

EFFECTS OF PRIMING PERSONAL VALUES ON EMPATHIC BEHAVIOUR OF NHS STAFF

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Declarations

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Abstract

Introduction: Individual values have been widely researched within psychology, but their application to empathy has been largely neglected. The Schwartz model of values (Schwartz, 2012) has been demonstrated as a robust construct for the measuring of value priorities and the priming of values (Maio, 2001).

Aims: The current research aimed to investigate the relationships between values and empathy; burnout was also assessed as a covariate within this relationship. This study also investigated whether individuals primed with empathy related values (self-transcendence) showed more empathy than participants who were primed for values opposed to empathy (self enhancement).

Methods: A between-subjects experimental design was employed, with 87 participants (self-transcendence values prime group, n=29; self enhancement values prime group, n=29; and control group, n=29). Descriptive statistics and inferential analyses were used to test the hypotheses. All participants completed a measure of values (PVQ-RR), a measure of burnout (MBI) and a test of empathy (MET-core-2).

Results: Significant associations were found between all the variables. Self-transcendence values were positively correlated with emotional empathy and negatively correlated with burnout. Burnout was negatively correlated to emotional empathy and was shown to have a mediating effect on the relationship between values and empathy. Priming values was shown to have one significant effect; participants who reported lower levels of burnout and were primed for self-transcendence values displayed more emotional empathy compared with participants with high levels of burnout who were primed for self enhancement values.

Conclusions: This study provides empirical support for considering how empathy is related to and can be affected by the priming of values. It also highlights the influence of burnout within this relationship. The results are discussed with reference to the existing literature and clinical implications are outlined. The strengths and limitations of the research and ideas for future research are presented.

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Chapter 1 - Introduction

1.1 Thesis overview

The current study investigated the effects of priming personal values on empathic behaviour of mental health staff and the interaction between values, empathy and burnout.

Chapter one introduces individual human values and their role as transituational motivators for behaviour (Schwartz, 1992). It outlines the Schwartz model of individual values (Schwartz, 1992; Schwartz, 1994; Schwartz & Boehnke, 2004; Cieciuch & Schwartz, 2012; Schwartz, 2012) as a way of measuring values and as a construct that depicts their relation to each other. It goes on to examine values within healthcare, focussing on the constructs of self-transcendence and self enhancement and their relation to empathy. It then outlines ways of activating values through the method of priming. Following this, chapter one defines empathy, its importance to healthcare outcomes and reaffirms its relation to values. It then introduces the possibility of priming values in relation to empathy. Burnout is then introduced as a related phenomenon. A systematic review is presented that looks at the evidence base for the relationship between empathy and burnout to demonstrate the applicability of including burnout within the design of the current study. Chapter one concludes with an outline of the current study and the hypotheses.

Chapter two outlines the methods used within this study, introducing the procedures used to complete the research, including what measures were used and how the sample was recruited.

Chapter three reports the results gathered by this study. It presents descriptive results for the participants' demographics and the measures first, followed by the results of the statistical analyses in relation to the hypotheses.

Finally, chapter four discusses the results in relation to the existing literature, and outlines the clinical and research implications of this study's findings. Strengths and limitations for the current study are then presented along with suggestions for future research.

1.2 Introduction to study

Values are central motivating factors that influence the way a person appraises and acts in a situation (Rokeach, 1973). The Schwartz (1992; Schwartz, 1994; Schwartz & Boehnke, 2004; Cieciuch & Schwartz, 2012; Schwartz, 2012) values model provides a well validated approach to examining values in relation to each other. Priming methods

are methods that have been shown to activate values, increasing the motivations towards behaviours that are in agreement to the principles behind the values. (Maio *et al.* 2009a; Verplanken & Holland, 2002; Maio *et al.* 2009b).

This research aims to apply the methods of priming values to frontline mental health workers. It aims to investigate if priming values that are aligned with compassionate and empathetic care, will alter the level of empathy displayed in a subsequent task based assessment of empathy.

This chapter will introduce the concepts of values, outlining the Schwartz (2012) model of values, and demonstrating how values are applicable to healthcare practice. Methods of measuring values will be discussed and the application of priming methods to value congruent behaviour will be outlined. This process of activating/priming values will be put forward as a methodology for studying the link between values and behaviours in relation to empathy.

The concept of empathy will then be outlined, taking account of the two constructs of cognitive and emotional empathy. The importance of empathy to good clinical outcome will be discussed, alongside its relationship to certain values within the proposed model. The proposed method of priming these related values and measuring an empathy related task is outlined. The Multifaceted Empathy Test (Dziobek *et al.* 2008) is outlined as a reliable and valid measure of empathy.

This chapter then introduces burnout as a related variable. Burnout is defined and its theoretical underpinnings are related to both values and empathy. Evidence for the interactions of empathy and burnout are discussed with particular reference to the three hypotheses suggested by Zenasni *et al.* (2012): Hypothesis one proposed that burnout is an empathy 'killer'; Hypothesis two posits that empathy creates burnout; Hypothesis three states that empathy prevents burnout. A systematic review will then be reported, looking at the evidence of the relationship between empathy and burnout within healthcare settings and discussing the findings in terms of these three hypotheses.

The chapter will then conclude with outlining the research questions and the nine hypotheses of the current study.

1.3 Human Values

1.3.1 Definitions

Values are important aspects of cultural and individual organisation and have been described as intrinsic motivators that can help define an individual's attitudes/opinions

and can predict an individual's behaviours in certain situations (Rokeach, 1973; Schwartz, 1997). They have been defined as 'guiding principles' in peoples' lives (Rokeach, 1973). Values represent desirable goals that exist across situations (Schwartz, 1992) and are among people's most important evaluative beliefs (Feather, 1990; Seligman & Katz, 1996; Schwartz, 2012).

Values are thought to convey the aspects of life that a person holds as most important and are drawn on when individuals consider personal or social issues. This is succinctly summarised by Pakizeh *et al.* (2007):

"People rely on their values by using them implicitly or explicitly to determine their future directions and to justify their past actions, compare themselves with others, praise or blame themselves or others, take certain actions over others and to rationalise their attitudes and behaviour" (p.458).

Rokeach (1973; 1979) argued that values are ordered into priorities, or hierarchies, for individuals, with the location of a value within the hierarchy determining how a person perceives and behaves across situations. This hierarchy is said to develop as experiences that place values in conflict force individuals to prioritize one value over another. There are many factors that are said to impact upon the development of values, which can include personal experiences (Inglehart, 1997), traits, temperament, and culture (Meglino & Ravlin, 1998), socialization (Schwartz, 1997), and individual need (Maslow, 1954).

A number of different models of values have been posited. Early models, such as the typology of 'stable preferences' posited by Allport *et al.* (1951), failed to differentiate how values may develop and grow over time (Iscoe & Lucier, 1953). The model by Rokeach (1973) suggested a ranked hierarchy that consisted of 36 values but was not able to attend to how values were related to each other. The model of values posited by Schwartz (1992) attempted to overcome these issues with the previous values models by providing a circular construct of values that framed values in relation to each other. This model will now be discussed in detail below.

1.3.2 Schwartz model of values

Schwartz (1992) proposed a universal set of values that applies across cultures and consisted of ten individual values: Self-direction, Stimulation, Hedonism, Achievement, Power, Security, Tradition, Conformity, Benevolence, and Universalism.

These values were derived from three universal requirements of the human condition: 1) needs of individuals as biological organisms, 2) requisites of coordinated social interaction, and 3) survival and welfare needs of groups. This values structure was developed through extensive data gathered from 67 separate countries (Schwartz, 1992; Schwartz, 2012). The data consisted of value items and priorities that were then organised into a circular structure through multidimensional scaling to produce a set of values that are universal in nature (Schwartz, 1992; 1994; Schwartz & Savig, 1995). Schwartz proposed that certain values would be held as more important to some people than others, and that the values were conceptually organised into a continuum based on their motivational drives. This allowed for values to be seen in a comparative light, with the relationships between the different values and value priorities being made explicit. The organisation of the Schwartz model for individual values can help to explain individual decision making, attitudes and behaviour, as some values are more closely linked to others with regards to motivational goals. The closer two values are in their position around the circular framework, the more similar the underlying motivations. The more distant from each other the values are, the more conflicting the underlying motivations. Schwartz (1992) gives an example of this, outlining how conformity values may be compatible and closely linked to the pursuit of security values, as seeking to fit in and conform to one's social group is likely to be closely related to maintaining the stability of the social group and feeling safe. In contrast to this, values that are opposing each other within the Schwartz framework are said to be in conflict, an example provided details how self-direction values may be in opposition to conformity values as seeking to be creative and pursuing independence may obstruct actions aimed at following social expectations and norms (Schwartz, 1992; Maio et al, 2009a). Various researchers have commented positively on the theoretical and empirical grounding of the Schwartz model (Silfver *et al.* 2008; Parks & Guay, 2009; Maio *et al.* 2009a).

More recently, Schwartz (2012) revised the circular structure of values, adding 'Face' and 'Humility'. The individual values' conceptual definitions can be seen in Table 1.1. The complete model for Schwartz (2012) values can be seen in Figure 1-1.

Table 1-1 - Conceptual definitions of 19 basic Schwartz values

Value	Defining motivational goal
Self-direction – thought	Freedom to cultivate one’s own ideas and abilities
Self-direction- action	Freedom to determine one’s own actions
Stimulation	Excitement, novelty, and change
Hedonism	Pleasure and sensuous gratification
Achievement	Success according to social standards, for oneself
Power –dominance	Power through exercising control over people
Power – resources	Security and power through maintaining one’s public image and avoiding humiliation
Face	Security and power through maintaining one’s public image and avoiding humiliation
Security – personal	Safety in one’s immediate environment
Security – societal	Safety and stability in the wider society
Tradition	Maintaining and preserving cultural, family, or religious traditions
Conformity – rules	Compliance with rules, laws, and formal obligations
Conformity – interpersonal	Avoidance of upsetting or harming other people
Humility	Recognizing one’s insignificance in the larger scheme of things
Benevolence – dependability	Being a reliable and trustworthy member of the in group
Benevolence – caring	Devotion to the welfare of in group members
Universalism – concern	Commitment to equality, justice, and protection for all people
Universalism – nature	Preservation of the natural environment
Universalism – tolerance	Acceptance and understanding of those who are different from oneself

Figure 1-1 - Schwartz (2012) updated circle structure of values



The nature of these values as outlined by Schwartz (2012) are summarised here:

1. Values are linked to affect. When values are activated, people can experience positive mood/feelings when their behaviour is in line with their values and negative when their behaviour is against the value.
2. Values are desirable goals that motivate action/behaviour.
3. Values are universal across setting and situation, distinct from attitudes/norms that are relatable to specific actions/objects/situations.
4. Values serve as standards or criteria. In this role they guide the choice of action; actions are evaluated upon how they act in accord or against values.
5. Values are ordered relative to each other, ranked by importance.
6. This relative importance of values dictates which kind of action the individual may take in a given situation.

Further to individual value priorities, Schwartz proposes that value motivations can be organized across two separate dimensions, or axes; one axis concerned with motivations for behaviours related to being anxiety-free or anxiety avoidant, and one axis delineating the personal or social focus of the value motivations (see Figure 1-1).

The *anxiety* axis suggests that half of the Schwartz values are aligned with motivations and behaviours that are to do with maintaining social order and self-protection are *anxiety avoidance* motivations. The opposing half of the Schwartz values are aligned

with motivations and behaviours that are to do with growth and are associated with *anxiety-free* or growth motivations.

The second axis suggest that values can be organised into motivations and behaviours that are focussed to a *personal level*, and those opposing with a *social focus*, this organises the motivations to develop as an individual against the motivations to fit in with society and look after others. Supporting evidence for the structure of values has been found in multiple studies (Schwartz, 1992; 1994; Schwartz & Boehnke, 2004; Vecchione *et al.* 2009; Bilsky *et al.* 2011; Cieciuch & Schwartz, 2012).

As can be seen from Figure 1.1 and further to these axes, 4 'higher order' quadrants for organising the individual 19 values were outlined. These were "Self-transcendence", "Self-Enhancement", "Openness to change", and "Conservation". *Self-transcendence* contains the benevolence and universalism values and is concerned with understanding, accepting, and showing concern for the welfare of all human beings. This is organised into the social focus, and anxiety-free/growth axes. Its opposing quadrant, *self enhancement*, contains the power and achievement values and is concerned with controlling threats to one's self. This is organised into the personal focused axis, and the self-protection/anxiety avoidant axis. *Openness to change*, contains values that promote self-direction and stimulation and is organised by the anxiety-free, personal focus axes. Lastly, *Conservation* includes values that promote security, tradition, and conformity values and is organised within the social focus and self-protection, anxiety avoidant axes.

Providing evidence for the opposing states of anxiety free and anxiety avoidant quadrants, Schwartz *et al.* (2004) found significant negative correlations between anxieties (including concern for personal health, safety, success, and finances) with the anxiety free higher order value quadrants of self-transcendence and openness, and significant positive correlations with self enhancement values. Further to this, the European Social Survey (ESS) drew samples from 24 countries and looked at correlations between Schwartz' values and questions related to anxiety, such as "how happy are you?", "how satisfied are you with life as a whole?" and "how often have you felt cheerful and in good spirits in the last two weeks?" (Bilsky *et al.* 2011). Positive correlations were seen with all self-transcendence and openness values and negatively with all conservation and self-enhancement values. The findings suggest that individuals pursuing self enhancement and conservation values experience less satisfaction and happiness in their lives than those that are motivated by self-transcendence and openness values.

Schwartz argues that the updated model provides greater precision of prediction and explanation of values and their relation than the original theory (Schwartz *et al.* 2012). Further to this, the updated 19 value model is congruent with the previous 10 values model, as the 19 values can be collapsed into the original 10 (Schwarz *et al.* 2012). The current study utilised this updated model to represent human values, in particular the opposing higher order quadrants of self-transcendence and self enhancement.

1.3.3 Measuring values

There have been a number of methods used to measure values. The first attempt to explicitly measure values utilised a ranking approach, where participants are asked to order values from least to most important. This method was outlined by Rokeach (1973) with the Rokeach Value Survey (RVS), who asked participants to rank 36 values, split into two groups of 18, in order of importance. Ranking values is considered ecologically valid, as it mimics the everyday choice between motivating values that participants may experience in different situations. However, the use of ranking measurements both limits the use of certain statistical analyses, and has been reported as difficult to administer outside of laboratory conditions (Lee *et al.* 2008).

Other methods looking at values use a Likert response questionnaire. Two measures assessing individual values in this way, the Schwartz Value Survey (SVS), and the Portrait Values Questionnaire (PVQ), have been used across 82 countries around the world, submitting hundreds of samples of data, and have provided validity to the structure of human values suggested by Schwartz (Schwartz, 2012; Schwartz *et al.* 2012).

Within the SVS, participants are presented with the motivational goals of each value from the original ten value model. They are asked to rate on a scale from 1-9 the importance of the value as a guiding principle in their life, from 'of extreme importance' to 'opposed to my values'. Using both multi-dimensional scaling and confirmatory factor analysis methods, the SVS has been found to be a valid measure in terms of its convergent and discriminant validity (Schwartz & Boehnke, 2004).

The Portrait Values Questionnaire has had three iterations; the PVQ 40, the PVQ 21, and the more recent PVQ-RR. The PVQ 40 (Schwartz *et al.* 2001) was developed to measure the ten basic values of the original Schwartz model of human values (Schwartz, 1992). The PVQ 21 is a shorter version of the PVQ 40, designed specifically for use in the European Social Survey (ESS) aimed at assessing the ten human values within the original Schwartz model. The PVQ-RR (Schwartz *et al.* 2012) was developed

in order to expand the original PVQ to incorporate the nineteen values inherent in Schwartz' updated model of human values (Schwartz, 2012).

The PVQ-RR questionnaire has been based upon the updated Schwartz model of values, and is most closely related to the higher order quadrants that this study is concerned with. This study utilised this measure as it will allow the findings to be interpreted directly to the theoretical model. Further details about the PVQ-RR, including reliability and validity, alongside scoring and analysis methods can be found in Section 2.6.2.

1.3.4 Values and healthcare

Values are associated with healthcare in a number of ways. They have been shown to be intrinsic to certain psychological therapies, such as Acceptance and Commitment Therapy (Hayes, 2004), Narrative Therapy (White & Epston, 1990), and Person Centred Counselling (Rogers, 1951). Within these therapies, living in congruence with ones values is seen as important in promoting good mental health (Hayes *et al.* 2003). 'Valued living' has been seen to be associated with various outcomes; decreased psychological distress, increased psychological adjustment, and a better quality of life (Wilson & Murrell, 2004).

Values have also been seen to be motivators towards appraisal and behaviour across situations. Within healthcare services, it has been suggested that the congruence of values between the behaviours needed to be undertaken within healthcare roles and those held as important to the staff is an important indicator of the quality of service provided (Fulford, 2002).

Recommendations within the literature all highlight the importance of values for the wellbeing of staff members, with particular reference to stress, and the quality of the care provided (Cornwell & Goodrich, 2009). In 2014, an international charter for human values in healthcare was developed, as a way of promoting the core values of Compassion, Respect for Persons, Commitment to Integrity and Ethical Practice, Commitment to Excellence, and Justice in Healthcare (Rider *et al.* 2014). Rider and colleagues argue that values are fundamental to compassionate, ethical, and safe relationship-centred care. However, these papers and recommendations do not provide a robust, theoretical framework for interventions that promote said values.

The values that underpin healthcare have not been researched in line with the Schwartz (2012) model of values previously. Intuitively, the values most associated

with the roles and behaviours carried out by staff are those concerned with a social focus, as they are helping others, and those that are motivated towards being anxiety free. This would suggest that the quadrant of self-transcendence would be most applicable to healthcare, and conversely the quadrant of self enhancement would be opposed to the values inherent to healthcare roles. Further to this, the motivational goals for self-transcendence promote attitudes and behaviours that are closely related to healthcare; 'Being a reliable and trustworthy member of the in group', 'Devotion to the welfare of in group members', 'Commitment to equality, justice, and protection for all people', and 'Acceptance and understanding of those who are different from oneself'. One aspect of healthcare that echoes the motivations inherent to these values is empathy, see Section 1.4. There have not been any studies that have looked at the relationship between self-transcendence and self enhancement values, and empathy. Therefore, the current study will incorporate an examination of the relationships between these factors.

1.3.5 Priming values

Values have been shown to be motivating factors that influence a person's choice of behaviour. However, there is conflicting evidence about whether values predict intentional behaviour. Moderate sized correlations between values and behaviours have been found (Bardi & Schwartz, 2003; Schwartz, 1996) but when assessing values as predictors for behaviours, results have been equivocal (Kristiansen & Hotte, 1996).

Subsequent studies looked to investigate the mechanisms by which values may affect behaviour (e.g. Maio *et al.* 2001; Karremans, 2007; Maio, 2009a; Maio, 2009b). The key principle for values is that they act as motivators for how we choose to behave (Schwartz, 1992) and studies started to look at how working with certain values promoted behaviour in line with that value (Karremans, 2007; Maio & Olson, 1995). Within the literature, the evidence from this investigation into affecting behaviour through values suggests that behaviour change can be brought about by activating the value through a 'priming' procedure, where the value is brought into the individual's mind (Verplanken & Holland, 2002; Parzuchowki & Wojciszke, 2014).

Maio (2009a) further developed the motivational aspect of values by investigating how priming a value increases the likelihood of performing a behaviour that supports the same motivation, whilst decreasing behaviour that supports an opposing motivation. Maio (2009a) primed the Schwartz model's *achievement* and *benevolence* values, and looked at the impact on behaviour. Those participants who were primed with the achievement values showed more achievement behaviour than participants primed

with benevolence value. Those primed with benevolence values showed more benevolent behaviours than those primed with the achievement value. This study has shown that priming a set of values can increase the likelihood that an individual will subsequently act in accordance with that value.

The majority of studies that prime values utilise a method that requires participants to provide reasons as to why those values, or behaviours that are intrinsic to values, are important (Maio *et al.* 2009b; Karremans, 2007; Maio *et al.* 2001). This method was seen to engender a higher level of priming effect compared with other methods such as scrambled word tasks (Maio *et al.* (2001). Explicitly providing reasons for the importance of values or value congruent behaviour provided a more robust method of priming, with greater effects, than the more implicit tasks of assembling scrambled words of values. As with all priming studies, it was ensured that the participants were not aware of the reasons for the priming method. The current study will utilize this method of priming.

Empirical studies have been conducted that look at the effect priming values can have upon behaviour, but have not looked into the effect on inter-personal interactions that are relevant to clinical settings, particularly empathy.

1.3.6 Summary of values section

Values have been defined as motivators that influence a person's appraisal and conduction of behaviour. The Schwartz (2012) model of values has been shown to be a robust construct to organise values and value priorities. With regards to measuring values, the Portrait Values Questionnaire has been shown to be most applicable to the updated Schwartz values model and is a reliable and valid measure. Values that are closely related to healthcare have been discussed and empathy has been suggested as an aspect of healthcare that closely echoes the motivational goals of the self-transcendence quadrant. Methods of activating values through priming have been shown to effect behaviour change, with the priming method of explicitly listing reasons for the importance of values and value congruent behaviour being shown to produce greater effects than other methods.

By aiming to investigate methods to increase levels of empathy through the priming of values, the clinical relevance to this study encompasses methods to improve staff empathy by priming participants with self-transcendence values.

1.4 Empathy

When examining the construct of Schwartz (2012) values and healthcare provision, similarities can be found between the higher order quadrant of self-transcendence and empathy. Therefore, when priming these values, along with the opposing value quadrant of self enhancement for comparison, this study will focus on empathy as the healthcare related behaviour that may be influenced.

1.4.1 Definitions

Empathy was originally coined as a term at the end of the 19th century to indicate the projection of human feelings on the natural world (Ferri *et al.* 2015). The psychoanalyst Kohut called empathy 'vicarious introspection', arguing that any positive therapeutic relationship is based upon the two modalities of empathy (vicarious introspection) and self-introspection (Pigman, 1995). Several concepts of empathy exist within the literature (Hojat *et al.* 2009) but it can be generally defined as the ability to "see the world as others see it, be non-judgmental, understand the feelings of others, and communicate the understanding" (Kaplan *et al.* 1989, p.111). Many studies advocate a multi-modal construct of empathy, arguing that empathy consists of more than one aspect or process (Davis, 1996). Within healthcare, Squier (1990) conducted a review of existing literature and developed a multi-dimensional model for empathy, incorporating both emotional and cognitive constructs. They argue that the cognitive component of empathy helps to improve the full understanding of a patients' problems, and the emotional component is a significant predictor of stress reduction and increased patient satisfaction.

Cognitive empathy has been defined as "the intellectual or imaginative apprehension of another's condition or state of mind" (Hogan, 1969, p.308). This conceptualises empathy as encompassing another person perspective in order to understand that person's lived experience. Hynes *et al.* (2006) conducted functional magnetic resonance imaging on healthy participants while asking their participants to read text scenarios and imagine what people in the scenario were feeling. The resonance imaging showed activation in the medial orbital frontal lobes, an area of the brain known to be damaged in people with empathy dysfunction (Eslinger *et al.* 1998, in Hynes *et al.* 2006). They conclude that cognitive empathy contains a cognitive recognition and understanding of another person's feelings.

Emotional empathy has been defined as a vicarious affective response to an individual's emotion (Feshbach & Roe, 1968, in Ferris *et al.* 2015). Greenson (1960)

posits that showing empathy “means to share, to experience the feelings of another person” (p.418). These definitions seem to describe a temporary sharing of affect between two persons. Within a healthcare context, this is differentiated from sympathy, “feeling with the patient or feeling similar emotions that the patient feels” (Mehrabian & Epstein, 1972, p. 1563), as empathy still allows for objective diagnosis and treatment (Hojat *et al.* 2002). Reviews of the literature emphasise the importance of emotional engagement between the healthcare practitioner and patient (Morse *et al.* 1992; Stepien & Baernstein, 2006).

The current study will incorporate an assessment of both cognitive and emotional empathy within its design.

1.4.2 Empathy in Healthcare

Empathy is central to many clinical guidelines and recommendations for improving patient-staff relations and has been seen to have positive effects on patient outcomes (Firth-Cozens & Cornwell, 2009). The importance of doctor-patient relationship in clinical outcomes has been well founded (Hawkes, 2015). One patient survey of 800 recently hospitalised patients and 510 physicians reported that only 53% of patients and 58% of physicians felt that the health care system provided compassionate care (Lown *et al.* 2011). The Andrew’s report continually states that compassionate care within the NHS needs to be focussed on and lists staff-patient relationship as an important factor within this (Andrews & Butler, 2014).

Frameworks for improving compassionate care within healthcare suggest improving communication with patients and between team members, educating trainee staff, supporting services and widening patient participation (Department of Health, 2013). One of the central elements of compassion, and compassionate care, is empathy (Firth-Cozens & Cornwell, 2009). In fact, in defining compassion, empathy is the primary aspect discussed. As Lowenstein (2008) states compassion includes “empathy, respect, a recognition of the uniqueness of another individual, and the willingness to enter into a relationship in which not only the knowledge but the intuitions, strengths, and emotions of both the patient and the physician can be fully engaged” (p. 13). Further to this, one of the most widely used self-report scales for empathy, the Jefferson Scale of Physician Empathy, includes a subscale entitled ‘compassionate care’ (Fields *et al.* 2011).

The importance of engaging on an emotional level with service users is expounded by Morse *et al.* (1992) and Stepien and Baernstein (2006), who argue that without some

emotional engagement, the patient would not perceive the healthcare staff as genuinely empathic. Further to empathy being linked to compassionate care service delivery considerations, Carver and Hughes (1990) argue that it is paramount to patient satisfaction. Conducting a comprehensive review of empathy within the helping professions, Carver and Hughes (1990) argue that empathy is crucial to the ability of nursing staff to consistently provide care in ever changing healthcare services.

Medical and nursing colleges seek to teach students about empathy and compassion in various ways and often as part of psycho-social courses or ethics. However, feedback gathered from student populations report that these subjects are somewhat considered as irrelevant, when compared to the more academic and clinically focussed aspects of training (Wear & Zarconi, 2008). To that end it is recommended that different methods to improve empathy are investigated (Firth-Cozens & Cornwell, 2009).

No current research could be sourced that has looked at the mechanism of priming values to improve empathy in healthcare populations.

1.4.3 Measuring empathy

Hogan (1969) states that although empathy is inherently difficult to quantify into a valid and dependable measure, the “theoretical importance of the concept requires that continuing efforts be made.” (p.308). Most measures of empathy take the form of self-report, and ask questions inclusive of the multiple aspects of cognitive and emotional empathy. Examples of these are the Interpersonal Reactivity Index (IRI; Davis, 1980), the Jefferson Scale of Physician Empathy (JSPE; Hojat et al. 2002), the Toronto Empathy Questionnaire (TEQ; Spreng et al. 2009), the Mehrabian Emotional Empathy Scale (MEES; Mehrabian, 1994), the Balanced Emotional Empathy Scale (BEES; Mehrabian, 1996), and the Empathy Construct Rating Scale (ECRS; La Monica, 1981). These measures are discussed with regards to their content, validity and robustness in Section 1.6.4.4.1.

Methods other than self-report have also been developed to measure empathy. The Multifaceted Empathy Test (MET; Dziobek *et al.* 2008) is a naturalistic measure of empathy that looks directly at the 2 aspects of the empathy construct, cognitive and emotional. As empathy is thought to be the ability to perceive and share in experiencing another person’s emotional state, the MET seeks to measure these constructs through the presentation of photorealistic stimuli of people experiencing emotions. For each photo, participants are asked to identify what emotion the person is feeling, and to rate how much they empathize with the person (this is clearly stated as

how much the participant is experiencing the emotion of the person photographed). Further information on the MET can be seen in Section 2.6.4, including validity and reliability information. The MET tests provide a direct assessment of the components of both cognitive and emotional empathy, as defined above. Cognitive empathy is assessed by a direct task aimed at inferring emotional states of others; an equivalent definition of cognitive empathy as described by Hynes *et al.* (2006). Emotional empathy is assessed through participants reporting how being exposed to a photo of someone experiencing an emotion makes them experience that emotion. This is a rating of the direct emotional empathy definitions listed above (Mehrabian & Epstein, 1972).

1.4.4 Relationship between values and empathy

The definitions of both cognitive and emotional empathy have been outlined above and can be examined with reference to the Schwartz values model (Schwartz, 2012). The idea that empathy in the context of healthcare is an ability to identify and share in other people's emotions in order to support them is closely associated with the values within the motivational goal for self-transcendence; 'Acceptance and understanding of those who are different from oneself'. Further to this, the empathetic interactions within healthcare are aimed at providing support to those in needs and, as such, are examples of displayed 'Devotion to the welfare of group members', another motivational goal inherent to self-transcendence values. The opposing quadrant, self enhancement, consists of values that appear to be in opposition to the definitions of empathy; 'Success according to social standards, for oneself' and 'Power through exercising control over people'. As values have been defined as guiding principles that inform how a person thinks and acts, it is viable to suggest that in healthcare, values that look towards understanding and helping other people are congruent to empathy.

The relationship between values and empathy within healthcare has been outlined within the literature. The inter-relationships of values and empathy were discussed in detail by Hawkes & Egbert (1954) who found that undergraduate students that reported higher levels of empathy were found to have the highest value priorities in areas that included group focussed behaviours, as opposed to self-focused behaviours. Their findings are in agreement with the current studies idea that self-transcendence (socially focused) values would be associated with higher levels of empathy than self enhancement (personal focused) values. This is representative of the higher value axes of social or personal focused values within the Schwartz (2012) model.

Examining the constructs of empathy and values within the framework of moral reasoning, Myyry & Helkama (2001) examined the relationship between empathy and values with reference to Schwartz (1992) values model. They argued that the Schwartz values model forms an integrated system "which is manifested in a sinusoid pattern of

correlations” (pp. 218; Myyry *et al.* 2010) and found, utilising hierarchical regression analysis, that empathy showed the highest (positive) correlation with self transcendence values and the lowest (negative) with self enhancement values. The remaining correlations for empathy increased and decreased systematically across the Schwartz values model between these opposing higher order values.

