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Doctoral Thesis

TITLE

Examining professional quality of life in cancer health care professionals: relationships to empathy and emotional intelligence

BY

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Abstract

Working in cancer care is stressful, where cancer health care professionals are exposed daily to the distress and suffering of patients with cancer. As a result of this exposure, health care professionals working in cancer care experience both compassion satisfaction and compassion fatigue. Cancer health care professionals use empathy in their interactions with patients however, being empathic also increases experiences of compassion fatigue. Higher levels of emotional intelligence have been linked with lower levels of compassion fatigue. To date no studies have examined the relationships between professional quality of life, that is compassion satisfaction and compassion fatigue, and the constructs of empathy and emotional intelligence in cancer health care professionals.

The aim of this research is to examine the relationships between professional quality of life, empathy and trait emotional intelligence. A mixed methods explanatory sequential design was used over two phases. Data collection involved a survey (*n* =122), and semi-structured interviews (*n*=12). Quantitative data was analysed using the Statistical Package for Social Sciences-22®. The semi-structured interviews were analysed using Interpretative Phenomenological Analysis, and employed NVivo-12® to manage qualitative data.

The results revealed that levels of secondary traumatic stress experienced by cancer health care professionals are high (28%). A second significant finding is that the trait emotional intelligence subscale of well-being was predictive of both compassion satisfaction and compassion fatigue. Nurses and radiation therapists drew parallels with their own family when empathising with patients with cancer that may add to the nurses and radiation therapists' personal distress. The nurses and radiation therapists constructed two types of cancer patient in their practice that impacted on their personal distress.

Recommendations include the need for national policy to take the levels of compassion fatigue into consideration in work-force planning. Additionally, clinicians and educators need to implement empathy education and well-being strategies into practice and education initiatives. These recommendations will assist in improving cancer health care professional's compassion satisfaction and compassion fatigue.

Declaration

I, Patricia Hunt, declare that this thesis is submitted as fulfilment of the requirement for the degree of Doctor of Philosophy (PhD), and it is entirely my own work except where otherwise accredited. It has not at any time either in whole or in part been submitted for any other educational award.

Signed:

Patricia Hunt (Candidate)

Date:

List of peer-reviewed journal publications

Hunt P, Denieffe S and Gooney M (2019) Running on empathy: relationship of empathy to compassion satisfaction and compassion fatigue in cancer healthcare professionals. *European Journal of Cancer Care* 28(5) e13124

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Dedication

This thesis is dedicated to Molly, who is the light of my life and has enriched life in more ways than she can imagine.

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Abbreviations used

Abbreviation	Definition
aEI	Ability emotional intelligence
CF	Compassion fatigue
CS	Compassion satisfaction
Global tEI	Global trait emotional intelligence
HCP	Health care professional
IPA	Interpretative phenomenological analysis
IRI	Interpersonal Reactivity Index
MBI	Maslach Burnout Inventory
mEI	Mixed emotional intelligence
MSCEIT	Mayer-Salovey-Caruso Emotional Intelligence Test
ProQOL	Professional Quality of Life Scale
STS	Secondary traumatic stress
STSS	Secondary Traumatic Stress Scale
tEI	Trait emotional intelligence
TEIQue	Trait Emotional Intelligence Questionnaire
USA	United States of America
VT	Vicarious traumatisation

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Chapter 1 Introduction

1.0 Background to the proposed research

This chapter outlines the background to the current study. This study aims to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer health care professionals (HCP), and understand the nature of such relationships. A rationale for the study and the significance of this research study are outlined. The organisation of the thesis, and a chapter summary will also be provided.

The work involved in cancer care is highly stressful (Breen *et al* 2014; Rohan and Bausch 2009), and despite advances in cancer treatments, and improved outcomes in terms of morbidity and mortality (Chen *et al* 2017; Hejl *et al* 2020; Lilleby *et al* 2015), patients continue to report distress as a consequence of having cancer (Unseld *et al* 2019). Although health care professionals (HCP) in the specialist field of cancer care are exposed to patients' distress every day, cancer HCPs are committed to relieving the distress and suffering of patients and their families (Cohen *et al* 2010; Mok *et al* 2010). As a result of this exposure to the distress of patients with cancer, HCPs experience both rewards and difficulties. Positive aspects of professional cancer care for HCPs include developing relationships with patients (Halkett *et al* 2016), feeling good about what can be achieved (Gilles *et al* 2014), and strengthening personal coping skills (Partlak Günüşen *et al* 2019). However, despite these positive benefits for cancer HCPs in caring for patients with cancer, this type of work can be a source of stress and can result in compassion fatigue. Negative aspects of professional cancer caring include emotional exhaustion, feelings of guilt and helplessness, feeling unfulfilled, concerned about one's own health, and having limited time to process negative feelings related to cancer work (Kenny *et al* 2007; Wenzel *et al* 2011; Barnard *et al* 2006; Blanchard *et al* 2010).

Professional quality of life relates to both the positive and negative consequences of compassionate professional caring. Professional quality of life is a term used to indicate the quality of life felt in the process of carrying out professional caring work (Stamm 2010). There are two main concepts that underpin professional quality of life, that is compassion satisfaction (CS) and compassion fatigue (CF), with compassion fatigue subdivided into secondary traumatic stress (STS) and burnout (Stamm 2010). Compassion satisfaction is the pleasure experienced when satisfied with professional caring interactions (Stamm 2010). Levels of CS have been reported as higher and levels of CF are reported as lower in cancer nurses working in the USA, Canada and South Africa (Jakel *et al* 2016; Wells-English *et al* 2019; Wu *et al* 2016) as compared to European and Asian colleagues (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2016a; Duarte and Pinto-Gouveia 2017a; Jang *et al* 2016; Yilmaz *et al* 2018; Yu *et al* 2016). There are fewer studies examining levels of CS and CF in oncologists and radiation therapists. Compassion satisfaction levels are reported as average to high, and CF levels are reported as low to average in oncologists and radiation therapists (Gilles *et al* 2014; Koo *et al* 2013; Laor-Maayany *et al* 2020; Sarra and Feuz 2018). However two studies reported high levels of CF in oncologists (Granek *et al* 2017; Hayuni *et al* 2019), and Koo *et al* (2013) reported STS levels as higher in radiation therapists when compared with cancer nurses.

The majority of studies relating to professional quality of life in oncologists originate from Israel, and in the case of radiation therapists, studies originate from Canada. Globally, studies provide a mixed picture of levels of CS and CF, and to date there are no studies in the Republic of Ireland that have examined both the positive and negative consequences of professional caring on cancer HCPs. The only data available from the Republic of Ireland in terms of satisfaction with work have not specifically examined cancer HCPs. Job satisfaction in nurses in the Republic of Ireland is reported as low to moderate (Curtis 2007), and levels of burnout are reported as high in physicians in the Republic of Ireland (Hayes *et al* 2019). Understanding levels of CS and CF in cancer HCPs would be helpful in determining if one profession is more at risk of CF than another, and would be useful in targeting interventions that maintain CS and reduce the risk of CF. Understanding how CS and CF affects cancer HCPs could also be used to inform policy.

Empathy is a prosocial behaviour used for the benefit of others (Penner *et al* 2005). In patients with cancer the use of empathy increased patient satisfaction, psychosocial adjustment, psychosocial wellbeing, and impacted positively on patient information recall (Lelorain *et al* 2012), suggesting positive patient outcomes when cancer HCPs engage in empathic practice. Indeed, interventions to improve HCP empathy have reported communication training as successful in increasing nurses empathic responses (Langewitz *et al* 2010), and have shown an improvement in patient perceived oncologist empathy (Parker *et al* 2020). However, despite the positive patient outcomes resulting from empathic encounters, there is a negative impact of using empathy for cancer HCPs.

Responding to the distress and suffering of patients with cancer involves empathic engagement, which has both positive and negative consequences for health care professionals. In cancer practice the use of empathy has been reported as increasing cancer nurses' stress (Hope-Stone and Mills 2001), and increasing psychological and physical vulnerability of cancer nurses (Kesbakhi and Rohani 2020). However, there are positive consequences of using empathy in practice. Cancer nurses have reported the use of empathy as increasing job satisfaction (Hope-Stone & Mills 2001), and supporting the formation of good nurse patient relationships (Hope-Stone and Mills 2001; Wiseman 2007). The impact of using empathy on oncologists is rarely examined with one study reporting that years of experiencing desensitises oncologists to being empathic (Lelorain *et al* 2015). There were no studies identified that examined the impact of the use of empathy on radiation therapists.

Three studies examined the relationship between professional quality of life and empathy (Duarte and Pinto-Gouveia 2017a; Hayuni *et al* 2019; Yu *et al* 2016). Two of the three studies included cancer nurses (Duarte and Pinto-Gouveia 2017a; Yu *et al* 2016), and one study included oncologists (Hayuni *et al.* 2019). The results found that cognitive empathy was positively correlated with CS (Duarte and Pinto-Gouveia 2017a; Hayuni *et al* 2019; Yu *et al* 2016), and aspects of emotional empathy were correlated with CF (Duarte and Pinto-Gouveia 2017a; Hayuni *et al* 2019; Yu *et al* 2016). It appears that emotional and cognitive components of empathy are different, and these differences are important in understanding the relationship between empathy and professional quality of life.

Emotional empathy is an unconscious process and involves emotional arousal, where the empathiser shares the emotions of another person (Decety and Lamm 2006). This sharing of emotions leads the empathiser to either engage in cognitive empathy, that is taking the perspective of the distressed person, or if the empathisers' emotions are over-aroused when sharing emotions, there will be ineffective perspective taking resulting in personal distress for the empathiser (Rushton *et al* 2013). In order for empathy to be effective, cognitive empathy must be engaged. Cognitive empathy is a conscious process, and includes an ability to recognise that the emotions felt are not all one's own (Cuff *et al* 2016). Cognitive empathy, or perspective taking requires an understanding of one's own emotional state in addition to the other's emotional states.

The concept of managing one's own emotions and the emotions of others is described as emotional intelligence (EI: Mayer *et al* 2004; Petrides and Furnham 2003), and this relates to how people understand, attend to, process and manage emotional information about themselves and others (Cherniss 2010; Mayer *et al* 2004; Petrides *et al* 2004). Understanding and managing emotions have been shown to improve the positive aspects of life for HCPs, including life-satisfaction, decision making, career decisions, leadership abilities, and stress resilience (Austin *et al* 2005; Di Fabio and Saklofske 2014; Fallon *et al* 2014; Schneider *et al* 2013; Siegling *et al* 2014). Oncologists with high levels of EI have reported lower burnout (Holliday *et al* 2017), and cancer nurses with higher EI scores reported lower occupational stress (Mazzella Ebstein *et al* 2019). There is some evidence that cancer nurses avoid identifying emotions during their daily work even though they had an ability to do this (Codier *et al* 2013). There is a dearth of literature examining EI and professional quality of life in cancer nurses and oncologists, and there were no studies identified that examined the relationship between professional quality of life and EI in radiation therapists. Studies from outside the area of oncology suggest that EI abilities are not consistent across all medical specialties. Physicians in different specialties demonstrated different strengths and weaknesses in the various domains of EI (McKinley *et al* 2015; Zeidner *et al* 2013) suggesting that physicians with specific EI abilities may be attracted to specific specialties, and that interventions to increase EI abilities may not be universal to all medical specialties. From this examination of the literature it would be plausible to consider that the cognitive empathy component of perspective taking requires high levels of EI.

It was important to examine levels of professional quality of life in cancer HCPs in Ireland to establish how levels of CS and CF compared with other countries in Europe and globally. Given that the use of empathy in cancer practice has both positive and negative relationships with professional quality of life, and EI has been correlated with low levels of CF then it was also important to determine if EI has a relationship with empathy and professional quality of life.

1.1 Rationale for the research study

The most recent statistics from the National Cancer Registry Ireland (NCRI) report 22,321 people diagnosed with cancer in 2015, with 148,443 people living with cancer that same year. This reflects trends of increasing incidence and prevalence of cancer over the past two decades (NCRI 2015). These trends in cancer presents an increasing workload for cancer health care professionals in the Republic of Ireland in all aspects of cancer care including prevention, screening, diagnosis, treatment, survivorship, and palliative and end of life care. The literature suggests that although working in cancer care for health care professionals can be rewarding, there are negative consequences as a result of engaging in empathic and compassionate practice. Although professional quality of life has been examined in the cancer nursing population, there are conflicting results globally in terms of levels of CS and CF experienced. There is a paucity of literature relating to the professional quality of life of oncologists and radiation therapists outside of Israel and Canada. Furthermore, there are no studies examining professional quality of life of cancer HCPs in Ireland.

Although the use of empathy is a part of daily cancer care practice, there are few studies examining the relationship between empathy and professional quality of life in cancer nurses and oncologists, and no studies in radiation therapists. It is conceivable from the literature that the cognitive component of empathy has some relationship with emotional intelligence. However, these two concepts have not been examined together in the cancer health care professional literature. There is a dearth of literature, both quantitative and qualitative, exploring the relationships between professional quality of life, empathy and emotional intelligence in cancer health professionals.

In summary, levels of CS and CF in cancer HCPs in Ireland is unknown. It is also unknown if a relationship exists between professional quality of life, empathy and emotional intelligence in cancer HCPs. If such a relationship exists, it is not known what the nature of this relationship is. An additional unknown is the cancer HCP narrative understanding of these three constructs, and their experience of how the constructs affect their professional practice and personal self. It is important to identify the nature of the relationship between these three constructs for HCPs working in cancer care so that the challenges facing these professionals is understood. Consequently, this will provide a basis for developing policy, education initiatives and interventions that can support cancer HCPs in practice with the aim of reducing compassion fatigue and improving compassion satisfaction.

1.2 Organisation of the thesis

This PhD thesis has 7 chapters. Chapter one introduces the background to the study, the rationale for the study, and outlines the organisation of the thesis. Chapter two describes the study constructs and provides a rationale for the choice of construct models. Chapter three outlines the scope of the literature review and the literature review strategy. It provides a critical account of the literature in relation to professional quality of life in cancer practice. Chapter three also provides a critical analysis of the concept of empathy and establishes the relationship between professional quality of life and empathy in cancer practice. A critical understanding of the concept of emotional intelligence, and an examination of the relationship between emotional intelligence and professional quality of life is also presented in chapter three. The conceptual framework for the study is described, and finally, chapter three sets out the research questions.

Chapter four outlines the methodology used in the study. It states the aims and objectives of the study, and provides an overview of the explanatory sequential mixed methods design. The sampling method used in the study is explained, and the analysis used in Phase I and Phase II is described in chapter four. Chapter five presents the results of Phase I and Phase II of the study. Following the presentation of the results of both phases of the study independently, the merging of the results of both phases is described. This involves presenting how the results of Phase II explain the results of Phase I. The additional findings of Phase II are presented last in chapter five.

Chapter six provides a discussion of the findings, where the results are interpreted in relation to the current body of literature and the conceptual framework. The study conclusions are presented in chapter seven. The strengths and limitations of the study are described, and the recommendations for practice and research are also be explained in chapter seven.

1.3 Chapter summary

This first chapter has introduced the research problem by providing an overview of professional quality of life, empathy and emotional intelligence in the context of cancer care. The justification for the research is presented. The next chapter provides an overview of the study constructs and a rationale for the choice of construct models used in this current study.

Chapter 2 Background

2.0 Introduction

This chapter describes the study constructs, and provides a justification for the decisions made regarding the choice of specific models as applied to the current research study. An overview of the construct of compassion and compassion in cancer care is described in section 2.1. Section 2.2 outlines the construct of professional quality of life and provides the rationale for the inclusion of burnout as a concept of compassion fatigue, and the exclusion of the independent construct burnout syndrome. Section 2.3 describes the construct of empathy in healthcare and outlines the difference between emotional and cognitive empathy. Section 2.4 discusses the construct of emotional intelligence, and explains the differences between trait emotional intelligence, ability emotional intelligence, and mixed emotional intelligence. A summary of the chapter is provided in section 2.5.

2.1 Compassion

Compassion as an evolutionary concept suggests it is an emotional state that developed with the aim of reducing suffering (Goetz *et al* 2010). Compassion infers a relationship between the sufferer and a compassionate person (Vitellone 2011), where there is an identification and acknowledgement of suffering by the compassionate person (Schantz 2007). Compassion is moral, altruistic, rational, and enters the suffering of others (Von Dietze and Orb 2000), it is deliberate and intentional (McCaffrey and McConnell 2015; Von Dietze and Orb 2000), and includes a motivation to relieve another's distress (McCaffrey and McConnell 2015; Ledoux 2015; Schantz 2007).

A comprehensive definition of compassion suggests there are cognitive, emotional and behavioural processes involved (Strauss *et al* 2016). Strauss and colleagues suggest that compassion has five elements; the recognition of suffering, understanding the universality of the experience of human suffering, empathy, an ability to tolerate one's own uncomfortable feelings in response to seeing suffering, and a motivation to do something to relieve the suffering. Additionally, Goetz *et al* (2010) argue that compassion will be constructed by how alike the sufferer is to the compassionate person, how much the sufferer is to blame for the suffering, and how able the compassionate person is in coping with the situation. This implies that even if a compassionate person recognises suffering, and is motivated to relieve the suffering, compassion may be more evident if the person who is suffering is more like the compassionate person, if blame is not apportioned to the person suffering, and if the compassionate person has the ability to cope with the situation.

2.1.1 Compassion in cancer care

Compassion is a human experience that does not adhere to multi-disciplinary boundaries (McCaffrey and McConnell 2015), although different professional barriers to compassionate practice has been reported (Dev *et al* 2019). This implies that although compassion is evident in different professions, the challenges each profession faces in cultivating compassion may necessitate different approaches. It is suggested that compassion requires considerable effort (Van Der Cingel 2009). This compassion effort involves an emotional labour that suggests HCPs who are exposed to distress and suffering on a regular basis may be more at risk of the negative consequences of caring.

Compassion is an essential component of cancer care. Cancer patients have identified how they perceive compassion in practice, stating that it is motivated by virtue, it is altruistic in nature, it involves acts of kindness that are beyond the call of duty, and is action orientated (Sinclair *et al* 2017). Nurses have reported the importance of expressing compassion and empathy when caring for patients with cancer (Banning and Gumley 2012). Compassion in cancer nursing care requires the development of relationships with patients, and attending to patient needs (Richardson 2004). An important aspect of compassion in cancer care requires the nurse to acknowledge one's own compassion identity, which requires the nurse to monitor the personal impact of the patients' distress whilst examining one's own internal resources to manage the internalisation of that distress (Corso and Coroso 2012).

The importance of physician compassion in cancer patient consultations has been known for decades. In a randomised pre-test/post-test control group design, Fogarty *et al* (1999) added a 40 second enhanced compassion intervention to a standard breast clinic interaction. When compared to the standard breast clinic interaction, patients who had the 40 second enhanced compassion intervention reported that physicians were more caring, sensitive and compassionate. This evidence points to small changes having a potentially significant impact on how HCPs compassion is perceived by patients. In a randomised controlled study by Tanco *et al* (2018) advanced cancer patients viewed actor physicians deliver news through a more optimistic message and a less optimistic message. This video viewing was followed up by a vignette of the patient's condition deteriorating. The results suggest that cancer patients' perception of physician compassion is not affected by a poorer clinical outcome of the patient (Tanco *et al* 2018). However, studies with actors need to be interpreted with caution as these may not reflect the true context of clinical practice.

