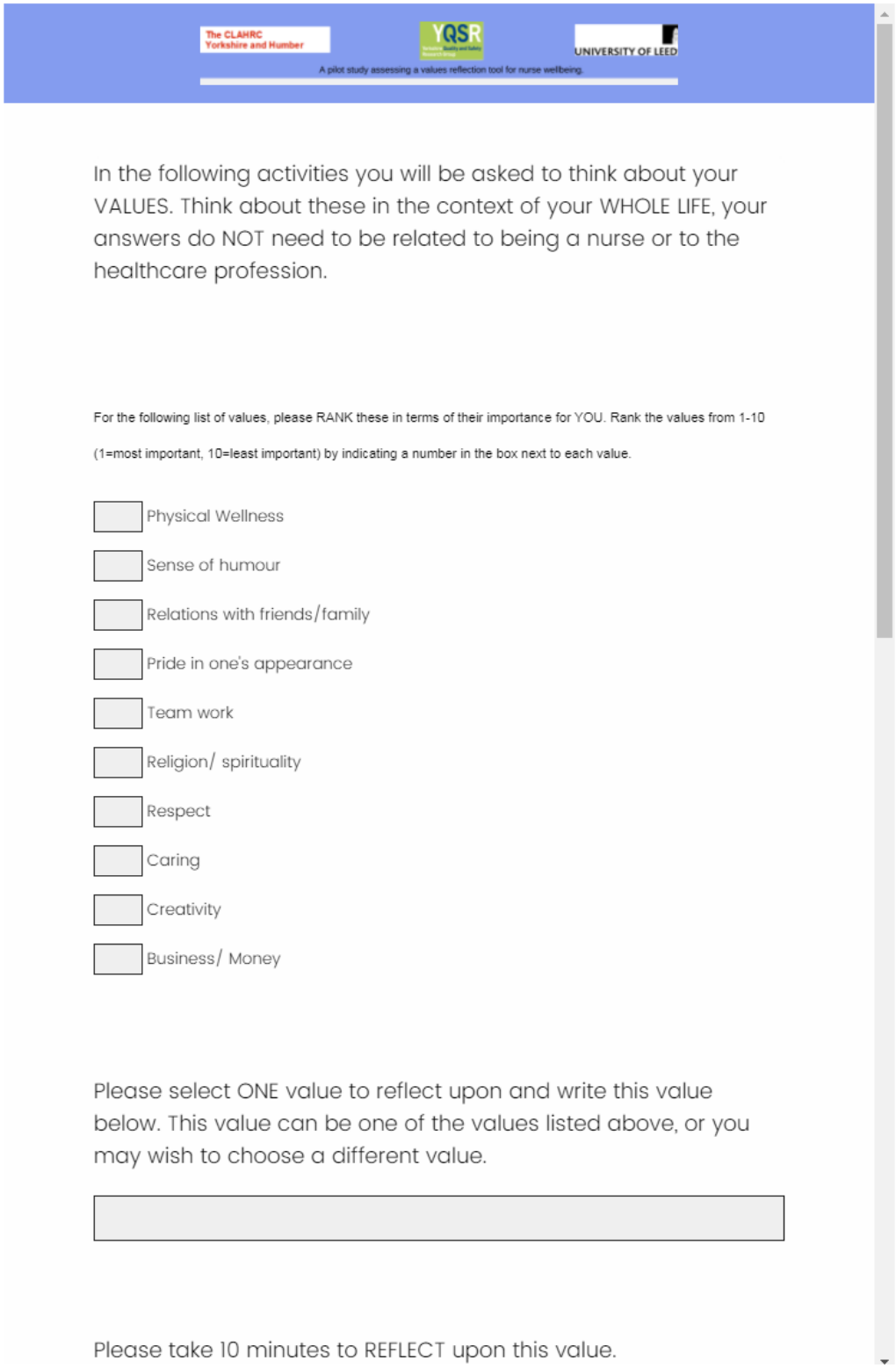
This will also contribute to the SA literature as it will be the first study to assess whether SA interventions can be delivered online to support RN wellbeing in a real world applied setting. Furthermore, the use of follow up measures will investigate whether any effect is maintained after a period of time. The findings of this study will contribute to the wider health and social psychology literature as it will establish whether a social psychology intervention (SA) is effective in supporting wider health outcomes (wellbeing). Furthermore the findings will also develop the evidence-base of SA by demonstrating whether SA interventions could offer an alternative to existing online wellbeing tools (i.e., mindfulness) in improving or supporting individuals' wellbeing at times of high stress.

The qualitative evaluation will be the first qualitative exploration of SA interventions, specifically exploring the perceptions of RNs about the intervention components and process. It will also establish whether an online self-administered intervention is feasible and acceptable to RNs and therefore present an option for further interventions of this type with RNs.

In summary, this protocol presents the planned randomised controlled study and qualitative evaluation that will be conducted with RNs to establish the effectiveness of a SA intervention in supporting wellbeing and perceptions of quality of care and patient safety, and information pertaining to context, and feasibility and acceptability.

This study has the potential to generate important evidence for RN wellbeing, quality of care and patient safety, as well as contributions to the broader SA literature.

Appendix F - A screen shot of the planned SA intervention task for nurses



Appendix G - The neutral article presented in the control condition for nurses

Sometimes, considering how other countries can deliver healthcare can affect the way we view our own system.