This relationship has been further outlined by Silfver *et al.* (2008) who suggested that empathic concern as well as perspective taking, which comprises of the emotional and cognitive components of empathy, are positively related to self-transcendence values and negatively to self enhancement values. They argued that as values are guiding principles in life, it is these value priorities that are referenced when an individual is deciding how to act in a given situation. Individuals who hold a higher value priority to self-transcendence values are more likely to display empathic behaviour than individuals that hold a higher value priority to self enhancement values.

This relationship between empathy and Schwartz values was further highlighted by Balliet *et al.* (2013), who showed that empathy was predicted to have the strongest positive relationship with benevolence values (part of the self-transcendence quadrant) and the strongest negative relationship with power values (part of the self enhancement quadrant). They conclude that benevolence values are based on motivations to maintain and promote the welfare of an individual’s group members, those in frequent contact, of which empathy is an important central aspect. They suggest that individuals who highly prioritise the self-transcendence values, such as benevolence, may subsequently have “consistent cognitive and affective responses to other group members” (pp. 277) that include empathetic responses (Balliet *et al.* 2013). To increase our understanding of the relationship between values and empathy, this study will include correlational analyses of these variables.

1.4.5 Summary of empathy section

Empathy has been defined as the ability to understand and share the emotions of others. It has been delineated into the two constructs of cognitive empathy, perceiving and identifying what emotions others are experiencing, and emotional empathy, the perception and experience of another’s emotion in oneself. The importance of empathy to compassionate care and good clinical outcomes within healthcare services has been outlined. The MET has been identified as a concise and valid measure of both cognitive and emotional empathy.

It is worth noting that many researchers have noticed the effect of another variable on empathy within healthcare. Burnout (Maslach, 1983) has been associated with empathy in a number of research studies. Because burnout has been shown to be related to empathy, it was included in the design of the current study in order that it

could be quantified and accounted for in the results. Specifically, this will entail the assessment of the relationships between burnout and values, and burnout and empathy. Further to this, statistical analyses will be carried out to assess for any mediating role burnout could be having in relation to values and empathy. Further details of this are discussed in Section 3.4. Burnout will now be outlined with reference to its definition, how it is measured, and its relation to empathy within healthcare.

1.5 Burnout

1.5.1 Definitions

Burnout is a psychological experience that manifests itself in the individual, particularly those individuals who are involved in difficult person-to-person relationships as part of their regular working experiences (Hojat *et al.* 2002). As Maslach and Leiter reported, “Burnout is reaching epidemic proportions” (Maslach & Leiter, 1997, p.1). Burnout is seen as a significant problem with healthcare which has increased substantially over the past decade (Canadas *et al.* 2015). It was initially defined as a state of physical, emotional and mental exhaustion that has occurred due to working with emotionally demanding situations (Schaufeli & Greenglass, 2001). Maslach (1980) defined burnout as a syndrome that consisted of emotional exhaustion, a sense of depersonalisation, and a lack of personal accomplishment. She argued that excessive and lasting emotional engagement could lead to fatigue and burnout, especially in situations where the emotional demands of each party are not met (Wilczek-Ruzyczka, 2011). Studies that have looked at risk factors have found that high workloads, high level of emotional demands, and an imbalance in job demands, control and support can predict emotional exhaustion and burnout (Bakker *et al.* 2000; Burke, 2001).

1.5.2 Measuring burnout

Most measures of burnout take the form of self-report, and ask questions inclusive of the multiple aspects of burnout. Examples of these are Maslach Burnout Inventory (MBI; Maslach, 1981; Maslach & Jackson, 1996), the Burnout Measure (BM; Schaufeli & Enzmann, 1993), and one subscale of the 30-item Professional Quality of Life Scale V (ProQOL; Stamm, 2008). These measures are discussed with regards to their content, validity and robustness in Section 1.6.4.4.1. The most widely used measure is the MBI, which directly references the syndrome established by Maslach (1980): emotional exhaustion, a sense of depersonalisation, and a lack of personal accomplishment in healthcare/human service work. In order to measure burnout, the current study utilised the MBI, see Section 2.6.3.

1.5.3 Values and burnout

The relationship between organizational values and burnout has been well researched (Ying-Wen, 2012; Dylag *et al.* 2013) but the relationship between individual values and burnout has not. When values are discussed in relation to burnout, studies usually list the congruence between the organisational values of the workplace and the individual as related to burnout (Leiter *et al.* 2009). The individual value of conformity was measured along with burnout on architecture students in Hong Kong by Jia *et al.* (2009). They found conflicting correlations between the two aspects, with conformity being both positively and negatively correlated with the burnout subscales. They concluded that burnout is more of an individual phenomenon. Within the Schwartz values model, this would mean that the values along the personal axis (e.g. power, achievement, conservatism) may be more salient to burnout. Further application of the Schwartz values model would suggest that burnout appears to most closely related to the personal protection and anxiety-avoidant focused motivations towards behaviour, exemplified by the *self enhancement* quadrant. Due to the nature of the Schwartz framework for values, the opposing values to those concerned with burnout are those values more closely related to empathy. Therefore, it could be argued that burnout may display an inverse relationship with those values within the *self-transcendence* quadrant. An extensive review of burnout by Schaufeli and Enzmann (1998) proposed that if working conditions fail to support and accommodate a *strong motivation* to help, stress will ensue. They argue that dependent on if a suitable coping strategy is adopted, either professional efficacy will be fostered, spiralling into a positive cycle of well-being, or burnout will occur and spiral into a negative cycle of ill-being. As values are seen as motivations to behaviour, burnout is shown here as a result of caring values and motivation being unsupported within work environments. The current study will aim to examine these relationships more closely.

1.5.4 Empathy and burnout

Burnout has been recognized as a significant contributing factor in suboptimal patient care (Firth-Cozens & Greenhalgh, 1997). However, there has been a relative dearth of studies looking to examine the relationship between burnout and empathy in comparison to its impact on good patient care (Hojat *et al.* 2015). Both phenomena are related to emotional situations: Burnout is defined as a reaction to working within emotive environments without sufficient support and empathy is a form of emotional interaction between two individuals (Salyers *et al.* 2015). Empathy and burnout have been examined in a number of settings, including human service workers (Ying-Wen, 2012), teaching (Kalekin-Fishman, 1986), and caring (Lewiston *et al.* 1981).

Within a medical school setting, Rosen *et al.* (2006) reported a decline in empathy but an increase in burnout from the beginning to the end of the internship year, where the students were in residency within healthcare services. The relationship between empathy and burnout has been studied at the neurological level. Tei *et al.* (2014) found that higher burnout scores were predictive of reduced empathy-related brain activities in a functional magnetic resonance imaging study.

In 2012 Zenasni *et al.* (2012) proposed three hypotheses regarding the relationship between burnout and empathy, and invited the research community to investigate. Hypothesis one proposed that burnout is an empathy 'killer'; stating that as burnout is defined by depersonalisation it favours dehumanisation in interactions and a decrease in empathy. Hypothesis two posits that empathy creates burnout; as evidence shows that burnout hampers empathy, the reverse effect of empathy on burnout is less clear. This assumption states that a high level of empathy may encourage the development of 'compassion fatigue' and then create exhaustion and burnout. Hypothesis three states that having empathy prevents burnout. This argues that being empathic involves the awareness of negative emotions and requires the staff member to practice self-reflection and be able to accept negative feedback. These skills are suggested as resources against stress and burnout (Zenasni *et al.* 2012).

1.5.5 Empathy and burnout in healthcare settings

It has been argued that compassion fatigue is a result of stress and burnout and is directly associated with difficulties in compassionate care and empathy (Figley, 2002). However, as shown above, the relationship between empathy and burnout within healthcare settings is not clear.

A systematic review of the literature was carried out in order to identify and critically appraise the literature, see Section 1.6.

1.5.6 Summary of burnout section

Burnout has been shown to occur when of a psychological experience that arises when individuals who are involved in difficult person-to-person relationships do not gain the required support to cope with the emotional demands placed upon them. Burnout has been shown to be a significant problem within healthcare, and has been described as a syndrome that consisted of emotional exhaustion, a sense of depersonalisation, and a lack of personal accomplishment.

The relationship between values and burnout has not been evidenced within the literature. However the application of the Schwartz values model suggests that burnout appears to most closely relate to the personal protection and anxiety-avoidant focused motivations towards behaviour, in opposition to the values most closely aligned to empathy.

Burnout and empathy have been introduced as related concepts. The exact nature of this relationship is unclear and a systematic review is presented in the next section that looks to examine the evidence. The current study will look to examine the relationships between Values, Empathy and Burnout through correlational analysis.

1.6 Burnout and Empathy in Healthcare: The Evidence

1.6.1 Aim and scope of the current literature review

This literature review aimed to identify and synthesise relevant empirical research that explores how burnout relates to empathy in healthcare professionals. This review aimed to critically appraise the studies identified with a view to contribute to an understanding of how burnout and empathy are associated within healthcare settings. The following section will describe the systematic review process, provide an overview of relevant papers and will critically appraise the findings reported with reference to the quality of the research carried out.

1.6.2 Systematic review question

The systematic review question was:

- What evidence is there of the relationship between burnout and empathy in healthcare professionals?

This question was chosen in order to examine the evidence of the relationship between empathy and burnout outlined in section 1.4 and 1.5. Within that section, conflicting ideas about the nature of this relationship were discussed, with various authors hypothesising about the nature of the interactions between empathy and burnout across various settings. This review will aim to identify key papers that outline primary research looking at the relationship between empathy and burnout within healthcare settings that are pertinent to the current study.

1.6.3 Method

1.6.3.1 Literature review strategy

To identify articles relevant to the systematic review question, a selection of databases were searched on 16th December 2015 and again on 31st March 2016. The following online bibliographic databases were searched:

- PsychINFO (1806 – present)
- PsychARTICLES
- Ovid Medline (1946 – present)
- Embase (1947 – present)
- Cinahl
- Web of Science (the Web of Science search was conducted within the research 'Psychology' area)

1.6.3.2 Search Terms

The following search terms were used, combined with Boolean operators, to identify all relevant papers:

Stress		Compassion* Fatigue*
Or		Or
Burnout	AND	Empath*
		Or
		Emot* Intelligen*
		Or
		Emot* Quot*

These search terms were developed through discussion with the academic supervisor and an initial screening search of databases. The initial screening search suggested the inclusion of closely related phenomena of emotional quotient, emotional intelligence, stress, and compassion fatigue. This meant the search gathered the widest reasonable collection of papers related to empathy and burnout. Inclusion of these wider terms made the search return a high number of results to be screened but this ensured all relevant papers were identified and outweighed this disadvantage.

1.6.3.3 Development of Criteria

The eligibility criteria for the current systematic review were applied in line with Meline (2006) and involved liberally applying criteria in the initial stages of the review, ensuring that no relevant studies are excluded without further detailed review. This ensured the

selection criteria for studies was not overly narrow, minimising the chance that studies would be subject to over-exclusion, whilst recognising that the use of initial broad criteria could result in the inclusion of studies from a wider range of sources and level of quality, depicting an over-inclusion threat. The inclusion and exclusion criteria used within this review were established through discussion with the research supervisor in order to maximise the number of salient studies identified whilst only including studies of sufficient quality within the relevant research field. The inclusion and exclusion criteria are detailed in sections 1.6.3.4/5 along with the rationale underlying the development of each criteria.

1.6.3.4 Inclusion Criteria

- Article published in a peer reviewed journal

It was decided to only include research published within peer reviewed journals in order to maximise the scientific rigor of the included papers, which would have completed the process of quality review inherent to publication within peer reviewed journals. This negated the inclusion of dissertations, conference papers, pre-publications, and book chapters.

- English Language

Only articles published in English were included within this review. This limit was imposed as time and resources were not available to the researcher to translate from other languages. It was understood that the exclusion of studies not published in English may introduce bias towards studies reported in English, or studies which were translated for publication (Egger *et al.* 1997).

- Key measures relate to empathy and burnout

The systematic search included search terms related to emotional quotient, emotional intelligence, stress, and compassion fatigue. This was in order to ensure all relevant papers were gathered, guarding against the possibility that empathy and burnout could be included within such papers. All papers were measured against this inclusion criteria, in order to ensure content would focus on empathy and burnout.

- Articles must be empirical studies

To maximise the inclusion of scientifically robust studies, it was decided that the review should include primary research only. This was in order to negate the inclusion of other published articles such as editorials and opinion pieces.

- Articles published within the last 20 years

This systematic review was limited to studies published within the last 20 years. This criteria was implemented in order to identify and appraise research that would be relevant to current healthcare services. Research published within this time frame would be salient to the research question and reflect the current landscape of services, maximising the relevance of the studies gathered to contemporary healthcare.

1.6.3.5 Exclusion Criteria

- Not within a healthcare setting

Initial searches indicated that there is research looking into empathy and burnout within a number of professions, including social services, commercial business, and the education sector. The focus of the present study was centred on the relationship between empathy and burnout within a healthcare setting, therefore it was decided that papers related to empathy and burnout in other areas would be excluded.

- Participants from undergraduate populations

A number of studies identified during initial services consisted of participant frameworks from undergraduate populations. In order to ensure the studies reviewed reflected burnout and empathy for healthcare workers, any studies that examined burnout and empathy within exclusively undergraduate populations were excluded.

- No reported comparison of empathy and burnout

Initial searches identified some studies that purported to look at empathy and burnout. Upon closer examination, some studies did not report any associations or comparisons between these two variables and as such could not offer any valid contribution towards answering the systematic review question. Therefore these studies were excluded from further review.

- Duplicate articles

The use of multiple databases within this review produced some duplication of articles. It was necessary to identify and remove the duplicates.

1.6.3.6 Systematic Review Process

The process of article extraction is detailed in Figure 1.2. A total of 5410 articles were identified using the search terms and databases outlined above. The articles were reviewed by title and abstract for relevance to the topic of empathy and burnout within

healthcare. Articles that clearly did not meet the inclusion criteria or met at least one of the exclusion criteria were excluded at this point. This process left 128 articles, of which the abstracts were examined by the researcher in more detail against the inclusion and exclusion criteria. At this point 75 articles were excluded for either being duplicates (13) or not meeting the criteria (62), leaving a total of 53 articles. The references of these articles were scanned for applicable studies, of which 7 were found. These 7 articles had their titles and abstracts screened against the inclusion and exclusion criteria and 4 were included in the next stage of the process along with the 53 articles gathered directly from the database searches.

The full text for each of the remaining 57 articles was gathered, and examined closely against the inclusion and exclusion articles. At this stage, several of the articles were reviewed by the researcher and the research supervisor in order to clarify whether or not they met the criteria. Each article was closely examined against the criteria and any differences in opinion between the researcher and research supervisor regarding the inclusion or exclusion of articles was discussed until consensus was reached. This ensured that both parties agreed to each included article and emphasised inter-rater reliability, although this was not explicitly assessed. It was noticed that one of the articles contained a mix of participant populations, including healthcare staff alongside undergraduate populations. It was decided that as long as a relationship between burnout and empathy was reported within the healthcare population in the study, it could be included on the proviso that the data and conclusions pertaining to the other populations were omitted from discussion in this review. Following the full text review of all 57 articles, 45 articles were excluded for not meeting the criteria, leaving 12 articles which were included within this review. A detailed summary of the included 12 studies is included in Table 1-2.

Figure 1.2 - Article extraction process

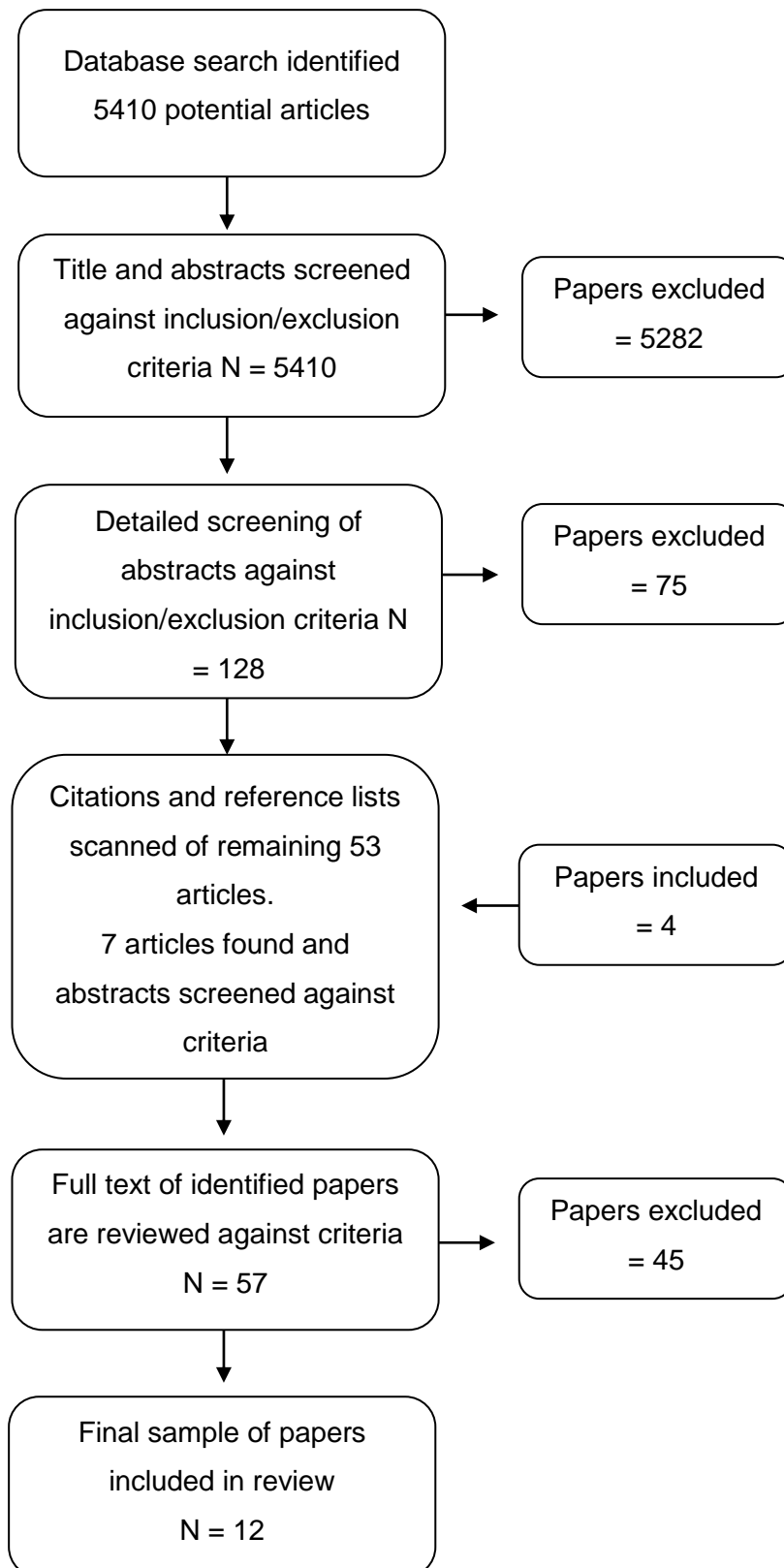


Table 1-2 - Included study details

Reference (Authors, Date)	Participants (Total no., %Female, Age, Sample)	Methodology	Outcome Measures	Key Results
Ferri <i>et al.</i> 2015	162 (80% female), mean age 39 (± 9 SD), nursing staff of general hospital in Italy. Nursing student population 97 (78% female), within last year of nursing studies (not included in this review)	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Balanced Emotional Empathy Scale (BEES)	MBI <i>emotional exhaustion</i> negatively correlated to BEES mean total scores ($r = -0.245, p < 0.002$) MBI <i>personal accomplishment</i> positively correlated to BEES mean total scores ($r = 0.266, p < 0.001$)
Fulop <i>et al.</i> 2011	67 (76% female), mean age 31.45 (± 5.8 SD), psychiatry residents of 4 Hungarian medical facilities.	<i>Design</i> Cross-Sectional survey/ Descriptive Study Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Interpersonal Reactivity Index (IRI) Patient-Practitioner Orientation Scale (PPOS) Secondary Traumatic Stress Scale (STSS)	MBI <i>emotional exhaustion</i> , positively correlated with IRI <i>personal distress</i> ($r = 0.361, p < 0.001$) MBI <i>depersonalisation</i> , negatively correlated with IRI <i>perspective change</i> ($r = -0.323, p < 0.001$) and IRI Empathic Concern ($r = -0.382, p < 0.001$) MBI <i>lack of personal accomplishment</i> positively correlated to IRI <i>personal distress</i> ($r = 0.415, p < 0.001$) and negatively correlated with IRI Perspective Taking ($r = -0.340, p < 0.001$)
Gleichgerrcht & Decety, 2013	7584 (46% female), mean age 44.6 (± 12.1 SD), practicing physicians across the globe, accessed through a clinical portal online.	<i>Design</i> Survey Quantitative Questionnaire	Interpersonal Reactivity Index (IRI) Professional Quality of Life Scale V (ProQOL) – contains one sub-scale of burnout. Toronto Alexithymia Scale (TAS) Self-report Altruism Scale (SAS)	Burnout subscale of ProQOL positively correlated with IRI Empathic Concern ($\beta = 0.11, p < 0.001$) Burnout subscale of ProQOL positively correlated with IRI <i>personal distress</i> ($\beta = 0.14, p < 0.001$)

Lamothe <i>et al.</i> 2014	294 (49% female), mean age 51 (± 9.39 SD), General Practitioners in France (nation-wide recruitment at conferences and through post).	<i>Design</i> Survey Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Jefferson Scale of Physician Empathy (JSPE) Toronto Empathy Questionnaire (TEQ)	MBI total score negatively correlated to JSPE Perspective Taking ($r = -0.24$, $p < 0.01$) and TEQ Empathic Concern ($r = -0.17$, $p < 0.01$) MBI <i>emotional exhaustion</i> negatively correlated with JSPE Standing in the Patients Shoes ($r = -0.14$, $p < 0.05$) MBI <i>depersonalisation</i> negatively correlated with JSPE total score ($r = -0.18$, $p < 0.01$) and TEQ total score ($r = -0.32$, $p < 0.01$)
Lee <i>et al.</i> 2003	198 (100% female), mean age 30 (range 22-51 years), Nursing staff from South Korean general hospitals	<i>Design</i> Cross-sectional correlational design Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Bespoke Job Stress questionnaire (JS) Mehrabian Emotional Empathy Scale (MEES) Barret-Lennard Empathy Scale (BLES)	MBI Personal Accomplishment positively correlated with BLES $r = 0.47$, $p < 0.001$) MBI <i>emotional exhaustion</i> negatively correlated with BLES ($r = -0.25$, $p < 0.001$) MBI <i>depersonalisation</i> negatively correlated with BLES ($r = -0.36$, $p < 0.001$)
Omdahl & O'Donnell, 1999	164 (98% female), age not reported. Participants were registered nurses.	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	21 items from Maslach Burnout Inventory (MBI) 7 items from Interpersonal Reactivity Index (IRI) 7 items from Mehrabian Emotional Empathy Scale (MEES)	MBI <i>emotional exhaustion</i> , positively correlated with MEES Emotional Contagion ($\beta = 0.24$, $p < 0.01$) MBI <i>depersonalisation</i> , negatively correlated with IRI Empathic Concern ($\beta = -0.4$, $p = 0.00$) MBI <i>Reduced personal accomplishment</i> negatively correlated to IRI Empathic Concern ($\beta = -0.21$, $p = 0.00$)
Palsson <i>et al.</i> 1996	33 (100% female), split into supervisory group ($n=21$, mean age 49 (± 7.1 SD)) and comparison group ($n=12$, mean age 46.3 (± 8.31 SD)).	<i>Design</i> Quasi-Experimental Systemic Clinical	Karolinska Scales of Personality (KSP) The Burnout Measure (BM) The Empathy Construct Rating Scale (ECRS)	BM Burnout total score negatively correlated with total ECRS empathy scores ($r = -.64$, $p < 0.001$)

	Swedish district nurses.	Supervision (15-19 sessions for each of 3 experimental groups)	The Sense of Coherence Scale (SOC)	
Raiziene & Endriulaitiene 2007	158 (100% female), mean age 41.6 (± 8.03 SD). Nurses from Lithuanian hospitals.	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	10 items from Interpersonal Reactivity Index (IRI) 7 items from Maslach Burnout Inventory <i>emotional exhaustion</i> sub-scale (MBI)	MBI <i>emotional exhaustion</i> was negatively correlated with IRI Empathy ($r = -0.19, p < 0.05$)
Torres <i>et al.</i> 2015	108 (63% female), mean age range 48.3 – 50.7 (8.06 – 9.34SD), practicing physicians in Spain.	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Jefferson Scale of Physician Empathy (JSPE) Both instruments given in Spanish.	High empathy significantly associated with low burnout ($p < 0.05$). No other information reported
Vevodova <i>et al.</i> 2016	85 Emergency Medical Services nurses (56% female) and 144 general nurses (no demographics reported). Both nursing populations from Czech Republic.	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Eysenck Impulsivity Inventory (IVE)	MBI <i>emotional exhaustion</i> was positively correlated with Empathy for the Emergency Medical Services nurses ($r = 0.361, p < 0.05$)
Walocha <i>et al.</i> 2013	71 (35% female), age range 25-68, practicing physicians in Krakow.	<i>Design</i> Cross-Sectional survey Quantitative Questionnaire	Maslach Burnout Inventory (MBI) Mehrabian Emotional Empathy Scale (MEES) 4 tables selected from the Thematic Apperception Test (TAT)	MBI <i>lack of personal accomplishment</i> was negatively correlated with MEES total score ($r = -0.23, p < 0.05$) MBI <i>emotional exhaustion</i> was negatively correlated with TAT total score ($r = -0.30, p < 0.05$). MBI <i>depersonalisation</i> was negatively correlated with TAT total score ($r = -0.39, p < 0.01$)

<p>Wilczek-Ruzyczka, 2011</p>	<p>666 (82% female), mean age 36.89 (\pm 9.46SD), 256 physicians and 410 nurses from Poland.</p>	<p><i>Design</i> Cross-Sectional survey Quantitative Questionnaire</p>	<p>Maslach Burnout Inventory (MBI) Mehrabian Emotional Empathy Scale (MEES) 4 tables selected from the Thematic Apperception Test (TAT)</p>	<p>MBI <i>emotional exhaustion</i> was negatively correlated with TAT Cognitive table score ($r = -0.1011$, $p = 0.009$). MBI <i>emotional exhaustion</i> was also negatively correlated with MEES total score ($r = -0.1553$, $p < 0.001$) MBI <i>depersonalisation</i> was negatively correlated with TAT Cognitive table score ($r = -0.0891$, $p = 0.021$). MBI <i>depersonalisation</i> was also negatively correlated with MEES total score ($r = -0.2623$, $p < 0.001$) MBI <i>lack of personal accomplishment</i> was negatively correlated with MEES total score ($r = -0.1601$, $p < 0.001$)</p>
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1.6.4 Results

This sections reviews the 12 included studies based on design, methodology and reporting. This section will outline the application of a quality framework against the studies and will discuss their respective results with particular reference to the participants used, the design of the studies, the measures used, and the treatment of confounding variables. Strengths and limitations of each study will be reported. Finally, the findings of the included studies will be discussed with reference to the assessed quality level of each piece of research.

1.6.4.1 Quality Framework

Cardiff University's Specialist Unit for Review Evidence (SURE; 2013) have provided a framework to assess the quality of quantitative research. This framework was applied to all 12 studies and used to evaluate each piece of research, providing a score for 14 main dimensions and 8 sub dimensions (see Table 1-2). The sub dimensions were initially part of the SURE framework as questions to aide in scoring the main dimensions. These sub dimensions were included explicitly and alongside the main dimensions within this review as they were thought to be applicable to the studies gathered and could provide extra information salient to the quality of the studies. Similarly, the main dimensions of "3. Was allocation to intervention or comparator groups concealed?", "4. Were participants/ investigators blinded to group allocation?", and "7. Was a trial protocol published?" were removed from the final analysis of quality, as the questions were not pertinent to the design of the included studies. Each main dimension or related sub dimension contained a question which would be answered by reviewing the studies against its criteria. Each question could be answered 'yes', 'no', or 'partially'. A scoring system was developed in order to weight the research quality of each study. Each score was based on the following scale:

- Good = score of 2
- Partially = score of 1
- Poor or unreported = score of 0

Utilising this scoring system and taking into account the included sub dimensions, and excluded main dimensions, the possible range of score available to each study was between 0 – 44. The scores for each paper are presented in Table 1-3.

Table 1-3 - SURE quality framework assessment

Criteria	Ferri <i>et al.</i> 2015	Fulop <i>et al.</i> 2011	Gleichgericht & Decety 2012	Lamothe <i>et al.</i> 2014	Lee <i>et al.</i> 2003	Omdahl & O'Donnell 1999	Palsson <i>et al.</i> 1996	Raiziene & Endriulaitiene 2007	Torres <i>et al.</i> 2015	Vevodova <i>et al.</i> 2016	Walocha <i>et al.</i> 2013	Wilczek-Ruzyczka 2011
1. Does the study address a clearly focused question/hypothesis?	2	2	1	2	2	2	2	2	2	2	2	2
1.1 Population/ Problem?	2	2	2	2	2	2	2	2	2	0	2	1
1.2 Intervention?	2	2	2	2	2	1	1	1	2	2	2	2
1.3 Comparator/control?	1	0	0	0	0	0	2	0	0	0	1	0
1.4 Outcomes? Can you identify the primary outcome?	2	2	1	2	2	2	2	2	2	2	2	2
2. Was the population randomised?	*(2)	*(2)	*(2)	*(2)	*(2)	*(2)	0	*(2)	*(2)	0	*(2)	*(2)

5. Were interventions well described and appropriate?	2	1	1	1	1	0	1	0	2	2	2	2
6. Was ethical approval sought and received?	1	0+	2	0+	1	0+	0+	0+	0+	2	2	0+
8. Were the groups similar at the start of the trial?	0	2	0	1	2	2	0	2	2	0	1	0
9. Was the sample size sufficient?	2	1	2	2	2	2	1	2	2	2	1	2
10. Were participants properly accounted for?	0	2	0	0	0	0	1	2	1	0	0	0
11. Data analysis												
11.1 Were estimates of effect size given?	2	2	2	2	2	2	2	2	0	1	1	2
11.2 Were analytical methods appropriate?	2	2	2	2	2	2	2	2	1	2	2	2
11.3 Was the precision of intervention effects given (confidence intervals)?	2	1	2	1	2	0	0	0	0	0	0	0
12. Results												
12.1 Were outcome measures reliable?	2	2	1	0	1	1	2	2	2	1	1	2

12.2 Were outcome measures complete?	2	2	1	2	1	0	2	0	0	2	1	2
12.3 Were all important outcomes assessed?	2	2	1	2	2	1	1	0	0	0	0	2
12.4 Are the authors' conclusion adequately supported by the results?	2	2	2	2	2	2	2	2	1	2	2	2
13. Is any conflict of interest reported?	0	0	0	2	0	0	0	0	0	0	2	0
14. Other considerations												
14.1 Did the authors identify any limitations?	1	0	1	2	2	0	2	2	2	2	2	0
14.2. Are the conclusions the same in the abstract and the full text?	1	1	0	2	0	1	0	2	0	1	2	1
Total	34	32	27	33	32	24	27	29	25	25	32	28

Legend: * = not applicable to study design, given maximum points. + = partially

1.6.4.2 Quality framework results

The results of scoring the quality framework showed a range of scores from 24 through to 34. It was decided through consultation with the research supervisor to rank the studies dependent on their quality scores in order to more easily compare the studies. Therefore, the 12 studies quality scores were ranked and grouped into low, medium, and high level of quality. These rankings will be considered when discussing the methodological aspects and outcomes of each respective study. Details of these ranking can be found in Table 1-4.