When undertaking consultations with patients with cancer, physicians demonstrated that compassion was a complex transactional process that involved the physician moving towards addressing the patients' suffering by demonstrating presencing and engagement over the course of the conversation (Cameron *et al* 2015). The complex nature of compassion in cancer care is evident but there is a lack of clear evidence on how to promote compassion in cancer care. Sinclair *et al* (2016) interviewed people with incurable cancer, and using Grounded Theory developed a Compassion Model. This model identifies the HCP as attending to the needs of the patient who is suffering, using relational communication, and seeking to understand the patient within that relational space. Within the model the HCP holds virtues such as honesty, openness, tolerance and kindness that allow compassionate care to happen. This model enables the compassionate HCP to impact on patient outcomes such as enhancing care, reducing suffering, and enhancing patient wellbeing (Sinclair *et al* 2016). This model has also been identified as transferable to patients with other chronic illnesses (Sinclair *et al* 2018). Health care professionals applying this model to cancer care may develop a more compassionate stance in their practice, but what this model does not consider are the negative consequences of maintaining a compassionate presence in practice.

2.2 Professional quality of life

Work is a large part of most HCPs lives, therefore it is important that aspects of work impact positively on the quality of life of HCPs. Professional quality of life encompasses the positive and negative aspects of caring, and as a concept it is specifically focused on the response of a professional carer when exposed to traumatic or distressing events at work (Stamm 2010). Positive aspects of professional quality of life include the professional carer feeling good about helping the person who is in distress (Stamm 2010). Negative aspects of professional quality of life include symptoms of trauma including a preoccupation with patients, anxiety and persistent arousal (Abendroth and Figley 2013).

The language around professional quality of life for health care professionals is confusing, with terms used interchangeably, and concepts are not clearly defined particularly in relation to compassion fatigue (Abendroth and Figley 2013; Ledoux 2015). Although there is ambiguity around the term ‘the negative consequences of caring’, the professional quality of life model proposed by Stamm (2010) provides some structure to the concept (Figure 2.1). In the model by Stamm (2010) professional quality of life incorporates CS and CF, with CF further broken down into burnout and secondary traumatic stress. The components of professional quality of life are not mutually exclusive, nor are they seen to be on a continuum with compassion satisfaction at one end and compassion fatigue at the other, but each component can be experienced in varying degrees simultaneously (Stamm 2010), suggesting a highly complex interplay between the constructs.

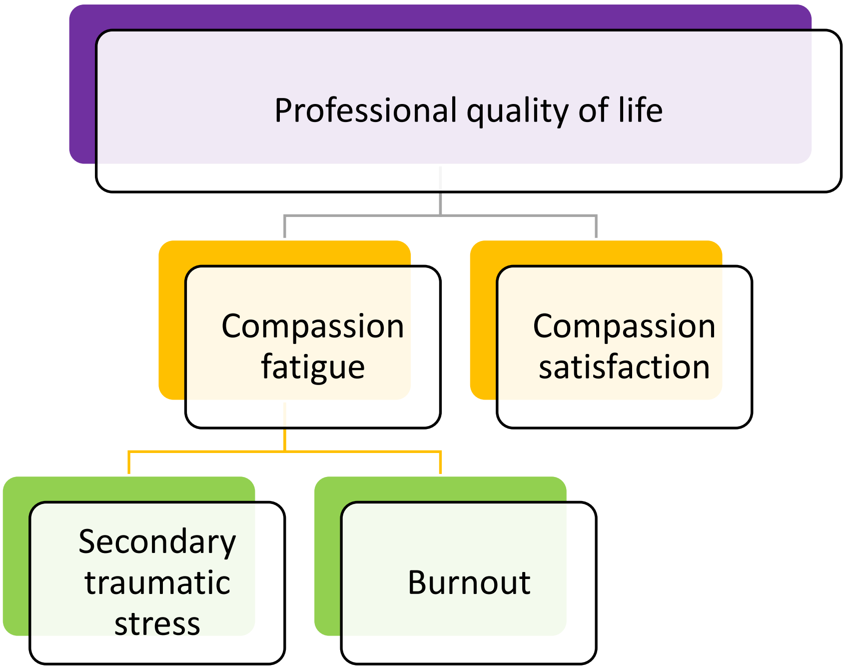


Figure 2. 1: Professional quality of life model (Stamm 2010)

The term CF was conceptualised by a nurse called Joinson in 1992, who identified that compassion can be difficult to embody on a consistent level in professional caring. Joinson (1992) proposed that CF is a unique form of burnout that affects people working in the caregiving professions. Figley (1995), having worked in the trauma research field postulated that CF is the same as secondary traumatic stress, where the HCP becomes traumatised by absorbing the patients' emotional response to trauma. Figley (2002) also established that CF results from the prolonged exposure of the professional carer to a person's distress, and CF can result from a HCP experiencing a preoccupation with distressed people and their associated trauma. Therefore, CF can be summarised as a stress response that results from the continuous exposure to the suffering and trauma of others (Yang and Kim 2012; Melvin 2015); it is cumulative and progressive in nature; results from the use of self and the person's experience of stress (Coetzee and Klopper 2010); and occurs where there is a reduced interest or capacity in a professional care giver of being empathic (Figley 1995). Indeed, CF has been linked to the excessive emotional workload of oncology nurses (Ortega-Campos *et al*, 2020) confirming that emotion is a key element of CF. Compassion fatigue, as a part of the professional quality of life model (Stamm 2010) differs to burnout syndrome and vicarious traumatisation so it is important that the differences in these concepts are explained.

2.2.1 Burnout

Burnout as related to CF relates to a breakdown in the HCP-patient relationship, whereas burnout syndrome as an individual concept relates to a breakdown in the employer-employee relationship (Ledoux 2015). Stamm (2010) describes burnout in the HCP-patient relationship context as HCPs experiencing feelings of hopelessness, exhaustion, frustration, anger and depression. The conceptualisation of burnout as an employer-employee relationship breakdown is described by Maslach *et al* (2001). In Maslach's model burnout comprises three dimensions; emotional exhaustion, depersonalisation, and a reduced sense of personal accomplishment. The emotional exhaustion occurs as a result of being unable to cope with the emotional demands of the work (Maslach *et al* 2001). Depersonalisation is when distancing and cynicism is utilised in an attempt to cope with the stress of the job and the emotional exhaustion (Maslach 2011), and the reduced sense of personal accomplishment comes from the chronic demands of work and the impact of emotional exhaustion and depersonalisation on the person (Maslach 2011).

This view of burnout by Maslach and colleagues differs from the view of burnout in the professional quality of life model (Stamm 2010), and it is important to understand these conceptual differences to distinguish between work related compassion fatigue and work related burnout. Joinson (1992) described burnout in professional caring as unique, and it is this conceptualisation that Stamm (2010) sees as being one element of compassion fatigue alongside the other element of STS. Stamm's model (2010) of burnout relating to

CF does not include depersonalisation and cynicism whereas Maslach (2011) and Maslach *et al* (2001) views burnout as a distinct concept resulting from a dissonance between work demands and resources. Maslach (2017) is clear that the reduction of burnout to a single measure is not measuring true burnout, and a single measure is leaving out cynicism which is one key aspect of burnout. Burnout as proposed by Maslach *et al* (2001) is recognised as an occupational disease (World Health Organisation 2018), whereas burnout as conceptualised in the Stamm (2010) model is not. These differences in burnout definitions are a source of confusion and academic debate over many years, and have yet to be resolved (Abendroth and Figley 2013; Ledoux 2015). Interestingly, more recent conceptualisations of compassion fatigue (Figley and Figley 2017) do not include the term burnout. Figley and Figley (2017:p5) describe compassion fatigue as a cumulative “unchecked build-up of compassion (secondary traumatic) stress”. The omission of the term burnout in the newer conceptualisation of CF indicates a move from the term burnout as a label for one component of CF.

2.2.2 Secondary traumatic stress

Figley (2002) describes how STS developed from the concept of posttraumatic stress disorder (PTSD). PTSD is a disorder that develops after personally experiencing a traumatising event (Figley 2002). Secondary traumatic stress is a negative outcome that occurs when a person is exposed to another person who has experienced a trauma (Stamm 2010). The stress experienced by an individual in helping a traumatised person can result in STS (Figley 1995). Arnold (2019) reported from a concept analysis of STS in nursing, that empathy must be present before STS is experienced.

Beck (2011) suggests that STS can develop suddenly and without warning. The symptoms of STS have been reported as feelings of guilt and helplessness (Partlak Günüşen *et al* 2019), an increase in negative arousal, emotional numbing, irritability, sleep disturbances, disturbing dreams, changes in self-esteem, hypervigilance, palpitations, negative coping abilities (Arnold 2019), helplessness, and feelings of isolation from support (Figley 1995). The literature is not clear on whether previous personal experience of trauma is related to the development of STS (Baird and Kracen 2006), but there is clear evidence that the amount of trauma a person is exposed to increases the risk of developing STS (Baird and Kracen 2006; Ludick and Figley 2017). A unidirectional causal pathway from burnout to STS has been found in a longitudinal study of human service professions, suggesting that burnout contributes to the development of STS (Shoji *et al* 2015).

Ludick and Figley (2017) propose that STS is often unavoidable when working with people experiencing suffering and trauma. These authors propose that for an individual, STS is higher when the empathic response to the traumatised person is appropriate, when it is necessary to compartmentalise stress reactions, when exposure to suffering is prolonged, and when there is recall of prior traumatic events. Ludick and Figley (2017) suggest that STS is decreased in an individual when there is a sense of satisfaction and purpose with work, and when support is received from colleagues, management and the work place organisation. Figley and Figley (2017) propose that the process of being empathic is a significant pathway to STS, suggesting that there is a relationship between empathy and STS.

2.2.3 Vicarious traumatisation

Vicarious traumatisation (VT) is the term used to describe the negative effects of caring for traumatised people (Partlak Günüşen *et al* 2019; Sabo 2006; Sinclair and Hamill 2007). The term VT is a related concept to STS. It is important therefore to identify the difference between VT and STS, which will clarify how STS contributes to CF and VT does not. Vicarious traumatisation involves a change in the personal and professional belief systems of the professional carer as a result of exposure to people who experience trauma (Sabo 2006). In VT the nature of the changes in the personal and professional belief systems are permanent (Baird and Kracen 2006; Sinclair and Hamill 2007). The changes can happen in the five areas of safety, trust, esteem, intimacy, and control (Baird and Kracen 2006). The permanency of changes to the professional carer in VT is what differentiates it from STS, burnout or CF.

2.2.4 Rationale for choice of the concept of professional quality of life

The conceptual differences between VT, burnout syndrome and CF demonstrate the need to be clear about which concept fits this research study. The model of professional quality of life (Stamm 2010) encompasses positive and negative aspects of professional caring that can change over time, and relates to the HCP-patient relationship. The concept of vicarious traumatisation indicates changes to the HCP that are permanent, and the concept of burnout syndrome is focused on the employee-employer relationship. This current study was focused on examining both positive and negative aspects of professional quality of life that are related to the HCP-patient relationship, and where the negative aspects are amenable to change. Therefore, the professional quality of life model (Stamm 2010) fits with this current study. Subsequently, the concepts of burnout syndrome and VT will not be included in the literature review.

2.3 Empathy

Empathy is a prosocial behaviour that is beneficial to others (Penner *et al* 2005). It requires two antecedents; the perception of another person in need and an intrinsic valuing of another person's welfare (Batson *et al* 2014). Empathy is comprised of both emotional and cognitive components. Emotional empathy happens when there is an emotional response to another persons' emotional state, and cognitive empathy is the cognitive capacity to understand the perspective of the other person (Decety and Hodges 2006). The empathy-altruism hypothesis provides a framework for understanding empathy. This theory states that empathic concern produces altruistic motivation to help and is focused on the need to alleviate the suffering of the person in distress rather than the use of the more egoistic approach to relieve one's own discomfort with the situation (Batson and Shaw 1991). However, the use of altruistic motivation and egoistic motivation to empathy is not an either-or, but is highly complex in that both the altruistic motive and egoistic feelings work simultaneously; it is the motivation to help that is important (Batson *et al* 2014). The Theory of Empathy-induced Altruistic Motivation is based on the empathy-altruism hypothesis and helps to explain the interplay between altruistic and egoistic behaviours (Figure 2.2).

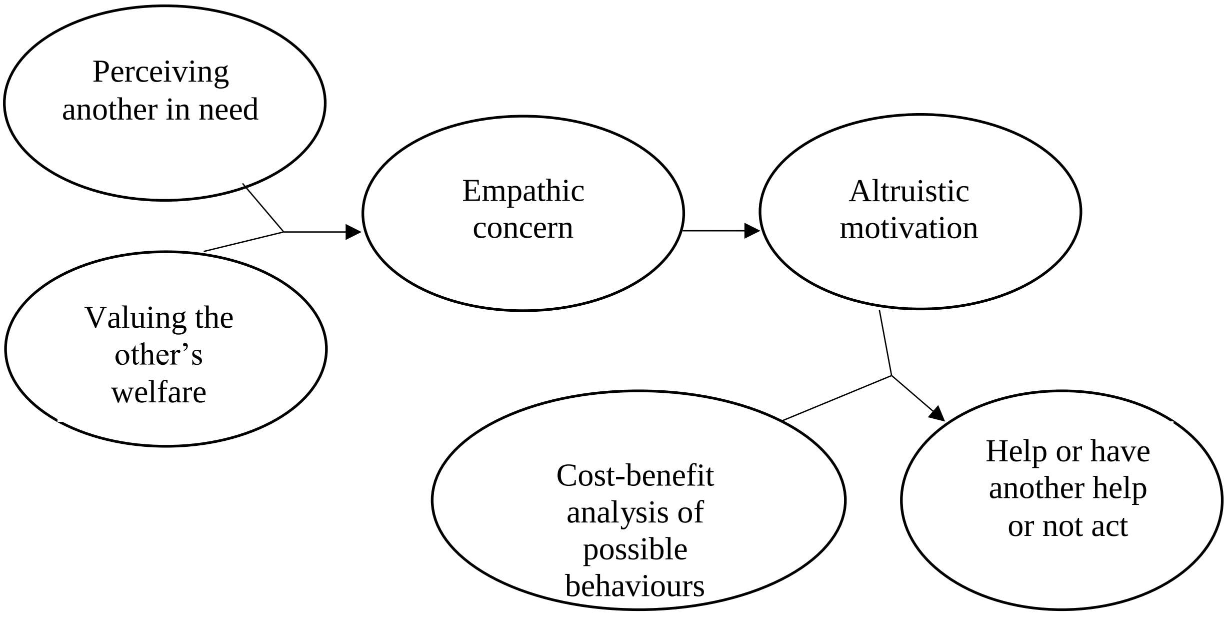


Figure 2. 2: Theory of Empathy-induced Altruistic Motivation (Batson *et al* 2014)

Once a person values the distressed persons' welfare and perceives their need, then they have engaged the emotional empathy aspect of empathic concern (Batson *et al* 2014). There will be an altruistic motive to alleviate the suffering of the distressed person, but this invokes a cost-benefit analysis of the behaviours required to alleviate the suffering which will lead to several possible outcomes; to help, to have another help or not to act at all (Batson *et al* 2014). The decision to have another help or to not act at all does not mean that the decision is not altruistic, it highlights the complex interplay between the egoistic and altruistic motives (Batson *et al* 2014). This theory assists in understanding how empathy can invoke different motives in individuals depending on the given situation.

The use of empathy in clinical practice can improve patient and professional agreement about decisions (Parker *et al* 2014), improve patient outcomes (Neumann *et al* 2009), and is related to higher patient satisfaction and lower patient distress (Lelorain *et al* 2012). Females are reported to have a higher empathic predisposition than males (Ferri *et al* 2015), which is consistent with other studies in nursing (Williams 1989) and in medicine (Gleichgerrcht and Decety 2013; Hojat *et al* 2002). However these studies highlighted that there is a need to recruit both male and female participants into studies so that meaningful conclusion can be drawn. Empathy includes both emotional and cognitive components, is highly complex and not fully understood.

2.3.1 Emotional empathy

The emotional components of empathy, empathic concern and personal distress, are unconscious processes. Emotional empathy, or the affective component of empathy, relates to sharing the emotions of another person (Decety and Hodges 2006). This sharing of emotions, or emotional contagion, is an automatic or 'bottom up' response (Decety and Lamm 2006), and is necessary for empathic encounters, but sharing emotions can have negative consequences. Sharing emotions for the empathiser either leads to feelings of empathic concern (Decety and Yoder 2015), or if emotions are over aroused, there may be feelings of personal distress (Rushton *et al* 2013).

Empathic concern and personal distress have unique functions. Both empathic concern and personal distress activate empathic action (Batson and Shaw 1991). When experiencing personal distress, the aim of empathic action will be to relieve one's own distress, and may include taking no action to relieve the others' distress (Batson and Shaw 1991; Rushton *et al* 2013). Considering compassion requires motivation to relieve patients' distress (McCaffrey and McConnell 2015; Ledoux 2015; Schantz 2007), a lack of action to relieve another's distress and instead attending to one's own personal distress may indicate an inability to provide compassionate care during empathic encounters. In contrast, experiencing empathic concern will motivate altruistic action (Batson and Shaw 1991), which may mean acting, asking for help or not doing anything (Batson *et al* 2014). This motivation will engage cognitive empathy or perspective taking (Decety and Yoder 2015). These findings suggest empathy that engages altruistic action may be truly compassionate in nature.

2.3.2 Cognitive empathy

Cognitive empathy is a complex and conscious process. Cognitive empathy is 'the capacity to understand others internal states' (Eisenberg *et al* 1997: 73). Understanding others internal states refers to a perspective taking ability that requires an intentional or 'top down' process to occur, and engages executive resources such as self-regulation and cognitive flexibility (Decety and Lamm 2006). This means that the empathiser is aware of, and can manage and control their own emotions in relation to the other persons' distress. Empathy as a prosocial behaviour is only possible when a person has the ability to regulate their own emotions, and is able to identify whose emotions belong to whom during empathic engagement (Batson and Shaw 1991; Decety and Hodges 2006; Decety and Lamm 2006; Davis 1983; Wiseman 2007).

2.4 Emotional intelligence

There is no doubt that humans are emotional and social beings. Understanding how to express ones-self emotionally, how to understand others emotions, and how to relate to and manage emotions in ones-self and in others is an important part of human behaviour (Cherniss 2010). Emotion management has been identified as a socially desirable attribute, where emotions of self and others are considered during the reasoning process (Cherniss 2010). Individuals high in these skills, attributes and abilities of emotion management are considered to be emotionally intelligent. Emotional intelligence is a theory that describes how people understand, attend to, and process emotional information about themselves and others (Cherniss 2010; Mayer *et al* 2004; Petrides *et al* 2004). The theory of EI has gained popularity, but there is still a lack of clarity in relation to the concept and its distinct models; trait emotional intelligence (tEI), ability emotional intelligence (aEI), and mixed emotional intelligence (mEI: Cherniss 2010).

The foundations of EI are based on the construct of Thorndike's 1920 Social Intelligence theory, and Gardner's personal intelligences, which includes intrapersonal intelligence (emotional ability within the self), and interpersonal intelligence, which is an ability to understand emotions in others (Petrides *et al* 2004). These theories set out the importance of understanding not only how the self functions emotionally, but also the importance of understanding and managing emotions in others. Thorndike's view of social intelligence suggests that integral to this understanding and management of emotions is the ability to engage in adaptive social interactions (Kihlstrom and Cantor 2000). This indicates that emotion management is not an isolated skill but assists individuals in the use of adaptive behaviours in social situations. Emotional intelligence models are conceptualised through three main categories depending on their location in psychology. These categories have been defined as tEI relating to personality traits, aEI relating to cognitive ability (information-processing approach), and mEI, relating to social and emotional abilities and skills (Zeidner *et al* 2013).