Please read the following article which describes how hospitals are managed and run in the US

Organizational Structure of Hospitals

by Eric Feigenbaum

With lives in their hands, hospitals have to function very precisely, executing high-quality services every hour of every day. Organizations that have this sort of requirement usually take on a vertical organizational structure – having many layers of management, with most of the organization's staff working in very specific, narrow, low-authority roles. The numerous layers of management are designed to make sure that no one person can throw the system off too much. This structure also ensures that tasks are being done exactly and correctly.

Boards of Directors

Hospitals are corporations and are therefore overseen by boards of directors. Nonprofit hospitals have boards that often consist of influential members of health care and local communities. Many hospitals were founded by a religious group and maintain religious affiliation. These hospitals often include clergy and congregation leadership in their boards.

Educationally affiliated hospitals are often overseen by universities. Therefore, university boards of trustees or regents may double as the board of directors for a

hospital. Multi-hospital systems, particularly for-profit ones, usually have one board of directors overseeing numerous facilities.

Executives Oversee Day-to-Day Operations

Boards of directors leave it to their executives to see that their decisions are carried out and that the day-to-day operations of the hospital are performed successfully. The chief executive officer is the top boss responsible for everything that goes on in a hospital. However, hospitals usually have chief nursing officers, chief medical officers, chief information officers, chief financial officers and sometimes chief operating officers, who also carry a lot of weight. This group of top executives forms the central core management.

Hospital Department Administrators

The top managers of each hospital department report to the core management. These people are responsible for one type of medical or operational service. Most departments are areas of patient care such as orthopedics, labour and delivery or the emergency department. There also are non-patient-care departments such as food services and billing.

Clinical departments usually have large staffs, significant supply and purchasing needs and numerous regulations they must comply with. Therefore, administrators often have assistant administrators who help them oversee their multifaceted operations.

Patient Care Managers

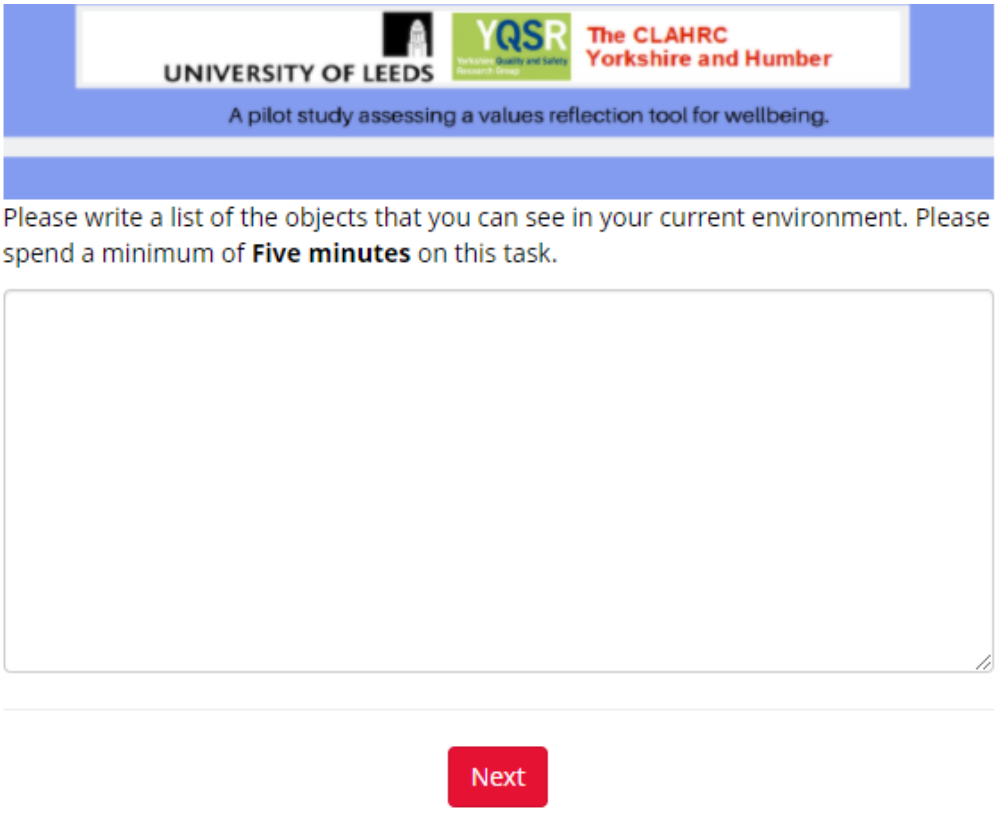
Within a department, there are the people who directly oversee patient care. Nurse managers, directors of rehabilitation services and supervising physicians have

people under them who give hands-on patient care. This level of management ensures that the staff members are acting appropriately, giving the best care, addressing all of their duties, complying with hospital and legal requirements and, for nurses and allied health care workers, following physician orders.

When something goes wrong with a patient or a clinician, these people handle the problem. They also usually oversee schedules and basic human resource functions for their employees.

Patient Service Providers

Most of a hospital is composed of service-providing staff. From nurses and physical therapists to line cooks and laundry workers, it takes a lot of hands-on staff to make everything happen. These people have very specific job descriptions and duties, which hospitals need them to perform very well to ensure the safety and health of patients.

For further information on this article please contact the researcher Alice Dunning at ps13ad@leeds.ac.uk

Appendix H - The task provided for participants in the control condition in Study 3