Table 1-4 - Quality framework score rankings

Rank	Reference	Quality Framework Score	Quality Group
1	Ferri <i>et al.</i> (2015)	34 / 44 (77%)	High
2	Lamothe <i>et al.</i> (2014)	33 / 44 (75%)	
3	Walocha <i>et al.</i> (2013)	32 / 44 (73%)	
3	Fulop <i>et al.</i> (2011)	32 / 44 (73%)	
3	Lee <i>et al.</i> (2003)	32 / 44 (73%)	
6	Raiziene & Endriulaitiene (2007)	29 / 44 (67%)	Medium
7	Wilczek-Ruzyczka (2011)	28 / 44 (64%)	
8	Palsson <i>et al.</i> (1996)	27 / 44 (61%)	
8	Gleichgerrcht & Decety (2013)	27 / 44 (61%)	
10	Vevodova <i>et al.</i> (2016)	25 / 44 (57%)	Low
10	Torres <i>et al.</i> (2015)	25 / 44 (57%)	
12	Omdahl & O'Donnell (1999)	24 / 44 (55%)	

1.6.4.3 Samples included in the studies

This section will provide details of the participants within each study with reference to the sample size, the participants' age, gender, job roles, and how they were recruited to the study.

1.6.4.3.1 Sample Size

The total sample sizes reported within the included studies ranged from 33 (Palsson *et al.* 1996) to 7584 (Gleichgerrcht & Decety, 2013). The disparity in the number of participants included within these studies reflects the different designs implemented, as Palsson *et al.* (1996) conducted a quasi-experimental design, whereas Gleichgerrcht & Decety (2013) conducted a large scale survey of practicing physicians from various countries.

None of the studies reported statistical power calculations in order to recommend the number of participants needed in order to lend sufficient power to statistical analysis. Torres *et al.* (2015) provided some consideration of sample size and statistical power following their analysis of results. They grouped their participant's dependent on the measured burnout level and reported that for some groups (i.e. high burnout, 7 participants) the low numbers implied a low statistical power to detect small effects, or generally too small to detect any kind of difference.

In assessing the sample sizes against the SURE quality framework, it was felt that all but three of the studies had recruited sufficient sample sizes. This was assessed due to the types of statistical tests used, with the sample size requirement inherent to these, and the nature of the correlation study design (Field, 2013). These three studies scored 1 out of a possible 2: Palsson *et al.* (1996) with 33 participants, Fulop *et al.* 2011 with 67 participants, and Walocha *et al.* (2013) with 71 participants.

1.6.4.3.2 Age of participants

Ten of the twelve included studies reported the ages of their participants. Both Omdahl & O'Donnell (1999) and Vevodova *et al.* (2016) did not report this demographic information. Additionally, Walocha *et al.* (2013) only provided an age range for their participants, stating that their participants were between 25 and 65 years. The nine remaining studies reported a mean age of their participants which ranged from 30 (Lee *et al.* 2003) to 51 (Lamothe *et al.* 2014).

1.6.4.3.3 Gender of participants

All studies reported details about the gender of the participants. Three of the studies recruited 100% females (Lee *et al.* 2003; Palsson *et al.* 1996; Raiziene & Endriulaitiene, 2007). Six of the remaining nine studies recruited more females than males overall, ranging from female consisting of 56.5% of the participant population (Vevodova *et al.* 2016) to 97.6% (Omdahl & O'Donnell, 1999). Three of the studies

recruited more male participants, these ranged from males consisting of 51.3% of the participants (Lamothe *et al.* 2014) to 64.8% (Walocho *et al.* 2013).

These differences in the number of each gender recruited to the studies may be reflective of the healthcare services in which the participants were recruited from. Within the UK, 77% of the NHS workforce are females (Health and Social Care Information Centre, 2016). Further to this, all three of the included studies which had a larger proportion of Male participants recruited from physician and general practitioner populations. The Health and Social Care Information Centre (2016) outlines that male medical staff account for 55% of the population overall, and 66% at the consultant level. Therefore the genders recruited within the included studies appear to be reflected in the workforce populations they have recruited from.

1.6.4.3.4 Recruitment of participants

The studies included in this review recruited participants from a variety of healthcare roles. Six of the twelve studies included recruited nursing staff (Ferri *et al.* 2015; Lee *et al.* 2003; Omdahl & O'Donnell, 1999; Palsson *et al.* 1996; Raiziene & Endriulaitiene, 2007; Vevodova *et al.* 2016), four recruited practicing physicians (Lamothe *et al.* 2014; Gleichgerrcht & Decety, 2013; Torres *et al.* 2015; Walocho *et al.* 2013), one recruited both nursing staff and physicians (Wilczek-Ruzyczka, 2011), and one recruited psychiatric residents (Fulop, 2011). Recruitment methods varied from using an online questionnaire delivered through a global physician clinical portal (Gleichgerrcht & Decety, 2013), gathering data at a conference for physicians and through the post following the conference (Lamothe *et al.* 2014), and opportunity sampling. Ten of the twelve studies used opportunity sampling methods, by advertising the study within the hospitals that housed the participant populations the study aimed to recruit.

1.6.4.3.5 Accounting for all participants

Two of the included studies reported on dropout rates and had sufficient participant retention levels (above 80%) to the level required to score 2 on the SURE framework. These studies were Lamothe *et al.* (2014) and Raiziene & Endriulaitiene (2007). Of the other studies, two studies accounted for participants sufficiently to warrant a score of 1 on the SURE framework. Palsson *et al.* (1996) included the reason for dropout as work load levels but only retained 63% of their participants across the study. Torres *et al.* (2015) retained 81.2% of their participants across the study but did not report reasons for the other 18.8% dropping out. The other 8 studies did not report on dropout rates or retention levels of participants.

1.6.4.4 Study Design

Eleven of the studies included in this review adopted a quantitative survey design, of a cross-sectional nature; collecting data from a specific population at one specific point in time. The exception to this was Palsson *et al.* (1996) who conducted a quasi-experimental study which studied differences in the relationship between empathy, burnout and 'sense of cohesion' before and after a course of systemic clinical supervision.

1.6.4.4.1 Measures used

There were a number of different measures used within the included studies that looked to assess aspects of burnout or empathy. Each measure used will now be outlined, with reference to reported validity and reliability. The information gathered was applied to the SURE quality framework dimensions of "were outcome measures reliable?", "were all outcome measurements complete?", and "were all important outcomes assessed?"

Burnout measures

Ten of the twelve studies used the Maslach Burnout Inventory (MBI; Maslach, 1981, Maslach & Jackson, 1996) to measure burnout. This measure was constructed by Maslach, who first delineated burnout across the three domains of *emotional exhaustion*, *depersonalisation*, and *lack of personal accomplishment*. The validity and reliability of the MBI has been reported as good for healthcare populations, including general practitioners and nursing staff (Maslach, 1980; Maslach & Jackson, 1996). Cronbach alpha ratings of 0.90 for *emotional exhaustion*, 0.76 *depersonalisation*, and 0.76 for *lack of personal accomplishment* have been reported for the MBI subscales (Iwanicki & Schwab, 1981). Further information about the MBI can be seen in section 2.6.3. Three of the studies included within this review altered the MBI for use within their studies. Omdahl & O'Donnell (1999) scored the MBI on a 5 point Likert scale, instead of the recommended 7 point scale (Maslach & Jackson, 1996). Raiziene & Endriulaitiene (2007) only administered 7 items of the *emotional exhaustion* subscale of the MBI. In the study by Torres *et al.* (2015) a Spanish version of the MBI was used. They reported that the Spanish version of the MBI had previously been validated in a previous study by Moreno-Jimenez *et al.* (2001) with Cronbach alpha levels between $\alpha = 0.64 - 0.73$.

Gleichgerrcht & Decety (2013) administered a measure of burnout that consisted of one subscale of the 30-item Professional Quality of Life Scale V (ProQOL; Stamm, 2008). This burnout subscale of the ProQOL consists of 10-items and has a reported

Cronbach alpha level of $\alpha = 0.75$ (Stamm, 2008). Palsson *et al.* (1996) measured burnout using the Burnout Measure (BM; Schaufeli & Enzmann, 1993), a 21 item scale that is reported to have been used with Swedish populations in both geriatric and child services. Cronbach alpha levels were reported at $\alpha = 0.78$ for this burnout measure by Palsson *et al.* (1996).

Empathy measures

Four of the studies included within this review used aspects of the Interpersonal Reactivity Index (IRI; Davis, 1980). Fulop *et al.* (2011) administered the full IRI, a 28 item self-report scale that includes 4 subscales related to Empathy; *perspective taking*, *fantasy scale*, *empathic concern*, and *personal distress*. Gleichgerrcht & Decety (2013) used a 21 item version of IRI containing the 3 subscales of *perspective taking*, *empathic concern*, and *personal distress*. Both studies by Omdahl & O'Donnell (1999) and Raiziene & Endriulaitiene (2007) used 10 items of the IRI that consisted of the subscale *empathic concern*. Evidence regarding the underlying structure of the IRI has been mixed, with some studies reporting a stable four-factor structure consistent with the four IRI subscales (Litvack-Miller *et al.* 1997), while other studies have found inconsistent factor solutions (Alterman *et al.* 2003). Alpha scale reliability levels of $\alpha = 0.81$ have been reported (Davis, 1980).

Two of the included studies used versions of the Jefferson Scale of Physician Empathy (JSPE; Hojat *et al.* 2002). The JSPE is a 20-item questionnaire developed by researchers at the Center for Research in Medical Education and Health Care (CRMEHC) at Jefferson Medical College to measure empathy among physicians, health professionals and medical students. The JSPE consists of three subscales: *perspective taking*, *compassionate care*, and *standing in the patients shoes*. The internal consistency reliability, alpha coefficient, of the JSPE was reported as $\alpha = .89$ for medical students and $\alpha = .87$ for medical residents (Hojat *et al.* 2002). Within the studies included in this review, Lamothe *et al.* (2014) used a French version of the JSPE, only administering the single subscale of *perspective taking* in order to capture cognitive empathy. The use of one subscale was justified as three factor structure of the French version of the JSPE has been validated but not the whole scale (Zenasni *et al.* 2012). Unfortunately, the articles validating the French version were written in French and could not be translated. Torres *et al.* (2015) used a Spanish version of the JSPE that was reported to have been previously validated (Alcorta-Garza *et al.* 2005). Unfortunately, this article is only available in Spanish and as such no values for validity measures could be reported. However, in studies looking at the use of the JSPE in a

separate language, Chinese, the JSPE was reported to have a split-half reliability coefficient of 0.85 and Cronbach alpha of $\alpha = 0.86$ (Jiang *et al.* 2015).

As well as administering the French version of the JSPE *perspective taking* subscale, Lamothe *et al.* (2014) also used the Toronto Empathy Questionnaire (TEQ; Spreng *et al.* 2009), a 16 item questionnaire that is aimed at measuring emotional empathy. The internal consistency was reported to be high, with a Cronbach's alpha of $\alpha = .85$ (Spreng *et al.* 2009).

In the studies by Lee *et al.* (2003), Walocha *et al.* (2013), and Wilczek-Ruzyczka (2011) emotional empathy was measured using the Mehrabian Emotional Empathy Scale (MEES; Mehrabian, 1994). The internal consistency of the MES has been reported as $\alpha = 0.84$ (Mehrabian, 1994).

Within the study by Lee *et al.* (2003), a further scale was administered to measure cognitive empathy; the Barrett-Lennard Empathy Scale (BLES; Barrett-Lennard, 1978). The BLES is a 16 item scale, with a reported internal reliability of $\alpha = 0.84$ (Gurman, 1977). Within the study by Lee *et al.* (2003) the Cronbach's alpha for the BLES was reported as $\alpha = 0.73$.

As well as administering the MEES (Mehrabian, 1994), Walocha *et al.* (2013) and Wilczek-Ruzyczka (2011) also tested empathy through the use of 4 'tables' selected from the Thematic Apperception Test (TAT; Murray, 1943). This measure asked participants to describe a depicted scene, paying particular attention to what might have happened previously, what is happening now, and what they think will happen in the near future. By asking the participant to also report what they think each character within the depicted scene is thinking and feeling, the TAT is reported to assess empathy on three levels; emotional, cognitive, and behavioural. Unfortunately, Walocha *et al.* (2013) and Wilczek-Ruzyczka (2011) do not report any validation measures for the TAT and both studies do not detail which 4 tables were selected from the TAT, therefore no validity levels were available for the TAT as used in these studies.

An Italian version of Balanced Emotional Empathy Scale (BEES; Mehrabian, 1996) was administered to their participants by Ferri *et al.* (2015). They reported that this Italian version has been validated but do not detail the alpha levels and provide a reference to an article written in Italian (Meneghini *et al.* 2006).

In the study by Palsson *et al.* (1996), empathy was measured using the Empathy Construct Rating Scale (ECRS; La Monica, 1981), which is an 84 item scale that has previously been used with Swedish populations, and is reported to be salient to the

populations measured in this study. Cronbach alpha scores for this empathy scale were reported as $\alpha = 0.96$ (Palssson *et al.* 1996).

Vevodova *et al.* (2016) administered the Eysenck Impulsivity Inventory (IVE) to measure levels of empathy. The IVE (Eysenck & Eysenck, 1978) is a 63 item questionnaire that measures 3 subscales; *impulsiveness*, *venturesomeness*, and *empathy*. The *empathy* subscale consists of 19 items that require a yes/no response. No validity levels were reported for this measure and could not be sourced from the references given.

1.6.4.4.2 Data analysis methods

All of the included studies were reviewed within the SURE quality framework as using appropriate statistical tests to answer their research questions. Further to this, it was assessed that 11 of the papers reported conclusions that were adequately supported by the results gained from the statistical analyses carried out. Torres *et al.* (2015) reported a limitation within their statistical analysis in which the global low sample size for the high burnout group ($n = 7$) significantly lowered the statistical power of the tests used. However, they still reported a significant value, and therefore were deemed to only partly fulfil the SURE dimension “are the authors’ conclusion adequately supported by the results?”

1.6.4.5 Strengths and limitations of the studies

The studies included in the current review were critically appraised for limitations that may impact upon the rigor of this body of literature. The reporting of limitations was also captured in the quality appraisal dimension “did the authors identify any limitations?”

Four of the twelve studies included in this review did not overtly report any limitations (Fulop *et al.* 2011; Gleichgerrcht & Decety, 2013; Omdahl & O’Donnell, 1999; Wilczek-Ruzyczka, 2011).

Lamothe *et al.* (2014) reported that their use of a cross sectional design did not allow for the demonstration of causal relationships. They also list the non-randomisation of the sample limits the external validity of their findings, and that their sample may not be representative of the population of general practitioners. Further to these limitations, they state that the self-report nature of the measures used could introduce some bias as social desirability could influence how each participant completed the measures. Lee *et al.* (2003) noted that the recruitment of their participants was voluntary and posit that, although response rates were high, nurses who were most well-adjusted and happy with their work environment may not have been adequately represented.

In the study by Palsson *et al.* (1996) who examined empathy and burnout in the context of clinical nurse supervision, a number of limitations were outlined. It is reported that the non-randomisation of the sample implies threat to the internal validity of the results gained through selection bias. They also state that the any results reported could have been affected by external variables, such as support networks other than the supervision sessions. However, this limitation is not directly relevant to this review, as the findings relating to empathy and burnout were taken in isolation of the supervision intervention.

Empathy was assessed as a unified construct in the study by Raiziene & Endriulaitiene (2007). They state that this differs from the majority of research into empathy that differentiate between the different component of empathy, such as cognitive empathy and emotional empathy and could be seen as a limitation of their study.

Torres *et al.* (2015) state that conducting research on socially sensitive subjects may not illicit truthful answers and could be a limitation of their study. They also state that they had missing data on the sick leave prescribing rates, only managing to gather that data on 108 of 133 participants, however this limitation is not directly relevant to reporting of empathy and burnout findings within this review. Finally, they state that other factors may be affecting the level of empathy measured that were not accounted for in their study design, such as personal, family, social, work, or environmental factors.

In the study by Walocha *et al.* 2013, the limitation of a small sample size was reported. Further to this, the lack of a longitudinal aspect to the study design, with no follow up measures being taken, was seen as limiting the studies ability to study factors that may influence the levels of empathy and burnout.

In addition to the limitations listed above, the studies conducted by Ferri *et al.* (2015), Gleichgerrcht & Decety (2013), Lee *et al.* (2003), and Vevodova *et al.* 2016 all reported that the samples they used lacked generalisability to general populations. This was reported as a limitation due to the recruitment methods carried out, the sample size, and the demographics of the samples.

Many of the limitations described above could be applied to many of the studies included in this review and are reflected in the quality score gained and in the review of the study findings.

1.6.5 Review of study findings

This section will report on the significant findings reported by each of the included studies, with reference to the quality score given to each study by the application of the SURE quality framework. Within the twelve studies included, the analyses conducted looked at correlations between empathy and burnout. This allowed for the reporting of associations between these two factors but not any causal relationships. Some studies altered the MBI subscale *lack of personal accomplishment* to *personal accomplishment*, reversing the scores of each item within the subscale. Each instance of this has been taken into account and is noted in the summaries below.

Findings from studies with a high rating of quality

Five studies included within this review that obtained a high quality rating and scored in the range of 32 – 34 on the SURE quality framework (Ferri *et al.* 2015; Lamothe *et al.* 2014; Walocha *et al.* 2013; Fulop *et al.* 2011; Lee *et al.* 2003). These findings are summarised in Table 1-5 with reference to the conclusions drawn by the authors.

Table 1-5 - Findings reported by high quality papers

Reference	Significant results pertaining to empathy and burnout	Conclusions made relating to burnout and empathy
Ferri <i>et al.</i> (2015)	The MBI subscale <i>emotional exhaustion</i> was negatively correlated to the BEES mean total scores ($r = -0.245, p < 0.002$). The MBI subscale <i>personal accomplishment</i> was positively correlated to the BEES mean total scores ($r = 0.266, p < 0.001$).	1) The higher the empathy the lower the sense of emotional exhaustion. 2) The higher the empathy the higher the sense of personal accomplishment. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Lamothe <i>et al.</i> (2014)	The MBI total score negatively correlated to the JSPE subscale Perspective Taking ($r = -0.24, p < 0.01$) and the TEQ subscale Empathic Concern ($r = -0.17, p < 0.01$). The MBI subscale <i>emotional exhaustion</i> negatively correlated with the JSPE subscale Standing in the Patients Shoes ($r = -0.14, p < 0.05$). The MBI subscale <i>depersonalisation</i> negatively correlated with the JSPE total score ($r = -0.18, p < 0.01$) and TEQ total score ($r = -0.32, p < 0.01$).	1) The lower the burnout the higher the sense of perspective taking and empathic concern. 2) The lower the emotional exhaustion the higher the sense of standing in the patients shoes. 3) The lower the sense of depersonalisation the higher the empathy. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Walocha <i>et al.</i> (2013)	The MBI subscale <i>lack of personal accomplishment</i> was negatively correlated with the MEES total score (r	1) The higher the empathy the higher the sense of personal accomplishment.

	<p>= -0.23, $p < 0.05$).</p> <p>The MBI subscale <i>emotional exhaustion</i> was negatively correlated with the TAT total score ($r = -0.30$, $p < 0.05$).</p> <p>The MBI subscale <i>depersonalisation</i> was negatively correlated with the TAT total score ($r = -0.39$, $p < 0.01$).</p>	<p>2) The lower the sense of emotional exhaustion the higher the empathy.</p> <p>3) The lower the sense of depersonalisation the higher the empathy</p> <p><i>Higher levels of empathy are significantly associated with lower levels of burnout.</i></p>
Fulop <i>et al.</i> (2011)	<p>The MBI subscale <i>emotional exhaustion</i> positively correlated with the IRI subscale <i>personal distress</i> ($r = 0.361$, $p < 0.001$).</p> <p>The MBI subscale <i>depersonalisation</i>, negatively correlated with the IRI subscales <i>perspective change</i> ($r = -0.323$, $p < 0.001$) and Empathic Concern ($r = -.382$, $p < 0.001$).</p> <p>The MBI subscale <i>lack of personal accomplishment</i> positively correlated with the IRI subscale <i>personal distress</i> ($r = 0.415$, $p < 0.001$) and negatively correlated with the IRI subscale Perspective Taking ($r = -.340$, $p < 0.001$).</p>	<p>1) The higher the sense of emotional exhaustion the higher the sense of personal distress.</p> <p>2) The higher the sense of depersonalisation the lower the perspective change and empathic concern.</p> <p>3) The higher the sense of personal accomplishment the higher the perspective change and the lower the <i>personal distress</i>.</p> <p><i>Higher levels of empathy are significantly associated with lower levels of burnout.</i></p>
Lee <i>et al.</i> (2003)	<p>The MBI subscale <i>personal accomplishment</i> positively correlated with the BLES total score $r = 0.47$, $p < 0.001$).</p> <p>The MBI subscale <i>emotional exhaustion</i> negatively correlated with the BLES total score ($r = -0.25$, $p < 0.001$).</p> <p>The MBI <i>depersonalisation</i> negatively correlated with the BLES total score ($r = -0.36$, $p < 0.001$).</p>	<p>1) The higher the sense of personal accomplishment the higher the empathy.</p> <p>2) The higher the sense of emotional exhaustion the lower the empathy.</p> <p>3) The higher the sense of depersonalisation the lower the empathy.</p> <p><i>Higher levels of empathy are significantly associated with lower levels of burnout.</i></p>

As reported in Table 1-5, each of the five studies considered in this review to be of high quality reported significant results that suggest a negative correlation between empathy and burnout. They suggest that the higher the level of empathy assessed the lower the level of burnout, and conversely the higher the level of burnout assessed the lower the level of empathy.

Findings from studies with a medium rating of quality

Four studies included within this review that obtained a medium quality rating and scored in the range of 27 – 29 on the SURE quality framework (Raiziene & Endriulaitiene, 2007; Wilczek-Ruzyczka, 2011; Palsson *et al.* 1996; Gleichgerrcht & Decety, 2013). These findings are summarised in Table 1-6 with reference to the conclusions drawn by the authors.

Table 1-6 - Findings reported by medium quality papers

Reference	Significant results pertaining to empathy and burnout	Conclusions made relating to burnout and empathy
Raiziene & Endriulaitiene (2007)	The MBI subscale <i>emotional exhaustion</i> was negatively correlated with the IRI subscale Empathy ($r = -0.19$, $p < 0.05$).	1) The higher the sense of emotional exhaustion the lower the empathy. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Wilczek-Ruzyczka (2011)	The MBI subscale <i>emotional exhaustion</i> was negatively correlated with both the TAT Cognitive table score ($r = -0.1011$, $p = 0.009$) and the MEES total score ($r = -0.1553$, $p < 0.001$). The MBI subscale <i>depersonalisation</i> was negatively correlated with both the TAT Cognitive table score ($r = -0.0891$, $p = 0.021$) and the MEES total score ($r = -0.2623$, $p < 0.001$). MBI <i>lack of personal accomplishment</i> was negatively correlated with MEES total score ($r = -0.1601$, $p < 0.001$).	1) The higher the sense of emotional exhaustion the lower the empathy. 2) The higher the sense of depersonalisation the lower the empathy. 3) The higher the empathy the higher the sense of personal accomplishment. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Palsson <i>et al.</i> (1996)	The BM total score negatively correlated with the ECRS empathy total scores ($r = -0.64$, $p < 0.001$).	1) The higher the burnout the lower the empathy. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Gleichgerrcht & Decety (2013)	The ProQOL subscale Burnout positively correlated with the IRI subscale Empathic Concern ($\beta = 0.11$, $p < 0.001$) and <i>Personal distress</i> ($\beta = 0.14$, $p < 0.001$).	1) The higher the empathic concern the higher the burnout. 2) The higher the level of <i>personal distress</i> the higher the burnout. <i>Mixed results: higher levels of burnout associated with both lower levels of empathy and higher levels of empathy.</i>

As reported in Table 1-6, three of the four studies considered in this review to be of medium quality reported significant results that suggest a negative correlation between

empathy and burnout. They suggest that the higher the level of empathy assessed the lower the level of burnout, and conversely the higher the level of burnout assessed the lower the level of empathy. One study (Gleichgerrcht & Decety, 2013) showed a positive correlation between a negative aspect of empathy (*personal distress*) and burnout, and a further positive correlation between empathic concern and burnout. The authors did not comment on these findings within their results, only reported it.

Findings from studies with a low rating of quality

Three studies included within this review that obtained a low quality rating and scored in the range of 24 – 25 on the SURE quality framework (Vevodova *et al.* 2016; Torres *et al.* 2015; Omdahl & O'Donnell, 1999). These findings are summarised in Table 1-7 with reference to the conclusions drawn by the authors.

Table 1-7 - Findings reported by low quality papers

Reference	Significant results pertaining to empathy and burnout	Conclusions made relating to burnout and empathy
Vevodova <i>et al.</i> (2016)	MBI <i>emotional exhaustion</i> was positively correlated with Empathy for the Emergency Medical Services nurses ($r = 0.361, p < 0.05$).	1) The higher the sense of emotional exhaustion, the higher the empathy <i>Higher levels of empathy are significantly associated with higher levels of burnout.</i>
Torres <i>et al.</i> (2015)	High empathy significantly associated with low burnout ($p < 0.05$). No other information reported.	<i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>
Omdahl & O'Donnell (1999)	MBI <i>emotional exhaustion</i> , positively correlated with MEES Emotional Contagion ($\beta = 0.24, p < 0.01$). MBI <i>depersonalisation</i> , negatively correlated with both the IRI subscale Empathic Concern ($\beta = -0.4, p = 0.00$) and the TAT total score ($r = -0.39, p < 0.01$). MBI <i>Reduced personal accomplishment</i> negatively correlated to IRI Empathic Concern ($\beta = -0.21, p = 0.00$).	1) The higher the sense of emotional exhaustion, the higher the emotional contagion (high emotional contagion is linked to low empathy within the MEES). 2) The higher the sense of depersonalisation the lower the empathy and the lower the empathic concern. 3) The higher the sense of personal accomplishment the higher the empathy. <i>Higher levels of empathy are significantly associated with lower levels of burnout.</i>

As reported in Table 1-7, two of the three studies considered in this review to be of low quality reported significant results that suggest a negative correlation between empathy and burnout. They suggest that the higher the level of empathy assessed the lower the

level of burnout, and conversely the higher the level of burnout assessed the lower the level of empathy. One study (Vevodova *et al.* 2016) reported a positive correlation between empathy and the *emotional exhaustion* subscale of burnout. This result was only present in the participant group consisting of nurses who work in emergency service ambulance crews (n = 85, total sample size n = 229). They suggest that two processes may be taking place that could account for this significant correlation; that empathy may be increasing the risk of burnout within the nurses working in ambulance crews or that reducing the level of empathy can be seen as a defence strategy to cope with stressful situations, thus reducing burnout levels. Due to the quality appraisal of these studies returning a low score, any interpretations made of the conclusions drawn within each study should be made cautiously. The low quality of these papers should instil less confidence in their findings than the studies of higher quality. Conclusions can only be confidently drawn from the papers that are of high quality.

Overall, ten of the twelve studies included in this review report conclusions based on their results that suggest a negative correlation between empathy and burnout, none of which we considered to be of low quality. Of the studies that reported differently, one study (Gleichgerrcht & Decety, 2013) reported both a positive and negative correlation between aspects of burnout and empathy, and one study (Vevodova *et al.* 2016) reported a positive correlation between empathy and the *emotional exhaustion* aspect of burnout for one group of participants within their study.

When taking into account the quality of the studies as assessed by the SURE framework, 5 out of 5 high quality papers, 3 out of 4 medium quality papers, and 2 out of 3 low quality papers suggested a negative correlation between burnout and empathy. As mentioned previously, the findings from the papers appraised for quality as 'low' should be regarded cautiously and will not be included in the final recommendations of this review. However, all of the high quality papers and the majority of the medium quality papers reported a significant negative correlation between burnout and empathy. Of the papers that did not report this correlation that were not of low quality, the medium quality paper by Gleichgerrcht & Decety (2013) reported mixed correlations, with both positive and negative correlations found at the significant level. From the results reported within this systematic review, it is suggested that both high levels of empathy are associated with low levels of burnout, and low levels of empathy are associated with high levels of burnout.

1.6.6 Limitations of this systematic review

There are a number of limitations to this review that should be taken into account when drawing conclusions from the studies included. Firstly, the small number of studies included in the final process of this review lower the generalisability of the results to the general population of healthcare workers. If more studies could have been located, then the outcomes reported would have gained more statistical strength and could possibly have been more generalisable. Further to this, the wide variety of outcome measures used across the included studies meant the data was heterogeneous and not applicable to meta-analysis. This limitation was partly overcome as the findings for each study were listed individually and only broad comparisons as to the positive or negative type of correlation between empathy and burnout were reported. Secondly, three studies used versions of measures in different languages that, although reported to have been previously validated, these validation measures could not be checked due to the articles referenced being in different languages themselves. Thirdly, the researcher completed the search and the initial screening of results without the help of an independent third party, increasing the chance that post-publication bias may affect the reported conclusions. Steps were taken to minimise this bias, by discussing full text screening with the research supervisor. In addition to this, pre-publication bias can occur as a result of inexperience on the behalf of the reviewer (Chalmers *et al.* 1990) and it is conceivable that some level of pre-publication bias could be inherent within this review. Finally, the databases chosen within this review was not an exhaustive list and therefore, relevant studies may have been missed by not searching all the relevant databases. Similarly, the possible inclusion of relevant research was inhibited by the exclusion of thesis or dissertation papers.