2.4.1 Trait emotional intelligence

Trait EI relates to how effective individuals are at managing emotions. The tEI model describes traits that occupy space in the personality domain of psychology, and sits outside the realm of human cognitive ability (Petrides *et al* 2007). This means that tEI is concerned with an individual's consistency in emotion management behaviour across different situations, where the behaviour is manifested in traits such as empathy and optimism (Petrides and Furnham 2000). Trait EI is defined as

> *'a constellation of emotion related self-perceptions and dispositions located at the lower levels of personality hierarchies'* (Petrides *et al* 2007:p26).

It is proposed that tEI could be relabeled as measuring 'emotional self-efficacy' (Petrides and Furnham 2000, Petrides and Furnham 2001), and is concerned with a persons' self-perception of managing emotions in the self and others. This endorses tEI as relating to the individuals own interpretation of how effective they are at managing their own and others emotions in emotion related situations. A tEI model proposed by Petrides (2009) is based on extensive research and includes four interrelated factors that form the concept of tEI (Figure 2.3). Well-being relates to positivity of mood, self-control relates to controlling impulses, and regulating external pressures and stress (Petrides *et al* 2016). Emotionality relates to perceiving and expressing emotions and using this knowledge to develop and maintain close relationships with important others, and sociability relates to social interaction and the development of social relationships beyond family and friends (Petrides *et al* 2016).

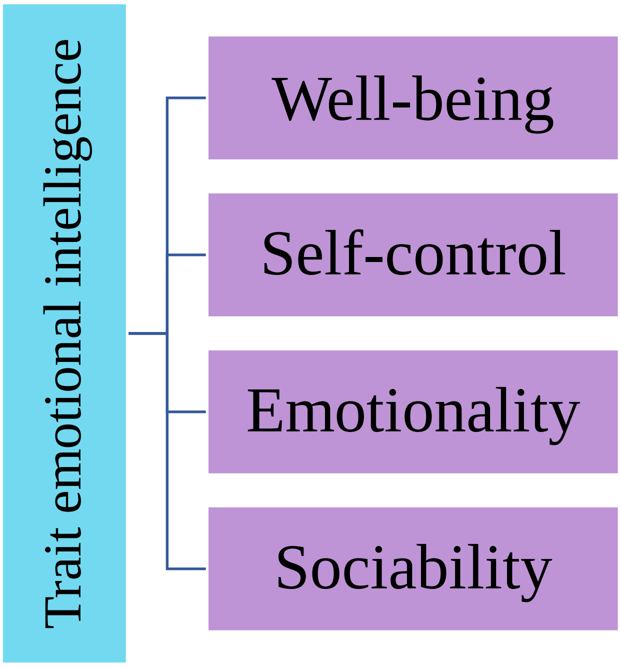


Figure 2. 3: Trait emotional intelligence model (Petrides 2016)

Personality traits are seen as fixed aspects of a person’s personality. There is a question about the usefulness of measuring EI as a trait as personality traits are permanent characteristics of personality that influence behavioural and affective responses (Love and Holder 2010). However, Petrides *et al* (2016) identifies that there is a growing body of evidence indicating that interventions to improve tEI are successful in improving EI trait levels, with this improvement being maintained for at least 1 year. Changes in socioemotional development and self-development are thought to influence both quantitative and qualitative changes in tEI levels (Petrides 2011).

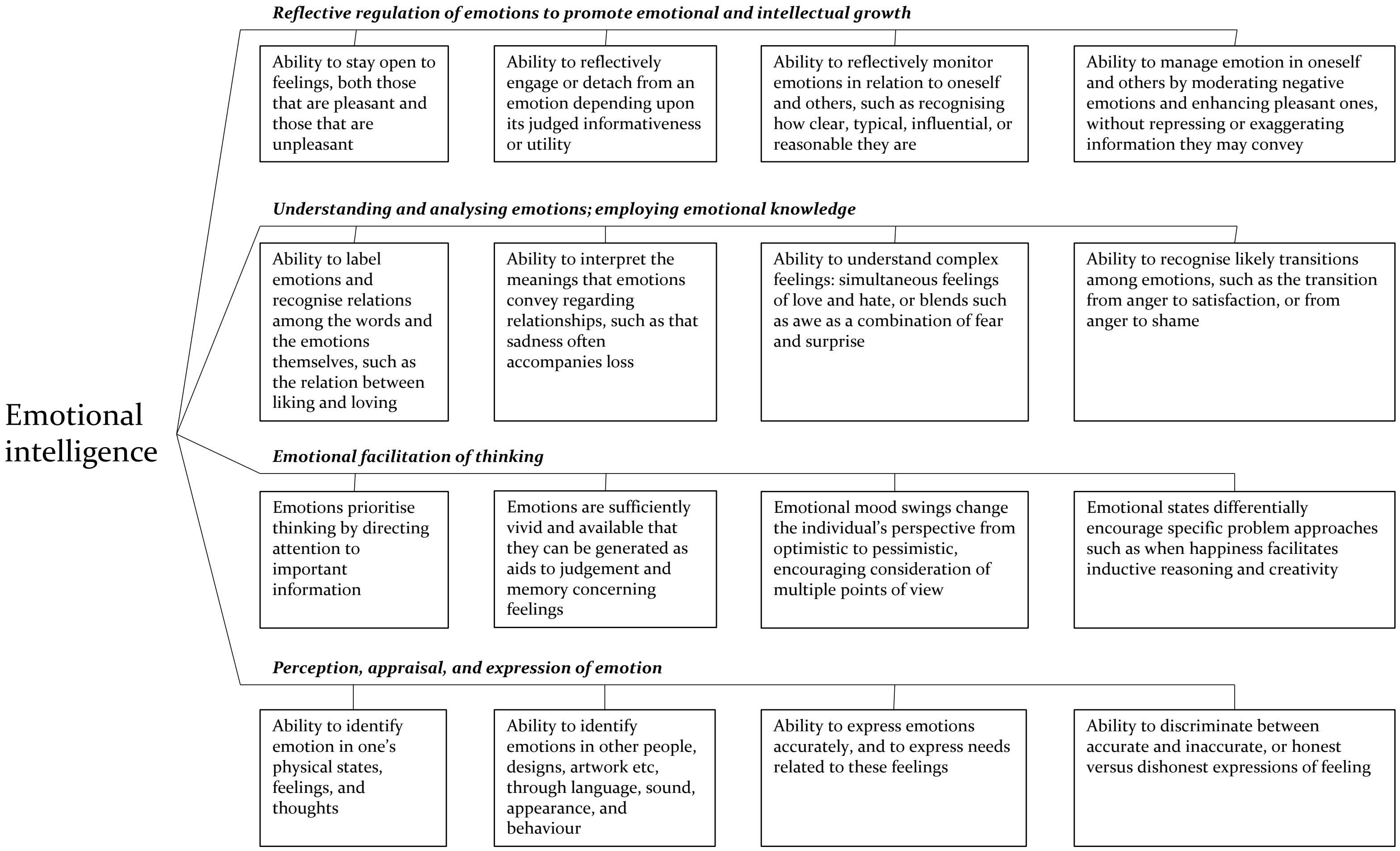
2.4.2 Ability emotional intelligence

Ability emotional intelligence (aEI) is located in the cognitive ability domain of psychology, and relates to a persons’ abilities in emotion management. Ability EI is defined as

> *‘the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to*

reflectively regulate emotions so as to promote emotional and intellectual growth'
(Mayer *et al* 2004:p197).

Mayer and Salovey (1997) proposed a four-factor hierarchical model of EI (Figure 2.4). Each of these branches has four areas of ability, and people develop along the branches as they mature from childhood to adulthood; left to right (Mayer and Salovey 1997). The emotional abilities in each of the branches of the aEI model are seen on a continuum from low to high, with people at lower levels demonstrating an ability to perceive emotions accurately and people at higher levels demonstrating the capacity to manage emotions appropriately (Mayer *et al* 2008). Measurement for the aEI model is provided through maximum-performance tests, as these tests are appropriate for constructs in the intelligence domain of psychology. Maximum-performance tests have questions with only correct or incorrect answers, meaning these measures have less likelihood of individuals providing socially acceptable answers (Cherniss 2010).



Emotional intelligence

- ***Reflective regulation of emotions to promote emotional and intellectual growth***
  - Ability to stay open to feelings, both those that are pleasant and those that are unpleasant
  - Ability to reflectively engage or detach from an emotion depending upon its judged informativeness or utility
  - Ability to reflectively monitor emotions in relation to oneself and others, such as recognising how clear, typical, influential, or reasonable they are
  - Ability to manage emotion in oneself and others by moderating negative emotions and enhancing pleasant ones, without repressing or exaggerating information they may convey
- ***Understanding and analysing emotions; employing emotional knowledge***
  - Ability to label emotions and recognise relations among the words and the emotions themselves, such as the relation between liking and loving
  - Ability to interpret the meanings that emotions convey regarding relationships, such as that sadness often accompanies loss
  - Ability to understand complex feelings: simultaneous feelings of love and hate, or blends such as awe as a combination of fear and surprise
  - Ability to recognise likely transitions among emotions, such as the transition from anger to satisfaction, or from anger to shame
- ***Emotional facilitation of thinking***
  - Emotions prioritise thinking by directing attention to important information
  - Emotions are sufficiently vivid and available that they can be generated as aids to judgement and memory concerning feelings
  - Emotional mood swings change the individual's perspective from optimistic to pessimistic, encouraging consideration of multiple points of view
  - Emotional states differentially encourage specific problem approaches such as when happiness facilitates inductive reasoning and creativity
- ***Perception, appraisal, and expression of emotion***
  - Ability to identify emotion in one's physical states, feelings, and thoughts
  - Ability to identify emotions in other people, designs, artwork etc, through language, sound, appearance, and behaviour
  - Ability to express emotions accurately, and to express needs related to these feelings
  - Ability to discriminate between accurate and inaccurate, or honest versus dishonest expressions of feeling

Figure 2. 4: Four factor hierarchical model of emotional intelligence (Mayer & Salovey 1997)

2.4.3 Mixed emotional intelligence

Mixed EI models, for example, Bar-On's emotional-social intelligence model, have their basis in both personality and intelligence domains of psychology. Bar-On's model has 5 main components; intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood (Bar-on 2006). These components encompass both emotional and social intelligence, which endorses Bar-On's Emotional Quotient Inventory (EQ-i) as measuring emotional and social intelligence together (Cherniss 2010). Bar-On's model encompasses abilities and problem solving, and defines it as

> *'emotional-social intelligence is a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands'*
>
> *(Bar-On 2006: p3)*

However, Bar-On viewed the model as sitting within the intelligence domain of psychology, even though it includes personality variables (Petrides and Furnham 2000), and it is measured through a self-report questionnaire, which are measures used by the personality domain of psychology. To truly measure an intelligence, it is generally accepted that a maximum-performance measure should be used (Mayer *et al* 2004). This poses some difficulty in operationalisation of the mEI model, particularly when it comes to measurement, as it is not clear whether this model is measuring intelligence, personality traits, or a combination of both (Zeidner *et al* 2008). In addition, mEI models measure not only emotion management, but facets of social intelligence, meaning the results span both emotional intelligence and social intelligence constructs, and are considered too broad in nature (Cherniss 2010).

There remains some debate in the EI literature relating to the models of EI. It is argued that models of EI are 'not mutually exclusive and may therefore co-exist' (Petrides and Furnham 2001:p427). This suggests that an individuals' personality disposition towards emotion management, that is the tEI dimension, may be operationalised at the same time as demonstrating their abilities of emotion management, that is the aEI dimension. A study of medical students (*n*=152) showed a low correlation between tEI and aEI measures (0.18), indicating that these questionnaires are not measuring the same thing (Brannick *et al* 2009). For the purposes of this study tEI was chosen as the model of EI as tEI is concerned with emotional self-efficacy, and there is evidence that changes can happen in a person’s tEI over time.

2.5 Chapter summary

This chapter outlines the concept of compassion and has described the study constructs of professional quality of life, empathy and emotional intelligence. It has identified the professional quality of life model as a suitable model for this current study. The importance of distinguishing between emotional and cognitive empathy has been outlined, and the rationale for choosing the tEI model over aEI and mEI models was provided. The scope of the literature review in the next chapter reflects the choices of models made in this current chapter.

Chapter 3: Literature review

3.0 Introduction

Chapter two provided justification for the choice of study constructs. This chapter begins in section 3.1 by outlining the scope of the review, and providing a description of the search strategy used for the literature review. The critical review of the literature in relation the levels of CS and CF in cancer HCPs is examined in section 3.2. Section 3.3 outlines the relationships between professional quality of life and demographic variables, and the impact of supportive variables on professional quality of life are provided in sections 3.4. An examination of the impact of interventions on professional quality of life are provided in section 3.5, and section 3.6 explores professional quality of life and the qualitative literature. Section 3.7 provides an examination of the literature on empathy in cancer health care professionals. Section 3.8 explores the literature focused on EI and professional quality of life in cancer HCPs. Section 3.9 will present the conceptual framework for the study, which is based on critical analysis in the literature review. This chapter presents the research question in section 3.10, and concludes in section 3.11.

3.1 Scope of the literature review

The scope of this literature review reflects the constructs of professional quality of life, empathy, and emotional intelligence in relation to cancer health care professionals. In particular, the scope of this literature review examines burnout in relation to the concept of compassion fatigue, and not as the diagnostic category of burnout in the World Health Organisation (2018) International Classification of Diseases (11th ed) as referred to in Chapter two. Qualitative studies were deemed within the scope of the literature review if they examined any aspects of the study constructs.

3.1.1 Literature review search strategy

A literature review requires the retrieval of literature relevant to the purpose of the study. Moher *et al* (2015:p3) define the key characteristics of a literature review as:

- A clearly stated set of objectives with an explicit, reproducible methodology
- A systematic search that attempts to identify all studies that would meet the eligibility criteria
- An assessment of the validity of the findings of the included studies
- Systematic presentation, and synthesis of the characteristics and findings of the included studies.

A systematic search is essential to identify the empirical evidence related to the research question, and identify gaps in the literature. Therefore, the search strategy requires a transparent systematic process that provides insight into the techniques used (Riesenberg and Justice 2014).

3.1.1.1 Identification of the literature

The literature search was conducted using the principles of systematic reviewing (Higgins and Thomas 2019) and the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA-P) guidelines (Moher *et al* 2015). Although this literature review is not being developed as a Cochrane systematic review, the principles enabled the researcher to apply a systematic process to its development. This included development of a protocol that provides a clear plan of the methodology and analytical approach to the review (Moher *et al* 2015).

3.1.1.2 Inclusion and exclusion criteria

Defining the population characteristics and attributes, outcome measures, and study designs is essential (Mc Kenzie *et al* 2019) and can prevent arbitrary decisions being made during the literature review process (Shamseer *et al* 2015). Inclusion and exclusion criteria were set for the literature search as outlined in Table 3.1.

Table 3. 1: Literature review inclusion and exclusion criteria

Inclusion criteria	**Exclusion criteria**
English language papers	Non-English language papers
Published peer-reviewed academic literature	Non peer reviewed papers and periodicals
Primary research	Paediatric oncology
Grey literature	Research outside 1988 - 2020
Literature with burnout as a construct of the compassion fatigue	Literature with burnout as a construct of the International Disease classification
Participants included nurses or doctors working in cancer care or radiation therapists or a combination of these professions	Health care professionals not working in cancer care Conference abstracts

3.1.1.3 Search strategy

The databases included in the search strategy were CINAHL, MEDLINE, Pubmed, Wiley Online Library, Ovid, Science Direct, and PsycINFO. To ensure that all of the relevant literature was retrieved, three separate literature searches were undertaken. Each search related to one of the study constructs. Each search included the terms in the relevant search box in column one and all of the search terms in column two (Table 3.2). Boolean operators ‘AND’ and ‘OR’ were used to join search terms, and ‘NOT’ to exclude populations such as paediatrics. Date parameters were set to between 1988 to 2020. The rationale for choosing 1988 is that the concepts of professional quality of life and emotional intelligence were not fully constructed prior to this date. A hand search of the reference lists of each of the journal articles retrieved revealed an additional 7 research papers. Additionally, there were papers identified during the search that did not meet the inclusion criteria, for example, reviews and discussion papers. However, these were relevant to the context of the literature review. This type of literature was used to expand on the evidence identified in the systematic search strategy, and to develop the context of the literature review.

Table 3. 2: Search terms used in search strategy

		Search 1, 2 & 3:
Search 1:	Professional quality of life Compassion satisfaction Compassion fatigue Secondary traumatic stress Burnout and compassion fatigue ProQOL	Nurs* Physici* Medic* Doctor* Radiation therapist* Therapeutic radiographer* Radiographer* Cancer* Oncol*
Search 2:	Empath* Cognitive empath* Emotional empath*	
Search 3:	Emotional intelligence EI Trait emotional intelligence	

A flow diagram is an essential element of the review process (Moher *et al* 2015). This provides transparency to the decisions of excluding certain literature. The literature search for professional quality of life and cancer identified 505 studies. This number was reduced to 316 after duplicates were removed. The abstracts of these studies were assessed for relevance against the inclusion and exclusion criteria. At this point 221 papers were excluded, and 95 full-text articles were further assessed. This selection process resulted in the critical appraisal of the full text of 95 papers. A further 57 articles were excluded, as these either examined professional quality of life in the palliative care setting, did not include oncology health care professionals, were review articles, or were not peer reviewed. This resulted in 39 studies in this section of the literature review. A flow diagram of the process of literature selection is provided for professional quality of life and cancer care (Figure 3.1).

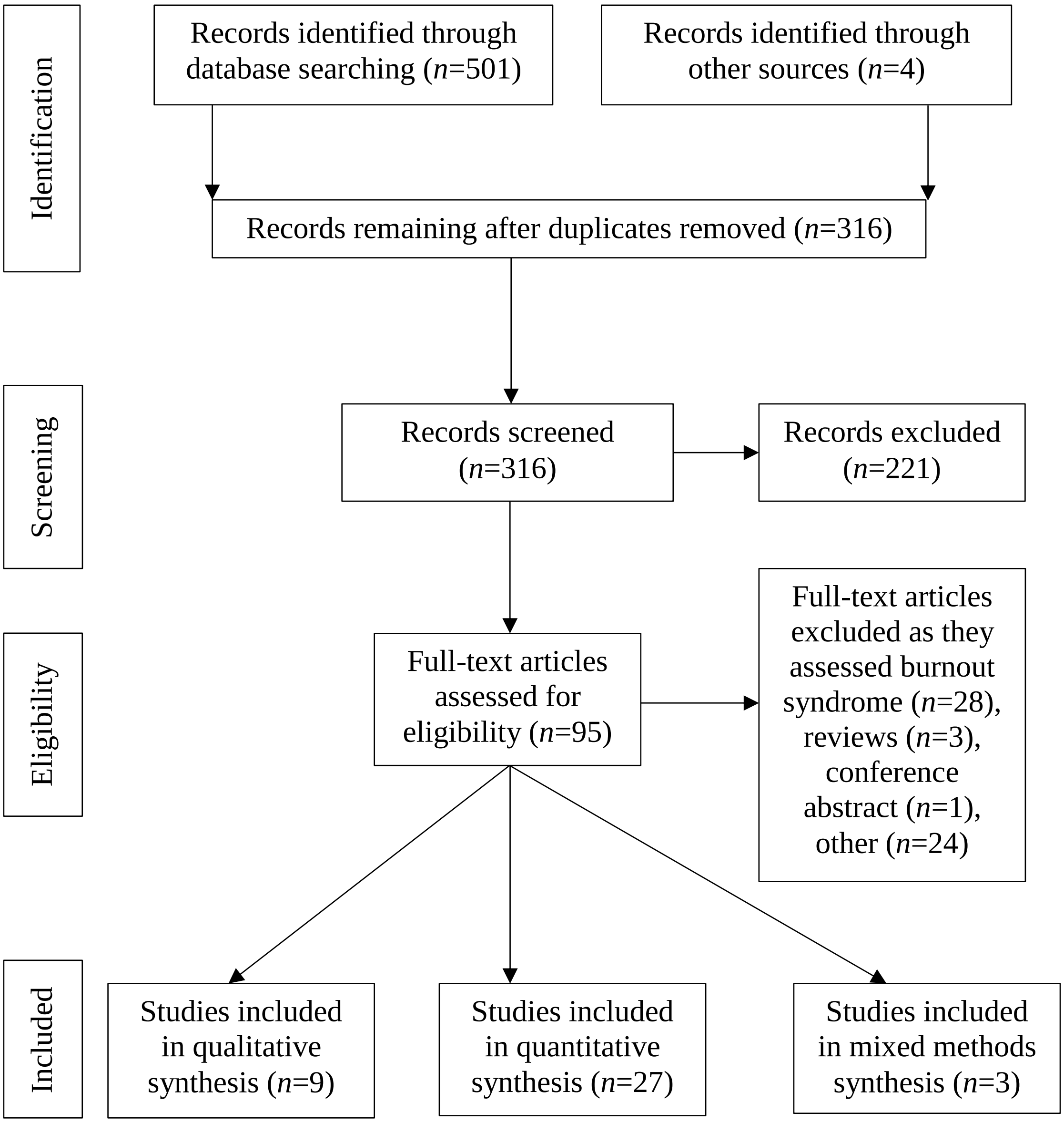


Figure 3. 1: PRISMA-P flowchart; professional quality of life and cancer health care professionals

The literature search for empathy and cancer health care professionals identified 112 articles as relevant. Seventy articles remained once duplicates were removed. The abstracts were screened and all 70 full text articles were read. A further 46 studies were excluded as they were either review articles, systematic reviews, palliative care focused, or were not peer reviewed, leaving 22 studies in the literature review. A flow chart illustrating the process of the literature selection for empathy and cancer care (Figure 3.2).

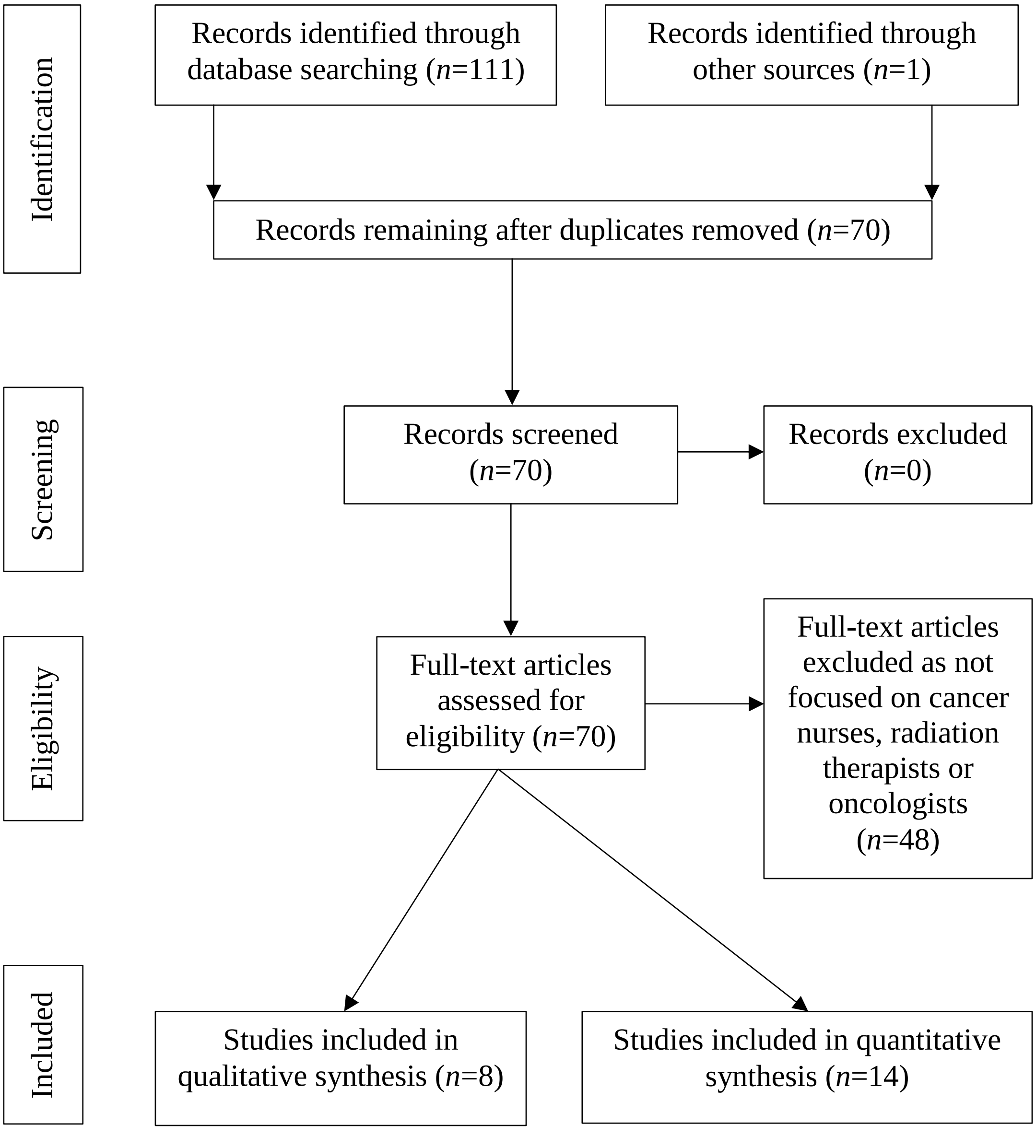


Figure 3. 2: PRISMA-P flowchart; empathy and cancer health care professionals

Finally, the literature search for emotional intelligence and cancer health care professionals identified 46 studies as relevant to the review. Twenty six studies were screened following the removal of 20 duplicates. The abstracts of these 26 studies were assessed for relevance, and 17 articles were excluded. Reasons for exclusion were the articles were either literature reviews, related to management, or were related to palliative care. Nine full text articles were critically appraised and 3 further studies were excluded, leaving 6 studies in the emotional intelligence section of the literature review. A decision was made to review tEI, aEI and mEI literature due to the small number of studies identified. A flow chart is provided to illustrate the process of literature selection for emotional intelligence and cancer care (Figure 3.3).

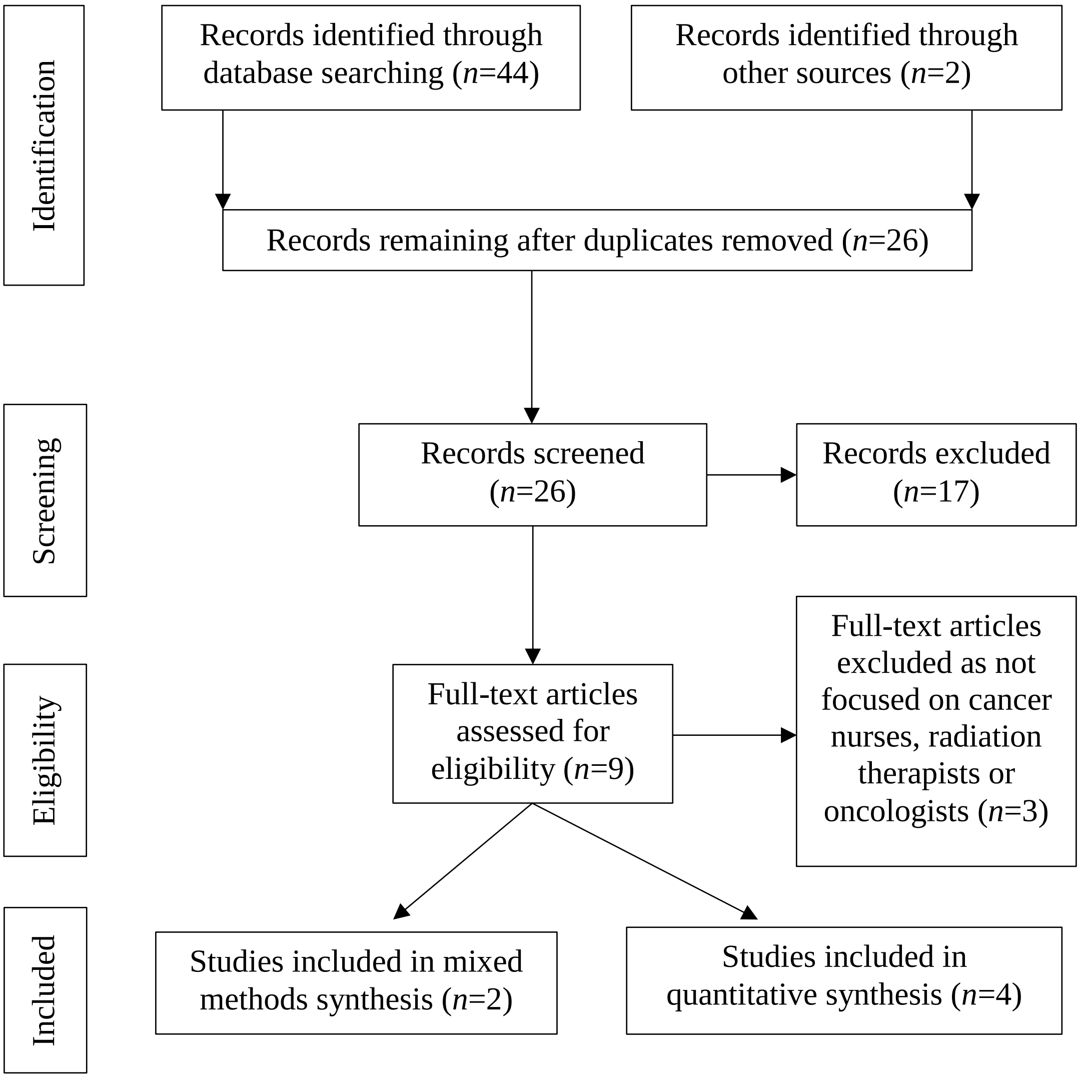


Figure 3. 3: PRISMA-P flowchart; emotional intelligence and cancer health care professional

There were no studies identified in cancer care which examined all constructs of professional quality of life, empathy, and emotional intelligence together. The majority of studies used a quantitative design (*n*=42), 5 studies used a mixed methods design, and 17 studies used a qualitative design. Three studies were included in both the professional quality of life search results and the empathy search results. A table of evidence for all three literature searches is provided in Appendix I.

3.2 Levels of professional quality of life in cancer health care professionals

Determining the levels of compassion satisfaction and compassion fatigue in cancer HCPs is important but difficult, and variations have been reported in the literature. These differences may be in part due to the geographic and professional circumstances, but they may also be due to the manner in which CS and CF are reported in studies. A number of studies reported levels of CS and CF as percentages of the population experiencing high, average and low levels. One quantitative study used the Secondary Traumatic Stress Scale (STSS), whilst all other quantitative studies used the Professional Quality of Life Scale (ProQOL). All of these studies that used the ProQOL used the same cut scores on a professional quality of life measure developed by Stamm (2010). Other studies that used the ProQOL reported CS and CF as means, with and without standard deviations (*SD*). Two studies did not report *SD* (Hevezi, 2016; Potter *et al* 2013), and therefore have not provided an accurate indication of the spread of participant scores. Unfortunately, population means without reported standard deviations does not allow for interpretation of the spread of scores from low to high (Field 2018). These differences make it difficult to compare levels of compassion satisfaction and compassion fatigue across all studies and cancer professions.

3.2.1 Levels of compassion satisfaction in cancer nurses

Studies report cancer nurses levels of compassion satisfaction ranging from 25% - 68% (Duarte and Pinto-Gouveia 2017a; Hooper *et al* 2010; Wu *et al* 2016; Jang *et al* 2016; Jakel *et al* 2016). Four European studies were identified describing cancer nurses' levels of compassion satisfaction (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2016a, 2017b; Yilmaz *et al* 2018). In a cross-sectional study of Portuguese oncology nurses (*n* = 221), 25% of participants reported high compassion satisfaction levels, 48% reported average levels and 27% reported low levels (Duarte and Pinto-Gouveia 2017a). A Spanish cross-sectional study of oncology nurses (*n* = 297) describe 34% reporting high levels of compassion satisfaction, 48% reporting average levels and 18% reporting low levels (Arimon-Pagès *et al* 2019). Yilmaz *et al* (2018) in an intervention study of Turkish cancer nurses (*n* = 43), reported CS levels as means. For this study pre intervention CS means were reported as moderate ($\bar{X}$ = 32.67, *SD* = 7.07). Duarte and Pinto-Gouveia (2016a) described a study of Portuguese oncology nurses, employing a mindfulness intervention to examine the effect on professional quality of life. These authors reported CS means of the experimental group ($\bar{X}$ = 36.96, *SD* 6.19) and means of the comparison group ($\bar{X}$ = 39.68, *SD* 4.73). The means reported by Duarte and Pinto-Gouveia (2016a) and Yilmaz *et al* (2018) are in the average level of CS (Stamm 2010). These four studies suggest that compassion satisfaction for European oncology nurses are predominately in the average to high levels, but a fifth to a quarter of participants reported low levels of CS.

Two studies from Asia were identified (Jang *et al* 2016; Yu *et al* 2016). Using a cross sectional design, Yu *et al* (2016) surveyed Chinese oncology nurses (*n* = 650) and levels of CS were reported as average ($\bar{X}$ = 31.81, *SD* 6.49). Jang *et al* (2016) used cut scores (Stamm 2010) to report the CS scores of Korean oncology nurses (*n* = 285). Twenty eight percent of participants reported high levels of CS, 44% reported average levels, and 28% of respondents reported low levels of CS.

Studies of the professional quality of life of oncology nurses in the United States and Canada report higher levels of compassion satisfaction than their European and Asian colleagues. A study of oncology nurses (*n* = 93) from the USA asserts 50% of participants report high levels of CS and 50% reporting average levels (Wells-English *et al* 2019). Similarly, in the USA, a study by Jakel *et al* (2016) discussed a pilot intervention study of the use of a mobile application to reduce compassion fatigue. Out of the participating oncology nurses (*n* = 25), 68% reported high levels of CS and 32% reported average CS levels. Wu *et al* (2016) described the results of a cross sectional study, and reported levels of CS in oncology nurses from the USA (*n* = 486) and nurses from Canada (*n* = 63). In this study, fifty eight percent of oncology nurses from the USA reported high levels of CS and 42% reported average levels. Canadian nurses reported high levels of CS (59%) and average levels of 41%.

A number of studies from the USA reported CS levels as population means. In an early study of professional quality of life by Potter *et al* (2010), oncology nurses reported average CS means ($\bar{X}$ = 38.3, *SD* 7.2). A second study by Potter *et al* (2013) evaluated a CF Resiliency Programme intervention for oncology nurses (*n* = 14), and reported pre-intervention CS means as average ($\bar{X}$ = 39.53). In an intervention study by (Zajac *et al* 2017), oncology nurses' (*n* = 107) mean CS levels were reported as average ($\bar{X}$ = 40.81, *SD* = 4.93). Similarly, a meditation intervention study by Hevezi (2016) identified oncology nurses CS levels as average ($\bar{X}$ = 36.6). Al-Majid *et al* (2018) reported results of a cross sectional study where nurses from oncology and critical care units participated (*n* = 48). Only means for CS levels were reported for oncology nurses (n=26), which were average ($\bar{X}$ = 52.0, *SD* = 9.6). Giarelli *et al* (2016) used a mixed methods approach to examine oncology nurses (*n* = 20) professional quality of life. All participants scored average to high for CS ($\bar{X}$ = 39.75, *SD* = 8.15).

Three studies from the USA reported levels of CS in both oncology and intensive care nurses (Al-Majid *et al* 2018; Hooper *et al* 2010; Mooney *et al* 2017). Al Majid *et al* (2018) is reported in the paragraph above. Mooney *et al* (2017) compared oncology nurses levels of CS (*n* = 18) with the levels of CS in intensive care nurses (*n* = 68). The levels of CS reported by oncology nurses is not described by Mooney *et al* (2017), but oncology nurses reported higher levels of CS than intensive care nurses (*p* = 0.02). These are similar findings to a study by Hooper *et al* (2010) where oncology nurses (*n* = 12) reported higher levels of CS than the intensive care nurses (*n* = 6). Hooper *et al* (2010) described 50% of oncology nurses reporting high levels of CS, and 41% reporting average levels. Although the studies by Hooper *et al* (2010) and Mooney *et al* (2017) have low numbers of cancer nurses the findings are comparable with the other studies from the USA.

Three studies from Canada were identified (Bellicoso *et al* 2017; Koo *et al* 2013; Pfaff *et al* 2017). All studies included participants from a variety of professions. Koo *et al* (2013) reported nurses average CS level means ($\bar{X}$ = 41.1, *SD* = 3.9). In a pilot intervention study Pfaff *et al* (2017) measured CS pre and post a compassion fatigue resiliency programme (*n* = 12). Mean CS levels were reported as average ($\bar{X}$ = 37.4, *SD* 4.7). A study by Bellicoso *et al* (2017) used a cross sectional design to examine sleep quality and professional quality of life. Participants included oncologists (*n* = 25), oncology out-patient nurses (*n* = 44), radiation therapists (*n* = 42) and oncology pharmacists (*n* = 17). Similarly, mean CS levels were reported as average ($\bar{X}$ = 40.16, *SD* 6.04). One study was identified from South Africa. Using a cross sectional design Wentzel and Brysiewicz (2018) surveyed the professional quality of life of oncology nurses (*n* = 83). Nurses reported high levels of CS (55%) and average levels of CS (45%). No nurses reported low levels of CS.

The percentage of nurses reporting average levels of CS appeared similar across all studies. However, a larger percentage of cancer nurses in studies from the USA, Canada and South Africa reported high levels of CS compared to cancer nurses from Europe and Asia. In five studies from the USA, Canada and South Africa (Jakel *et al* 2016; Hooper *et al* 2010; Wells-English *et al* 2019; Wentzel and Brysiewicz 2018; Wu *et al* 2016) only one participant from the USA reported low levels of CS (Hooper *et al* 2010). In contrast, two studies from Europe (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouevia 2017a) and one study from Asia (Jang *et al* 2016) reported between 18% and 28% of nurses scoring low levels of CS.

It is not clear why there are striking differences in the percentage of oncology nurses experiencing high and low levels of CS across continents. This may in part be due to reporting mean CS scores rather than using cut scores provided by Stamm (2010) making comparisons difficult. However, the results suggest that high levels of CS are experienced by more oncology nurses in the USA, Canada and South Africa compared to European and Asian colleagues. The most significant findings suggest that 18-28% percent of European and Asian oncology nurses experience low levels of CS as compared to colleagues from the USA, Canada and South Africa who report almost no nurses with low levels of CS.