1.6.7 Implications of systematic review findings

Drawing from the findings of this review, with particular reference to the results of the papers appraised as being of medium and high quality, a number of implications can be presented.

The overall findings of the systematic review suggested a negative correlation between burnout and empathy in healthcare staff. When taking into account the quality of the research conducted, all of the high quality papers and the majority of the medium quality papers reported a significant negative correlation between burnout and empathy. These findings are correlational in nature, and as such no causal relationships can be hypothesised from the findings. However, the nature of the relationships between empathy and burnout as described by this systematic review is in keeping with two of the three hypotheses posited by Zenasni *et al.* 2012); Hypothesis one proposed that burnout is an empathy killer, as burnout is defined by a

depersonalisation in attitude, it favours dehumanisation in interactions and decreases in empathy. Hypothesis three states that empathy prevents burnout, being empathic involves the awareness of negative emotions and requires the staff member to practice self-reflection and be able to accept negative feedback, skills that prevent burnout. Because these hypotheses describe situations where empathy and burnout levels are in opposition to each other, this is inclusive of the negative correlations found within the current systematic review. The findings in the systematic review are also in agreement with the studies by Rosen *et al.* (2006), who reported a decline in empathy but an increase in burnout when medical students started their residency, and Tei *et al.* (2014) who found that higher burnout scores were predictive of reduced empathy-related brain activities.

In order to further clarify the casual nature of the relationships between empathy and burnout further research is needed to look at any causal relationship between the two variables. However from the evidence gathered in this review, a number of implications for clinical practice, the role of a clinical psychologist, and research implications can be suggested.

1.6.8 Clinical implications

Empathy has been shown to be a central component in achieving good patient outcomes and compassionate care (Firth-Cozens & Cornwell, 2009). Burnout has been shown to contribute to suboptimal patient care (Firth-Cozens & Greenhalgh, 1997). The negative correlation found within these studies suggests that the lower the levels of burnout, the higher the levels of empathy shown by healthcare staff. The level of burnout within staff may inversely indicate the level of empathy being carried out within the service, an important component to providing a high quality service (Carver & Hughes, 1990).

Clinical psychologists are trained in establishing empathic relationships with individuals (Rogers, 1951) and as such can help to support and encourage staff members in developing their own empathic skills. Supervision could be a safe and supportive place in which these ideas could be discussed (Falender & Shafranske, 2008). Supervision could identify and work through issues with burnout for staff. As Schaufeli and Enzmann (1998) propose; working conditions that fail to support and accommodate a strong motivation to help can induce stress, which has been reported as a precursor to burnout (Maslach, 1980). Clinical psychologists have the supervision skills to provide the support and help the service to accommodate the staff member's strong motivations to help.

The current research study will look to examine the relationship between empathy and burnout in the context of priming individual values, with a view to confirm the findings of the systematic review.

1.6.9 Systematic review summary

This systematic review aimed to identify and critically appraise research looking at the relationship between empathy and burnout within healthcare settings. The systematic review process identified 12 articles suitable for critical review. The studies were evaluated against a quality framework that looked at a number of dimensions concerned with the studies participants, design, measures used, analysis and the results reported. The studies were found to vary in scores of quality as assessed by the SURE quality framework. Following the application of the quality framework to the studies, each study was reviewed in relation to its sample framework, research design, the measures used, the key findings, and strengths and limitations. Overall, ten of the twelve studies reported findings that suggested a negative correlation between empathy and burnout. Of the other two studies reported differently, one found both positive and negative correlations between burnout and empathy, and the other found positive correlations between aspects of burnout and empathy. When taking into account the quality of the studies, the higher quality papers were in agreement that burnout was negatively correlated with empathy. This finding was shown to be in agreement to the evidence posited in section 1.4 and 1.5.

1.7 Summary of chapter

This chapter has introduced the concept of values and has defined them in terms of the Schwartz model of human values (Schwartz, 2012). Individual values have been seen to motivate behaviour (Rokeach, 1973). The PVQ has been outlined as a reliable and direct measure for values. Recent studies have been concerned with the activation of these values through a process of priming (Maio, 2001). Studies have found that priming values can alter subsequent behaviours. This area needs to be further investigated. Empirical studies have been conducted that look at the effect priming values can have upon social values, but have not looked into these effects on interpersonal interactions within clinical settings, such as empathy.

Interventions to encourage and improve empathic practices within the NHS are increasingly being investigated and recommended (Firth-Cozens & Cornwell, 2009). Interactions between staff members and service users that incorporate empathic understanding and compassion have been identified as important for treatment outcome, service user satisfaction, and staff wellbeing (Carver & Hughes, 1990).

Empathy has been defined as consisting of both cognitive and emotional aspects. There have been no studies that have looked to prime values and assess change in empathic behaviour. The MET has been outlined as a reliable and suitable task-based assessment that looks at both cognitive and emotional empathy and will be used in the current study.

Burnout has been introduced as a related variable to empathy. A systematic review was carried out to investigate the relationship between empathy and burnout. The overall findings of the systematic review suggested a negative correlation between burnout and empathy, when taking into account the quality of the research. The current study will include measures of burnout in order to account for this related phenomena and to provide further evidence of any correlations between empathy and burnout.

1.8 Introduction to current study

The literature suggests relationships between values, empathy, and burnout. Values may provide a worthwhile framework to investigate these relationships, in particular using the method of priming values to promote empathy, improve staff-patient relations and engender compassionate care.

This study aims to investigate the relationship between individual values and empathy within NHS staff. Using Schwartz's model of values, this study will first assess people values priorities using the Portrait Values Questionnaire (PVQ). This study will prime the higher order self-transcendence values of the model for one group of participants and prime the opposing higher order values of self-enhancement for a different group of participants. A control group will do a cognitively similar task that has no bearing on values. Following this, staff levels of empathy will be assessed using the Multifaceted Empathy Test.

One further aspect of this study will examine the relationship of staff burnout to the process of priming individual values and the levels of empathy assessed. Empathic responses to clinical situations has been empirically linked with levels of staff burnout and stress (Firth-Cozens & Cornwell, 2009). Therefore, the participants will be administered the Maslach Burnout Inventory (Maslach *et al.* 1996) before the priming task, in order to highlight any influence burnout may be having on the primary investigated link between empathy and values.

The study will recruit NHS staff members working in mental health services within a South Wales Health Board. The sample will take part in an experimental design, consisting of two experimental conditions and one control conditions. There will be a total of 87 participants (29 in each condition). Participants will be seen individually and

a random number generator will be used to randomly assign the participants to each condition.

The study will use four measures:

- Demographic Questionnaire
- Portrait Values Questionnaire (PVQ-RR; Schwartz *et al.* 2012)
- Burnout Inventory (MBI; Maslach *et al.* 1996)
- Multifaceted Empathy Test (MET-core-2; Dziobek *et al.* 2008)

1.9 Hypotheses

This study aims to examine the concepts outlined above through these nine hypotheses:

- The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2).
- The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI).
- The higher the level of burnout (MBI), the lower level of empathy (MET-core-2).
- Priming Self-Transcendence values will be associated with higher levels of empathy compared, to controls.
- Priming Self-Enhancement values will be associated with lower levels of empathy, compared to controls.
- Participants who score low on burnout (MBI) who are also primed for Self-Transcendence values will show the higher scores on the empathy measure (MET-core-2) than control group participants who also scored low on burnout.
- Participants who score high on burnout (MBI) who are primed for Self-Enhancement values will show the lower scores on empathy measure (MET-core-2) than control group participants who also scored high on burnout.
- Participants who score high on self-reported burnout (MBI) who are primed for self-enhancement values will show lower levels of empathy (MET-core-2) than those who are lower on self-reported burnout (MBI) who are primed for Self-Transcendence values (PVQ-RR).
- It is hypothesised that burnout (MBI) will act as a mediating variable between values (PVQ-RR) and empathy (MET-core-2).

Chapter 2 - Method

2.1 Introduction

This chapter will describe the methods used for this research study. It will outline the design of the study and provide a rationale for the sample size recruited. This chapter will describe the recruitment of participants, the consent process, and the data collection procedure. Consideration of research governance issues, including ethical approval and data protection will be discussed.

2.2 Design

In line with the aims of the study, a quantitative methodology was adopted. A cross-sectional (between subjects) design was used, with participants being randomly allocated to experimental/control groups. The data was analysed using non-parametric and mediation techniques which are further described in the data analysis section.

2.3 Power Analysis

G-power software was used to run a predictive power analysis to estimate the sample size needed within this study. The effect sizes of previous priming values studies varied widely, therefore a range of power calculations were gathered to provide a range of potential samples sizes that would be needed to provide sufficient statistical power. Studies conducted by Maio (2009a), Maio (2009b), and Verplanken (2002) were used to obtain effect sizes. The effect sizes reported by these studies ranged from small to large (0.13 to 0.73). ANOVA power analyses were conducted using the effect sizes, with the number of groups equalling three, and the number of response variables equalling three. A total sample range of 39-576 was identified.

For the current study, the actual sample size was then calculated by taking an effect size from between the effects sizes listed by Maio ($\beta = 0.13$; 2009a), Maio ($\beta = 0.73$, 2009b), and Verplanken ($\beta = 0.59$; 2002). An a priori ANOVA power calculation was carried out using this effect size ($\beta = 0.35$), as the probability of failing to reject the null hypothesis under the alternative hypothesis (type II error rate). The alpha level was set to 0.05, as the threshold probability for rejecting the null hypothesis (Type I error rate). This power calculation recommended that a sample of 84 participants would be needed for sufficient statistical power. Therefore, in order to account for equal number in each group and allowing for participant dropout, this study aimed to recruit 90 participants, with 30 participants in each group. This study managed to recruit 87 participants, with 29 in each group.

2.4 Inclusion and exclusion criteria

During recruitment, the following inclusion and exclusion criteria were applied to each potential participant. Only those that met the inclusion criteria and did not meet any of the exclusion criteria were approached to take part in the study.

Inclusion criteria

- Employed on a substantive basis.
- Working within a mental health service in the NHS.
- Holding a position within the mental health service that involves patient contact as a key aspect of the role.
- One years' experience within mental health services, in current role.
- At least 18 years of age.
- Can provide informed consent.
- Able to communicate in the medium of English.

Exclusion Criteria

- 17 years old or younger.
- Cannot provide informed consent.
- Unable to communicate in the medium of English.
- Not currently employed in the NHS.

2.5 Sample

The study sample consisted of 87 participants, containing three groups of adults working within mental health services from a South Wales Health Board. All of the participants were recruited from different wards within a psychiatric hospital (see recruitment section 2.7 for further details). The three groups each comprised of 29 participants and included two experimental groups and one control group. Demographical information regarding the gender and age of the participants can be found in Tables 2-1 and 2-2 respectively.

Table 2-1 - Participant gender across groups

		Gender		
		Male	Female	Other
Experimental Group	1	8 (28%)	21 (72%)	0
	2	12 (42%)	17 (58%)	0
	3	10 (34%)	19 (66%)	0

Table 2-2 - Participant age ranges across groups and percentage for each group

		Age group									
		18-24 yrs		25-34 yrs		35-44 yrs		45-54 yrs		55-64 yrs	
Group	1	3	10.3%	13	44.8%	4	13.8%	5	17.2%	4	13.8%
	2	6	20.7%	12	41.4%	6	20.7%	4	13.8%	1	3.4%
	3	11	37.9%	9	31.0%	5	17.2%	2	6.9%	2	6.9%

The participants were staff members recruited from Mental Health services within a South Wales Health Board. Participants who met the inclusion criteria were given an information sheet by their line manager. If interested in taking part, the participant provided consent to meet with the researcher.

2.6 Measures

This study aimed to investigate the relationship between individual values, occupational burnout and clinical empathy within NHS mental health staff. All participants were asked to complete a demographic questionnaire, a self-report values questionnaire, a self-report burnout questionnaire, a priming or control task, and a computer based assessment of empathy. Each measure used will now be outlined, with reference to administration, and reported validity and reliability.

2.6.1 Demographic questionnaire

A demographic questionnaire was administered in order to measure the homogeneity of the samples within and between each group (See appendix A). The information collected from this questionnaire included the participants' age range, gender, job title, number of years in current position, total years working in mental health services, and average hours of service user contact per week.

2.6.2 Portrait Values Questionnaire

The Portrait Values Questionnaire (PVQ-RR; see appendix B) was completed by all participants (n=87). This was in order to test the participants' value orientations, in line with 8 of the 9 hypotheses (see introduction, section 1.9).

The Portrait Values Questionnaire (PVQ) was developed to measure human values within the Schwartz model. There have been three versions of the PVQ; the PVQ 40, the PVQ 21, and the more recent PVQ-RR. The PVQ 40 (Schwartz, Melech, Lehmann, Burgess & Harris, 2001) was developed to measure the ten basic values of the original Schwartz model of human values (Schwartz, 1992). The PVQ 21 is a shorter version of

the PVQ 40, designed specifically for use in the European Social Survey but with the same aim to assess the ten human values within the original Schwartz model. The PVQ-RR (Schwartz *et al.* 2012) was developed in order to expand the original PVQ to incorporate the more narrowly defined nineteen values inherent in Schwartz' updated model of human values (Schwartz, 2012).

The PVQ-RR consists of short verbal portraits of 57 different people, gender matched with the respondent. Each portrait describes a person's goals, wishes, or aspirations that directly represent the importance of a value. Each of the 19 values within the Schwartz (2012) refined theory of human values is represented by 3 of the verbal portraits. For example, item 5 of the male version measures the 'Universalism-Concern' value by stating 'It is important to him that the weak and vulnerable in society be protected'. For each portrait the respondent is invited to consider 'how like you is this person'. The respondent can choose from a set of 6 responses, consisting of: very much like me, like me, somewhat like me, a little like me, not like me, and not like me at all. The values of the respondent are inferred from their self-reported similarity to the individuals described in the portraits, who are solely described in terms of their particular values.

Each value and its related questionnaire item can be found in Table 2-3.

The PVQ-RR was chosen for the current study due to its applicability to the updated values model proposed by Schwartz (2012). Further to this, there have been reported concerns with regards to the internal consistency of the PVQ-21 (Davidov, 2010; Davidov *et al.*, 2008). A study by Cieciuch, Davidov, Vecchione, Beierlein, and Schwartz (2014), found that the cross-country invariance properties of the PVQ-RR are substantially better than those measured with the PVQ-21. The internal consistency of the PVQ-RR has been shown to be good at the 19 individual value levels of Schwartz's revised theory, and also in relation to the ten values recorded by previous version of the PVQ (Schwartz *et al.* 2012; Cieciuch *et al.* 2014). The Index of Quality (IoQ) corresponds to the correlation between the observed variables and the latent variable (Sarlis & Gallhofer, 2007). The nineteen individual values measured by the PVQ-RR had IoQ values of 0.63 to 0.87 (Cieciuch *et al.* 2014). Cronbach alpha levels of internal consistency were also reported when representing the ten original values within the updated PVQ-RR. These were as follows: Tradition $\alpha = 0.83$, Universalism $\alpha = 0.82$, Benevolence $\alpha = 0.81$, Security $\alpha = 0.78$, Self-direction $\alpha = 0.77$, Power $\alpha = 0.73$, Conformity $\alpha = 0.73$, Hedonism $\alpha = 0.70$, Stimulation $\alpha = 0.70$, and Achievement $\alpha = 0.66$.

Value	Item numbers	Value	Item Numbers
Self-direction Thought	1,23,39	Tradition	18,33,40
Self-direction Action	16,30,56	Conformity-Rules	15,31,42
Stimulation	10,28,43	Conformity-Interpersonal	4,22,51
Hedonism	3,36,46	Humility	7,38,54
Achievement	17,32,48	Universalism-Nature	8,21,45
Power Dominance	6,29,41	Universalism-Concern	5,37,52
Power Resources	12,20,44	Universalism-Tolerance	14,34,57
Face	9,24,49	Benevolence –Care	11,25,47
Security Personal	13,26,53	Benevolence-Dependability	19,27,55
Security Societal	2,35,50		

Table 2-3 - Scoring key for the 19 values in the PVQ-RR

In order to account for participants that may consistently rate all values in the lower or higher ranges, stating that they are very much like or not at all like the portraits, the PVQ-RR is scored by the mean responses for each item. Each item's individual response has the participants mean response subtracted from it, in order to indicate the individual's values priorities.

In the case of the current research, which is interested in the values attributed to the higher quadrant values of Self-Transcendence, and Self-Enhancement (Schwartz, 2012), the means scores for certain values were combined as detailed in Table 2.4.

Table 2-4 - Scoring key for higher order values in the PVQ-RR

Higher order value	Value means to combine
Self-Transcendence	Universalism-nature, Universalism-concern, Universalism-tolerance, Benevolence-care, Benevolence-dependability
Self-Enhancement	Achievement, Power-dominance, Power-resources
Openness to change	Self-direction-thought, Self-direction-action, Stimulation, Hedonism
Conservation	Security-personal, Security-societal, Tradition, Conformity-rules, Conformity-interpersonal

2.6.3 Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI; see appendix C) was completed by all participants (n=87). This was in order to test the participants' level of burnout in line with 8 of the 9 hypotheses (see introduction, section 1.9).

The MBI (Maslach & Jackson, 1996) is a self-report questionnaire that measures professional burnout across the three elements conceived by Maslach and colleagues (Maslach, 1980; Maslach & Jackson, 1996). These elements consist of 'Emotional Exhaustion' (EE; feeling unable to carry on), 'Depersonalisation' (DP; unfeeling and impersonal response towards recipients of one's service), and 'Lack of Personal Accomplishment' (PA; lack of satisfaction from the job).

The MBI is a 22-item scale, with responses across a 7-point Likert scale that measures the frequencies the participant may experience the above aspects of burnout. The items are written in the form of statements about personal feelings and attitudes. The responses consist of: '0 – never', '1 – a few times per year', '2 – once a month', '3 – a few times per month', '4 – once a week', '5 – a few times per week', and '6 – every day'. The data returned from the MBI is ordinal.

An example of a question within the Emotional Exhaustion subscale is '4) I feel frustrated by my work'. An example of a question looking at Depersonalisation is '13) I have become more insensitive to people since I've been working'. One of the questions pertaining to Lack of Personal Accomplishment is '15) I accomplish many worthwhile things in this job'. The items pertaining to the subscale Lack of Personal Accomplishment are scored in reverse.

There are 9 items pertaining to EE, giving it a range of 0 – 54, 5 items pertaining to DP, giving it a range of 0 – 30, and 8 items pertaining to PA, giving it a range of 0 – 49. Increased burnout tendencies are indicated by high EE and DP mean scores and by low PA mean scores.

The convergent and discriminant validity and reliability of the MBI has been validated with professionals working in healthcare services, including general practitioners and nursing staff (Maslach & Jackson, 1981; Maslach & Jackson, 1996; Maslach & Jackson, 1996). Studies carried out by Iwanicki & Schwab (1981) and Gold (1984) support reliability such as the three-factor structure and internal reliability. Cronbach alpha ratings of $\alpha = 0.90$ for Emotional Exhaustion, $\alpha = 0.76$ for Depersonalisation, and $\alpha = 0.76$ for Lack of Personal accomplishment were reported (Iwanicki & Schwab, 1981). Further to this, Poghosyan *et al.* (2009) carried out a factor analysis of MBI surveys of nurses from 8 different countries. Compiling the MBI results from 54,738 nurses in 646 hospitals, they reported that the 22-item MBI has similar factorial structures across countries with different health systems and different languages,

suggesting that the MBI can be used with confidence to study the correlates of nurse burnout globally (Poghosyan *et al.* 2009).

2.6.4 Multifaceted Empathy Test

The Multifaceted Empathy Test (MET-core-2; see appendix D) was completed by all participants (n=87). This was in order to test the participants' levels of empathy, in line with the hypotheses; 1, 6, 7, 8, and 9 (see introduction, section 1.9).

The MET was constructed in order to measure two separate aspects of empathy; cognitive and emotional. It is a naturalistic measure of empathy that is delivered via E-Prime, a set of psychological software tools for presenting experimental stimuli and recording responses. E-Prime version 2.0.10.356 was used for the current study. The MET was developed by Dziobek, Rogers, Fleck, Bahnemann, Heekeren, Wolf & Convit (2008).

There are two versions of the Multifaceted Empathy Test; the MET and the MET-core-2. The original MET presented participants with a series of photographs containing pictures of people in emotionally charged situations. Cognitive empathy is rated through the participant inferring the emotional state of the person pictured from a choice of 4 emotion options. Emotional empathy is measured by asking the respondent to rate both their emotional reaction to the picture and the degree of empathic concern they feel for the person in the picture.

The MET-core-2 (core for COndensed and REvised) presents respondents with 20 negative and 20 positive photographs of individuals experiencing emotions. The pictures show people in emotionally charged situations, are considered to provide more ecologically valid stimuli, depicting everyday life scenes and conveying information on emotional mental states via facial expressions, body language, and context (Wolf, Schulte, Drimalla, Hamacher-Dang, Knoch & Dziobek, 2015). The difficulty of the items as well as age and gender of the people in the pictures are matched across the positive and negative stimuli. The MET-core-2 includes a cognitive empathy condition (CE; "What emotion is this person feeling?") and one emotional empathy condition (EE; "How much do you empathize with this person?"), both questions are asked for each picture, therefore the participant sees each picture twice during the test. To assess cognitive empathy (CE), participants are asked to infer the mental state of the individual in each picture from a list of four alternatives. For emotional empathy, participants are asked to rate, for the same pictures in different blocks, how much they empathize with the person (EE) on a Likert scale ranging from 0 (not at all) to 9 (very much). Correct responses in the CE condition are scored as one point and a sum score is computed. For EE, an average rating score is calculated. The E-Prime software also computes the time taken to answer each question in milliseconds, for a real-time

representation of how long each participant took to read, consider, and answer the question.

These two methods of cognitive and empathy assessment have proven to be informative, reliable, and sensitive, while keeping testing time at a minimum (approx. 5-10 min; Wolf *et al.* 2015). The MET-core-2 contains photo material which has been validated in a separate study (Lemme, 2012). The picture order is randomised by the psychological software tool E-Prime.

A study of the convergent and divergent validity of the MET found significant correlations for both emotional and cognitive empathy with another standardized and validated measure of empathy, the Interpersonal Reactivity Index (Davis, 1980). Within the same study, divergent validity was measured using Pearson's correlational analysis and supported the construct validity of the MET (Dziobek *et al.* 2008). The internal consistency of the MET subscales was assessed at good to highly satisfactory levels, with the Cronbach's Alpha level reported as $\alpha = 0.71$ for the cognitive empathy scale and $\alpha = 0.91$ for the emotional empathy scale (Dziobek *et al.* 2008). The MET uses photo-realistic stimulus, which increases its external validity when compared to self-report measure (Dziobek *et al.* 2011). The MET-core-2, condensed and revised version, has been shown to be a reliable and sensitive measure of empathy in previous studies involving healthy participants and participants with psychiatric disorders (Wolf *et al.* 2015; Dziobek *et al.* 2011; Hurlmann *et al.* 2010; Wingenfeld *et al.* 2014).

With regards to the current study, priming values have been outlined as a method that increases the likelihood of performing a behaviour that supports the same motivation, whilst decreasing behaviour that supports an opposing motivation. As the MET is a stimuli/response task based assessment of empathy, it was decided that this measure may capture the results of any primed values better than a self-report, purely cognitive task. Due to the task-based nature of the MET and it's accordance to the definitions of empathy (as outlined in Section 1.4), this study will examine empathy using the MET.

2.6.5 Priming tasks and control group task

The participants in both experimental groups were asked to complete a priming task (see appendix E). The participants in the control group were asked to complete a similarly cognitively weighted task which did not involve priming any values (see appendix F). This task was the manipulating variable in the current study. The experimental group task involved asking the participant to give reasons for different values being important. Participants in the experimental conditions were primed to values opposed to one another on the Schwartz (2012) model of human values. One group was asked to list as many reasons as to why it is important to be helpful, forgiving, caring, and understanding. These values are closely linked to the self-

transcendence quadrant and higher order value. These wider motivations of the self-transcendence values are in conflict with the opposing values within the self-enhancement quadrant i.e. achievement, power dominance, and power resources values, which have motivations that are more about a personal focus with motivations more about being anxiety avoidant, as opposed to a social focus with motivations more about being anxiety free.

The other experimental group was asked to list as many reasons as to why it is important to be successful, ambitious, capable and influential. These values are closely linked to the self-enhancement quadrant and higher order value. These wider motivations of the self-enhancement values are in conflict with the opposing values within the self-transcendence quadrant i.e. universalism-nature, universalism-concern, universalism-tolerance, benevolence-care, and benevolence-dependability, which have motivations that are more about a social focus with motivations more about being anxiety free, as opposed to a personal focus and with motivations more about being anxiety avoidant.

In both conditions, participants were given up to ten minutes to list as many reasons as possible as to why the values were important to them and to society in general.

The participants in the control group were asked to list as many animals as they could for the same amount of time. In line with priming research, this task would involve a similar amount of cognitive load as the experimental groups priming tasks. Priming studies that have included experimental conditions that ask participants to explicitly record reasons why certain values are important have been shown to use control group tasks that are paper and pencil tasks and are reported as being as cognitively demanding as the experimental condition. These tasks are concerned with accessing memory and reporting on knowledge, examples of which are finding specific words in a paragraph (Maio, 2009a), listing words within categories from memory (Maio 2009b; Verplanken & Holland, 2002), and crossing certain words out within a list (Maio, 2002). The current study has used a control task similar to that utilized by Maio (2009b) and Verplanken & Holland (2002), asking controls to list as many words as possible within a category that is not associated with the priming task.

2.7 Recruitment and consent

Prior to recruitment, ethical approval and research and development permissions were obtained, please see Research Governance section for details (section 2.10).

The participants were recruited via convenience sampling from the mental health units within a psychiatric hospital in South Wales. Initial contact was made by the researcher

and academic supervisor to the Mental Health Clinical Board Chair. This was in order to communicate the purposes of the study to the management team of the hospital and to facilitate access to the staff teams. Further to this, the Research and Development lead for Psychology within the relevant Health Board was contacted to gain further appropriate permissions to access the sample population.

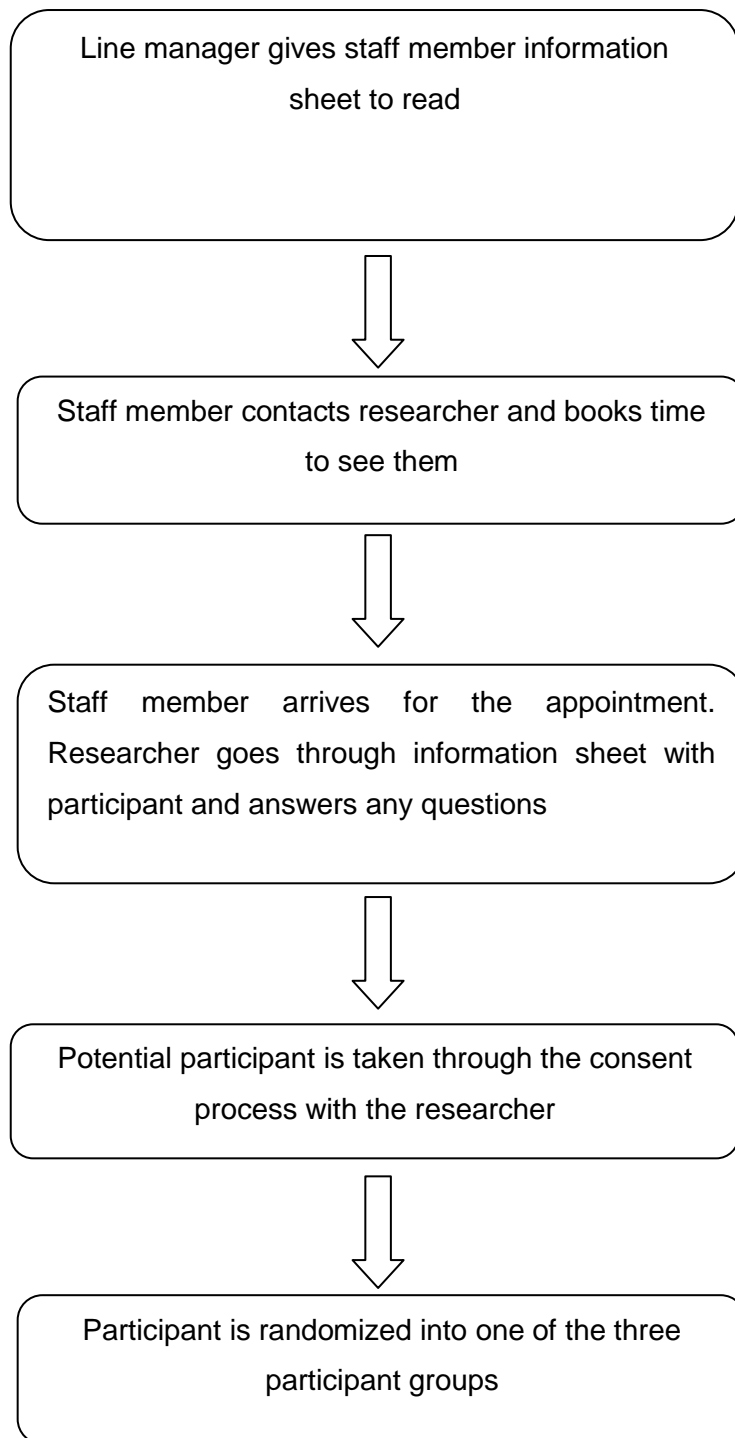
The current study was advertised through the use of recruitment posters put up within the staff member areas of the hospital's units. The posters detailed the name of the study, length of time needed to participate, the nature of participation, and contact details of the researcher. The poster also highlighted that a £50 voucher prize draw was being held after the completion of the study and entry into the prize draw was given to each participant in the study. Further advertising of the study took place within ward manager meetings with a Professional and Practice Development Nurse. Information sheets (see appendix G) were handed out to the unit managers during these meetings and the ward managers were asked to disseminate these to inform their staff about the study. The purpose of this was to provide potential participant with information about the research to inform their choice about whether they wished to contact the researcher to discuss participation.