3.2.2 Levels of compassion satisfaction in oncologists

The levels of compassion satisfaction as experienced by oncologists is not as widely reported as it is for cancer nurses. In an Israeli study (Granek *et al* 2017) using a cross sectional design, oncologists (n = 79) reported compassion satisfaction as average ($\bar{X}$ = 36.43, SD = 7.59). Similarly, in a second Israeli study by Laor-Maayany *et al* (2020) CS levels of oncologists (n = 74) were reported as average ($\bar{X}$ = 36.86, SD = 7.17). These authors reported the range of scores for CS using the ProQOL IV as 14 – 50 suggesting a spread of CS scores from low to high. A study of oncologists by (Hayuni *et al* 2019) used the ProQOL scale (Stamm 2010) to measure CF but they did not report on the CS subscale. These three studies were mainly distributed at the Annual Meeting of the Israel Society for Clinical Oncology and Radiation Therapy, which suggests that a proportion of participants may have responded to all three years of data collection.

3.2.3 Levels of compassion satisfaction in radiation therapists

Similar to oncologists levels of compassion satisfaction is less well known among radiation therapists. Koo *et al* (2013) surveyed Canadian radiation therapists (n = 21) and reported average mean CS scores ($\bar{X}$ = 38.7, *SD* = 7.1). A second Canadian cross sectional study by Sarra and Fuez (2018) reported CS levels for all participant radiation therapists (*n* = 42) as average (49%) or high (51%). Gilles *et al* (2014) surveyed radiation therapists (*n* = 477) using the ProQOL scale and discusses CS levels as high but did not report statistical results.

3.2.4 Levels of burnout in cancer nurses

Reports of the level of burnout experienced by cancer nurses differs between continents. European and Asian cancer nurses report higher levels of burnout than colleagues in the USA, Canada and South Africa. In Europe two studies report burnout as percentages of the respondents (Duarte and Pinto-Gouveia 2017a; Arimon-Pagès *et al* 2019) and two studies report burnout as population means and SD (Duarte and Pinto-Gouveia 2016a; Yilmaz *et al* 2018). In a cross sectional Portuguese study Duarte and Pinto-Gouveia (2017a) reported burnout levels as low in 19% of respondents, average in 54% and high in 27% of respondents. Similarly, a cross sectional study of Spanish cancer nurses revealed 17% reported low levels of burnout, 63% reported average burnout levels and 20% of participants reported high levels (Arimon-Pagès *et al* 2019). Yilmaz *et al* (2018) report burnout population means ($\bar{X}$ = 27.32, *SD* 3.14), and in a mindfulness based intervention study Duarte and Pinto-Gouveia (2016a) reported population means in the experimental group ($\bar{X}$ = 26.57, *SD* 6.09). The reported means by Yilmaz *et al* (2018) and Duarte and Pinto-Gouveia (2016a) indicate average levels of burnout (Stamm 2010). These results suggest that burnout is reported as high in up to a quarter of cancer nurses in Europe. The two studies from Asia report similar results to those of colleagues from Europe. Jang *et al* (2016) describe 24% and 51% of cancer nurses reporting low levels and average levels of burnout respectively, with 25% reporting high levels of burnout. Yu *et al* (2016) report levels of burnout as population means as average ($\bar{X}$ = 21.14, *SD* 4.95).

In the USA, Canada and South Africa, cancer nurses burnout scores have been reported as lower than European and Asian counterparts. In the USA, Wells-English *et al* (2019) describe 41% and 50% of cancer nurses reporting low and average levels of burnout respectively. Wu *et al* (2016) reported cancer nurses (USA) levels of burnout as low (52%) and average (48%). No high levels of burnout were reported by participants in either of these studies. Similarly, Jakel *et al* (2016), pre and post intervention levels of burnout reported no scores in the high range, in either the intervention or control group. Several additional studies from the USA reported burnout scores as population means.

Two studies by Potter *et al* (2010) and Potter *et al* (2013) report burnout means for cancer nurses as low in 2010 ($\bar{X}$ = 21.5, *SD* = 6.4) and average in 2013 ($\bar{X}$ = 23.46). No standard deviation was reported in Potter *et al* (2013). Similarly, Hevezi (2016) reports burnout population means, without a standard deviation ($\bar{X}$ = 26.4), indicating average burnout scores for cancer nurses. In two further studies of cancer nurses, burnout mean scores reported by Zajac *et al* (2017) were in the average range ($\bar{X}$ = 22.5, *SD* = 4.51), and population means in the low range ($\bar{X}$ = 19.5, *SD* = 5.65) as described by Giarelli *et al* (2016).

Three studies from the USA recruited participants from both the oncology setting and other acute settings such as emergency care and intensive care (Al-Majid *et al* 2018; Hooper *et al* 2010; Mooney *et al* 2017). Hooper *et al* (2010) described cancer nurses (n=12) reporting burnout as low (17%) average (58%) and high (25%). Mooney *et al* (2017) reported population means ($\bar{X}$ = 23.3, *SD* = 2.8), which are in the lower end of average levels of burnout. In contrast, Al-Majid *et al* (2018) reported cancer nurses population mean ($\bar{X}$ = 49.2 *SD* = 9.2), which is in the high level of burnout. This study was a combined study of intensive care nurses (*n* = 38), charge nurses (*n* = 10) and a low number of oncology nurses (*n* = 18), in a small 218 bed community hospital. The low number of cancer nurses and the clinical setting may account for the unusual findings in the Al-Majid *et al* (2018) study in comparison to other studies from the USA. There are only two studies from the USA that report high levels of burnout in cancer nurses, but these results must be interpreted with caution as there were low numbers of cancer nurses who participated in both Hopper *et al* (2010: *n* = 12) and Al-Majid *et al* (2018: *n* = 18) research studies. Furthermore, Canadian studies report similar findings to those in the USA.

Low burnout scores were reported by 54% of Canadian cancer nurses, and 46% of participants reported average levels of burnout (Wu *et al* 2016). Three studies reported cancer nurses burnout as population means. Bellicoso *et al* (2017) reported average levels of burnout ($\bar{X}$ = 22.4, *SD* = 6.63) and similarly Koo *et al* (2013) reported average levels ($\bar{X}$ = 23.3, *SD* = 4.4). Pfaff *et al* (2017) reported higher levels of mean burnout scores ($\bar{X}$ = 32.6, *SD* = 3.9) than Koo *et al* (2013) and Bellicoso *et al* (2017) although these were also in the average range (Stamm 2010). A South African study of cancer nurses by Wentzel and Brysiewicz (2016) indicates 61% of respondents reporting average burnout scores, and 39% reporting low burnout scores. The South African study demonstrates similarities with the prevalence of burnout scores from the USA and Canada.

It would appear that cancer nurses in Europe and Asia appear to be at higher risk of burnout than the USA, Canadian and South African colleagues. Most of the studies from the USA report low to average levels of burnout both in percentages and population means. The two studies that reported high levels of burnout in cancer nurses from the USA had low numbers of cancer nurses as a subset of a larger population sample. A larger sample size of cancer nurses in the subset may have resulted in lower population means in these two studies.

3.2.5 Levels of burnout in oncologists

The majority of studies examining burnout in oncologists come from Israel. Granek *et al* (2016) reported a low Cronbach's alpha (0.50) on the ProQOL burnout subscale highlighting concerns with internal consistency, therefore no burnout results were presented. This problem with internal consistency has not been reported elsewhere in the literature. Two reasons may account for the low Cronbach's alpha in the Granek *et al* (2016) study. The first may relate to use of the ProQOL IV instead of the ProQOL V. Stamm (2010) reports that the ProQOL V has been simplified and refined compared to previous versions. Secondly, the Granek *et al* (2016) study originates in Israel, but the authors do not report using the Hebrew version of the ProQOL. There is a risk that items on the ProQOL IV may have been misinterpreted if the English version was used instead of the Hebrew version. Hayuni *et al* (2019) and Laor-Maayany *et al* (2020) reported average burnout (cut score for high BO = 27) as population means ($\bar{X}$ = 26.64, *SD* = 6.82) and ($\bar{X}$ = 26.74, *SD* = 6.76) respectively. However, these authors highlight although means fall within the average burnout scores they are higher than the published norms by Stamm (2010).

The multi-professional cross sectional study by Bellicoso *et al* (2017) reported burnout scores across the range of oncology professionals as population means ($\bar{X}$ = 22.4, *SD* = 6.63), demonstrating average burnout. The Pfaff *et al* (2017) study is reported in section 3.2.4 as only two oncologists participated in the study. Overall, there are few studies reporting on burnout as measured by the ProQOL subscale. Results suggest that oncologists experience average burnout levels but these are higher than previously published population norms.

3.2.6 Levels of burnout in radiation therapists

There is a dearth of literature reporting on burnout as a construct of CF in radiation therapists. Radiation therapists in Canada reported burnout as average (60%) and low (40%: Sarra and Fuez 2018). Population means were described by Koo *et al* (2013) in the average range ($\bar{X}$ = 22.3, *SD* = 5.3). A large study by Gilles *et al* (2014) did not report on burnout levels, however it was reported that levels of burnout were inversely related to CS levels.

3.2.7 Levels of secondary traumatic stress in cancer nurses

To provide a complete picture of the professional quality of life of cancer nurses, secondary traumatic stress also reveals a varied global profile similar to that of CS and burnout. Four European studies report STS levels in nurses (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2016a; Duarte and Pinto-Gouveia 2017a; Yilmaz *et al* 2017). Arimon-Pagès *et al* (2019) discuss 38% of Spanish cancer nurses as having high STS levels, 51% of participants reported average and 11% reported low STS levels. Portuguese cancer nurses report lower levels of STS, with 25% of cancer nurses discussing high levels of STS, while 62% reported average levels and 13% reported low levels of STS (Duarte and Pinto-Gouveia 2017a). Yilmaz *et al* (2018) and Duarte and Pinto-Gouveia (2016a) report similar population means as ($\bar{X}$ = 24.95, *SD* = 6.38) and ($\bar{X}$ = 25.71, *SD* = 3.47) respectively. These means sit in the average STS range. Two Asian studies report comparable findings to the European studies. Levels of STS in Korean cancer nurses were reported as high in 28% of participants, average in 52%, and low in 20% (Jang *et al* 2016). However, in contrast Yu *et al* (2016) described Chinese oncology nurses population means ($\bar{X}$ = 21.39, *SD* 4.84) which indicated low levels of STS.

Reports of STS by cancer nurses in the USA and Canada are lower than European and Asian colleagues. Wu *et al* (2016) described the USA cohort of cancer nurses reporting low levels of STS (52%) and average levels (47%) with less than 1% of participants reporting high levels of STS. A second study of cancer nurses from the USA reported no high levels of STS, with 40% reporting average levels, and 60% reporting low levels of STS (Wells-English *et al* 2019). The third study reporting levels of STS in cancer nurses as percentages described average levels (56%) and low levels (44%) with no cancer nurses reporting high levels of STS (Jakel *et al* 2016). In a cross-sectional study using the

Secondary Traumatic Stress Scale, Quinal *et al* (2009) reported that only a minority of cancer nurses (n = 43) exhibited symptoms of STS.

Potter *et al* (2010) and Giarelli *et al* (2016) describe population means as ($\bar{X}$ = 15.2, *SD* = 6.60) and ($\bar{X}$ = 20.0, SD = 4.9) respectively. The Potter *et al* (2010) study used the ProQOL IV and results indicate average levels of STS. Giarelli *et al* (2016) used the ProQOL V and scores in this study indicate low levels of STS. Secondary traumatic stress population means in cancer nurses were reported in the average range by Zajac *et al* (2017: $\bar{X}$ = 24.17, *SD* = 4.05) and Havezi (2015: $\bar{X}$ = 25.3). In a later study, Potter *et al* (2013), using the ProQOL-IV, reports a population mean in the high range ($\bar{X}$= 19.76).

The three studies that report on cancer nurses as a subset of nurse participants suggest similar findings to those of the burnout scores. Hooper *et al* (2010) report levels of STS in cancer nurses as low (25%), average (42%) and high (33%) and Al-Majid *et al* (2018) reports population means ($\bar{X}$ = 51.4, *SD* = 10.0) in the high range of STS. In contrast, Mooney *et al* (2016) report population means ($\bar{X}$ = 20.2, *SD* = 4.61) indicating low levels of STS. Both Al-Majid *et al* (2018) and Hooper *et al* (2010) are the only two studies from the USA describing high levels of STS in cancer nurses. Both of these studies included small numbers of cancer nurses Al-Majid *et al* (2018; n = 18) and Hooper *et al* (2010; n = 16), in small hospitals, which may account for the difference in results to the larger studies.

Canadian cancer nurses describe STS levels as average (48%) and low (52%) with no nurse reporting high levels (Wu *et al* 2016). Pfaff *et al* (2017) and Koo *et al* (2013) report population means ($\bar{X}$ = 35.0, *SD* 19.1) and ($\bar{X}$ = 19.1, *SD* 3.8) respectively. Cancer nurses in the Koo *et al* (2013) study scored in the low STS level. However, Pfaff *et al* (2017) included a range of oncology workers in their study and although the population mean scores were in the higher end of average level of STS, these results should be viewed with caution as only 34% of participants were cancer nurses. Similarly, Bellicoso *et al* (2017) report population means ($\bar{X}$ = 20.63, *SD* 5.8), which sit in the low level of STS (Stamm 2010) with 34% of the study population identifying as cancer nurses.

Reports of STS in cancer nurses globally follow similar patterns to reports of CS and burnout in that a significant percentage of European cancer nurses describe high levels of burnout and STS, whereas colleagues from the USA and Canada report low to average levels. Reasons for this disparity are unclear. Additionally, within Europe only three countries have reported levels of all three aspects of professional quality of life in nurses. However, the studies from Europe may not reflect the differences in the professional quality of life of cancer nurses across all European countries.

3.2.8 Levels of secondary traumatic stress in oncologists

Prevalence rates of STS as reported by oncologists is reported as low in most studies. The three Israeli studies used different versions of the ProQOL instrument. Using the ProQOL-IV, Granek *et al* (2016) examined professional quality of life and described population means as high ($\bar{X}$ = 15.88, *SD* = 7.59), as does Hayuni *et al* (2019: ($\bar{X}$ = 17.24, *SD* = 7.35). Laor-Maanay *et al* (2020) used the ProQO-V and although these authors describe population means as in the low range ($\bar{X}$ = 17.18, *SD* = 7.02), they highlight that these levels are high compared to published norms. Bellicoso *et al* (2017) reported on a mix of Canadian cancer health care professionals' population means ($\bar{X}$ 20.63, *SD* 5.80), indicating low levels of STS. A study by Kleiner and Wallace (2017) report on only the STS subscale of the ProQOL instrument as part of a larger study but did not present STS levels of participants. It is difficult to draw conclusions about the prevalence of STS in oncologists as two studies from Israel suggest high levels but comparisons with the Canadian study are difficult as Bellicoso *et al* (2017) report levels for oncologists, nurses and radiation therapists collectively.

3.2.9 Levels of secondary traumatic stress radiation therapists

All studies reporting levels of STS in radiation therapists were from Canada. The study by Sarra and Feuz (2018) describes over 70% of radiation therapists reporting low levels of STS and almost 30% reporting average levels. There were no reports of high levels of STS in this study. A second Canadian study did not report levels or population means but described radiation therapists as not demonstrating STS (Gilles *et al* 2014). Koo *et al* (2013) report population means for STS levels ($\bar{X}$ = 20.9, *SD* = 5.6), which are in the low range but describe radiation therapists levels of STS as higher than those of nursing colleagues. These results suggest that radiation therapists may not be at risk of STS, but there is a paucity of literature from countries outside of Canada.

3.3 Professional quality of life in cancer care and demographic variables

The professional quality of life of cancer health care professionals has demonstrated correlations with various demographic variables in the literature.

3.3.1 Professional quality of life and gender

The relationship between professional quality of life and gender is not clear. This may be because the majority of participants are female in all studies thus making comparisons between genders difficult. Studies report no gender differences in either CS, burnout or STS in radiation therapists (Gilles *et al* 2014), nurses (Duarte and Pinto-Gouveia 2017a; Yilmaz *et al* 2018), and oncologists (Laor-Maaynay *et al* 2020). However, two studies report higher levels of burnout and secondary traumatic stress in females. One Canadian study of doctors (Kleiner and Wallace 2017), and a study of nurses from the USA (Mooney *et al* 2017) described females scoring higher CF than males. Hooper *et al* (2010) describe females nurses as reporting higher levels of STS, but this study reports on a variety of specialties of which oncology is one (*n* = 12).

3.3.2 Professional quality of life and age

The relationship between age and professional quality of life is not clear and warrants further exploration. The literature suggests that there is no correlation between age and any of the professional quality of life subscales for radiation therapists (Gilles *et al* 2014; Sarra and Fuez 2018). There are conflicting results for age and professional quality of life as reported by Israeli oncologists. No correlation was found between age and either CS, burnout or STS (Laor-Maaynay *et al* 2020), however Granek *et al* (2016) describe a statistically significant negative correlation between age and STS. The evidence of the relationship between professional quality of life and age is less clear in the nursing profession.

Four studies describe older nurses reporting higher levels of CS than their younger colleagues (Duarte and Pinto Gouveia 2017a; Jang *et al* 2016; Yilmaz *et al* 2019; Zajac *et al* 2017), whereas three studies report no correlation (Potter *et al* 2010; Wentzel and Brysiewicz 2018; Yu *et al* 2016). Three studies also describe a negative correlation with age and burnout (Duarte and Pinto Gouveia 2017a; Jang *et al* 2016; Zajac *et al* 2017). Both Wu *et al* (2016) and Mooney *et al* (2017) describe a negative correlation with age and STS, with younger nurses reporting higher levels of STS than their older colleagues. Mooney and colleagues findings report on both oncology and ICU nurses collectively. Although it is difficult overall to draw any firm conclusions relating to the relationship between age and the professional quality of life subscales, the findings from the studies indicate that the relationship between age and professional quality of life may be in part due to the nature of the professions.

3.3.3 Professional quality of life and years in cancer care

Similarly, the relationship between years in clinical practice and oncology practice, with professional quality of life is unclear. No correlation was found between professional quality of life and years working in clinical practice or years working in cancer care for doctors (Laor-Maaynay *et al* 2020), or years working in clinical practice for radiation therapists (Gilles *et al* 2014; Sarra and Fuez 2018). Reports on the relationship between professional quality of life and professional experience for nurses describe a mixed picture suggesting that nurses with more years of experience may experience higher CS levels and lower STS and burnout levels.

No correlation between years of clinical experience or years working in cancer care and any of the professional quality of life subscales was reported in five studies (Hooper *et al* 2010; Potter *et al* 2010; Wells-English *et al* 2019; Wentzel and Brysiewicz 2018; Yu *et al* 2016). The study by Hooper *et al* (2010) reported on both intensive care and oncology nurses. In several studies cancer nurses with more years of clinical experience (Al Majid *et al* 2018; Jang *et al* 2016; Zajac *et al* 2017), and more years in oncology practice (Jang *et al* 2016) reported higher CS scores than nurses with less years of experience. Only one study reported a negative correlation with burnout and years in clinical practice (Jang *et al* 2016). A negative correlation between STS and years of experience was described in three studies (Mooney *et al* 2017; Yilmaz *et al* 2019; Yu *et al* 2016). Interestingly, Duarte and Pinto-Gouveia (2017a) did describe significant correlations with professional quality of life subscales and both years in practice and years in current position, but report that these differences did not reach statistical significance when age was controlled for. This finding by Duarte and colleagues highlights the uncertain nature of the relationship between clinical experience and professional quality of life indicating that other variables may affect the relationship, thus warranting further exploration.