Staff members who were interested in participating in the study would then use the email or telephone contact details of the researcher contained within the information sheet and recruitment poster in order to make an appointment to take part within the study. During this contact, the researcher checked the staff members' eligibility to take part in the study against the inclusion and exclusion criteria listed above. If the staff member met all required criteria, a mutually convenient time was organised to consent the participant and administer the questionnaires. Each participant was given a further copy of the information sheet at this stage to ensure they had received all of the information and had time to consider the information they had received within the participant information sheet before meeting with the researcher to participate.

Throughout the recruitment phase of the current study, a number of rooms were made available to the researcher to use across the hospital. The rooms invariably consisted of chairs, tables and a plug socket for the laptop. They were situated adjacent to the units and were nominally used as family rooms or meeting rooms.

Upon meeting to conduct the study, the researcher took the participant through the information sheet to check understanding and answer any questions the potential participants may have. Participants were informed that they could withdraw from the study at any time and that any withdrawal will not affect their employment in any way. Following this, the staff were asked to initial and sign the consent form (see Appendix H). An outline of the process of recruitment and consent can be seen in Figure 2-1.

Figure 2-1 - Recruitment and consent outline



2.8 Procedure

Following the gathering of informed consent, the participants were randomly allocated to one of three conditions; two experimental groups and one control group. Randomization of participants to these groups occurred with the use of an online

random number generator. The online random number generator was used as it could be programmed to provide random allocation to group while keeping the spread of allocation to each group relatively even. Within this study, this process involved programming the number generator to output group numbers in groups of 9. This was to ensure that however many participant were recruited, each consecutive 9 participants had 3 participants in each of the two experimental groups and the control group. The researcher kept the randomization list with him during appointments and referred to it following consent. This would dictate which questionnaire pack would be administered to the participant.

Once randomized, each participant was given the questionnaire pack and asked to complete the demographic questionnaire. When this was completed, the researcher checked over the details against the inclusion and exclusion criteria and administered the Portrait Values Questionnaire (PVQ-RR, see Appendix B) and the Maslach Burnout Inventory (MBI, see appendix C).

Those participants in the experimental groups were then asked to complete the priming tasks, those in the control group were asked to complete a similarly cognitively weighted task. These tasks took between 5-10 minutes on average. Both priming tasks and the control task can be seen in Appendixes E and F. The control group task presented the participant with a lined sheet of paper with one question at the top, asking the participants to name as many animals as they could. The researcher explained that the participant would have at least five minutes to record as many animals as they could and could have up to a maximum of ten minutes. They were asked to keep listing animals for as long as they could within these time frames, to ensure comparative levels of effort across the groups.

Following the completion of either priming or control task, all participants were asked to complete the computer based Multifaceted Empathy Test (MET-core-2, see Appendix D). The researcher was available during the beginning of the MET-core-2, while it outlines its instruction on how to complete it, in order to answer any questions about using the computer based program.

Once all of the measures were complete, the participants were given a debrief sheet to read (see Appendix I), outlining the study aims and providing a rationale for the tasks they completed. All participants were also given a verbal outline of the true nature of the study. During this time they were assessed for suspicion to the nature of the experiment, in order to help support the validity of the results. A funnelling question debrief was used, in line with previous research into priming tasks (Maio *et al.* 2009). Participants were asked questions regarding what they thought the study was about, they were then given more information about the study details, and were asked questions aimed at discovering suspicions about the nature of the study. It was outlined

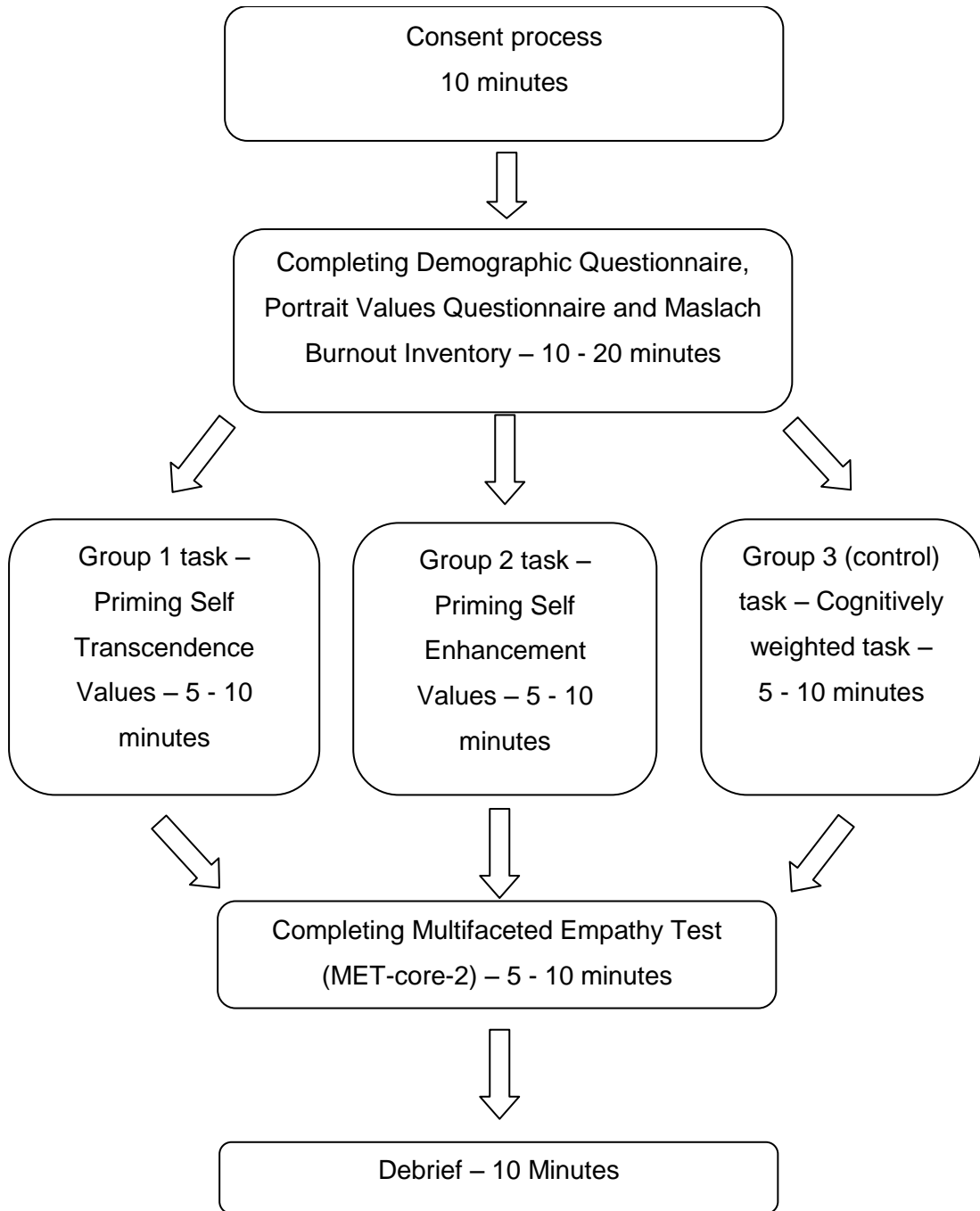
that participants were not told the hypotheses of the study before taking part, as this could affect the way in which they responded to the questionnaires and the tasks involved. Participants were then told what the questionnaires measured and the rationale behind the priming or control tasks. During this verbal debrief, the participants were invited to ask any further questions from the researcher, who looked for any signs of emotional distress brought on by the study, ready to offer advice, support and signposting to support services if deemed appropriate. Further input and support was not needed throughout the data collection period and following the involvement in the study of all 87 participants. The contact details of the researcher and supervisor were given to the participant in case they had any further need for support, questions about the study, or if they wished to withdraw from the study. Further to this, the contact details for the ethics committee within the School of Psychology at Cardiff University were given to the participants within the debrief sheet, should they have any queries regarding the ethical aspects of the study.

Following the appointment, all identifiable information of the staff members recruited were kept separate from the data obtained from them, following GCP guidelines. The study used anonymous participant identifiers to link each participant's set of data. The participant will only be contacted following their involvement in the study if they have won the randomly-allocated prize of £50 M&S voucher.

Following completion of data collection appointment, each participants' data was inputted into the Statistical Package for Social Sciences Version 22 (SPSS 20; IBM Corp, 2015).

An outline of the procedure for this study can be found in Figure 2.2.

Figure 2-2 - Procedure outline



2.9 Data analysis

The current study employed a quantitative methodology, as the data were obtained from standardized questionnaires, which incorporated interval and ratio measurements.

The quantitative data was inputted to SPSS, which was used to both store and analyse the results. Data were explored in terms of meeting assumptions for using covariate (ANCOVA) methods of analysis. The data passed 7 of the 9 assumptions for the use of parametric tests but failed to demonstrate a linear relationship between the variables or

homogeneity of variances. Due to the concerns over transforming data from all variables, and the failure to meet two of the assumptions, the current study used non-parametric tests to investigate the between subjects hypotheses, and mediation analysis alongside non-parametric tests for the hypotheses regarding correlations between the variables (see Section 3.2.4). These methods of analyses were decided through discussion as the methods best suited to prove or disprove the studies hypotheses with the research supervisor and relevant literature (Field, 2013).

2.10 Research Governance

As the current study was conducted using NHS staff members, ethical approval was sought from Cardiff University Ethics Board (see Appendix J) and NHS permissions were obtained through the relevant Research and Development Department (see Appendix K). The project was registered through the Health and Care Research Wales Clinical Research Portfolio. Sponsorship for the current study was provided by Cardiff University (see Appendix L). The sponsor of the research held appropriate insurance and indemnity arrangements for the duration of the study, sponsorship number: SPON 1479-15. The following aspects of clinical governance were given particular ethical consideration in this study.

Informed consent

All participants were provided with information sheets which outlined the purpose of the study and what they may be asked to do if they agreed to take part. Particular emphasis was placed on the fact that participation was voluntary, and that each participant could withdraw at any time, to no detriment to themselves and without giving a reason. All participants signed a consent form which indicated that they had read the information sheet, had an opportunity to ask any questions they may have had, and that they had understood that they were free to withdraw at any time.

Anonymity and confidentiality

Participants were not asked to provide any personal details through the completion of the questionnaires and the priming tasks. The only identifiable information gathered was within the consent forms, which required the participants name, their signature, and a contact email should they win the prize draw. These consent forms were kept separately from the questionnaires in a locked filing cabinet in Cardiff University's School of Psychology. The anonymous data gathered from the questionnaires was kept in a separate locked filing cabinet within the same building. Participants were given coded identifiers that could identify their results and consent forms in case they

withdrew from the study following data collection, and to gather their contact details from the consent forms if they should win the prize draw. Both anonymous and identifiable data were stored in locked filing cabinets within Cardiff University and will be kept there for 5 years. The data stored within computers was anonymous, and will be kept securely, using password protected files, within secure University computers for 5 years.

Risk and safety

Throughout the consent and data collection period, hospital procedures and the BPS Code of Conduct (BPS, 2009) were followed by the researcher at all times. If any information pertaining to risk was disclosed, the participant was to be informed of this where possible. This information was to be shared with the participant's line manager, and any further concerns regarding disclosures or risks were to be discussed with the academic supervisor.

It was not anticipated that taking part in this research project would cause participants any harm. However, it was possible that the questions asked within the study may elicit some emotional reaction in the participants. Any potential disadvantages of participating were clearly outlined in the Participation Information Sheet and were discussed with the participant before they decided whether or not to provide informed consent. It may potentially be distressing to be asked questions about burnout and for the participant to be asked to record their level of empathic reaction when shown pictures that contain humans experiencing both positive and negative emotions. Therefore, every effort was made to reduce any distress experienced, such as taking breaks or stopping the session if the participant requested.

The questionnaire administration did not take place during working hours and lasted approximately half an hour, excluding the consent and debrief process. In order to work around shift patterns, participants were seen before and after shifts, or during breaks of sufficient length so that participation in this research did not use all of their break time, allowing the participants some time to relax before going on shift again.

During the data collection appointment, the researcher was responsible for monitoring the staff member's risk of harm to themselves or others throughout the procedure. If at any time during the research procedure the researcher thought it was unsafe or inappropriate for the participant to continue, the session was terminated early.

If the staff member became distressed during the interview, the researcher was authorized to attempt to reduce the distress, using skills relevant to their clinical training. If the staff member remained distressed, they were to be offered a break. Following this, the staff member would decide whether they wanted to continue the

research. The researcher was also responsible for deciding whether or not it was appropriate and safe for the research to continue.

Conflict of interest

At the time of the research, the researcher was not working clinically with the recruitment population and therefore no conflict of interest between research and clinical work arose. Further to this, the researcher has no personal connection to any members of staff or management within the sample population workforce.

Anticipated costs

The Doctorate of Clinical Psychology Programme allocates £250 non-staff costs per Large Scale Research Project and it is not anticipated that the costs will exceed this budget. The equipment for producing the questionnaires and conducting the computer based task will be borrowed from the Programme. The staff costs in terms of time and travel have been anticipated in the staff budget of the Programme, as research activity forms 20% of contracted trainee time. The participants within the study were seen within their own time, outside of working hours and as such did not engender any costs.

Chapter 3 - Results

3.1 Introduction

This chapter will describe the results of the current study. The chapter will begin by outlining the steps taken to ensure the quality of the data was sufficient for the statistical tests used. It will give details of any excluded data from the analysis and how missing values and outliers were identified and managed. It will outline how the data met the assumptions for conducting multivariate analyses. Descriptive statistics will then be outlined for the sample and measures used. Following this, details of the statistical analysis will be given and the results reported in relation to the study hypotheses.

Statistical Package for Social Sciences (SPSS, Version 22; IBM Corp. 2015) was used for data screening, testing assumptions for multivariate analysis, descriptive and inferential statistics.

3.2 Data Management

This section describes how the data were prepared for statistical analyses by screening for missing data, identifying outliers and by checking that the data met the assumptions for conducting the statistical tests required to answer the hypotheses.

3.2.1 Missing values

During the data entry process, missing values were set to be coded at '666' to distinguish them from the other data. A visual scan of the data confirmed that no missing values were present in the data. Following this, a Missing Values Analysis (MVA) was conducted on the dataset, which showed that there were no variables that had 5% or more missing across the complete dataset. It was found that no Missing Not at Random (MNAR) or Missing at Random (MAR) values were present in the dataset. The dataset was considered complete.

3.2.2 Extreme scores and outliers

Extreme values analysis was conducted by studying boxplots created from the questionnaire data and carrying out the Missing Values Analysis. Boxplots were created of overall medians of the subscales for the Maslach Burnout Inventory (MBI) and the Multifaceted Empathy Test (MET-core-2; see Appendix M). Further boxplots were created of overall medians across the groups for the subscales for the MBI and the MET-core-2 (see Appendix N).

After examining the boxplots and the Missing Values Analysis, a Winsorising method was applied to the outlier and extreme scores identified. This methods involved changing the outlying scores to match the next highest score that was not assessed as an outlier or extreme score (Field, 2013). The outliers identified are outlined in Table 3-1, along with details of the changes made to each score.

Table 3-1 - Summary of values changes made

Subscale	Participant ID	Old Value	New Value
MBI Emotional Exhaustion	18	44	29
	83	38	29
MBI Depersonalisation	83	24	8
	48	22	8
	32	21	8
	58	19	8
	12	13	8
	18	10	8
MBI Lack of Personal Accomplishment	58	28	22
	26	28	22
MET-core-2 Cognitive Empathy	13	37	35
MET-core-2 emotional Empathy	26	80	108
	16	84	108

The Portrait Values Questionnaire (PVQ-RR) data was not included in these methods to identify extreme scores and outliers and tests of normal distribution. This was in line with the standardisation recommendations of the questionnaires author (Schwartz, 2014) and appropriate due to the nature of the analysis planned for the PVQ-RR. Further details for the analysis of the PVQ-RR can be seen in Chapter 2 – Method (section 2.6.2) and below (section 3.3.2).

3.2.3 Tests of assumption for analysis of variance

A cross-sectional between subjects design was used within this study. To test whether the data gathered met the assumptions for carrying out multivariate statistics, such ANCOVA and mediation analysis, the PVQ-RR, MBI, and MET-core-2 data was tested for the following assumptions.

1) *The two or more dependent variables should be measured on a continuous scale at the interval or ratio level.*

The data gathered from the PVQ-RR and MBI is of the interval level as participants had to rate each question on a Likert scale of 1-6 and 0-6 respectively. The MET-core-2 data consists of interval level data, in the form of responses on a Likert scale of between 1-9 for the emotional empathy subscale, and a sum of corrected scores on a scale of 0-40 for the cognitive empathy subscale. The MET-core-2 also measures time taken to complete each response, in milliseconds, so is continuous. This assumption was met.

2) *The independent variable should consist of two or more categorical, independent groups.*

The independent variable was the experimental group each participant was randomised to. Each participant was either in experimental group 1 (*self-transcendence*), experimental group 2 (*self-enhancement*), or the *control* group. These groups were independent of each other, meaning that each participant was exclusively placed within one of the 3 groups. This assumption was met.

3) *There should be independence of observations.*

Participants were randomly allocated to the experimental and control groups (*self-transcendence*, *self-enhancement*, and *control*), which were mutually exclusive. All other groups, such as *high* versus *low* burnout, were also mutually exclusive. There was no relationship between the observations in each group or between the groups, there were different participants in each group, and no participant could be in more than one group. This assumption was met.

4) *There should be an adequate sample size.*

The power analysis outlined in section 2.3 indicated that a sample size of above 84 was required for sufficient statistical power, in line with previous studies (Maio, 2009a; Maio, 2009b; Verplanken, 2002). The current study recruited 87, with 29 participants in each experimental group, meaning there was an adequate sample size and this assumption was met.

5) *There should be no significant outliers.*

Outliers were identified using boxplots and the Missing Values Analysis. A Winsorising method was applied to the outliers (see section 3.2.2). Therefore, this assumption was met.

6) *There is multivariate normality.*

To ensure the dependent variable was approximately normally distributed for each level of independent variable, skew and kurtosis scores were obtained for the MBI and MET-core-2 (excluding the PVQ-RR, for reasons outlined) and Q-Q Plots and histograms were created to study the distribution of the scores (see Appendixes O-Q). In addition to this Kolmogorov-Smirnov tests for each measure were examined at the group level, as Kolmogorov-Smirnov tests are not as effective on a larger sample, where very small deviations from a normal distribution can lead to significant results. (Field, 2013). These were completed and interpreted in conjunction with the other information available. The interpretation of these methods to test for multivariate normality is outlined below.

Maslach Burnout Inventory (MBI)

The normal distribution measures containing histograms and Q-Q plots can be seen in Appendix O and skew and kurtosis scores can be found in Appendix Q. The individual group Kolmogorov-Smirnov tests did not produce any significant skew results within the MBI data; self-transcendence ($D(29) = .135, p=.191$), self enhancement ($D(29) = .133, p=0.20$), and control ($D(29) = .132, p=0.20$). This was supported by studying the related Q-Q plots along with the scores obtained for skew and kurtosis. The skewed z score for self-transcendence was calculated as 2.09, significant at the $p<0.05$ level (see Appendix Q). Values for skewness and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). As the Kolmogorov-Smirnov test did not report significant results for this group, the level of skewness was felt to be acceptable. Therefore the MBI scores can be considered to meet the assumption for having a normal distribution.

Multifaceted Empathy Test (MET-core-2) – cognitive empathy

The normal distribution measures containing histograms and Q-Q plots can be seen in Appendix P and skew and kurtosis scores can be found in Appendix Q. The individual group Kolmogorov-Smirnov test for the MET-core-2 cognitive empathy scale found mixed results. The self-transcendence group produced significant positive skew results within the Kolmogorov-Smirnov test ($D(29) = .181, p<0.05$), this was in line with the skew z score, which was reported as 2.03 and found to be significant at the $p<0.05$ level (see Appendix Q). Both the self enhancement group ($D(29) = .139, p=0.162$), and control group ($D(29) = .129, p=0.20$) did not show any significant results. This was supported by studying the related Q-Q plots along with the scores obtained for skew

and kurtosis. The skew z score for self-transcendence was calculated as 2.03. Values for skewness and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). Although the Kolmogorov-Smirnov test did report significant results for this group, the level of skewness was felt to be acceptable against the robustness of multivariate statistical analysis as it fell just outside of the recommended levels. The MET-core-2 cognitive empathy scores can be considered to have a normal distribution for 2 of the 3 experimental groups, and adequate normal distribution in relation to the robustness of an ANCOVA for the self-transcendence group.

Multifaceted Empathy Test (MET-core-2) – emotional empathy

The normal distribution measures containing histograms and Q-Q plots can be seen in Appendix P and skew and kurtosis scores can be found in Appendix Q. The individual group Kolmogorov-Smirnov tests did not produce any significant skew results within the Kolmogorov-Smirnov test, with self-transcendence ($D(29) = .081, p=0.20$), self enhancement ($D(29) = .117, p=0.20$), and control ($D(29) = .157, p=0.06$). This was supported by studying the related Q-Q plots along with the scores obtained for skew and kurtosis. The MET-core-2 emotional empathy scores can be considered to have a normal distribution.

Outcome of tests for multivariate normality.

In summary, only one of the three measures tests contained significant skewness to the $p<0.05$ level. All of the other data were considered to have met the assumption of multivariate normality. The exception was in the data gathered from the MET-core-2 cognitive empathy scale within the self-transcendence experimental group. For this portion of the data, both the Kolmogorov-Smirnov test and the skew z score reported a positive skew at a significance level of $p<0.05$. Upon review, the level of skewness for this measure and group was felt to be acceptable as it fell just outside of the recommended levels as values for skewness and kurtosis between -2 and +2 are considered acceptable as the statistical test planned for this study, ANCOVA, is relatively robust even when certain assumptions are not met (George & Mallery, 2010; Field, 2013). Taking this into account, the data in the current study was deemed to have multivariate normality to the extent that would recommend parametric testing.

7) There is a linear relationship between the covariate and the dependant variable at each level of the independent variable.

Linearity refers to whether the amount/rate of change between scores on two variables is constant for the entire range of scores. Linear relationships can be tested through the use of scatterplots. These were conducted for the covariate and dependent variable at each level of the independent variable and can be found in Appendix R. Indications were that linearity could not be assumed, with r^2 scores ranging from a minimum of $r^2 = 0.000002$ to a maximum of $r^2 = 0.245$. The data failed to meet this assumption. If the relationship between the variables is non-linear then using statistical methods that assume a linear relationship will underestimate the strength of the relationship, or will fail to detect the existence of a relationship (Field, 2013). This recommends the use of non-parametric tests.

8) There is homogeneity of variances/ homoscedasticity.

To test the assumption of Homogeneity of variance Levene's test was carried out. The results indicated that homogeneity of variance could be assumed for the MBI ($F(2, 84) = .422, p = .657$) and the MET-core-2 emotional empathy scale ($F(2, 84) = .877, p = .420$). Homogeneity of variance could not be assumed for the MET-core-2 cognitive empathy scale ($F(2, 84) = 4.187, p = .018$). Homoscedasticity means that the variance of errors is the same across all levels of the independent variable. Scatterplots (see Appendix R, T) were consulted and showed heterogeneous variance. The data failed to meet this assumption and recommends the use of non-parametric tests.

9) There is no multicollinearity.

A correlation matrix was performed to assess for correlations between the measures (see Appendix T). Correlations between the questionnaires ranged from $-.299$ ($p = .005$) to $.189$ ($p = .081$). This indicates a moderate level of multicollinearity, as the correlations were not too high (e.g. above 0.9). If regression analyses are used, the closely related independent variables could inflate the predictive value of the model. Removing one of the strongly correlated variables from the analysis can ensure that the regression model is not biased. However, in the context of the current study, the quality of correlations between the data are moderate, therefore the data is seen to meet this assumption (Field, 2013).

10) There is independence of the covariate and the treatment effect (ANCOVA).

To test this assumption for the ANCOVA, an ANOVA was carried out between the experimental groups and the covariate of burnout, (Field, 2013). The results reported no significant effect of the experimental group on the MBI total score ($F(2, 84) = .467, p = .496$) or the MBI subscales (emotional exhaustion, $F(2, 84) = .092, p = .762$;

depersonalisation, $F(2, 84) = .939, p = .335$; lack of personal achievement, $F(2, 84) = 1.41, p = .238$). As this test was non-significant, there is independence of the covariate and treatment effects and the data meets this assumption.

11) Homogeneity of regression slopes. (ANCOVA)

Homogeneity of regression slopes was assessed by plotting regression lines for each group within scatterplots for the dependent variable and the covariate (see Appendix S). The regression lines did differ to some extent, but the regression lines were not over .4 in difference (Field, 2013) and were seen to demonstrate homogeneity, therefore the data met this assumption.

12) Normally distributed errors (Mediation)

Bootstrapping methods will be applied to the confidence interval for the mediation analysis, ensuring that errors are normally distributed (Field, 2013). The data met this assumption.

3.2.4 Summary of assumptions

The data were tested against nine assumptions that are required for a linear parametric test. The data passed 7 of the 9 assumptions for the use of parametric tests but failed to demonstrate a linear relationship between the variables or homogeneity of variances.

The data was also tested for three additional assumptions inherent to the ANCOVA and mediation analyses that were planned for this study. The data was seen to meet the assumptions of independence of the covariate, treatment effect and homogeneity of regression slopes, and normally distributed errors.

There are a number of options stated in the literature to manage the violation of assumptions, these are: 1) Transforming the data, 2) Leaving the data as ANCOVA and mediation are robust to violations, or 3) Using non-parametric equivalents.

- 1) Transforming the data can maintain the different relationships in the data between participants, while altering values of the data to fit with the assumptions of the model. However, all of the variables within the current study violated at least one assumption to some degree and therefore this method would cause all of the variables to be transformed, complicating the interpretation of the results (Grayson, 2004). Further to this, a number of

authors question the ability of transforming data to retain accuracy of the analysis carried out (Levine & Dunlap, 1982).

- 2) The ANCOVA is considered to be a robust test that can overcome the failure of some assumptions, such as non-homogeneity of variance (Field, 2013). However, in this instance the data failed to meet two of the assumptions outlined above, which would reduce the confidence that the results gained would be valid of the participant population. It was decided to run the inherent Levene's test to examine the group variances within the ANCOVA. The Levene's test result was significant ($F(2, 84) = 4.239, p = .018$). Due to the violation of two of the assumptions and the significant results gained by Levene's test, it was decided that the ANCOVA would not be robust enough to overcome these failed assumptions and the ANCOVA was not carried out.

The mediation analysis was deemed to be robust enough to overcome the failure of the two assumptions, as the method of least squares produces 'unbiased' results even when homogeneity of variance can't be assumed (Field, 2013). Violating assumptions has implications for many significance tests and confidence intervals and least squares methods are optimal when assumptions are met. However, the confidence intervals are of the most import, as they tell us the boundaries within which population values of the result are likely to fall. If confidence intervals are inaccurate, the result isn't generalizable to the population. In order to manage this, bootstrapping overcomes the violation of these assumptions for the confidence intervals and will be implemented to increase the robustness of the mediation analysis (Field, 2013).

- 3) Non-parametric tests are robust to the violation of the assumptions above, as they require the data to meet fewer assumptions. The drawbacks of using non parametric tests include less statistical power when the sampling is normally

distributed and fewer tests available to meet the requirements of more sophisticated experimental designs (Field, 2013).

Due to the concerns over transforming data from all variables, and the failure to meet two of the assumptions, the current study used non-parametric tests to investigate the between subjects hypotheses, and mediation analysis alongside non-parametric tests for the hypotheses regarding correlations between the variables. The statistical tests used will be detailed in the following sections.

3.3 Descriptive statistics

The descriptive statistics gathered in the current study will be presented to describe and summarize the demographic information gathered from the participants and the measures used.

3.3.1 Participants

Demographic information was gathered for all 87 participants; 29 in the self-transcendence group, 29 in the self-enhancement group, and 29 in the control group. Table 3-2 outlines the age and gender of the participants in each group.

Table 3-2 - Age and gender of participants

Experimental Group	Age group					Gender		
	18-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	Male	Female	%
	Count	Count	Count	Count	Count	Count	Count	
Self-Transcendence	3 (10%)	13 (45%)	4 (14%)	5 (17%)	4 (14%)	8	21	F: 72% M: 28%
Self Enhancement	6 (21%)	12 (41%)	6 (21%)	4 (14%)	1 (3%)	12	17	F: 59% M: 41%
Control Group	11 (38%)	9 (31%)	5 (17%)	2 (7%)	2 (7%)	10	19	F: 66% M: 34%
All groups (total)	20 (23%)	34 (39%)	15 (17%)	11 (13%)	7 (8%)	30	57	F: 65% M: 35%

The majority of participants were female across the whole sample (65%) and within each experimental group (self-transcendence, 72%; self enhancement, 59%; control group, 66%). A Chi-Square test of variance was carried out to determine if there was significant differences between the groups. The analysis reported no significant differences between the groups for gender ($X^2 = 1.221, p = .543$). The age ranges

reported across the whole sample showed some variance, with the 20 participants age 18-24, 34 participants age 25-34, 15 participants age 35-44, 11 participants age 45-54, and 7 participants age 55-64. A Chi-Square test was carried out to see if age variance between the groups was significant. The analysis reported no significant differences between the groups for age ($X^2 = 9.337, p = .315$).

Table 3-3 outlines the job title information gained from all participants in each group. The data gathered on job title across the whole sample showed some variance, with 41 participants being health care support workers (HCSW), 30 being nurses, 8 being deputy ward managers, 2 being nursing assistants, 2 being ward managers, 2 being nurse development officers, and 2 being activity nurses. A Chi-Square test of variance was carried out to determine if there was significant differences in job titles between the experimental groups. The analysis reported no significant differences between the groups for job title ($X^2 = 5.191, p = .951$).

Table 3-3 - Job titles of participants

Experimental Group	Job Title						
	Nurse	HCSW	Nursing Assistant	Deputy Ward Manager	Ward Manager	Nurse Development Officer	Activities Nurse
	Count	Count	Count	Count	Count	Count	Count
Self-Transcendence	9 (31%)	14 (48%)	1 (3%)	3 (10%)	1 (3%)	1 (3%)	0 (0%)
Self Enhancement	12 (41%)	12 (41%)	1 (3%)	2 (7%)	0 (0%)	1 (3%)	1 (3%)
Control Group	9 (31%)	15 (52%)	0 (0%)	3 (10%)	1 (3%)	0 (0%)	1 (3%)
All groups (total)	30 (35%)	41 (47%)	2 (2%)	8 (9%)	2 (2%)	2 (2%)	2 (2%)

Table 3-4 outlines the total years' experience in mental health services alongside the totals year experience within the current position and hours of service user contact per week. Due to these variables being interval, a one-way ANOVA was performed between the two experimental priming groups and the control group. The ANOVA showed no significant differences between the groups in terms of number of years in current position ($F(2,84) = .829, p = .440$), total years in mental health services ($F(2,84) = 1.002, p = .372$), and hours of service user contact per week on average ($F(2,84) = .008, p = .992$).

Table 3-4 - Years in position, total years, and hours of contact for participants

	Number of years in current position			Total years in mental health services			Hours of service user contact per week on average		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Self-Transcendence	6.72	5.71	1 – 22	10.16	8.82	1.25 - 34	35.7	8.0	5.0
Self Enhancement	4.79	4.62	1 – 21	7.26	5.61	1 – 21	35.5	8.0	7.5
Control Group	6.53	8.01	1 – 32	9.28	9.13	1 - 38	35.7	7.1	16.0

3.3.2 Descriptive Statistics for measures

Descriptive data for the variables measured with the current study will be outlined in this section. The mean scores, standard deviations, and range of scores will be outlined for the PVQ-RR, MBI, and MET-core-2.

3.3.2.1 Portrait Values Questionnaire (PVQ-RR)

The PVQ-RR descriptive data will be presented in two sections. Firstly, the data for the actual scores across each value and the higher order corrected means will be presented. Following this, values priorities will be outlined with reference to the complete sample as well as each experimental group.

Descriptive data for the PVQ-RR is presented in Table 3-5 and consists of mean score, standard deviation, and range of scores.

Table 3-5 - PVQ-RR descriptive data

	Experimental Group								
	Self-Transcendence			Self Enhancement			Control Group		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Self-Direction Thought	15.17	2.106	10 – 18	15.52	2.064	11 – 18	15.10	2.469	7 – 18
Self-Direction Action	14.69	2.222	11 -18	14.48	1.975	9 – 17	14.34	2.224	10 – 18
Stimulation	13.00	2.854	6 -18	13.59	2.639	9 – 18	12.97	2.413	8 – 18
Hedonism	14.52	2.324	9 - 18	14.76	2.586	10 – 18	14.45	2.010	10 -18
Achievement	11.86	3.032	6 – 18	12.52	2.824	6 – 18	13.03	2.556	7 – 18
Power Dominance	7.62	2.705	3 – 17	6.72	2.153	3 – 12	7.28	3.217	3 – 14
Power Resources	6.72	3.093	3 – 18	6.17	2.660	3 – 12	7.34	2.663	3 – 12
Face	12.62	2.921	7 -17	12.17	3.208	6 – 17	12.52	2.886	6 – 17
Security Personal	14.24	2.559	6 – 18	13.00	2.739	7 – 18	13.10	2.425	8 – 18
Security Societal	13.59	2.810	7 – 18	12.72	3.545	4 – 18	13.72	2.890	8 – 18
Tradition	10.66	4.530	3 – 18	8.76	3.925	3 – 17	9.97	3.932	4 – 18
Conformity Rules	13.48	3.280	6 – 18	12.69	3.392	6 – 18	12.45	3.651	6 – 18
Conformity Interpersonal	13.45	2.995	8 -18	12.07	4.358	5 – 18	13.28	2.658	8 – 17
Humility	13.86	2.615	7 – 18	13.10	2.596	9 – 17	13.00	2.375	8 – 17
Universalism Nature	12.72	3.401	7 – 18	12.24	3.020	6 – 17	11.72	3.116	6 – 17
Universalism Concern	16.52	1.745	11 – 18	15.97	2.413	9 – 18	16.21	1.677	11 – 18
Universalism Tolerance	15.86	1.959	11 – 18	15.97	2.096	10 – 18	16.10	1.589	12 – 18
Benevolence Care	16.07	1.889	11 – 18	16.59	1.500	13 – 18	16.34	1.675	12 – 18
Benevolence Dependability	16.10	1.655	12 - 18	15.90	1.839	12 - 18	15.97	1.742	11 – 18

The higher order value quadrants corrected means were calculated following the PVQ-RR scoring method (Schwartz *et al.* 2014, see section 2.6.2). The mean scores, standard deviation and range of scores are displayed for the complete sample (Table 3-6) and each of the three experimental groups (Table 3-7).

Table 3-6 - Higher order values corrected means for whole sample

Higher Order Value	Mean	SD	Range
Self-transcendence	5.14	.49	2.13 – 6.00
Self enhancement	2.93	.75	1.44 – 5.89
Openness to change	4.79	.59	3.50 – 5.83
Conservation	4.20	.75	2.33 – 5.67

Table 3-7 - Higher order values corrected means across experimental groups

Higher Order Value	Experimental group 1 – Self-transcendence			Experimental group 1 – Self-enhancement			Control group		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Self-transcendence	5.20	.43	4.27 – 6.00	5.12	.57	3.87 – 5.93	5.11	.48	4.13 – 5.80
Self enhancement	2.91	.82	1.89 – 5.89	2.82	.70	1.56 – 4.44	3.07	.73	1.44 – 4.33
Openness to change	4.78	.61	3.58 – 5.83	4.86	.65	3.67 – 5.83	4.74	.55	3.50 – 5.75
Conservation	4.38	.73	2.86 – 5.62	4.02	.82	2.33 – 5.67	4.19	.67	2.81 – 5.52

The value priorities across each of the experimental groups were calculated for all 19 individual values. The values were ranked 1 – 19 by the means of each value score for each group and are displayed in Table 3-8.

Table 3-8 - Values priorities across group for 19 individual values

Rank	Self-transcendence		Self Enhancement		Control	
1	Universalism Concern	16.52	Benevolence Care	16.59	Benevolence Care	16.34
2	Benevolence	16.1	Universalism Concern	15.97	Universalism Concern	16.21
3	Benevolence Care	16.07	Universalism Tolerance	15.97	Universalism Tolerance	16.1
4	Universalism Tolerance	15.86	Benevolence	15.9	Benevolence	15.97
5	Self-Direction Thought	15.17	Self-Direction Thought	15.52	Self-Direction Thought	15.1
6	Self-Direction Action	14.69	Hedonism	14.76	Hedonism	14.45
7	Hedonism	14.52	Self-Direction Action	14.48	Self-Direction Action	14.34
8	Security Personal	14.24	Stimulation	13.59	Security Societal	13.72
9	Humility	13.86	Humility	13.1	Conformity Interpersonal	13.28

10	Security Societal	13.59	Security Personal	13	Security Personal	13.1
12	Conformity Rules	13.48	Security Societal	12.72	Achievement	13.03
13	Conformity Interpersonal	13.45	Conformity Rules	12.69	Humility	13
14	Stimulation	13	Achievement	12.52	Stimulation	12.97
15	Universalism Nature	12.72	Universalism Nature	12.24	Face	12.52
16	Face	12.62	Face	12.17	Conformity Rules	12.45
17	Achievement	11.86	Conformity Interpersonal	12.07	Universalism Nature	11.72
18	Tradition	10.66	Tradition	8.76	Tradition	9.97
19	Power Dominance	7.62	Power Dominance	6.72	Power Resources	7.34

The 19 value priorities across the groups did show some variance. To check if these differences were significant between the groups, a one-way ANOVA was carried out and are reported as follows. Self-Direction Thought ($F(2,84) = .289, p = .750$), Self-Direction Action ($F(2,84) = .190, p = .827$), Stimulation ($F(2,84) = .506, p = .605$), Hedonism ($F(2,84) = .143, p = .867$), Achievement ($F(2,84) = 1.267, p = .287$), Power Dominance ($F(2,84) = .798, p = .454$), Power Resources ($F(2,84) = 1.261, p = .289$), Face ($F(2,84) = .177, p = .838$), Security Personal ($F(2,84) = 2.071, p = .132$), Security Societal ($F(2,84) = .887, p = .416$), Tradition ($F(2,84) = 1.560, p = .216$), Conformity Rules ($F(2,84) = .716, p = .492$), Conformity Interpersonal ($F(2,84) = 1.403, p = .252$), Humility ($F(2,84) = 1.003, p = .371$), Universalism Nature ($F(2,84) = .716, p = .492$), Universalism Concern ($F(2,84) = .570, p = .568$), Universalism Tolerance ($F(2,84) = .119, p = .888$), Benevolence Care ($F(2,84) = .676, p = .511$), and Benevolence Dependability ($F(2,84) = .105, p = .900$). In summary, the one-way ANOVA showed no significant differences for all 19 individual values scores across the groups.

Values priorities for the higher order values were calculated between the experimental groups and are displayed in tables 3-9.

Table 3-9 - Values priorities across groups for higher order values

Rank	Self-transcendence		Self Enhancement		Control	
1	Self-transcendence	5.20	Self-transcendence	5.12	Self-transcendence	5.11
2	Openness change to	4.78	Openness change to	4.86	Openness change to	4.74
3	Conservation	4.38	Conservation	4.02	Conservation	4.19

The higher order quadrant value priorities appears to be similar, with all groups ranking the higher order values in the same order. There were differences in the means gained for each higher order values across the groups. To check if these differences were significant between the groups, a one-way ANOVA was carried out and are reported as follows. Self-Transcendence ($F(2,84) = .244, p = .784$), Openness to change ($F(2,84) = .316, p = .730$), Conservation ($F(2,84) = 1.621, p = .204$), and Self Enhancement ($F(2,84) = .817, p = .445$). The one-way ANOVA showed no significant differences for the higher order value scores across the groups.

3.3.2.2 Maslach Burnout Inventory (MBI)

Descriptive data for the MBI total score and subscales were calculated for the whole sample and between the experimental groups and are displayed in Tables 3-10 and 3-11.

Table 3-10 - Descriptive data for MBI for whole sample

	Mean	SD	Range
Emotional exhaustion	12.1	7.73	1 - 29
Depersonalisation	2.85	2.56	0 - 8
Lack of personal accomplishment	11.5	6.63	1 - 28
Total score	26.4	13.0	4 - 55

Table 3-11 - Descriptive data for MBI across groups

	Experimental group 1 – Self-transcendence			Experimental group 1 – Self-enhancement			Control group		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Emotional exhaustion	11.9	7.00	2 – 27	13.31	8.18	2 – 29	11.24	8.07	1 – 29
Depersonalisation	2.52	2.56	0 – 8	2.86	2.72	0 – 8	3.17	2.44	0 – 8
Lack of personal accomplishment	10.83	6.65	1 – 23	10.62	6.47	2 – 22	12.90	6.76	4 – 28
Total score	25.0	11.6	4 – 47	26.9	13.9	8 - 55	27.3	13.4	7 - 55

The MBI subscales and total scores across the groups did show some variance. To check if these differences were significant between the groups, a one-way ANOVA was carried out and are reported as follows. Emotional Exhaustion ($F(2,84) = .541, p = .584$), Depersonalisation ($F(2,84) = .470, p = .627$), Lack of personal accomplishment ($F(2,84) = .651, p = .524$), and total score ($F(2,84) = .207, p = .814$). The one-way ANOVA showed no significant differences for the MBI subscales and total score across the groups.

3.3.2.3 Multifaceted Empathy Test (MET-core-2)

The MET dependant variable collected data on cognitive and emotional empathy. The data for both levels of empathy consist of a total score and the average (response) time taken for each item question.

Descriptive data for the MET-core-2 is presented for the whole sample in Table 3-12, and between groups in Table 3-13. Both tables report mean score, standard deviation, and range of scores. Data for the average time taken was recorded in milliseconds but it summarized as seconds for ease of visual interpretation.

Table 3-12 - Descriptive data for the MET-core-2

	Mean	SD	Range
MET Cognitive Empathy	27.18	3.15	20 – 35
MET Emotional Empathy	233.8	56.1	108 – 356
MET Cognitive Empathy - Average time taken (sec)	5.91	1.91	2.90 – 13.0
MET Emotional Empathy - Average time taken (sec)	3.29	1.08	1.71 – 8.06

Table 3-13 - Descriptive data for the MET-core-2 across groups

	Experimental group 1 – Self-transcendence			Experimental group 1 – Self-enhancement			Control group		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
MET Cognitive Empathy	27.24	3.76	22 – 35	27.45	3.40	20 – 35	26.86	2.13	23 – 32
MET Emotional Empathy	251.79	53.4	154 – 356	222.48	59.5	108 – 321	227.28	52.5	108 – 312
MET Cognitive Empathy - Average time	6.17	1.90	3.72 – 10.1	5.59	2.15	3.04 – 13.0	5.98	1.69	2.90 – 8.55
MET Emotional Empathy - Average time	3.52	1.26	2.07 – 8.06	3.12	1.07	1.71 – 5.54	3.20	0.84	1.81 – 5.66

There appears to be some variance in the scores for the MET-core-2. Any statistical differences across the groups for the dependant variable MET-core-2 will be discussed in the following section, 3.4 Inferential Statistical Analysis, with reference to the hypotheses of the current study.

3.4 Inferential Statistical analysis

The data were analysed using the Statistical Package for the Social Sciences SPSS 22 (IBM Corp. 2015). Statistical analysis consisted of tests looking at the correlations between the variables and differences between the experimental groups. The results will be structured into these categories. Both the methods of the statistical analysis and the results gathered will be discussed in relation to the nine hypotheses generated in the current study.

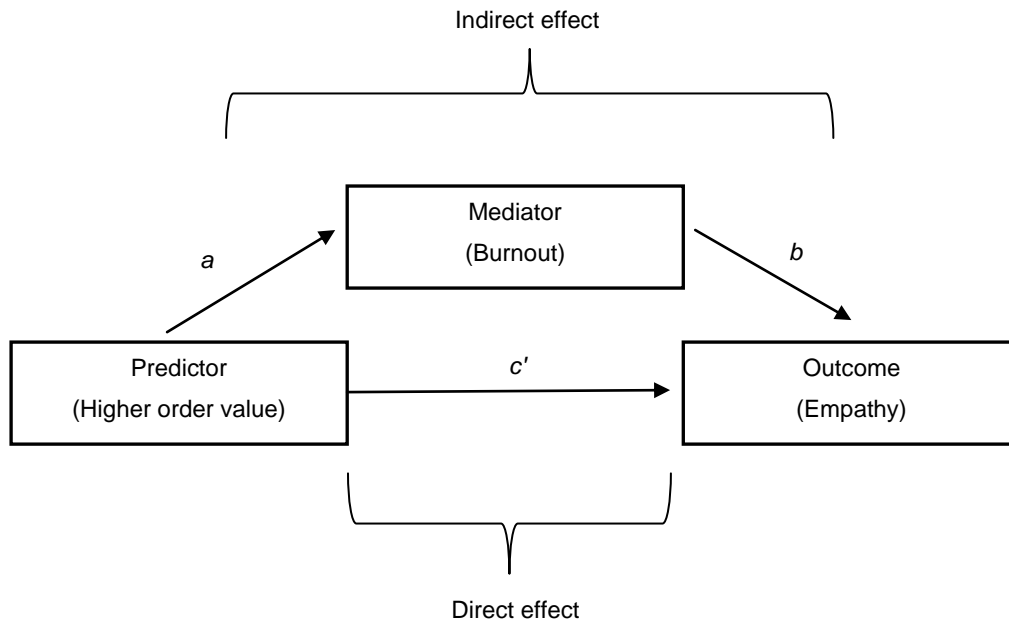
3.4.1 Correlation Analyses

Due to the results from the tests of assumptions, both a Mediation analysis and Kendall's Tau were used to examine the correlations between the variable of values, burnout, and empathy. Four of the nine hypotheses were aimed at examining correlations, these were: 1) The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2). 2) The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI). 3) The higher the level of burnout (MBI), the lower level of empathy (MET-core-2). 9) Burnout (MBI) will act as a mediating variable between values (PVQ-RR) and empathy (MET-core-2). Both parametric and non-parametric tests will now be summarized in relation to these hypotheses.

3.4.1.1 Mediation analysis

To test the relationship between values, burnout, and empathy, a mediation analysis was carried out between the PVQ-RR higher order values of self-transcendence and self enhancement, and the MET-core-2 cognitive and emotional empathy scores, with the MBI burnout total score as a mediator. In order to test for indirect mediating effects inherent to Lambert's mediation model (see Figure 3-1), Hays's process tool was carried out with bootstrapping to robustly report confidence intervals (Field, 2013).

Figure 3-1 - Lamberts mediated relationship

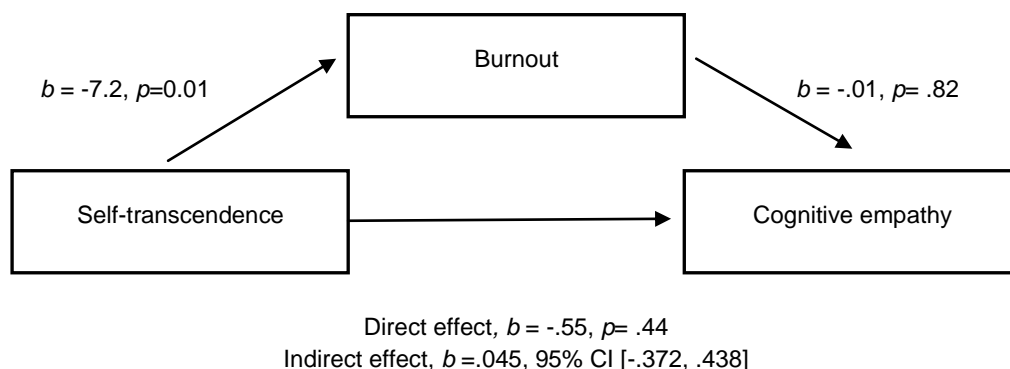


The results of these mediation analyses will be outlined with reference to effect size, confidence interval and displayed on Lamberts model.

Cognitive empathy

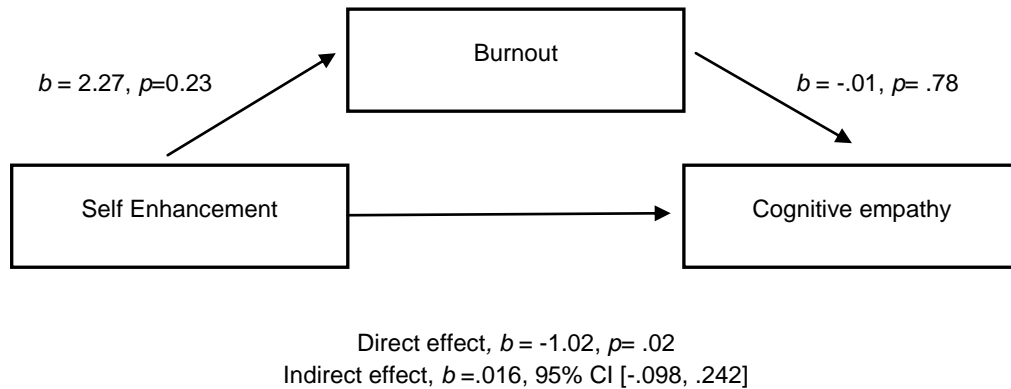
The effect of self-transcendence values on cognitive empathy through burnout is summarized in figure 3-2. The analysis showed that self-transcendence values significantly predict burnout, $b = -7.2$, $t = -2.63$, $p = 0.01$. The negative value of b shows that relationship is inverse; the higher the self-transcendence values, the lower the burnout. The effect size of this relationship is $r^2 = 0.075$; self-transcendence values explains 7.5% of the variance in burnout scores. This analysis showed that burnout scores do not significantly predict cognitive empathy, $b = -.01$, $t = -.226$, $p = 0.82$. This analysis also showed that self-transcendence values do not significantly predict cognitive empathy, $b = -.55$, $t = -.775$, $p = 0.44$. With regards to the indirect effects, this analysis reported no significant indirect effect of self-transcendence values on cognitive empathy through burnout, $b = 0.045$, BCa CI [-.3724, .4381]. This represents a non-significant effect size, $k^2 = 0.006$, BCa CI [.000, .029].

Figure 3-2 - Mediation analysis (self-transcendence, burnout, cognitive empathy)



The effect of self enhancement values on cognitive empathy through burnout is summarized in figure 3-3.

Figure 3-3 - Mediation analysis (self enhancement, burnout, cognitive empathy)



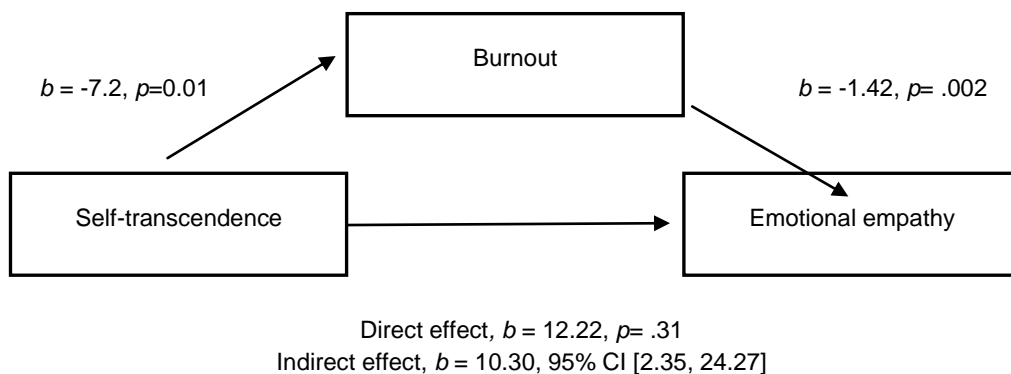
This analysis showed that self enhancement values do not significantly predict burnout, $b = 2.27, t = 1.22, p = 0.225$. This analysis showed that burnout scores do not significantly predict cognitive empathy, $b = -.01, t = -.286, p = 0.78$. This analysis showed that self enhancement values significantly predict cognitive empathy, $b = -1.02, t = -2.28, p = 0.02$. The effect size of this relationship is $r^2 = 0.058$, meaning that self enhancement values explains 5.8% of the variance in cognitive empathy scores. With regards to the indirect effects, this analysis reported no significant indirect effect of self enhancement values on cognitive empathy through burnout, $b = .016, \text{BCa CI } [-.098, .242]$. This represents a non-significant effect size, $k^2 = 0.004, \text{BCa CI } [.000, .025]$.

This analysis shows that self enhancement values significantly affect cognitive empathy, with the higher self enhancement values the lower the cognitive empathy. Self-transcendence was found to have a significant relationship with burnout, with the higher the self-transcendence scores, the lower the burnout. Burnout had no indirect significant effect on the relationship between both self-transcendence and self enhancement values, and scores on cognitive empathy.

Emotional empathy

The effect of self-transcendence values on emotional empathy through burnout is summarized in figure 3-4.

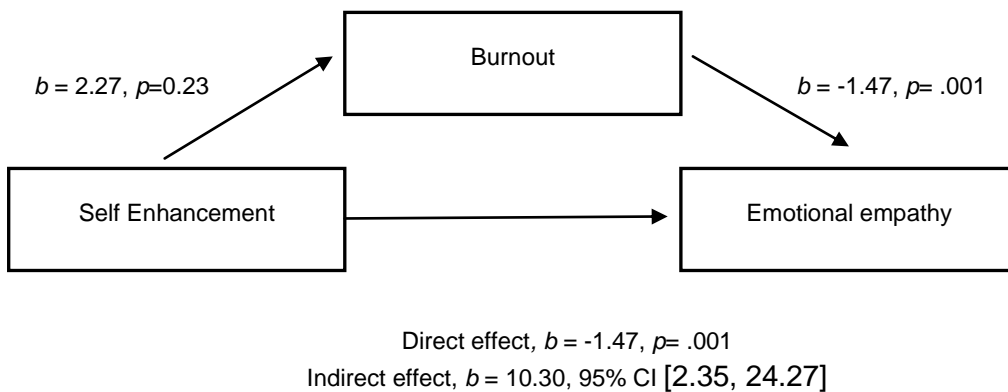
Figure 3-4 - Mediation analysis (self-transcendence, burnout, emotional empathy)



The previous analysis has shown that self-transcendence values significantly predict burnout, $b = -7.2$, $t = -2.63$, $p = 0.01$. This analysis showed that burnout scores significantly predicted emotional empathy, $b = -1.42$, $t = -3.13$, $p = 0.002$. The effect size of this relationship is $r^2 = 0.140$, meaning that burnout explains 14% of the variance in emotional empathy scores. This analysis also showed that self-transcendence values do not significantly predict emotional empathy, $b = 12.22$, $t = 1.02$, $p = 0.31$. This analysis reported a significant indirect effect of self-transcendence values on emotional empathy through burnout, $b = 10.30$, BCa CI [2.35, 24.27]. This represents a significant effect size, $k^2 = 0.090$, BCa CI [.0193, .2094].

The effect of self enhancement values on emotional empathy through burnout is summarized in figure 3-5.

Figure 3-5 - Mediation analysis (self-transcendence, burnout, emotional empathy)



The previous analysis showed that self enhancement values do not significantly predict burnout, $b = 2.27$, $t = 1.22$, $p = 0.225$. This analysis showed that burnout scores significantly predicted emotional empathy, $b = -1.47$, $t = -3.35$, $p = 0.001$. The effect size of this relationship is $r^2 = 0.150$, meaning that burnout explains 15% of the variance in emotional empathy scores. This analysis also showed that self enhancement values do not significantly predict emotional empathy, $b = -11.04$, $t = -1.46$, $p = 0.15$. With regards to the indirect effects, this analysis reported a significant indirect effect of self enhancement values on emotional empathy through burnout, $b = 10.30$, BCa CI [2.35, 24.27]. This represents a significant effect size, $k^2 = 0.045$, BCa CI [.0039, .1179].

This analysis shows that burnout had a significant indirect effect on the relationship between both self-transcendence and self enhancement values, and scores on emotional empathy. Self enhancement values had a significant direct effect on emotional empathy, with the higher the self enhancement value the lower the emotional empathy. Also, burnout was shown to have a direct and significant relationship to emotional empathy, with the higher the burnout the lower the emotional empathy.

With reference to the hypotheses, the mediation analysis shows the following results:

1) *The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2).* The mediation analysis only found significant direct correlations between the self enhancement values and both cognitive and emotional empathy. No significant correlations were found for self-transcendence values. Therefore, this test suggests the null hypothesis be retained.

2) *The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI).* The mediation analysis found a significant direct negative correlation between the self-transcendence values and burnout, with the higher the self-transcendence scores, the lower the burnout. Therefore, this test supports the hypothesis

3) *The higher the level of burnout (MBI), the lower level of empathy (MET-core-2).* Burnout was shown to have a direct and significant relationship to emotional empathy, with the higher the burnout the lower the emotional empathy. Burnout did not significantly correlate with cognitive empathy. This test supports the hypothesis with regards to emotional empathy but not in terms of cognitive empathy.

9) *Burnout (MBI) will act as a mediating variable between values (PVQ-RR) and empathy (MET-core-2).* Burnout had a significant indirect effect on the relationship between both self-transcendence and self enhancement values, and scores on emotional empathy but not with cognitive empathy. This test supports the hypothesis with regards to emotional empathy but not in terms of cognitive empathy.

3.4.1.2 Non-parametric analysis

Although the mediation analysis was deemed to be robust enough to overcome the failure of the two assumptions, the researcher examined the individual correlations between the variables with non-parametric tests. This was in order to provide confirmation of correlations, in case the violation of the assumptions listed above had impacted on the validity of the mediation analysis. To test the relationship between values, burnout, and empathy Kendall's Tau was carried out for each pairing of variables inherent to hypotheses one, two and three. Kendall's tau also included the MBI subscales within the analysis.

3.4.1.2.1 Hypothesis 1

The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2).

Hypothesis 1 predicted there would be a significant correlation between the higher order self-transcendence value scores of the PVQ-RR and the MET cognitive and empathy scores. In particular, it was predicted that the correlation would be positive, with higher levels of self-transcendence values associated with higher levels of empathy.

Kendall's Tau correlation was chosen over Spearman's Rho due to the number of tied ranks of the PVQ-RR outlined in section 3.2.2.1. A bootstrapping method was applied in order to compute confidence interval values. Table 3-14 shows the correlations between the PVQ-RR Self-transcendence scores and the MET-core-2.

Table 3-14 - Kendall's Tau correlation for PVQ-RR Self-transcendence and MET

		MET Cognitive Empathy	MET Emotional Empathy		
PVQ-RR Self-transcendence	Correlation coefficient	-.066	.176*		
	Significance (2-tailed)	.393	.018		
	N	87	87		
	Bootstrap (n = 1000)	Bias	.002	-.001	
		Std. Error	.077	.082	
		95% Confidence interval	Lower	-.213	.012
			Upper	.090	.333

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The results indicated that there were no significant relationship between the PVQ-RR Self-transcendence scores and the MET-core-2 Cognitive empathy scores. This suggests that the variables of self-transcendence values and cognitive empathy are not associated as participants' rating of the two measures did not correlate.

It was found that the PVQ-RR Self-transcendence scores were significantly related to the MET Emotional Empathy scores, $\tau = 0.176$, 95% BCa CI [0.012, 0.333], $p = .018$. We can interpret this results as a significant positive correlation because the significance value (.018) is less than .05, and the robust confidence intervals, calculated through bootstrap do not cross zero (.012 to .333). This suggests that the questionnaires are measuring two constructs that are related, as participants who

demonstrate higher scores in self-transcendence values also demonstrate more emotional empathy as tested by the MET-core-2.

3.4.1.2.2 Hypothesis 2

The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI).

Hypothesis 2 predicted there would be a significant correlation between the higher order self-transcendence value scores of the PVQ-RR and the MBI burnout scores. In particular, it was predicted that the correlation would be negative, with higher levels of self-transcendence values associated with lower levels of burnout. Participant scores were correlated across the whole sample for the PVQ-RR Self-transcendence values and the MBI Burnout subscales and total scores. Kendall's Tau with a bootstrapping method was applied as above. Table 3-15 shows the correlations between the PVQ-RR Self-transcendence scores and all levels of the MBI.