3.3.4 Professional quality of life and level of education

There are mixed results from studies describing the relationship between professional quality of life and level of education. However, the relationship between professional quality of life and specialised oncology training appears more certain. There is very limited evidence in the literature relating to professional quality of life and level of education for oncologists and radiation therapists. None of the studies of oncologists reported on level of education and professional quality of life. Gilles *et al* (2014) reported no correlation with any of the professional quality of life subscales and level of education for radiation therapists. As with previously discussed demographic variables, studies with cancer nurses report mixed findings.

Four studies of nurse's professional quality of life found no correlation with any of the subscales and level of education (Hooper *et al* 2010; Potter *et al* 2010; Yilmaz *et al* 2019; Zajac *et al* 2017). Cancer nurses who had higher levels of education, BSc and above, reported higher levels of CS (Jang *et al* 2016; Wu *et al* 2016), and lower levels of burnout and STS (Jang *et al* 2016), indicating a possible positive effect of degree level education. The relationship between professional quality of life subscales, and specialist oncology education is clearer. Nurses working in cancer care who had specific oncology training reported higher levels of CS and lower levels of burnout than those who did not (Yilmaz *et al* 2019; Yu *et al* 2016). One study reported higher levels of STS in nurses working in cancer care who had no specialist training (Arimon-Pagès *et al* 2019). The relationship between professional quality of life and education appears to point to the importance of specialist cancer training as improving the professional quality of life of nurses.

3.3.5 Professional quality of life, shift work and turnover intention

Two variables that feature in the cancer nursing literature relating to professional quality of life are shift work and turnover intention. These variables warrant a mention particularly because it is important that oncology units retain highly skilled staff. Cancer nurses who worked shifts, and those who worked more than 46 hours per week had lower CS levels and higher burnout levels than nurses who worked regular weekly hours, and nurses who worked 45 hours or less (Yılmaz and Üstün 2019). A stepwise liner regression indicated that CS had a significant protective influence against turnover intention whereas burnout had the opposite effect (Wells-English *et al* 2019). A study by Arimon-Pagès *et al*. (2019) supports this finding where participants reporting high levels of burnout and STS were more likely to change either work unit or profession. Ensuring skilled nurses are retained is important for patient care, therefore providing a supportive clinical environment for cancer nurses can increase CS and decrease burnout and STS levels (Wu *et al* 2016).

Oncologists (n = 312) perception of time pressure at work, that is needing to get more done in a given timeframe, was a predictor of burnout and STS (Kleiner and Wallace 2017). This cross sectional study measured compassion fatigue using a combination of the Maslach Burnout Inventory, to measure burnout, and used the STS subscale of the ProQOL. When work-family conflict was added to the model it showed that work-family conflict fully mediated the relationship between time pressure at work and oncologists STS and burnout (Kleiner and Wallace 2017). These authors suggest improved access to family friendly work practices may improve the mental health of oncologists.

3.3.6 Professional quality of life and personal variables

A variety of personal variables have been examined in studies of professional quality of life in cancer care. One study of cancer nurses, oncologists and radiation therapists examined the relationship between personality and the professional quality of life subscales (Bellicoso *et al* 2017). The personality traits of agreeableness and openness to experience predicted CS and burnout, where participants who scored high on these traits were more likely to experience CS and those who scored low were more likely to experience burnout (Bellicoso *et al* 2017). Psychological factors may also play a part in the development of CF and CS. Psychological inflexibility was negatively correlated with CS and positively correlated with both CF subscales in a study of Portuguese cancer nurses (Duarte and Pinto-Gouveia 2017a). In a study of Canadian cancer professionals, poor emotional stability predicted burnout and STS suggesting participants may not be able to separate their work and personal life (Bellicoso *et al* 2017).

The negative impact of caring on the mental health of cancer health care professionals has been identified in the literature. Depression was correlated with high levels of STS and burnout in American nurses, but not in Canadian nurses (Wu *et al* 2016), which the authors attribute to cultural differences between the countries. Gilles *et al* (2014) reported that 46% of radiation therapists suffered from headaches, with 67% of these reported as stress induced. Additionally, psychological and psychiatric morbidity such as depression, anxiety, post-traumatic stress disorder, fatigue and mental exhaustion, were reported as present in 29% of participants of the Gilles *et al* (2014) study. Unfortunately, correlations between these variables with CS, burnout and STS were not presented by Gilles *et al* (2014) making it difficult to understand the relationship between negative symptomology and professional quality of life in radiation therapists.

Although physical symptoms are accepted as part of the negative impact of professional quality of life, there is limited evidence of how these are experienced by cancer health care professionals. Headaches and sleep quality have been described in two studies (Bellicoso *et al* 2017; Wu *et al* 2016). Experiencing headaches was positively correlated with STS and burnout in cancer nurses from the USA and Canada (Wu *et al* 2016), and sleep quality was inversely related to STS and burnout and positively related with CS in a study of oncology professionals (Bellicoso *et al* 2017). Financial stress has also been identified as being correlated with high levels of burnout and STS in nurses from both the USA and Canada (Wu *et al* 2016). Although relationships have been identified between the subscales of professional quality of life and personal factors of cancer health care professionals, causal relationships cannot be determined as these studies use a cross-sectional design.

Fifty nine percent of radiation therapists have reported that others identified that they use self-sacrificing behaviours, such as putting the patient's needs before their own, to meet the needs of cancer patients (Gilles *et al* 2014). Similarly, cancer nurses have identified the use of self-sacrificing behaviours during clinical practice, and these nurses reported higher burnout and STS scores than nurses who did not use these types of behaviours (Wu *et al* 2016). For oncologists grief and sense of failure were significant predictors of burnout and STS, whereas suffering and exposure to death were not (Laor-Maaynay *et al* 2020). Compassion fatigue may not result from exposure to suffering and death, but CF may result from the subjective experience of the exposure such as feeling a sense of failure and feelings of grief (Laor-Maaynay *et al* 2020).

3.4 Impact of supportive variables on professional quality of life

A range of variables have been identified as being supportive with a positive impact on the professional quality of life of cancer HCPs. Wu *et al* (2016) identified that working within a cohesive teamwork environment buffered against STS and burnout in those cancer nurses who used self-sacrificing behaviours, and the same type of environment also improved CS levels. Additionally, it has been identified that cancer nurses who worked with supportive leaders had lower burnout scores than those nurses who did not (Yu *et al* 2016).

In relation to marital status, not all studies reported on correlations with marital status and professional quality of life, however those that did provide some interesting results. Jang *et al* (2016) describe higher levels of CS reported by cancer nurses who are married. In contrast in two studies no relationship was identified between professional quality of life subscales and marital status in cancer nurses (Yilmaz and Üstün 2019: Yu *et al* 2016). Similarly, Gilles *et al* (2014) report no relationship was identified between CS, burnout or STS and marital status in radiation therapists, and Granek *et al* (2016) report no relationship for oncologists. One study of oncologists reported a surprising but statistically significant positive relationship between being married and STS (Kleiner and Wallace 2017) meaning those oncologists who were married reported higher STS.

Being able to practice self-compassion was found to be an important predictor of all subscales of professional quality of life (Duarte and Pinto-Gouveia 2017a). In this cross-sectional study of cancer nurses (*n* = 221), Duarte and colleague describe the results from the hierarchical multiple regression models of CS, burnout, and STS. These authors found self-compassion significantly predicted higher levels of CS and lower levels of burnout and CF. A study of radiation therapists (*n* = 33) and nurses (*n* = 21) identified that those participants who described themselves as being spiritual reported higher in CS scores and those who reported lower spirituality scored higher on the burnout scale (Koo *et al* 2013).

3.5 Interventions to improve the professional quality of life of cancer health care professionals

Improving the quality of life of cancer HCPs is important to assist in managing the negative consequences of caring for patients with cancer. A number of recent studies have evaluated interventions aimed at reducing the risk of burnout and STS. Four studies came from the USA (Hevezi 2016; Jakel *et al* 2016; Potter *et al* 2013; Zajac *et al* 2017), one study came from Canada (Pfaff *et al* 2017) and two studies took place in Europe (Duarte and Pinto-Gouveia 2016a; Duarte and Pinto-Gouveia 2017b; Yilmaz *et al* 2018). A range of interventions were used in these studies such as a mindfulness based intervention, and a mobile application intervention. Participants were cancer nurses in all of the studies except one (Pfaff *et al* 2017).

A non-randomised wait-list comparative design study of a 6-week mindfulness based intervention for Portuguese cancer nurses (*n* = 93) is reported by Duarte and Pinto-Gouevia (2016a; 2017b). The intervention involved a weekly session that included content such as completing a body scan, breathing work, and meditation. A compact disc containing guided meditation was given to each participant who was then instructed to practice 15 minutes per day and record daily mindfulness practice in a diary provided by the researcher. Participants completed the study instruments prior to undertaking the intervention, immediately after the 6-week intervention and 3 months post intervention. Duarte and Pinto-Gouveia (2016a) reported statistically significant reduction in STS, burnout, and stress in the intervention group. The intervention group participants also reported greater satisfaction with life, reduced experiential avoidance, and increased self-compassion and mindfulness. Of the nurses who practiced mindfulness throughout the 6-

week programme, those nurses who practiced more reported a greater decrease in burnout and greater increase in self compassion than those participants who practiced less. Participants evaluated the intervention programme as acceptable to undertake.

Additional findings of the intervention study by Duarte and Pinto-Gouveia (2016a) described that participants self-reported changes in mindfulness significantly mediated the effects of the intervention on burnout, anxiety, stress symptoms, and satisfaction with life (Duarte and Pinto-Gouevia 2017b). Additionally, the authors described how self-compassion was a significant mediator of the effects of the intervention on burnout, depression, anxiety, stress, and satisfaction with life, but not on STS. Finally, Duarte and Pinto-Gouveia (2017b) report that psychological inflexibility was a significant mediator of the effects of the intervention on burnout, STS, depression, and stress. Psychological inflexibility relates to when a person's behaviour towards taking action on something tends to be controlled by one's own thoughts and feelings rather than using more effective means of action (Levin *et al* 2014).

A second study from Europe evaluated the impact of a 6-week nurse led 4-session intervention programme on the professional quality of life of Turkish cancer nurses (Yilmaz *et al* 2018). Two of these sessions were face to face and two were conducted by telephone. Yilmaz and colleagues provided an intervention that included lectures, breathing work, relaxation, Mandala painting, and Baksi dance. Participants in this study were also sent motivational texts during the study period. The study used an experimental embedded mixed methods design. Quantitative data was collected prior to and after the intervention, while qualitative data was collected during and after the intervention. In this study the authors report that the sample size calculation (*n* = 50) was not recruited, and results on 43 nurses was presented. There was a post-intervention reduction in clinical stress achieved through participants improving self-awareness and self-care strategies but no statistically significant difference was detected in any of the professional quality of life subscales (Yilmaz *et al* 2018). The authors suggest this result may be because levels of STS and burnout were low pre-intervention and question whether the 6-week intervention is sufficient to notice an effect on participants.

A Canadian study by Pfaff *et al* (2017) used an experimental embedded mixed method design to examine the impact of a compassion fatigue resiliency programme on professional quality of life. This study included a mix of Canadian cancer health care participants (*n* = 12), however a breakdown of the professions who participated in the intervention is not provided by the authors. The intervention included teaching resilience skills such as self-care, dealing with internal conflicts, and connecting to others. Survey instruments were distributed before and 2-weeks after the intervention, and qualitative data was gathered during and after the intervention. Pfaff *et al* (2017) describe a post intervention reduction in clinical stress through the use of self-care strategies, and increased awareness, but no significant changes to the professional quality of life subscales.

One non-randomised pre and post intervention study from the USA was reported by Hevezi (2016). In this study cancer nurses (*n* = 17) participated in a one-on-one session where the intervention was explained, and a participant folder that was provided contained the intervention. The folder included a compact disc with several breathing and meditation exercises ranging from 4 minutes to 8 minutes, and participants were advised to practice 5 days a week for 4 weeks (Hevezi 2016). Study instruments were completed before and after the intervention. The author reports a statistically significant increase in CS and a statistically significant reduction in burnout and STS post intervention. Additionally, a study by Jakel *et al* (2016) used a mobile application to improve provider resilience against compassion fatigue. This non-randomised study included a control group (*n* = 9) and an intervention group (*n* = 16). The authors describe the mobile application as including information and tools designed to engage participants in self-care practices. There were no significant differences between the groups post-intervention, although the authors report that levels of burnout and STS were not in the high range pre intervention (Jakel *et al* 2016).

A descriptive pilot study using a 5-week compassion fatigue resilience programme on cancer nurses from the USA was described by Potter *et al* (2013). The cancer nurses (*n* = 13) participated in 90 minutes of weekly activities such as self-regulation, connection, and self-care, and a 4-hour retreat was attended between week 3 and week 4. All participants were remunerated for their time (Potter *et al* 2013). The authors collected data at 4 time points; before commencement of the programme, immediately after the programme, and at three months and six months post programme. Findings indicated that there was a statistically significant reduction in STS scores that was maintained to the 6 month point (Potter *et al* 2013). This is the only study that evaluated an intervention programme beyond 3 months, but findings indicate longevity in the intervention’s positive outcomes.

The final intervention study from the USA used a mixed methods sequential design (Zajac *et al* 2017). The study used a post-death debriefing intervention. During the 3 months of the intervention study the unit recorded 16 deaths and all of these were debriefed. The researchers describe no significant differences between the participant pre and post study scores. This study has clear limitations. Analysis was undertaken on 91 participant questionnaires of which only 42 indicated participating in the intervention (Zajac *et al* 2017). Additionally, the authors report that participant pre and post evaluations were not matched. These limitations suggest that the results of this study should be interpreted with caution as the analysis did not match pre and post scores.

3.6 Professional quality of life and qualitative literature

The qualitative literature on the professional quality of life of cancer HCPs provides some interesting insights into the phenomena that quantitative studies cannot identify. The majority of qualitative literature is from the USA (Brint 2017; Finley and Sheppard 2017; Giarelli *et al* 2016; Rohan and Bausch 2009) and Canada (Perry *et al* 2011; Pfaff *et al* 2017). There was one study from Europe, (Partlak Günüşen *et al* 2019), one from South Africa (Wentzel *et al* 2019) and one Australian study (Halkett *et al* 2016). Two Japanese studies were identified, but these both reported on the same participants (Fukumori *et al.* 2018, 2020). The majority of participants in the qualitative studies were nurses, with one study describing radiation therapists and radiation physicists experiences (Halkett *et al* 2016), and two studies reporting multi-professional involvement (Pfaff *et al* 2017; Rohan and Bausch 2009). Five overarching themes were identified from the qualitative literature in relation to professional quality of life; sources of stress, emotional consequences, changes to self, sources of support, and coping strategies.

3.6.1 Sources of stress

Health care professionals have identified working in cancer care as “climbing Mount Everest” in that it is work the rest of the world could generally not tolerate, and it is work that is laborious and intense (Rohan and Bausch 2009). The laborious nature of cancer care has also been described by Australian radiation therapists (n = 28) and radiation oncology physicists (n = 21) in that it is monotonous, with large workloads that lack flexibility (Halkett *et al* 2016). However, the participants also describe a determination to make a difference to patients (Halkett *et al* 2016). A mixed methods study by Giarelli *et al* (2016) of cancer nurses (n = 20) reported that the work environment with heavy workloads and poor skill mix could heighten the level of stress felt. A qualitative study of cancer nurses (*n* = 30) by Fukumori *et al* (2020) identified traumatic events that can lead to compassion fatigue including, observing the patient’s physical condition deteriorating, observing that treatment for cancer can cause increased morbidity for patients, conflict between the patient and the family resulting in a lack of social support for the patient, and seeing the patient experience bad news. Perry *et al* (2011) interviewed 19 female cancer nurses and identified issues such as a lack of time, poor understanding of CF, inability to ease patient suffering and a lack of support as contributing to compassion fatigue.

Cancer HCPs (*n* = 21) have described how conscientious preparation is essential to support cancer patients, but being able to practice this is not always possible (Rohan and Bausch 2009). These authors describe how participants felt they were not trained to undertake specific parts of patient care, for example, emotional support. Therefore, these lack of skills did not allow them to adequately prepare for patient encounters thus adding to work related stress (Roan and Bausch 2009). In addition to work place stressors, Brint (2016) and Perry *et al* (2011) identified that stress from sources outside of work such as divorce can be experienced simultaneously. The descriptions of the sources of stress relating to professional quality of life in the qualitative literature highlight the difficult nature of cancer work, in that it is not only issues such as lack of time, lack of support, and lack of skills that leads to compassion fatigue, but other factors such as the monotony of the work may also be a contributing factor.

3.6.2 Emotional consequences

The emotional consequences of caring are significant. In a personal narrative, a cancer nurse describes the hopelessness they felt during clinical interactions (Brint 2016). This narrative lays bare the emotional toll taken on the individual. It describes how blurring of boundaries made balancing work and home life difficult (Brint 2016). The blurring of boundaries in cancer care was also identified as contributing to compassion fatigue in two other qualitative studies (Rohan and Bausch 2009; Wentzel *et al* 2019).

Cancer nurses (*n* = 5) described the positive aspects of cancer care in that relationships and connections are made with patients and families, but the nurses discussed the difficulties in maintaining boundaries within these relationships (Finley and Sheppard 2017). Finley and Sheppard (2017) report nurses describe witnessing suffering, and although they felt drained emotionally the nurses simultaneously describe still feeling emotions. The feeling of being emotionally drained appeared to prompt nurses to emotionally disengage from patients in an attempt to avoid the psychological pain of witnessing suffering (Finley and Sheppard 2017). The notion of suffering is also described by Perry *et al* (2011) in that cancer nurses spoke about the strong emotional attachment to patients however the nurses felt they were unable to ease the patient's suffering. It seems that cancer nurses are not the only profession who value developing relationships with cancer patients. Radiation therapists also describe the importance of developing relationships with patients (Halkett *et al* 2016). However, there are consequences to developing such close relationships with patients and families. Nurses have described how feeling compassion for the patient and family extended beyond working hours (Fukumori *et al* 2018) suggesting this seeped into the personal lives of the nurses. Rohan and Bausch (2009) found that cancer HCPs felt the need to seek refuge from the emotional intensity of cancer related work, however this was not always achievable.

3.6.3 Changes to the self

Several studies report personal changes experienced by HCPs working in cancer care. These changes have been described as both emotional and physical. At times cancer nurses felt there was something wrong, for example feeling defeated by work, and feelings of hypervigilance, however nurses were not sure if this was compassion fatigue (Perry *et al* 2011). Other aspects of changes to the self include feeling a sense of inadequacy (Fukumori *et al* 2018), experiencing a negative impact on personal relationships (Perry *et al* 2011), seeing only the bad (Giarelli *et al* 2016), psychological fatigue (Partlak Günüşen *et al* 2019), and needing to isolate at home (Finley and Sheppard 2017).

Three authors describe physical changes that occurred as a consequence of professional caring. Perry *et al* (2011) found that cancer nurses described a profound fatigue. The authors describe this fatigue as both mental and physical in nature. Feeling physical pain was described by Brint (2016), and this pain was felt in response to continued exposure to extreme suffering. The author describes how these episodes prompted the realisation that cancer work was too much, which culminated in leaving a job that involved intense patient relationships. Changes to sleep have been identified in the quantitative literature (section 3.3.6) and nurses also described sleep deprivation as a consequence of implementing negative coping strategies (Finley and Sheppard 2017).