Table 3-15 - Kendall's Tau correlation for PVQ-RR Self-transcendence and MBI

		MBI Emotional exhaustion	MBI De-personalisation	MBI Lack of personal accomplishment	MBI total score		
PVQ-RR Self-transcendence	Correlation coefficient	-.065	-.102	-.232**	-.166*		
	Significance (2-tailed)	.387	.192	.002	.027		
	N	87	87	87	87		
	Bootstrap (n = 1000)	Bias	-.003	.001	-.003	-.003	
		Std. Error	.085	.086	.072	.081	
		95% Confidence interval	Lower	-.234	-.262	-.369	-.326
			Upper	.095	.076	-.091	-.009

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

It was found that the PVQ-RR Self-transcendence scores were significantly related to the MBI subscale Lack of Personal Achievement, $\tau = -0.232$, 95% BCa CI [-0.369, -0.091], $p = .002$ and the MBI total global score, $\tau = -0.166$, 95% BCa CI [-0.326, -0.009], $p = .027$. We can interpret these results as significant negative correlations because the significance values (MBI lack of personal accomplishment: $p = 0.002$ and MBI total score: $p = 0.027$) are less than 0.001 and .05 respectively, and the robust confidence intervals, calculated through bootstrap do not cross zero (MBI lack of personal accomplishment: -0.369 to -0.091; MBI total score: -0.326 to -0.009). This suggests that the questionnaires are measuring two constructs that are related, as participants who demonstrate higher scores in self-transcendence values also

demonstrate lower levels of a lack of personal accomplishment and lower levels of burnout in general. The relationship between a lack of personal accomplishment and self-transcendence was significant in a negative direction ($\tau = -0.232, p < 0.01$). This correlation suggested that people with higher levels of self-transcendence values have a higher sense of personal accomplishment.

The results indicated that there were no significant relationship between the PVQ-RR Self-transcendence scores and the MBI subscales Emotional exhaustion and Depersonalisation. This suggests that the variables of self-transcendence values and these subscales of the MBI are not associated as participants' rating of the two measures did not correlate.

3.4.1.2.3 Hypothesis 3

The higher the level of burnout (MBI), the lower level of empathy (MET-core-2).

Hypothesis 3 predicted there would be a significant correlation between the MBI burnout scores and the MET cognitive and empathy scores. In particular, it was predicted that the correlation would be negative, with higher levels of burnout associated with lower levels of empathy.

Participant scores were correlated across the whole sample for the PVQ-RR Self-transcendence values and the MBI Burnout subscales and total scores. Kendall's Tau correlation was chosen over Spearman's Rho due to non-linear relationship of the variables, as outlined in section 3.2.3. A bootstrapping method was applied in order to compute confidence interval values, as the data were not normally distributed (Field, 2013; see section 3.2.3). Table 3-16 shows the correlations between the levels of the MBI and the MET-core-2.

Table 3-16 - Kendall's Tau correlation for MET-core-2 and MBI

		MBI Emotional exhaustion	MBI De-personalisation	MBI Lack of personal accomplishment	MBI total score		
MET Cognitive Empathy	Correlation coefficient		-.020	.030	.036	.014	
	Significance (2-tailed)		.796	.708	.638	.856	
	N		87	87	87	87	
	Bootstrap	Bias		.002	.001	.002	.003
		Std. Error		.079	.081	.079	.081
		95% Confidence interval	Lower	-.172	-.123	-.124	-.144
			Upper	.137	.181	.191	.171

MET Emotional Empathy	Correlation coefficient		-.222**	-.094	-.180*	-.233**	
	Significance (2-tailed)		.003	.224	.016	.002	
	N		87	87	87	87	
	Bootstrap (n = 1000)	Bias		.002	-.003	-.004	-.002
		Std. Error		.071	.079	.076	.071
		95% Confidence interval	Lower	-.364	-.250	-.325	-.377
Upper			-.077	.063	-.032	-.093	

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

It was found that the MET Emotional empathy scores were significantly related to the MBI subscale Emotional Exhaustion, $\tau = -0.222$, 95% BCa CI [-0.364, -0.077], $p = .003$, Lack of Personal Achievement, $\tau = -0.180$, 95% BCa CI [-0.325, -0.032], $p = .016$, and the MBI total global score, $\tau = -0.233$, 95% BCa CI [-0.377, -0.093], $p = .002$. We can interpret these results as significant negative correlations because the significance values (MBI emotional exhaustion: $p = 0.003$, MBI lack of personal accomplishment: $p = 0.016$, and MBI total score: $p = 0.002$) are less than 0.001 (MBI Emotional exhaustion and MBI total score) and .05 (MBI lack of personal accomplishment). Further to this, the robust confidence intervals calculated through bootstrap methods do not cross zero (MBI emotional exhaustion: -0.354 to -0.077, MBI lack of personal accomplishment: -0.325 to -0.032, and MBI total score: -0.377 to -0.093). This suggests that the questionnaires measure related constructs, as participants who demonstrate higher scores in emotional exhaustion, a lack of personal accomplishment, and burnout in general also demonstrate lower levels of emotional empathy. This correlation suggested that people with higher levels of burnout have a lower level of emotional empathy.

The results also indicated that there was no significant relationship between the MET Cognitive empathy. This suggests that the variables of burnout and cognitive empathy levels did not correlate.

With regards to the hypothesis, this analysis suggests that the higher the level of burnout, the lower the level of *emotional* empathy in terms of emotional exhaustion, a lack of personal accomplishment and total score. Therefore, the hypothesis is supported.

3.4.1.3 Summary of correlations

With reference to the hypotheses. The correlational analyses conducted above analyses showed the following results:

1) *The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2).* Kendall's Tau showed that self-transcendence values had a direct and significant relationship to emotional empathy, with the higher the self-transcendence the higher the emotional empathy. Self-transcendence did not significantly correlate with cognitive empathy. This test supports the hypothesis with regards to emotional empathy but not in terms of cognitive empathy. These results vary from those produced by the parametric test. The mediation analysis found no significant direct correlation between self-transcendence values and cognitive or emotional empathy.

2) *The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI).* This analysis suggests that the higher the level of self-transcendence values, the lower the level of burnout in terms of a lack of personal accomplishment and total score. This is in agreement with the mediation analysis, which found a significant negative correlation between burnout and self-transcendence values. Therefore, the hypothesis is supported.

3) *The higher the level of burnout (MBI), the lower level of empathy (MET-core-2).* Burnout emotional exhaustion, a lack of personal accomplishment, and total score were shown to have a direct and significant relationship to emotional empathy, with the higher the burnout the lower the emotional empathy. Burnout did not significantly correlate with cognitive empathy. This is in agreement with the mediation analysis. This test supports the hypothesis with regards to emotional empathy but not in terms of cognitive empathy.

3.4.2 Between subjects analysis

Due to the results from the tests of assumptions discussed above, an ANCOVA was not deemed suitable to test for between subject differences, therefore non-parametric analysis took place. Five of the nine hypotheses were aimed at examining between group differences, these were: 4) Priming Self-Transcendence values will be associated with higher levels of empathy compared, to controls. 5) Priming Self-Enhancement values will be associated with lower levels of empathy, compared to controls. 6) Participants who score low on burnout (MBI) who are also primed for Self-

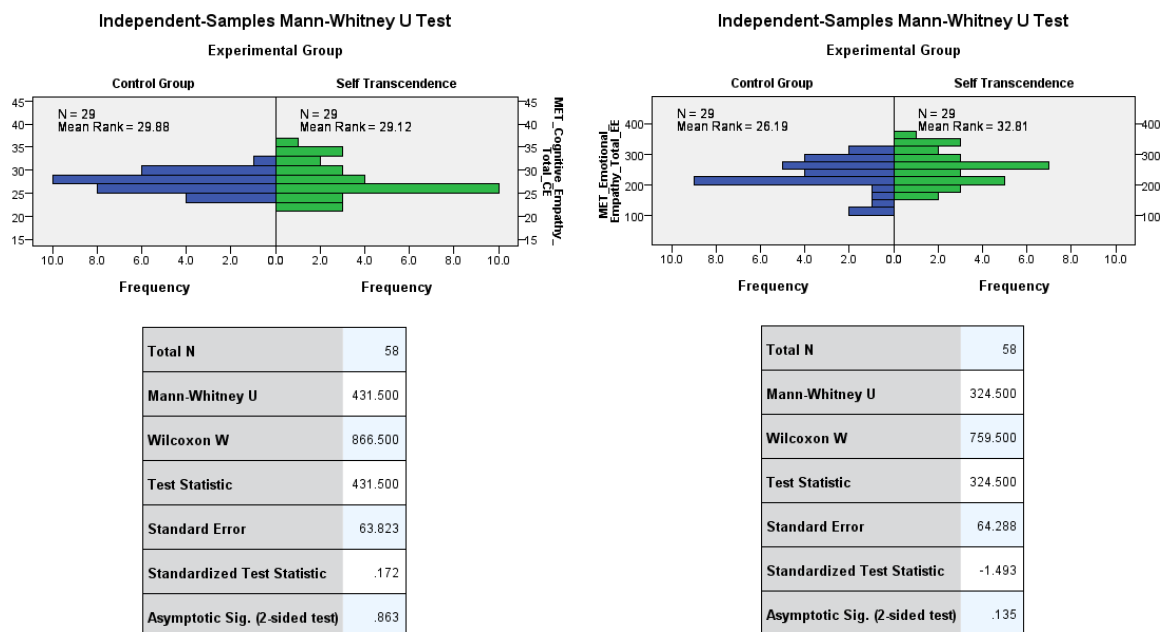
Transcendence (PVQ-RR) values will show the higher scores on the empathy measure (MET-core-2) compared with controls who scored low for burnout. 7) Participants who score high on burnout (MBI) who are primed for Self-Enhancement values (PVQ-RR) will show the lower scores on empathy measure (MET-core-2) compared with controls who scored high for burnout. 8) Participants who score high on self-reported burnout (MBI) who are primed for self-enhancement values will show lower levels of empathy (MET-core-2) than those who are lower on self-reported burnout (MBI) who are primed for Self-Transcendence values (PVQ-RR). The non-parametric tests will now be summarized.

3.4.2.1 Hypothesis 4

Priming Self-Transcendence values will be associated with higher levels of empathy compared, to controls.

Hypothesis 4 stated that participants from experimental group 1 (Priming self-transcendence values) would score higher than the control group on the MET-core-2 dependant measure. Scores from the MET Cognitive empathy scale and the MET Emotional empathy scale were compared between these groups using a Mann-Whitney U test, outlined in Figure 3-6.

Figure 3-6- Mann-Whitney U results for Self-Transcendence vs. Control groups



The Mann-Whitney U tests for both cognitive and emotional empathy were not significant. Cognitive empathy levels in self-transcendence group (Mdn = 26) and the control group (Mdn = 27) did not differ significantly ($U = 431.5$, $p = 0.866$). Also, emotional empathy levels in self-transcendence group (Mdn = 257) and the control group (Mdn = 227) did not differ significantly ($U = 324.5$, $p = 0.135$). This suggests that

there was no significant difference between the self-transcendence group and the control group for empathy. This analysis suggests the null hypothesis be retained.

3.4.2.2 Hypothesis 5

Priming Self-Enhancement values will be associated with lower levels of empathy, compared to controls.

Hypothesis 5 stated that participants from experimental group 2 (Priming self enhancement values) would score lower than the control group on the MET-core-2 dependant measure. Scores from the MET Cognitive empathy scale and the MET Emotional empathy scale were compared between these groups using a Mann-Whitney U test, outlined in Figure 3-7.

Figure 3-7 - Mann-Whitney U results for Self Enhancement vs. Control groups



The Mann-Whitney U tests for both cognitive and emotional empathy were not significant. Cognitive empathy levels in self enhancement group (Mdn = 27) and the control group (Mdn = 27) did not differ significantly ($U = 385.5$, $p = 0.583$). Also, emotional empathy levels in self enhancement group (Mdn = 223) and the control group (Mdn = 227) did not differ significantly ($U = 441.0$, $p = 0.750$). This suggests that there was no significant difference between the self enhancement group and the control group for empathy. This analysis suggests the null hypothesis be retained.

3.4.2.3 Hypothesis 6

Participants who score low on burnout (MBI) who are also primed for Self-Transcendence (PVQ-RR) values will show the higher scores on the empathy measure (MET-core-2) than control group participants who also scored low on burnout.

Hypothesis 6 stated that participants from experimental group 1 (Priming self-transcendence values) who scored low on the MBI would score the highest on the MET-core-2. In order to identify participants who scored low in the MBI, the data was split at the median of the total MBI score. A median split was used, as the overall MBI data displayed skewness (see Appendix Q) and a median split would be less affected by the skewed distribution than a split at the mean (Field, 2013). The split identified 42 participants scoring below the median of 23. Two participants scored on the mean and were omitted from the analysis. A summary table of the MET-core-2 scores across the experimental groups can be seen in Table 3-17.

Table 3-17- MET scores by group by participants who scored low on the MBI

	MET Cognitive Empathy			MET Emotional Empathy		
	Mean	SD	Range	Mean	SD	Range
Self-transcendence (n = 15)	27.00	3.70	22 - 34	254.0	59.3	154 – 356
Self enhancement (n = 14)	27.43	2.82	24 - 32	242.8	52.0	159 – 315
Control (n = 13)	27.08	2.25	24 - 32	248.6	41.2	178 - 312

A Kruskal-Wallis Test was carried out in order to test for significant differences between the low burnout self transcendence group and low burnout control group for empathy scores. This test was chosen due to the data not meeting the assumptions for parametric tests. The Kruskal-Wallis Test found that for the participants who scored low on burnout, those that were primed for self-transcendence values did not score significantly different than the control group for cognitive empathy ($H(1) = .262, p = .609$), or emotional empathy ($H(1) = .136, p = .712$). This suggests that there was no significant difference between the self-transcendence group and the other groups for empathy. This analysis suggests the null hypothesis be accepted.

3.4.2.4 Hypothesis 7

Participants who score high on burnout (MBI) who are primed for Self-Enhancement values (PVQ-RR) will show the lower scores on empathy measure (MET-core-2) than control group participants who also scored high on burnout. Hypothesis 7 stated that participants from experimental group 2 (Priming self enhancement values) who scored high on the MBI would score the lowest on the MET-core-2. In order to identify participants who scored high in the MBI, the data was split at the median of the total MBI score, due to the same reasons listed above. The split identified 43 participants scoring below the median of 23. Two participants scored on the mean and were omitted from the analysis. A summary table of the MET-core-2 scores across the experimental groups can be seen in Table 3-18.

Table 3-18 - MET scores by group by participants who scored low on the MBI

	MET Cognitive Empathy			MET Emotional Empathy		
	Mean	SD	Range	Mean	SD	Range
Self-transcendence (n = 13)	27.31	4.02	22 - 35	244.5	46.25	179 – 330
Self enhancement (n = 14)	27.57	4.09	20 - 35	201.4	63.16	108 – 321
Control (n = 16)	26.69	2.09	23 - 30	209.9	55.52	108 - 292

A Kruskal-Wallis Test was carried out in order to test for significant differences between the high burnout self enhancement group and the high burnout control group for empathy scores. This test was chosen due to the data not meeting the assumptions for parametric tests. The Kruskal-Wallis Test found that of all the participants who scored high for burnout, those primed for self enhancement values did not score significantly difference than the control group for cognitive empathy ($H(1) = .421, p = .516$), or emotional empathy ($H(1) = .315, p = .574$). This suggests that there was no significant difference between the self enhancement group and the other groups for empathy. This analysis suggests the null hypothesis be accepted.

3.4.2.5 Hypothesis 8

Participants who score high on self-reported burnout (MBI) who are primed for self-enhancement values will show lower levels of empathy (MET-core-2) than those who are lower on self-reported burnout (MBI) who are primed for Self-Transcendence values (PVQ-RR).

Hypothesis 8 stated that participants from experimental group 1 (Priming self-transcendence values) who scored lower in burnout would score higher than participants from experimental group 2 (Priming self enhancement values) who scored higher in burnout on the MET-core-2 dependant measure. The data was split along the median of the burnout scores, as outlined in the sections above. The split identified 29 participants; 15 participants in group 1 who had scored below the median (23) for the MBI and 14 participants in group 2 who had scored above the median (23) for the MBI. Two participants scored on the mean and were omitted from the analysis. A summary table of the MET-core-2 scores across the experimental groups can be seen in Table 3-19.

Table 3-19 - MET-core-2 scores across groups

	MET Cognitive Therapy			MET Emotional therapy		
	Mean	SD	Range	Mean	SD	Range
Self-transcendence	27.00	3.70	22 - 34	254.0	59.5	154 – 356
Self enhancement	27.57	4.09	20 - 35	201.3	63.16	108 – 321

Scores from the MET Cognitive empathy scale and the MET Emotional empathy scale were compared for significant differences between these groups using a Mann-Whitney U test, outlined in Figure 3-3.

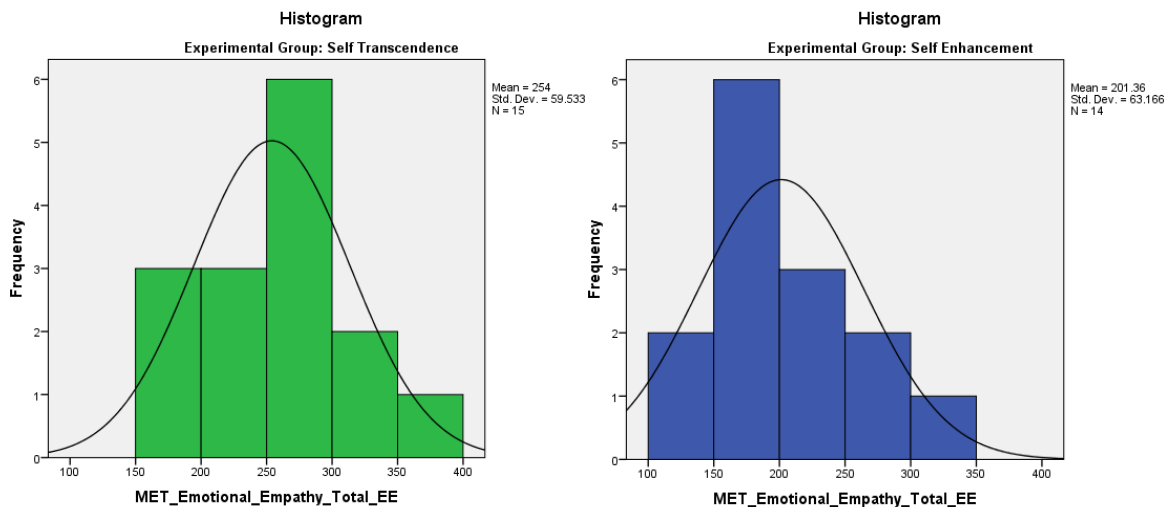
The Mann-Whitney U test for cognitive empathy was not significant. Cognitive empathy levels in the low burnout self-transcendence group (Mdn = 26) and the high burnout self enhancement group (Mdn = 28) did not differ significantly ($U = 118.0, p = 0.591$). This suggests that priming values for self-transcendence on people who score low for burnout or priming self enhancement values on people who score high on burnout does not produce different cognitive empathy scores.

The Mann-Whitney U test for emotional empathy was found to be significant. Emotional empathy levels in the low burnout self-transcendence group (Mdn = 258) and the high burnout self enhancement group (Mdn = 184) differed significantly ($U = 59.50, p = 0.046$). This significant difference is illustrated through histograms of the scores in Figure 3-4.

Figure 3-3- Mann-Whitney U for low burnout self-transcendence vs. high burnout self enhancement for the MET-core-2



Figure 3-4 Histograms of emotional empathy scores of each group



The group of participants who reported lower levels of MBI burnout and were primed for self-transcendence values displayed significantly more emotional empathy as measured by the MET-core-2, when compared with the participants who reported high levels of MBI burnout and were primed for self enhancement values. These results will be discussed further in Chapter 4 – Discussion.

3.4.3 Summary of between subjects results

4) *Priming Self-Transcendence values will be associated with higher levels of empathy compared, to controls.*

The results found no significant difference in the scoring for cognitive and emotional empathy between the self-transcendence and control groups.

5) *Priming Self-Enhancement values will be associated with lower levels of empathy, compared to controls.*

The results found no significant difference in the scoring for cognitive and emotional empathy between the self enhancement and control groups.

6) *Participants who score low on burnout who are also primed for Self-Transcendence values will show the higher scores on the empathy measure than controls who also score low for burnout.*

The results showed that there was no significant difference in the scoring for participants who reported low burnout and were primed for self-transcendence values on the cognitive and emotional empathy measures compared with other participants who reported low levels of burnout.

7) *Participants who score high on burnout who are primed for Self-Enhancement values will show the lower scores on empathy measure than controls who also score high on burnout.*

The results found no significant difference in the scoring for participants who reported high burnout and were primed for self enhancement values on the cognitive and emotional empathy measures compared with other participants who reported high levels of burnout.

8) *Participants who score high on burnout who are primed for self enhancement values will show lower levels of empathy than those who are lower on burnout who are primed for Self-Transcendence values.*

The results found that participants who reported high levels of burnout and were primed for self enhancement values did not score significantly different on tests of cognitive empathy than those participants who reported low burnout and were primed for self-transcendence values.

The results found that participants who reported high levels of burnout and were primed for self enhancement values did score significantly different on tests of

emotional empathy than those participants who reported low burnout and were primed for self-transcendence values.

3.5 Summary of results

The current study hypothesized that self-transcendence values would be positively correlated with empathy. This was found to be true for emotional empathy, but not cognitive empathy. The analysis suggested that the higher the level of self-transcendence values, the higher the level of *emotional* empathy.

The current study hypothesized that self-transcendence values would be negatively correlated with burnout. This was found to be true for the burnout subscale of lack of personal accomplishment and the burnout global score. The analysis suggested that the higher the level of self-transcendence values, the lower the level of burnout overall, and in particular the lower the sense of a lack of personal accomplishment.

The current study hypothesized that burnout would be negatively correlated with empathy. This was found to be true for emotional empathy, but not cognitive empathy. The negative correlation was significant between emotional empathy and emotional exhaustion, lack of personal accomplishment and the burnout global score. This suggested that people with higher levels of burnout had a lower level of emotional empathy, with particular reference to emotional exhaustion and a lack of personal accomplishment.

No significant between group effects were found for hypotheses 4 – 7 and it was recommended that the null hypothesis for each be retained. Priming Self-Transcendence values was not associated with higher levels of empathy compared to controls. Priming Self-Enhancement values was not associated with lower levels of empathy compared to controls. Participants who score low on burnout (MBI) who are also primed for Self-Transcendence (PVQ-RR) values did not show the higher scores on the empathy measure (MET-core-2) than controls who also scored low on burnout. Participants who score high on burnout (MBI) who are primed for Self-Enhancement values (PVQ-RR) did not show the lower scores on empathy measure (MET-core-2) than controls who also scored high on burnout.

This study hypothesised that participants who score high on self-reported burnout (MBI) who are primed for self-enhancement values will show lower levels of empathy (MET-core-2) than those who are lower on self-reported burnout (MBI) who are primed for Self-Transcendence values (PVQ-RR). This was found to be significant for emotional empathy but not cognitive empathy. The group of participants who reported lower levels of MBI burnout and were primed for self-transcendence values displayed significantly more emotional empathy as measured by the MET-core-2, when

compared with the participants who reported high levels of MBI burnout and were primed for self enhancement values.

The final hypothesis stated that burnout would act as a mediating variable between values and empathy. Both direct and indirect effects that were found between the variables will be summarised.

Direct effects

Self-transcendence was found to have a significant direct effect on burnout, with the higher the self-transcendence scores, the lower the burnout. Self-transcendence values were found to explain 7.5% of the variance in burnout scores.

Self enhancement values had a significant direct effect on cognitive empathy. The higher the levels of self enhancement, the lower the levels of empathy. Self enhancement values were found to explain 5.8% of the variance in cognitive empathy scores

Burnout was found to significantly affect emotional empathy, with the higher the burnout the lower the emotional empathy. Burnout was found to explain 14% of the variance in emotional empathy scores.

Indirect effects

Burnout had no indirect significant effect on the relationship between both self-transcendence and self enhancement values, and scores on cognitive empathy

This analysis reported a significant indirect effect of self-transcendence values on emotional empathy through burnout.

This analysis reported a significant indirect effect of self enhancement values on emotional empathy through burnout.

All of the results above are discussed in further detail in the following chapter with reference to the literature and implications for practice.

Chapter 4 - Discussion

4.1 Introduction

This chapter will provide a summary of the results obtained, followed by an interpretation of these results in the context of the literature on values, empathy and burnout, as discussed in Chapter 1 – Introduction. This chapter will then consider the implications of the results of this study and the relevance of the findings to healthcare practice and service delivery. Strengths and limitations of the current study will be outlined, along with recommendations for further research in values, empathy and burnout. Clinical and service implications will be outline. Finally, overall conclusions from the current study will be presented.

4.2 Summary of results

The overall aim of the study was to investigate whether or not priming certain value quadrants (self-transcendence or self enhancement) in mental health staff would affect their performance on a task measuring cognitive and emotional empathy. The interactions of burnout upon this relationship were also assessed as the literature suggests a relationship between burnout and empathy (see section 1.6).

To investigate this, frontline mental health staff were randomised to one of three groups: one group was primed for values associated with self-transcendence, one group primed the opposing self enhancement values, and a control group. Their performances in an empathy task (MET; Dziobek, 2008) were compared using Mann-Whitney U test and Kruskal-Wallis statistical tests. Kendall's Tau and Hays's process tool were used to statistically test for correlations between values, empathy, and the associated factor of burnout.

4.2.1 Correlation results

Hypothesis 1) The higher the level of Self-Transcendence values (PVQ-RR), the higher the level of Empathy (MET-core-2).

It was found that the higher the self-transcendence values, the higher the emotional empathy (when tested non-parametrically). There was no association found between the level of self-transcendence and cognitive empathy. The mediation analysis found no correlation between self-transcendence and cognitive or emotional empathy, but it did suggest that participants who displayed more of the opposing values quadrant of self enhancement displayed less cognitive and emotional empathy.

Hypothesis 2) The higher the level of Self-Transcendence values (PVQ-RR), the lower the level of burnout (MBI).

It was found that the higher the self-transcendence values, the lower the level of burnout. Those participants who scored high for self-transcendence levels also reported less burnout. Both mediation and non-parametric tests found support for this hypothesis.

Hypothesis 3) The higher the level of burnout (MBI), the lower level of empathy (MET-core-2).

It was found that the higher the burnout, the lower the level of cognitive and emotional empathy. Those participants who scored high for burnout, displayed less cognitive and empathy. Both mediation and non-parametric tests were in agreement of the nature of this correlation.

Hypothesis 9) Burnout (MBI) will act as a mediating variable between values (PVQ-RR) and empathy (MET-core-2).

It was found that burnout acted as a mediating variable between both self-transcendence and self enhancement values for emotional empathy. This shows that the strength of correlation between the value quadrants and emotional empathy is indirectly affected by burnout. This analysis also suggested that burnout does not have an indirect effect on the cognitive construct of empathy.

4.2.2 Between subjects results

Hypothesis 4) Priming Self-Transcendence values will be associated with higher levels of empathy compared to controls.

The results showed that there was no significant difference in the scoring for cognitive and emotional empathy between the self-transcendence and control groups. This suggests that priming self-transcendence values did not significantly change the level of empathy displayed by those participants.

Hypothesis 5) Priming Self-Enhancement values will be associated with lower levels of empathy compared to controls.

The results showed that there was no significant difference in the scoring for cognitive and emotional empathy between the self enhancement and control groups. This suggests that priming self enhancement values did not significantly change the level of empathy measured.

Hypothesis 6) Participants who score low on burnout who are also primed for Self-Transcendence values will show the higher scores on the empathy measure than controls who also scored low on burnout.

The results showed that there was no significant difference in the scoring for participants who reported low burnout and were primed for self-transcendence values on the cognitive and emotional empathy measures compared with other participants who reported low levels of burnout. This suggests that priming self-transcendence values did not significantly change the level of empathy measured when burnout was low.

Hypothesis 7) Participants who score high on burnout who are primed for Self-Enhancement values will show the lower scores on empathy measure than controls who also scored high on burnout.

There was no significant difference found in the scoring for participants who reported high burnout and were primed for self enhancement values on the cognitive and emotional empathy measures compared with other participants who reported high levels of burnout. This suggests that priming self enhancement values did not significantly change the level of empathy measured when burnout was at a high level.

Hypothesis 8) Participants who score high on burnout who are primed for self enhancement values will show lower levels of empathy than those who are lower on burnout who are primed for Self-Transcendence values.

It was found that participants who reported high levels of burnout and were primed for self enhancement values did not score significantly different on tests of cognitive empathy than those participants who reported low burnout and were primed for self-transcendence values.

The results did suggest that those who reported high levels of burnout and were primed for self enhancement values did score significantly lower on tests of emotional empathy than those participants who reported low burnout and were primed for self-transcendence values.

The results show that low burnout coupled with self transcendence priming produce higher levels of emotional empathy than high burnout and self enhancement priming.

4.3 Interpretation of results

4.3.1 Relationships between values, empathy and burnout

A number of significant relationships were found between the variables of values, empathy and burnout, and will be discussed with reference to the literature.

4.3.1.1 Values and Empathy

Due to the disagreement between the non-parametric and mediation tests for the relationship of self-transcendence and emotional empathy, caution will be exercised in the interpretation of these results.

The current study indicated some links between values and empathy. It was found that the higher the self-transcendence values, the higher the emotional empathy. When applying the Schwartz (2012) model of values to this result, it shows that individuals who highly rate themselves as motivated by the values of self-transcendence show a higher level of emotional empathy. The values inherent to self-transcendence are; 'Being a reliable and trustworthy member of the in group'; 'Devotion to the welfare of in group members'; 'Commitment to equality, justice, and protection for all people'; 'Preservation of the natural environment'; and 'Acceptance and understanding of those who are different from oneself' (Schwartz, 2012).

Values have been shown to be guiding principles for people behaviours; internal motivators that influence the way a person appraises and acts in a situation (Rokeach, 1973; Pakizeh *et al.* 2007; Schwartz, 2012). The results from this study would suggest that people who are motivated by self-transcendence values for their behaviour show more emotional empathy. Further to this, the self-transcendence quadrant of the Schwartz (2012) model of human values can be defined by its higher axes. Self-transcendence values have been shown to be a set of values that are socially focused and about motivating behaviours that are about growth and being anxiety-free. Therefore, people who rate self-transcendence values highly are motivated towards behaviours that are socially focused and are aimed at growth and being anxiety-free. The role of emotional empathy has been defined as the ability to temporarily share in the affect of another person, the ability "to share, to experience the feelings of another person" (Greenson, 1968, p.418). This is an innately social behaviour, which has a similar social focus as the self-transcendence values.

In addition to this, empathy has been shown to improve patient-staff relations and has been seen to have positive effects on patient outcomes (Firth-Cozens & Cornwell, 2009). Improved outcomes and relationships between staff and patients show similarity

to socially focused behaviours that look towards the welfare of others and are examples of behaviours that promote growth and being free of anxiety (Schwartz, 1992). This is echoed within the conceptual definition of the individual self-transcendence values such as 'Devotion to the welfare of in group members' (Schwartz, 2012). In summary, this study found that people who were highly motivated by socially-focussed, anxiety-free, self-transcendence motivational values also experienced the emotions of others to a high degree. This result depicts a significant positive correlation, therefore no causal aspects of the relationship can be suggested.

However, as mentioned above, the mediation analysis did not find this same result. The mediation analysis found that the higher the self enhancement values, the lower the emotional empathy. When applying the Schwartz (2012) model of values to this result, it suggests that individuals who highly rate themselves as holding the values of self enhancement show a lower self-reported level of emotional empathy. The values inherent to self enhancement are; Success according to social standards, for oneself; Power through exercising control over people; Security and power through maintaining one's public image and avoiding humiliation. The results from this study would suggest that people who are motivated by these values in their behaviour show less emotional empathy.

Defining the self enhancement quadrant of the Schwartz (2012) model of human values by its higher axes, self enhancement values have been shown to be a set of values that are self-protection focused and about motivating behaviours that are about avoiding anxiety. People who rate self enhancement values highly are motivated towards behaviours that are about one's own protection, and are aimed at avoiding anxiety. As emotional empathy entails the ability to temporarily share in the affect of another person and is an innately social behaviour that look towards growth and being free of anxiety, this seems in opposition to the self enhancement values.

A negative correlation was also found between self enhancement values and cognitive empathy. Cognitive empathy which has been shown to be "the intellectual or imaginative apprehension of another's condition or state of mind" (Hogan, 1969, p.308). Within the current study, this was tested through the participants correctly identifying a person's emotional state. It was found that the higher the self enhancement values, the lower the cognitive empathy. Which suggests that people who are motivated by self enhancement values in their behaviour show less cognitive empathy; less ability to discern others' emotions correctly. As self enhancement values have been shown to be a set of values that are self-protection focused, in opposition to

social focuses, and about motivating behaviours that avoid anxiety, instead of promoting anxiety-free growth, the negative relationship between these variables is understandable in light of the literature (Schwartz, 1992, Schwartz, 2012). People who rate self enhancement values highly are motivated towards behaviours that are about one's own protection, are aimed at avoiding anxiety, and not about engaging in social behaviour that looks to understand another person's emotion. The negative correlation found between these factors appears to fit the definitions of self enhancement values, as presented by Schwartz (2012). Further to this, as the Schwartz (2012) model is a relational construct; opposing factors are inversely related to one another. In this case, self-transcendence values are opposed to self enhancement values.

In summary, this study found that people who were highly motivated by socially-focussed, anxiety-free, self-transcendence motivational values also experienced the emotions of others to a high degree. This result depicts a significant positive correlation, therefore no causal aspects of the relationship can be suggested. Further to this, people who were highly motivated by the self-protecting, anxiety-avoidant, self enhancement values experienced the emotions of others to a lesser extent, and were less able to correctly identify a person's emotional state. This result depicts a significant negative correlation, therefore no casual aspects of the relationship can be suggested.

4.3.1.2 Values and burnout

Values have been shown to guide and motivate people's behaviours; influencing the way a person appraises and acts in a situation (Rokeach, 1973; Pakizeh et al. 2007; Schwartz, 2012).

Burnout is a syndrome that consists of emotional exhaustion, a sense of depersonalisation, and a lack of personal accomplishment (Maslach, 1980). The current study indicated some links between values and burnout. It was found that the higher the self-transcendence values, the lower the level of burnout. When applying the Schwartz (2012) model of values to this result, it suggests that individuals who highly rate themselves as holding the values of self-transcendence as important showed a lower level of burnout. As mentioned above, the values inherent to self-transcendence are; Being a reliable and trustworthy member of the in group; Devotion to the welfare of in group members; Commitment to equality, justice, and protection for all people; Preservation of the natural environment; and Acceptance and understanding of those who are different from oneself. The results from this study would suggest that people who are motivated by self-transcendence values for their behaviour experience less

burnout. Further to this, people who rate self-transcendence values highly are motivated towards behaviours that are socially focused and are aimed at growth and becoming anxiety-free. As burnout is a syndrome that includes a sense of depersonalisation, something that negates motivation towards a social focus, the negative relationship between the two are understandable. Further to this, Schaufeli and Enzmann (1998) proposed that if working conditions fail to support and accommodate *a strong motivation to help*, stress will ensue. Burnout is a result of this kind of stress not being supported (Maslach, 1980). This could suggest that as the motivations for self-transcendence values include 'Devotion to the welfare of in group members' (Schwartz, 2012) which is about *helping others*, then if this is apparent in the healthcare population, less burnout would be apparent. As values are seen as motivations to behaviour, burnout has been shown to be inversely related to caring values and motivations that are aspects of healthcare environments, such as being devoted to the welfare of others (Schwartz, 2012). This result depicts a significant negative correlation, therefore no causal aspects of the relationship can be suggested.

4.3.1.3 Empathy and burnout

In line with the findings of the systematic review (see Section 1.6), the current study found a significant negative correlation between empathy and burnout: the higher the burnout, the lower the level of emotional empathy.

The role of emotional empathy has been defined as the ability to temporarily share in the affect of another (Greenon, 1968). Burnout is defined as a syndrome that consisted of emotional exhaustion, a sense of depersonalisation, and a lack of personal accomplishment (Maslach, 1980).

Conceptually, emotional empathy involves the experiencing of another's emotions as your own (Greenon, 1968, p.418), the process of emotional empathy appears at odds with the emotional exhaustion aspect of burnout. If someone was experiencing emotional exhaustion, their ability to match and experience others' emotions would be lower (Ferris, 2015). Further to this, someone who experiences the depersonalisation aspect of burnout could find it more difficult to engage in the inter-relational process of emotional empathy, as within the Schwartz (2012) model of human values, they are defined as innately social behaviours. This is evidenced by the fact that depersonalisation consists of beliefs and attitudes that inhibit the creation of meaningful relationships (Maslach, 1980). The findings of the study reflect this relationship.

The process of empathy is important for good patient-staff relations and has been seen to have positive effects on patient outcomes (Firth-Cozens & Cornwell, 2009). A lack of

personal accomplishment consists of attitudes and experiences that relate to feeling that you are not achieving what you could or should be within the work environment (Maslach, 1980). Someone who is experiencing this aspect of burnout may not wish to commit to the emotional support another person is requiring through fear of further perceived failure. This particular association has not been assessed within the literature and is worth further investigation. These factors appear to be in opposition to one another and reflect the negative correlation found in this study.

Although no causal effects between burnout and empathy were tested within the design of this study, the results can still be viewed in light of the 3 hypotheses regarding the relationship between burnout and empathy argued by Zenasni *et al.* (2012). Hypothesis one proposed that as burnout is defined by depersonalisation it favours dehumanisation in interactions and causes a decrease in empathy. Hypothesis two posited that empathy creates burnout; a high level of empathy may encourage the development of 'compassion fatigue' and then create exhaustion and burnout. Hypothesis three states that empathy prevents burnout; being empathic involves the awareness of negative emotions and the practice of self-reflection and being able to accept negative feedback, skills that are resources against burnout (Zenasni *et al.* 2012). The current study assessed the comparative levels of burnout and empathy in mental health staff. Higher burnout levels were associated with lower empathy levels and lower burnout levels were associated with higher empathy. This circumstance, regardless of causality is only true for two of the hypotheses as suggest by Zenasni *et al.* (2012). Hypothesis one proposed burnout caused a decrease in empathy and hypothesis three states that empathy is a resource against burnout. The result of both of these hypotheses is negatively correlated levels of burnout and empathy, as found in the current study. However, the correlational nature of the findings in the current study do not allow for any differentiation between which, if any, of these hypotheses are true. Therefore, more research needs to be conducted.

In summary, this study found that people who were experiencing burnout displayed a lower ability to experience the emotions of others to a high degree. This relationship seems to be echoed within the understandings of both empathy and burnout and is in agreement with the results found in the systematic review. This result depicts a significant negative correlation which has been referenced to hypotheses surrounding the interactions between empathy and burnout.

4.3.1.4 The influence of burnout

As discussed within Section 1.5, burnout was included within this study due to the literature showing some associations between empathy (Zenasni *et al.* 2012), and values (Jia *et al.* 2009).

The current study found that, in addition to the direct effects between the variables described above, burnout had a significant indirect effect on the relationship between both self-transcendence and self enhancement values, and levels of emotional empathy. The analysis conducted showed that burnout was a mediating variable in the relationship between values and emotional empathy.

As discussed above, the variables of values, empathy and burnout have significant associations between them. The finding that burnout is also a mediating factor suggested that information about burnout improves prediction of empathy by values but does not substantially alter the relation of values to empathy when burnout is included in the analysis (Field, 2013). Therefore burnout can be considered as a covariate. No previous research has investigated these variables through the use of the Schwartz (2012) values model, burnout as described by Maslach (1980), and cognitive and emotional empathy. The significant mediating effect found within this study recommends that any further conclusions drawn about the relationships between values and empathy should take into account burnout, as it will be having a mediating effect. Further research into values and empathy should include measures for burnout, such as the MBI (Maslach & Jackson, 1996). Otherwise, participant samples may have different levels of burnout, which could exert influence on the dependent variable and confound the results obtained. By measuring burnout alongside values and empathy, future research could measure and report the mediating effect of burnout within the analysis, increasing the confidence in interpreting the results.

4.3.2 Effects of priming values on empathy

There were no significant effects between group effects found for hypotheses 4 – 7. Priming Self-Transcendence values was not associated with higher levels of empathy compared to controls. Priming self enhancement values was not associated with lower levels of empathy compared to controls. Participants who scored low on burnout and were primed for self-transcendence values did not show the higher scores on the empathy measure. Participants who scored high on burnout and were primed for self enhancement values did not show the lower scores on empathy measure. The results suggest that priming values did not affect the level of empathy displayed by the participant group.

However, when looking at the participant sample with reference to burnout level, a significant effect was found. This study showed that participants who scored *high* for burnout who were primed for *self enhancement* values showed significantly lower levels of emotional empathy than the participants who scored *low* for burnout and were primed for *self-transcendence* values.

This result reflects the mediating role of burnout between values and empathy. Sorting the participant sample into high and low burnout groups and finding the significant differences in scores across opposing experimental groups is an indication that burnout is affecting the relationship between priming values and emotional empathy.

The mental health workers who were experiencing comparatively less burnout, less emotional exhaustion, depersonalisation, and lack of personal accomplishment, and who are primed with self-transcendence values showed significantly more empathy than the mental health workers who were experiencing more burnout and were primed for self enhancement values. This finding seems to fit the theoretical underpinnings of the study in that both burnout and self enhancement values were found to have a negative association with emotional empathy. Therefore by looking at people who were primed for self enhancement values and were experiencing burnout it is understandable that they would score low for emotional empathy. Conversely, self-transcendence values have been shown to have a positive association with emotional empathy. Therefore, it is understandable that people who were primed for self-transcendence values and were experiencing low levels of burnout would score significantly higher for emotional empathy.

If we frame values as guiding principles and motivators for behaviours (Rokeach, 1973; Schwartz, 1992) we can argue that the priming of these values, in line with methods devised by Maio *et al.* (2009b), coupled with particular burnout levels has shown an increase towards behaviours that are in agreement to the principles behind the values. Within this study, this occurred when low burnout was coupled with the priming of self-transcendence values and high burnout was coupled with the priming of self enhancement values.

4.4 Clinical implications

There are a number of clinical implications associated with the findings of the current study. These will now be outlined with reference to the associations found between the

variables, and the effects of priming values on empathy. Further implications will be considered for clinical psychology.

4.4.1 Values and empathy

The results for the current study regarding the relationship between values and empathy indicated that these variables are related in some way, which provide some useful implications for clinical practice and will be discussed.

This study found that the higher the self-transcendence values, the higher the emotional empathy in mental health staff. This would suggest that either high levels of empathy are more likely to be present when the staff member is motivated highly by self-transcendence values, or the more empathic the staff member is the more self-transcendence values they prioritise.

Conversely, the results indicated that the higher the self enhancement values, the lower the emotional empathy. This would suggest that either low levels of empathy are more likely to be present when the staff member being empathetic is motivated highly by self enhancement values, or the less empathic a staff member is the more self enhancement values they prioritise.

Empathy is central to many clinical guidelines and recommendations for improving patient-staff relations, it has a positive effect on patient outcomes and is one of the central elements of compassionate care (Firth-Cozens & Cornwell, 2009). Carver and Hughes (1990) argue that empathy is crucial to the ability of nursing staff to consistently provide care. Therefore, it is important that healthcare settings promote empathy as much as possible. The results of this study have shown that empathy is associated with the social focused, anxiety free values of self-transcendence. As the causal aspect of this relationship is unknown, this study recommends that both aspects of the association, self-transcendence values and empathy, are important to foster in healthcare settings. By encouraging an environment that promotes and motivates both behaviour in line with the self-transcendence values and empathy, the outcome for patients should be improved and compassionate care evidenced.

4.4.2 Burnout and empathy

As discussed above, empathy is a central component in achieving good patient outcomes and in the provision of compassionate care (Firth-Cozens & Cornwell, 2009). Conversely, Burnout has been shown to contribute to suboptimal patient care (Firth-

Cozens & Greenhalgh, 1997; Ferri *et al.* 2015; Lamothe *et al.* 2014; Raiziene & Endriulaitiene, 2007). The negative correlation found within this study between these variables would suggest that the lower the levels of burnout, the higher the levels of empathy shown by mental health staff. It is important to be aware of this relationship, in order that burnout levels can be sufficiently monitored within healthcare services. The level of burnout within staff may inversely indicate the level of empathy being carried out within the service, an important component to providing a high quality service (Carver & Hughes, 1990). Further to this, the results of this study were true for two of the three hypotheses posited by Zenasni *et al.* (2012); burnout causing a decrease in empathy and empathy as a resource against burnout. As the causal aspect of this relationship is unknown, this study recommends that both lowering burnout and fostering empathic practice, are important to attend to in healthcare settings. Interventions looking to lowering levels of burnout could be investigated and implemented, so that it doesn't decrease empathy (Hypothesis one from Zenasni *et al.* 2012), alongside encouraging the service to promote and support individuals to be empathic with their clients, as empathy may be protective against burnout (Hypothesis three from Zenasni *et al.* 2012). Future research should look to establish the causal relationships between empathy and burnout.

4.4.3 Values and burnout

The analysis suggested that the higher the level of self-transcendence values, the lower the level of burnout. As values are seen as motivations to behaviour, burnout has been shown to be inversely related to values and motivations about benevolence and universalism within healthcare environments (Schwartz, 2012; Firth-Cozens & Greenhalgh, 1997; Ferri *et al.* 2015). No previous research has looked at the direct relationship between burnout and self-transcendence values, therefore any hypotheses about the causal nature of the relationship are unknown. However, as the level of burnout within staff may adversely affect the quality of care provided (Firth-Cozens & Greenhalgh, 1997), interventions aimed at both reducing burnout could incorporate and encourage an environment that promotes and motivates behaviour in line with self-transcendence values. This idea is supported by the work of Schaufeli and Enzmann (1998), who proposed that if working conditions fail to support and accommodate a *strong motivation to help*, stress will ensue. Therefore by encouraging working conditions that support and accommodate self-transcendence values, which consist of a *strong motivation to help*, stress and burnout may be reduced.

Additionally, the relationship between organizational values and burnout has been well researched (Ying-Wen, 2012; Dylag *et al.* 2013). When values are discussed in relation

to burnout, studies usually list the congruence between the organisational values of the workplace and the individual as related to burnout (Leiter *et al.* 2009). This suggests that if organizational values were reflective of self-transcendence, and these were also prioritised by the staff members, then this congruence may help to foster an environment in which burnout is more likely to be less.

4.4.4 Priming values and empathy

Within this study, mental health staff who reported lower levels of burnout and were primed for self-transcendence values displayed significantly more emotional empathy than staff who reported high levels of burnout and were primed for self enhancement values. Of importance to healthcare services, this finding suggests that if staff are not experiencing burnout, then priming self-transcendence values alongside measurements to keep staff burnout at a low level will encourage higher levels of emotional empathy. This study therefore recommends that by involving staff members in activities that prime self-transcendence values, such as asking them to consider the importance of benevolence and universalism values, they will subsequently act more empathetically towards service users. This can be achieved through supervisory relationships within healthcare, where-in discussions surrounding the importance of self-transcendence values to providing an empathic service can be discussed. Further to this, if organisational values echoed those of self-transcendence more openly, this may cause the staff members to hold these values in mind more often, activating them on occasions and promoting empathy.

Conversely, staff who reported high levels of burnout and were primed for self enhancement values displayed less empathy. This finding suggests that if staff are experiencing burnout, then priming self enhancement values alongside these experiences of high burnout will encourage lower levels of empathy. As burnout has been shown to be contra-indicative of good patient outcomes (Firth-Cozens & Greenhalgh, 1997; Ferri *et al.* 2015), healthcare services that contain a high level of burnout should be aware that if self enhancement values are being primed within the healthcare environment, levels of empathy may be adversely affected. As this topic of research is still early in development, guidance on how priming may be instigated into healthcare practices have not been investigated.

4.4.5 Implications for Clinical Psychology

The findings of the current study and the implications suggested are relevant to the profession of clinical psychology in a number of ways.

Many clinical psychologists are versed in providing therapy that suggests that living in congruence with one's values is seen as important in promoting good mental health (Hayes *et al.* 2003). As such, they are used to assessing a person's values, and talking about the importance of them in relation to decreased psychological distress, increased psychological adjustment, and a better quality of life (Wilson & Murrell, 2004). The findings of this study would suggest that these conversations could be inclusive of the Schwartz (2012) model of values. Talking to people in terms of self-transcendence values as represented by the Schwartz (2012) model could also implicitly prime them toward appraising situations and behaving in ways that reflect those values.

Many psychological therapies that Clinical Psychologists train in are based upon establishing empathic relationships with individuals (e.g. Acceptance and Commitment Therapy (Hayes, 2004), Narrative Therapy (White & Epston, 1990), and Person Centred Counselling (Rogers, 1951) and as such can help to support and encourage staff members in developing their own empathic skills. Supervision could be a safe and supportive place in which these ideas could be discussed (Falender & Shafranske, 2008). This supervisory relationship may also be beneficial in identifying and working through burnout for staff. Further to this, as Schaufeli and Enzmann (1998) propose; working conditions that fail to support and accommodate a strong motivation to help can induce stress, which is a precursor to burnout (Maslach, 1980). Clinical psychologists have the supervision skills to provide the support and help the service to accommodate the staff member's strong motivations to help.

4.5 Strengths and limitations of the current study

There were several strengths and limitations identified in the current study. These were generally in relation to the contributions of the study to the evidence base, the methods used, and the analyses carried out. These strengths and limitations are outlined below.

4.5.1 Empirical support

One of the most important strengths of this study is that it lends empirical support and evidence for a negative correlation between empathy and burnout within mental healthcare workers. This is in line with the majority of the research uncovered in the systematic review (see Section 1.6; Ferri *et al.* 2015; Lamothe *et al.* 2014; Walocha *et al.* 2013; Fulop *et al.* 2011; Lee *et al.* 2003). Further to this, the current study lends support to the fact that priming values can influence the level of empathy shown within a stimulus response task (MET; Dziobek, 2008). Within this study, this was found when the mediating variable of burnout was taken into account. The priming method used in

the current study has been shown to be valid in other studies (i.e. Maio et al, 2001; Karremans, 2007; Maio et al, 2009b). This lends support to this method of priming values and suggests that it is applicable to the values of self-transcendence and self enhancement, and empathy.

This study therefore contributes to the evidence base by providing empirical support of priming values. Consequently raising awareness about the role of values in empathy and burnout, and encourages future research in this area.

The current research is also the first to test the Schwartz (2012) model of values with relation to burnout and empathy in mental health workers. The correlations found between these variables and the effect of priming uncovered within this study add to the understanding about these factors that have been shown to be important to the provision of good healthcare (Firth-Cozens & Cornwell, 2009). This is a strength of the current study and highlights the importance of continued empirical investigations within this area.

4.5.2 Recruitment sample

The sample included within this study included frontline mental health staff. The sample was predominantly female, and worked in a variety of roles including nursing, health care support work, activities nurse, deputy ward manger, ward manager, and nursing development officer. A strength of the sample was the use of randomisation in allocating groups, which was affirmed through the analyses reporting no significant differences between the groups. Further to this, the sample gathered was representative of the frontline staff at the recruitment site, so may be comparable to the wider population of frontline mental health staff. This is a strength of the current study.

An additional strength of the current study was the use of initial apriori power calculations that before undertaking the study and dictated the number of participants needed to ensure adequate power when using three groups of participants. The number of participants recruited was above this calculations estimate.

4.5.3 Data collection

The priming method used in the current study has been shown to be valid in other studies (i.e. Maio et al, 2001; Karremans, 2007; Maio et al, 2009b). However, asking participants to describe why it is important to be caring, as within the self-transcendence priming task, may have been a direct cause of the increase in empathy

shown by some participants in the MET (Dziobek, 2008) if they had guessed the relationship between these two tasks. This is unlikely to have been the case due to the debriefing procedure including a probing method of determining if participants linked the priming task with the rest of the study. However, it would be useful in future research to avoid potential confounding factors such as this.

4.5.4 Measures used

A strength of the current study was the use of well validated measures to assess values (PVQ-RR; Schwartz, 2012), burnout (MBI; Maslach & Jackson, 1996), and empathy (MET-core-2; Dziobek, 2008). Further to this, the MET was chosen over the self-report measures of empathy that many studies use (e.g. Interpersonal Reactivity Index; Davis, 1980, or Jefferson Scale of Physician Empathy; Hojat *et al.* 2002). This choice was justified in terms of the task based nature of the MET and it's accordance to the definitions of empathy and is seen as a strength of the current study (see Section 2.6.4).

One limitation for the measures used is the self-report nature of the PVQ-RR and MBI. These measures may be subject to various forms of response bias and/or socially desirable responding (Van de Mortel, 2008). A social desirability scale could have been used to minimize the effect of this on research; however, no other research found related to values, empathy, or burnout used these. It was decided that the inclusion of such a measure would prolong the time taken to participate in the study unnecessarily and was not implemented.

4.5.5 Analysis

The data analyses carried out within this study is both a strength and a limitation. There were issues with the data meeting the assumptions for parametric analysis (Field, 2013). In particular, the data failed to demonstrate a linear relationship between the variables or homogeneity of variances. The nature of these failed assumptions meant that the planned ANCOVA was not carried out, this was confirmed through the significance of the Levene's test inherent to the ANCOVA. As the data was not suitable for transformation (see Section 3.2.4), the ANCOVA was replaced by non-parametric equivalents. In contrast to this, the mediation analysis of Hays's mediation model was argued to be robust against the failure of assumptions, as the method of least squares produces 'unbiased' results even when homogeneity of variance can't be assumed, and bootstrapping overcomes the violation of these assumptions for the confidence intervals (Field, 2013).

Due to the failure to meet two of the assumptions, the current study used non-parametric tests to investigate the between subjects hypotheses, and mediation analysis alongside non-parametric tests for the hypotheses regarding correlations between the variables. Unfortunately, this meant that the statistical analysis also involved multiple comparisons, which could therefore increase the risk of type one error occurring (Field, 2013) and is a limitation of the study.

4.6 Future research

The current study has provided empirical support for the association between values, empathy and burnout. Further research should be carried out that looks to investigate the causal relationships between these variables.

Future research may wish to investigate the priming of values on empathy, while controlling for burnout. Inclusion criteria for future studies into this area could include homogeneity of burnout levels. This would limit the mediating effect of burnout, as this factor will be relatively constant for the whole sample. Therefore, priming of values and the effect on empathy could be explored within populations with either 'high' or 'low' burnout.

As recommended above, interventions within healthcare that look to improve the provision of compassionate care and empathy should take into account the associated factors of burnout and values. Further research could look into the interactions between healthcare drivers to improve compassionate care and the resulting changes in levels of burnout and values. Longitudinal design would be able to track these changes over time and increase our understanding about how these variables interact.

The role of supervision as a support mechanism for individuals who may be experiencing burnout is another avenue of research that may increase our understanding of how intervening with aspects of burnout could help increase empathic abilities in persons.

The findings of the current study suggested that if organizational values were reflective of self-transcendence values, and were also prioritised by the staff members, then burnout may be reduced. Future research could look at establishing how any changes in the organisational values of a healthcare setting could influence levels of burnout.

The results of this study are supportive for two of the three hypotheses posited by Zenasni *et al.* (2012); that burnout causes a decrease in empathy, or that empathy is a resource against burnout. These ideas should be explored further in future research.

Longitudinal study may highlight the causal processes inherent to empathy and burnout and may determine if burnout does cause a decrease in empathy. Also, for the second hypothesis, interventions that aim to educate and encourage empathic practices should also look to assess burnout levels before, during, after and at follow up. This will shed light on whether an increase in empathy seems to protect the staff member from experiencing burnout, as hypothesised by Zenasni *et al.* (2012).

Schwartz (2012) outlines the possibility that people sometimes pursue incompatible values. The effects of this are not discussed within the literature, however future research could see if discrepancies in values exist and what effect this may have on empathy levels or the psychological wellbeing of the participant.

4.7 Summary and conclusion

The current study utilised the Schwartz (2012) model for human values to investigate whether priming certain values changed how frontline mental health staff performed on a test of empathy. The overall aim was to investigate whether or not priming certain value quadrants (self-transcendence or self enhancement) of mental health staff would affect their performance on a task measuring cognitive and emotional empathy. A systematic review was presented (see Section 1.6) that showed burnout had a significant relationship with empathy, demonstrating the need to include burnout within the design.

Within this study, 87 participants were randomised to 3 groups; one group was primed for self-transcendence values, one group was primed for self enhancement values, and one group was not primed and were the control. All participants had completed a values questionnaire (PVQ-RR, Schwartz, 2012) and a burnout measure (MBI; Maslach & Jackson, 1996). Following the priming procedure, the participants completed the empathy measure (MET-core-2; Dziobek, 2008).

The results showed a number of correlations between the variables measured. A positive correlation was found between values and empathy; this study found that people who were highly motivated by socially-focussed, anxiety-free, self-transcendence values also experienced the emotions of others to a high degree. Further to this, people who were highly motivated by the self-protecting, anxiety-avoidant, self enhancement values experienced the emotions of others to a lesser extent, and were less able to correctly identify a person's emotional state. The current study also indicated some links between values and burnout. It was found that the

higher the self-transcendence values, the lower the level of burnout. It suggested that individuals who highly rate themselves as holding the values of self-transcendence as important show a lower level of burnout. Further to these, and in agreement with the systematic review (Section 1.6), burnout was shown to be negative correlated to empathy, with the higher the burnout, the lower the level of emotional empathy.

These correlations were shown to be reflected within and understandable in light of the literature regarding each variable (Section 4.3). These correlations were shown to have important implications for the provision of healthcare, which were discussed in Section 4.4.

This study also found a significant effect following the priming of certain values once burnout levels were accounted for within the sample. It was shown that participants who scored *high* for burnout who were primed for *self enhancement* values showed significantly lower levels of emotional empathy than the participants who scored *low* for burnout and were primed for *self-transcendence* values. This result reflected the mediating nature of burnout between values and empathy. The priming of values that are guiding principles and motivators to behaviours (Rokeach, 1973; Schwartz, 1992) in line with methods devised by Maio (2001) were shown to increase the motivations towards behaviours that are in agreement to the principles behind the values. Within this study this occurred when burnout was at levels that are associated with each respective value quadrant; self enhancement values paired with high burnout and self-transcendence values paired with low burnout.

The clinical implications for the current study were outlined and included suggestions for encouraging a working environment that promotes and motivates both behaviour in line with the self-transcendence values and empathy and subsequently improving the outcome for patients and the level of compassionate care provided. Interventions for encouraging empathic practice were outlined, alongside ideas for assessing for and supporting staff who may be experiencing burnout.

This study recommended that involving staff members in activities that prime self-transcendence values, such as asking them to consider the importance of benevolence and universalism values, could encourage higher levels of empathy towards service users, as long as burnout levels are accounted for. However, as this topic of research is still early in development, further research into this area is recommended.

There were several strengths and limitations identified in the current study. The study was shown to provide empirical support to existing theories of empathy and burnout,

and to add to the evidence base for the associations between values, empathy, and burnout, alongside the effects of priming values on empathy. Limitations were highlighted that included the failure of the data to meet assumptions of parametric analysis, and the subsequent reliance on numerous non-parametric tests could have increased the risk of type one error occurring. Further to this, the self-report nature of the values and burnout measures were not immune to the bias inherent to social desirability.

Future research recommendations were outlined that could look to investigate the priming of values on empathy, while controlling for burnout within the inclusion criteria of the sample. The correlations found between the factors within this study suggest that further research could look into the interactions between healthcare drivers to improve compassionate care and the resulting changes in levels of burnout and values. Future research was recommended to look at establishing how organisational values could influence levels of burnout.

In conclusion, the current research indicated that there are links between the Schwartz (2012) model of values, burnout and empathy. Further to this, priming values after the sample was divided by their level of burnout, showed a significant effect on the level of emotional empathy shown by the mental health staff. It was found that priming self-transcendence values was linked with higher levels of empathy and priming self-enhancement values was linked with lower levels. These findings have been shown to have important considerations for the provision of healthcare and should be further investigated.

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