3.6.4 Sources of support

Several studies reported on participants descriptions of the support accessed to prevent the development of compassion fatigue. Brint (2016), and Perry *et al* (2011) describe a reluctance of nurses to admit to requiring support. However, Brint (2016) continues by vividly describing times when support was requested, but these requests were not accommodated. This insight highlights the need for HCPs to firstly acknowledge that there is a problem that requires access to appropriate informal or formal support, and secondly that there needs to be an institutional response to requests for support.

Three studies reported participants describing the use of self-care practices such as the pursuit of hobbies and allocating time to one's self to help deal with compassion fatigue (Partlak Günüsen *et al* 2019; Finley and Sheppard 2017; Pfaff *et al* 2017). In four studies, participants identified sources of support from family and friends, and also from colleagues. Rohan and Bausch (2009) describe how participants espouse the importance of MDT teamwork when caring for cancer patients to share the emotional burden. Good teamwork has also been highlighted by radiation therapists and radiation physicists as being important in the delivery of quality care (Halkett *et al* 2016). Receiving acknowledgement from both peers and patients was important for preventing CF (Perry *et al* 2011), and family, friends and co-workers were seen as sources of support for cancer nurses (Finley and Sheppard 2017).

3.6.5 Coping strategies

Achieving a work life balance seemed to be important to the professional quality of life of participants of qualitative studies. This balance was achieved through the use of coping strategies, although these strategies were not always successful in reducing CF. The majority of coping strategies used were positive in nature but there were maladaptive coping strategies described by participants. Poor coping strategies included the use of alcohol, poor dietary choices, and the ineffective implementation of self-care strategies (Finley and Sheppard 2017). Undertaking further education and changing jobs (Brint, 2016) or leaving a current job (Perry *et al* 2011), and avoidance of emotionally difficult situations (Fukumori *et al* 2018) were cited by cancer nurses as ways of coping with compassion fatigue.

Adequate coping strategies that lead to positive outcomes are described by participants to address the impact of dealing with the unrelieved suffering of patients with cancer. Positive coping strategies involved maintaining clear professional boundaries (Rohan and

Bausch 2009), the use of self-talk (Giarelli *et al* 2016), spending time with family (Finely and Sheppard 2017), and moving near to family and work (Halkett *et al* 2017). Nurses (*n* = 13) described changing priorities in life as a result of experiencing STS (Partlak Günsüsen *et al* 2019). The priorities, such as living life to the fullest allowed the nurses to develop resilience. These findings are similar to those found in South African cancer nurses (*n* = 8) reports of CF, where there is an acceptance of life moving on, and this acceptance enabled the cancer nurses to learn how to cope with the death of patients (Wentzel *et al* 2019).

These qualitative studies suggest that there are a number of stressors that can lead to compassion fatigue. However, HCPs need to be able to identify the signs of CF and act on these, and harness adaptive coping strategies. The qualitative literature on compassion satisfaction and compassion fatigue in cancer includes mainly nurse participants, with only one study including radiation therapists. This fails to capture any other cancer HCP experiences of professional quality of life. The literature reviewed also identifies the importance for using both qualitative and quantitative approaches to enable a fuller examination, particularly with regards to the professions of doctors and radiation therapists. The evidence reviewed points to the fact that professional quality of life is an important aspect of cancer care, and although CS is experienced by some HCPs, there is also a risk of CF. Currently there are no studies in Ireland that have examined the professional quality of life of cancer health care professionals working in cancer care.

3.7 Empathy and cancer health care professionals

A growing body of literature has investigated aspects of empathy in relation to cancer HCPs. A literature search identified 22 studies examining empathy in cancer health care professionals (Figure 3.3). Of these 22 studies, 3 examined empathy along with the professional quality of life of cancer HCPs (Duarte and Pinto-Gouevia 2017a; Hayuni *et al* 2019; Yu *et al* 2016). The findings of these 22 studies are discussed in four themes; empathy enablers in cancer care, barriers to empathy in cancer care, the impact of empathy on the patient with cancer, and the impact of using empathy on the cancer HCP.

3.7.1 Empathy enablers in cancer care

The patient-oncologist consultation was the focus of several studies relating to empathy. Longer consultation time was found to positively correlate with oncologists empathy (Lelorain *et al* 2015). This cross sectional study by Lelorain and colleagues examined oncologists (*n* = 21) empathy and understanding of patients' (*n* = 201) needs during consultations. Oncologists who accurately understood the patients' needs during the consultation had higher empathy levels than those who did not (Lelorain *et al* 2015). Time appeared to be a factor as both an enabler of empathy and as a barrier to being empathic. In a qualitative study, cancer nurses (*n* = 14) described that having adequate time with patients influenced nurses' empathy (Hope-Stone and Mills 2001). A second study on oncologists consultations, patients and oncologists indicated a preference for emotion-orientated speech over emotion-orientated silence as they both felt that oncologists were more empathic with the speech approach (Visser *et al* 2018). This qualitative study by Visser and colleagues from The Netherlands showed 3 video consultations to oncologists (*n* = 10) and patients (*n* = 10), with each consultation video demonstrating different empathic approaches. Visser *et al* (2018) suggest that the emotion-orientated speech approach shifts control to the patient. This infers that being empathic through an emotion orientated speech approach is a patient centred approach.

The context of care was an important factor in enabling empathy in cancer HCPs. A qualitative study by Wiseman (2007) used an ethnographic approach, and observed cancer nurses on a ward over a two year period. The context of care was central to facilitate the development of cancer nurses' empathy. The context of care included areas such as having positive role models, and a clear ward philosophy (Wiseman 2007). Cancer nurses empathy' was developed along a 4 point continuum, and there could be oscillation between these points (Wiseman 2007). The author describes one of these points as 'empathy as a way of being' in which the nurses' self-awareness enabled empathy to be displayed in encounters with not only patients, but also with families, and with colleagues. Both patient and cancer nurses characteristics were identified by Kesbakhi and Rohani (2020) as enabling empathic engagement. This qualitative study of cancer nurses (*n* = 15) in Iran described nurses characteristics such as competency, religious and spiritual characteristics, and good humour, and patient characteristics such as recognition and acceptance of the disease, and patient and family expectations as enabling empathy.

Finally, communication skills training that focused on empathic engagement was identified as enabling empathy in cancer HCPs. A non-randomised intervention study from Switzerland evaluated the effectiveness of a communication skills training programme on 61 cancer nurses (Langewitz *et al* 2010). The intervention was evaluated at two timepoints; T1 was during the initial communication training and T2 was at a seminar 6 months later (Langewitz *et al* 2010). Actors were used as patients for the training in this study. The authors report a significant increase in nurses' empathic responses, a significant reduction in the provision of biomedical information given by nurses, a significant increase in attention given to the patient's psychosocial issues, and a significant increase in the nurse not interrupting the patient talking.

A multi-centre communication skills training study from the USA evaluated two communication skills training programmes (Parker *et al* 2020). This study evaluated a Survivorship Planning Consultation programme which had 5 hours of communication skills training, and a Wellness Rehabilitation Consultation programme that had 2 hours of communication skills training. Patients (n = 198) and oncologists (n = 42) completed survey instruments at 5 timepoints from baseline through to 12 months after the training (Parker *et al* 2020). Patients in the Survivorship Planning Consultation arm perceived oncologists empathy as better than patients in the Wellness Rehabilitation Consultation arm, indicating a more positive outcome for the more intensive intervention.

3.7.2 Barriers to empathy in cancer care

A range of barriers to empathic practice for cancer HCPs has been reported in the literature. A lack of time was identified in two qualitative studies as being a barrier to cancer HCPs use of empathy (Hope-Stone and Mills 2001; Kesbakhi and Rohani 2020), although Wiseman (2007) reported that lack of time was not always the reason for observing a lack of empathy in cancer nurses. Cancer nurses reported high workloads and work conditions as a barrier to using empathy in practice (Kesbakhi and Rohani 2020). Similarly, in a qualitative study of Iranian cancer nurses (n = 18), workload was identified as a barrier to being empathic (Taleghani *et al* 2018). It appears that patients may pick up on the busyness of cancer HCPs as a barrier to receiving empathy. A cross sectional study of patients (n = 326) perception of physician empathy reported that when patients perceived oncologists as busy this had a negative influence on the patients' perception of physician empathy (Neumann *et al* 2007).

Cancer nurses reported a lack of managerial support as being a barrier to being empathic (Taleghani *et al* 2018), and likewise Wiseman (2007) observed a lack of support as being a barrier to empathic practice. Additional barriers included oncologists missing opportunities to be empathic and improve patient recall of information during patient consultations (Visser *et al* 2018). These authors suggest that emotion-oriented speech consultations may decrease these missed opportunities. A multi-centre observational study from The Netherlands found that although oncologists (*n* = 12) demonstrated a good understanding of emotions during patient (*n* = 45) consultations, there were times when cues were missed and oncologists failed to pick up on patients' emotional communications (van Vliet *et al* 2019). Additional barriers to being empathic identified by Hope-Stone and Mills (2001) were cultural and language differences between the patient and cancer nurse, and the willingness of the patient to communicate with the nurse.

3.7.3 Impact of health care professional empathy on the cancer patient

Several studies establish the impact of HCP empathy on the quality of life of cancer patients. When cancer nurses demonstrate empathy, patients with cancer feel valued and understood (Wiseman 2007), and empathic oncologists build positive relationships with cancer patients during consultations (van Vliet *et al* 2019). Furthermore, slowing speech rate and reducing voice pitch was viewed as oncologists being more caring during consultations (McHenry *et al* 2012). Three studies from Lelorain and colleagues focus on empathy in the cancer setting. Lelorain *et al* (2015) reported that patient's unmet psychological needs increased as physician empathy levels reduced. Similarly, (Lelorain *et al* 2018a) identified that oncologists' empathy as reported by patients was associated with better patient emotional quality of life. However, the results also revealed that this improvement in emotional quality of life was only significant for patients with low and average emotional skills (Lelorain *et al* 2018a). The level of oncologists' empathy did not have an effect on the emotional quality of life of patients with high emotional skills (Lelorain *et al* 2018a), suggesting that the emotional skills of the patient are an important consideration in empathic interactions. The final study by Lelorain *et al* (2018b) suggests that patients' perception of empathy in oncologists' interactions may be influenced by the type of information being imparted by the oncologist. In a cross-sectional study examining bad news versus follow up consultations, patient perceived empathy was associated with a higher risk of death for patients if the oncologist in the consultation was conveying bad news (Lelorain *et al* 2018b). These findings were significant after controlling for other variables, with Lelorain *et al* (2018b) arguing that being empathic in bad news consultations may convey a hopeless situation to patients.

Oncologist empathy has been identified as having an indirect positive effect on patient depression and on patient emotional quality of life (Neumann *et al* 2007), in addition cancer nurses empathy has been identified as improving the mood of the patient and increasing satisfaction for patients (Kesbakhi and Rohani 2020). These findings suggest empathy has a positive effect on cancer patients, however empathy may have a negative effect on patient quality of life. Although Visser *et al* (2018) concluded that oncologists who demonstrated emotion-oriented speech during consultations were evaluated as being more empathic by oncologists and patients, the authors equally state that some patients with cancer found this type of approach as oppressive or excessive. This finding by Visser *et al* (2018) has implications in that the empathic response of cancer HCPs should be tailored to the individual patient.

More recently oncologists' empathic abilities have been identified as having a relationship to the immune responses of patients with cancer. Three studies from China (Yang *et al* 2018a; Yang *et al* 2018b; Yang *et al* 2018c) have examined the effect of empathy on the T cells, B cells and natural killer (NK) cells of patients with breast cancer, prostate cancer, and lung cancer. These three studies demonstrated that oncologists' and cancer nurses' empathy had a positive effect on NK activity. Although this was not a direct effect, Yang and colleagues assert it was mediated through the positive impact of empathy on the patient's stigma and self-efficacy.

3.7.4 Impact of using empathy on the cancer health care professional

Cancer nurses who are older, married and have children reported higher levels of empathy than those without these personal demographics (Kesbakhi *et al* 2017;Teleghani *et al* 2017). The use of empathy in practice has been reported as providing feelings of tranquility and psychological satisfaction by cancer nurses (Kesbakhi and Rohani 2020), and also improved problem solving skills (Wiseman 2007). As cancer nurses observed the positive effects that being empathic had on the patient, they seemed to use empathy more regularly (Wiseman 2007). In contrast, negative effects of using empathy in cancer practice have been reported as exhaustion, fatigue and imagining themselves or their family with cancer (Kesbakhi and Rohani 2020), which could be viewed as elements of compassion fatigue. However, these negative effects experienced by cancer nurses being attributed to the use of empathy must be interpreted carefully as qualitative methodology has limitations in that it cannot determine cause and effect.

Numerous studies highlighted a possible link between the use of empathy and the cancer HCPs familiarity with the patient. An Iranian study using a cross sectional design of cancer nurses (*n* = 67) concluded that empathy was higher if the nurse had experience of a family member having cancer (Taleghani *et al* 2017). A second Iranian study identified cancer nurses stating they were more likely to be more empathic towards patients with cancer if they had cultural similarities (Kesbakhi and Rohani 2020). Likewise Wiseman (2007) identified that cancer nurses expressed more empathy with patients who had similarities, for example, age, gender, background, but conversely in this study nurses also indicated that this similarity could have personal negative effects in that being empathic to a patient who had common traits was more wearing.

3.7.5 Professional quality of life and empathy in cancer health care professionals

The relationship between empathy and professional quality of life appears to be poorly understood, and there is a dearth of literature examining the relationships between these two concepts. However, there are several trends that can be identified in the literature in that compassion satisfaction was positively correlated with cognitive empathy, and both burnout and STS were negatively correlated with cognitive empathy. Measuring cancer nurses empathy with the Interpersonal Reactivity Index, compassion satisfaction was positively correlated with both emotional empathy (empathic concern) and the cognitive empathy component of perspective taking, and negatively correlated with personal distress (Duarte and Pinto-Gouveia 2017a). These authors also reported that burnout negatively correlated with cognitive empathy (perspective taking) and positively correlated with personal distress. Similarly, Hayuni *et al* (2019) identified a positive correlation between burnout and personal distress, and a negative correlation between burnout and empathic concern in oncologists. Using the Jefferson Scales of Empathy to measure cancer nurses levels of empathy, Yu *et al* (2016) found a positive correlation between CS and cognitive empathy, and a negative correlation between burnout and cognitive empathy.

Secondary traumatic stress was positively correlated with only the empathic concern aspect of emotional empathy (Duarte and Pinto-Gouveia 2017a). Additionally, empathic concern significantly predicted higher levels of CS and STS, whereas personal distress significantly predicted lower levels of CS and higher levels of burnout (Duarte and Pinto-Gouveia 2017a). A study from China described cognitive empathy to be protective against burnout in cancer nurses but showed no relationship with STS (Yu *et al* 2016). These findings indicate that empathic concern can have both positive and negative consequences.

Duarte and Pinto-Gouveia (2017a) identified that cancer nurses psychological inflexibility was negatively correlated with CS, and positively correlated with both burnout and STS. A qualitative study by Perry *et al* (2011) adds to these results in that nurses felt compassion fatigue was related to excessive emotional attachment and involvement with patients, and the inability to relieve patients' suffering. These findings indicate that empathy does involve an emotional investment by cancer HCPs but requires some element of self-awareness or perspective taking to reduce the risk of the negative consequences of caring.

3.8 Emotional intelligence and cancer health care professionals

The area of emotional intelligence has not been studied extensively in cancer health care professionals, with only six research studies identified for review (Codier *et al* 2013; Holliday *et al* 2017; Mackay *et al* 2012, 2013; Mazzella Ebstein *et al* 2019; Tadmor *et al* 2016). Cancer nurses were participants in two of the studies (Codier *et al* 2013; Mazzella Ebstein *et al* 2019), radiation oncologists participated in the study by Holliday *et al* (2017), and a mix of cancer professionals were participants in the Tadmor *et al* (2016) study. Two studies were identified that included radiation therapists as a subset of the radiography workforce (Mackay *et al* 2012; Mackay *et al* 2013). Making comparisons across studies is difficult as the studies used different emotional intelligence instruments to collect data. This is an important point to note as each of the instruments used measured a different aspect of emotional intelligence. Three studies (Holliday *et al* 2017; Mackay *et al* 2012; Mackay *et al* 2013) measured trait emotional intelligence using the Trait Emotional Intelligence Questionnaire short form, whereas two studies measured mixed emotional intelligence using Bar-On's Emotional Quotient Inventory (Holliday *et al* 2017; Tadmor *et al* 2016). The final study (Codier *et al* 2013) used the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) to examine EI as an ability.

3.8.1 Levels of emotional intelligence

Oncologists reported the highest global emotional intelligence (Holliday et al 2017), with nurses reported as having average EI (Codier *et al* 2013; Mazzella Ebstein *et al* 2013). Data on global EI was not available for radiation therapists, but Mackay *et al* (2012) reported EI was higher for radiographers when compared to the normative sample data provided for the TEIQue-SF. Two cross sectional studies identified no differences between the tEI of diagnostic radiographers or radiation therapists in the UK and Australia (Mackay *et al* 2012; Mackay *et al* 2013). The Australian cohort of radiation therapists scored statistically significant higher wellbeing scores, which the authors attributed to the difference in lifestyle between the countries (Mackay *et al* 2013).

A group of radiation oncology professors in the USA and Canada (Holliday *et al* 2017) demonstrated no significant differences in tEI over a range of personal and professional variables, but those oncologists with higher global emotional intelligence scores reported a statistically significant lower level of burnout. Similarly, the negative effects of lower emotional intelligence was found in a cohort of cancer nurses. Nurses who had higher EI scores reported lower occupational stress, and nurses who had higher EI scores used problem focused coping more than emotion focused coping (Ebstein *et al* 2019). All of these correlations reached statistical significance.

3.8.2 Interventions to improve emotional intelligence

Two studies evaluated intervention programmes on emotional intelligence in cancer health care workers. A mixed methods study of cancer nurses (*n* = 10) from the USA used an Emotional Intelligence Check-in Round intervention to evaluate the impact on emotional intelligence over a 10 month period (Codier *et al* 2013). Using the MSCEIT, nurses highest score was in the ‘identifying emotions’ subscale, but the qualitative data suggested that nurses’ identification of emotions in themselves and in others was limited (Codier *et al* 2013). These authors tentatively suggest that because of the nature of the work, cancer nurses in this study avoided identifying emotions during their clinical day even though they had an ability to do this.

The second study used a 10 month EI intervention programme, consisting of seminars and workshops, to improve the EI of a haematology-oncology unit in Israel (Tadmor *et al* 2016). A control group (*n* = 15) and an intervention group (*n* = 15) were scored for EI pre-intervention and post-intervention programme. However the intervention group included administration staff (*n* = 4) in addition to nurses and oncologists, which limits the application of these results to cancer HCPs. The data analysis following completion of the programme showed a statistically significant improvement in the pre-test and post-test EI scores of the intervention group, from average to above average, with no significant difference detected in the control group (Tadmor *et al* 2016). Qualitative data from this programme’s participants suggested that the intervention improved well-being, enhanced awareness of emotions, improved the unit atmosphere, improved relationships within the team, and improved teamwork.

Overall, there is very little evidence available on the emotional intelligence levels in cancer health care professionals, and it appears that interventions to improve emotional intelligence show mixed results. The very nature of emotional intelligence, in that it relates to identifying, managing and responding to emotions, makes it an important construct to examine alongside empathy. This is because empathy has both emotional and cognitive components that are experienced by the HCP.

3.8.3 Professional quality of life and emotional intelligence in cancer health care professionals

There were no studies identified examining these two constructs in cancer HCPs, even though emotional intelligence is viewed as an important attribute for health care professionals.

3.8.4 Professional quality of life, empathy and emotional intelligence in cancer health care professionals.

No studies were identified in the literature that examined the relationship between professional quality of life, empathy and emotional intelligence in cancer health care professionals. This highlights a clear gap in the literature.

3.9 Conceptual framework

A conceptual framework provides an overall structure to the organisation of the research (Tappen 2011), which illustrates the theoretical links between the three study concepts. Although theory can guide research it is also essential that theory is modified by new evidence (Tappen 2011). In order to understand the processes involved in this study from its conception, through the methods employed, the analysis of the results and interpretation of the results, the conceptual framework needed to encompass not only the defined concepts of the study, but also the conceptual nature of the study.

The literature review established that working with patients with cancer is emotional (Rohan and Bausch 2009), and has both positive and negative consequences for the cancer HCP (Duarte and Pinto-Gouveia 2017a; Gilles *et al* 2014; Perry *et al* 2011; Sarra and Fuez 2014). This study is concerned with the relationships between three constructs of which include professional quality of life, empathy, and emotional intelligence in cancer health care professionals. The model of professional quality of life (Stamm 2010) provides a basis to underpin the conceptual framework.

Empathy is regarded as an essential component of compassionate care and HCPs demonstrate empathy during interactions with patients (Figley 2005; Lelorain *et al* 2015). Empathy has both emotional and cognitive components (Cuff *et al* 2016). One important component of cognitive empathy is perspective taking, where the person is able to distinguish between the emotions of self and others (Decety and Hodges 2006). Identifying and managing emotions in the self and others is a component of emotional intelligence, where the person is clear about their own and other people's feelings and emotions (Petrides 2009). Emotional intelligence is manifested in traits such as empathy and optimism (Petrides and Furnham 2000) which clearly locates empathy in the construct of tEI.

In the conceptual framework of the current study (Figure 3.4) it is proposed that HCPs will be motivated to relieve the distress of the patient with cancer, but those cancer HCPs with higher levels of tEI will be able to distinguish between their own and other's emotions, and will be able to manage these emotions in the self and other. These higher tEI levels will enable the HCP to engage in perspective taking (cognitive empathy) and thus lead to higher levels of CS. It is also proposed that people with lower levels of tEI will be less able to distinguish between their own emotions and the emotions of others, and will be less able to manage distressing emotions. This will lead to engaging in more emotional empathy and particularly resulting in personal distress, leading to CF. The conceptual framework used in this current research will provide an understanding of the theoretical relationships between the study constructs. Currently there is no conceptual framework illustrating these relationships, thus the current study has the potential to add to the current body of knowledge about the professional quality of life of cancer HCPs.

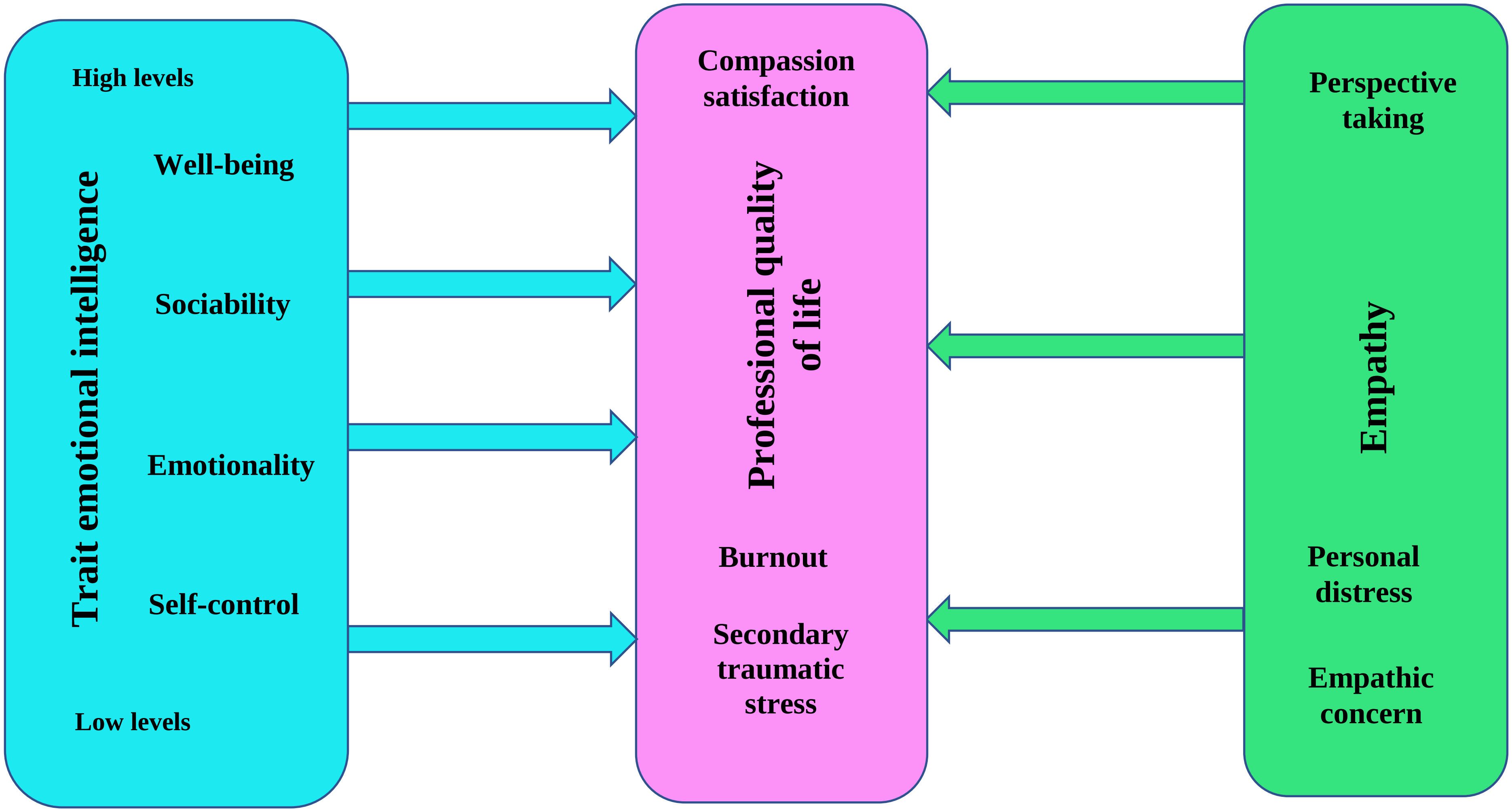


Figure 3. 4: Conceptual framework adapted from (Batson *et al* 2014; Figley 2005; Petrides 2002; Stamm 2010)

3.10 Research question

The results of the literature review point to a percentage of the workforce in cancer care who may be at high risk of CF that may be influenced by the emotional nature of the work, particularly the employment of empathy. For empathy to be adaptive it is essential that the emotional contagion felt during the emotional empathy phase is recognised. Additionally, for empathy to be effective, cognitive empathy must be employed where the professional is able to recognise, manage, and regulate their own emotions and the emotions of others. The management of others' emotions and self-regulation of emotions is considered a component of emotional intelligence.

No studies were identified that have examined the relationship between the three constructs of professional quality of life, empathy, and emotional intelligence in cancer health care professionals in Ireland or globally. Therefore, the uniqueness of this study is that these three constructs will be examined together in a multi-professional cancer context. A further unique contribution of the current study is that the results may be able to add to the conceptual framework developed for this current study by providing further evidence as to the relationships between the components of compassion satisfaction and compassion fatigue, empathy and emotional intelligence.

The research question 'What are the relationships between professional quality of life, empathy, and emotional intelligence in health care professionals working in cancer care?' will be examined.

3.11 Chapter Summary

This literature review identified that HCPs working in cancer care experience both CS and CF. The emotional nature of cancer caring enables cancer HCPs to develop relationships with patients that are rewarding, but there are negative consequences to these relationships, which can leave HCPs emotionally drained. The consequences of this emotional work can result in compassion satisfaction and compassion fatigue. Empathy is necessary for the delivery of compassionate care, and empathic care has been identified as having positive and negative effects on both patients with cancer and HCPs. Empathy is used by HCPs in cancer care work, and involves emotional and cognitive empathy. The emotional components of empathy are subconscious and cognitive empathy is a conscious process. Cognitive empathy includes the capacity to distinguish between one's own and other's emotions which is part of the concept of EI.

Emotional intelligence describes how people understand, attend to and process emotional information pertaining to themselves and others. Trait EI relates to emotion management based on personality disposition, whereas ability EI relates to a person's ability to manage emotions in the self and others. High emotional intelligence in cancer HCPs has been linked with reduced burnout and reduced occupational stress.

Currently, there are no studies in cancer care that have examined the relationship between professional quality of life, empathy and EI together. The development of this study's conceptual framework from the literature review enabled the theoretical relationships between the study constructs to be proposed. The next chapter will set out the methodological considerations used to examine this current research aims, objectives, and research question.

Chapter 4 Methodology and methods

4.0 Introduction

This chapter provides an overview of the research design, methodological approach, and the methods employed in this study. Phase I of the study used a demographic questionnaire and 3 instruments to measure study constructs and to explore relationships between the constructs. Phase II of the study used semi-structured interviews to further explain the findings of Phase I of the study.

Firstly, section 4.1 sets out the study aims, the study objectives, and study hypotheses. An overview of the research paradigms is provided in section 4.2, and the justification for the choice of research design is described in section 4.3. Section 4.4 introduces Phase 1, which was the quantitative phase. A description of the instrument selection process, the population of interest and the sample size calculation for the study are outlined in section 4.5. Section 4.6 presents the data collection procedures in Phase I. Section 4.7 provides an overview of the statistical tests chosen to analyse the data. Section 4.8 introduces Phase II, which is the qualitative phase, and section 4.9 describes the recruitment and data collection procedures used in Phase II. The Phase II data analysis procedures are described in section 4.10, and rigour as applied to Phase II is explained in section 4.11. The process of merging Phase I and Phase II is illustrated in section 4.12, and the ethical considerations of the study are explained in section 4.13. Finally, section 4.14 provides a chapter summary.

4.1 Aim of the study

The aim of this study was to examine the relationships between professional quality of life, empathy, and emotional intelligence in cancer health care professionals, and to explain the nature of such relationships.

4.1.1 Objectives of the study

The objectives of this study were to:

- Measure and determine levels of compassion satisfaction and compassion fatigue in cancer health care professionals.
- Examine the correlations between demographic variables and professional quality of life in cancer health care professionals.
- Examine the correlations between professional quality of life, empathy and trait emotional intelligence.
- Compare levels of professional quality of life, empathy, and trait emotional intelligence between professionals working in cancer care.
- Explore cancer health care professional's understanding of and relationships between professional quality of life, empathy and trait emotional intelligence.
- Explain the findings of the quantitative analysis through the qualitative interviews.

There were five hypotheses tested in this study (Figure 4.1)

H1 Compassion satisfaction will be negatively correlated with and compassion fatigue will be positively correlated with emotional empathy

H2 Compassion satisfaction will be positively correlated with and compassion fatigue will be negatively correlated with cognitive empathy

H3 Compassion satisfaction will be positively correlated with and compassion fatigue will be negatively correlated with high levels of tEI

H4 Radiation therapists will have lower levels of compassion satisfaction and higher levels of compassion fatigue than cancer nurses and oncologists

H5 High levels of tEI and cognitive empathy will be predictors of higher levels of CS and lower levels of tEI and high levels of emotional empathy will be predictors of higher levels of CF

Figure 4. 1: Study hypotheses

4.2 Research paradigm and research design

Scientific enquiry requires a systematic, and rigourous approach to a research study. This rigour describes a clear decision trail taken in the pursuit of understanding the phenomena under investigation. Research paradigms, or the ways of looking at the world, are an important part of scientific study as they provide the essential philosophical frameworks by which observations will be interpreted (Bowling 2002). This means that the researcher must examine, and understand the different philosophies underpinning scientific enquiry. This understanding will enable the researcher to align the philosophical framework to the aims and objectives of the study. There are several research paradigms that can guide scientific enquiry and knowledge development, each with its own distinct strengths and challenges (Table 4.1).

Table 4. 1: Overview of research paradigms (Adapted from Creswell and Plano Clark 2018; Tappen 2011)

Paradigm	Characteristics	Strengths	Challenges
Positivism and Postpositivism	Observable Measurable Logical Determination Reductionist Empirical observable and measurable Theory testing	Can determine cause and effect relationships Control of extraneous factors Generalisability Deductive reasoning Objectivity	Singular reality Difficult to examine meaning and personal experiences of phenomena
Constructivist	Understanding Multiple participant meanings Social and historical construction Theory generation	Understanding the meaning of phenomena Studies people in the real world Inductive reasoning	Subjectivity Interpretation by researcher Multiple realities
Transformative	Political and activist Empowerment, human rights, social justice orientation Collaborative Change, emancipatory orientated	Focus on need for social justice Importance on specific communities Collaborative	Subjective Limited to social justice research Multiple realities
Pragmatist	Consequences of actions Problem centred Pluralistic Real-world practice orientated	Primary importance is the research question Focus on consequences of research Uses methods that work for data collection Singular and multiple realities	Merging objective and subjective data

Positivism, and postpositivism relate to finding the truth about phenomena through objective measures (Tappen 2011). Using a philosophical approach from a positivist or postpositivist perspective, the researcher selects the variables to be examined, and determines the relationships to be explored (Creswell and Plano-Clark 2018). This type of approach is aligned with objectivity in research. Quantitative methods such as the use of questionnaires would be employed to gather data to examine phenomena from a positivist perspective. Constructivist, and transformative philosophical approaches are concerned with understanding the research phenomena through studying people in the context of their natural world (Tappen 2011). Although there is a subjectivity to the researcher's interpretation, the analysis presents multiple realities that promotes theory generation (Creswell and Plano Clark 2018). Qualitative methods including case study analysis would be used when collecting data from constructivist and transformative approaches.

From an ontological and epistemological perspective there is a notion that combining quantitative and qualitative approaches together in research are not compatible (Glogowska 2011). However, in the social sciences, and health care in particular, the merging of both methods has occurred in recent decades (Creswell and Plano Clark 2018). It is postulated that combining both quantitative and qualitative approaches within the one study allows for a more comprehensive understanding of the phenomena (Tappen 2011). Merging both methods requires an ontological and epistemological stance that allows the researcher to view the world through a positivist and constructivist lens. Pragmatism is a philosophical world view that encompasses both.

4.2.1 Pragmatism

The philosophical lens through which this study was conducted is pragmatism. Pragmatism is a theory led approach to research rather than a theory development approach (Allmark and Machaczek 2018). Pragmatism was conceptually developed by Peirce over a century ago, and Peirce's philosophy was further developed by James and Dewey (Talisse and Aikin 2008). According to Peirce, pragmatism focuses the inquiry to provide insight into what is at issue in a particular problem (Talisse and Aikin 2008). For pragmatism, James proposed that there are different truths, and questioned 'how the world would be different if an alternative was found to be true' (Nowell 2015:p143). Dewey suggests that inquiry from a pragmatic lens enables the creation of a new object of knowledge that did not previously exist (Talisse and Aikin 2008). This means that the inquiry into the problem can be interpreted by individuals in different ways, each having their own truth. Pragmatist inquiry should provide new knowledge about the problem, or a new creation of the phenomena that can inform future observations.

In pragmatism, the human experience is central (Powell 2019), where the focus is on purposeful human activity (Allmark and Machaczek 2018). However, prior to providing a description of the understanding of the human activity, pragmatists must firstly explore the beliefs, values, visions, and interactions of the participants (Nowell 2015). If inquiry into the human experience is reductionist in nature, in that if specific elements of the experience are the focus of inquiry, then inquiry must also include the dynamic nature of the human experience in the contextual whole (Talisse and Aikin 2008). The inquiry, being focused on the contextual nature of the human experience, requires the researcher to employ methods that will answer the research question (Creswell and Plano Clark 2018). Pragmatism is a worldview, where the research question is afforded the most importance, and this focus on the research question allows the researcher flexibility to use 'what works' both from qualitative and quantitative approaches (Creswell and Plano Clark 2018).

In this study, the nature of the research question posed, and how this question could be answered required the researcher to establish three things. Firstly, that the study phenomena exist, secondly that relationships exist between the phenomena, and thirdly to then understand those phenomena, and the nature of the relationships between the phenomena in the human context. Ontology is the study of the nature of what exists (Porter 2000), so the ontological question of establishing that what exists could be achieved through a quantitative approach. However, the reductionist nature of the positivist perspective alone would not provide different kinds of truth. In particular, the truths of outliers who may be omitted from the quantitative analysis by virtue of skewing the data. This means the many truths of the humans experiencing the phenomena could potentially be lost from the study.

To further understand and explain the different truths of the phenomena a qualitative approach would be required. Combining both quantitative and qualitative approaches requires an organising framework that will enhance the findings of both individual methodologies, and provide a means through which merging and interpretation of both methods could be achieved. A mixed methods approach would provide such a framework.

Therefore, for the purposes of this study an explanatory sequential mixed methods design was adopted.

4.3 Research design

An explanatory sequential mixed methods design was chosen for this current study as it would enable the researcher to answer the aims and objectives of the study.

4.3.1 Mixed methods research design

There are distinct advantages of using a mixed methods design. There is a clear structure and process for the researcher to follow, that allows for the integration of both quantitative and qualitative data (Creswell and Plano Clark 2018). This has been strengthened by the standardisation and development of the language in mixed methods terminology (Fetters and Molina-Azorin 2017). Integration of quantitative and qualitative data in a logical and structured way can provide a deeper understanding of the research question.

There are criticisms of mixed methods designs, and these often arise from the difference in the philosophical position of quantitative and qualitative approaches (Tappen 2011). However, it is argued that mixed methods studies can be approached from either a realist or pragmatic lens (Allmark and Machaczek 2018). This suggests that when designing a mixed methods study to answer the research question, the researcher needs to be clear about how their philosophical position guides the study.

Mixed methods research design allows the researcher to integrate qualitative and quantitative approaches (Guest *et al* 2012). There are three core designs in mixed methods research (Table 4.2); the convergent design, the explanatory sequential design, and the exploratory sequential design (Cresswell and Plano Clark 2018). Within these designs, Cresswell and Plano Clark (2018) describe two approaches; fixed and emergent. These authors describe how fixed approaches have pre-determined quantitative and qualitative phases, whereas emergent approaches plan Phase II during Phase I due to issues arising during the collection of Phase I data.

Table 4. 2: Types of mixed methods research design (Cresswell and Plano Clark 2018)

Design	Explanation
Convergent	Collect quantitative and qualitative date simultaneously, and analyse by combining the two databases.
Explanatory sequential	Two distinct phases. Phase I collects and analyses quantitative data. Phase II collects qualitative data to explain the results of phase I.
Exploratory sequential	Two distinct phases. Phase I collects and analyses qualitative data. Phase II involves designing a quantitative data feature based on the qualitative results.

4.3.2 Justification for using an explanatory sequential mixed methods design

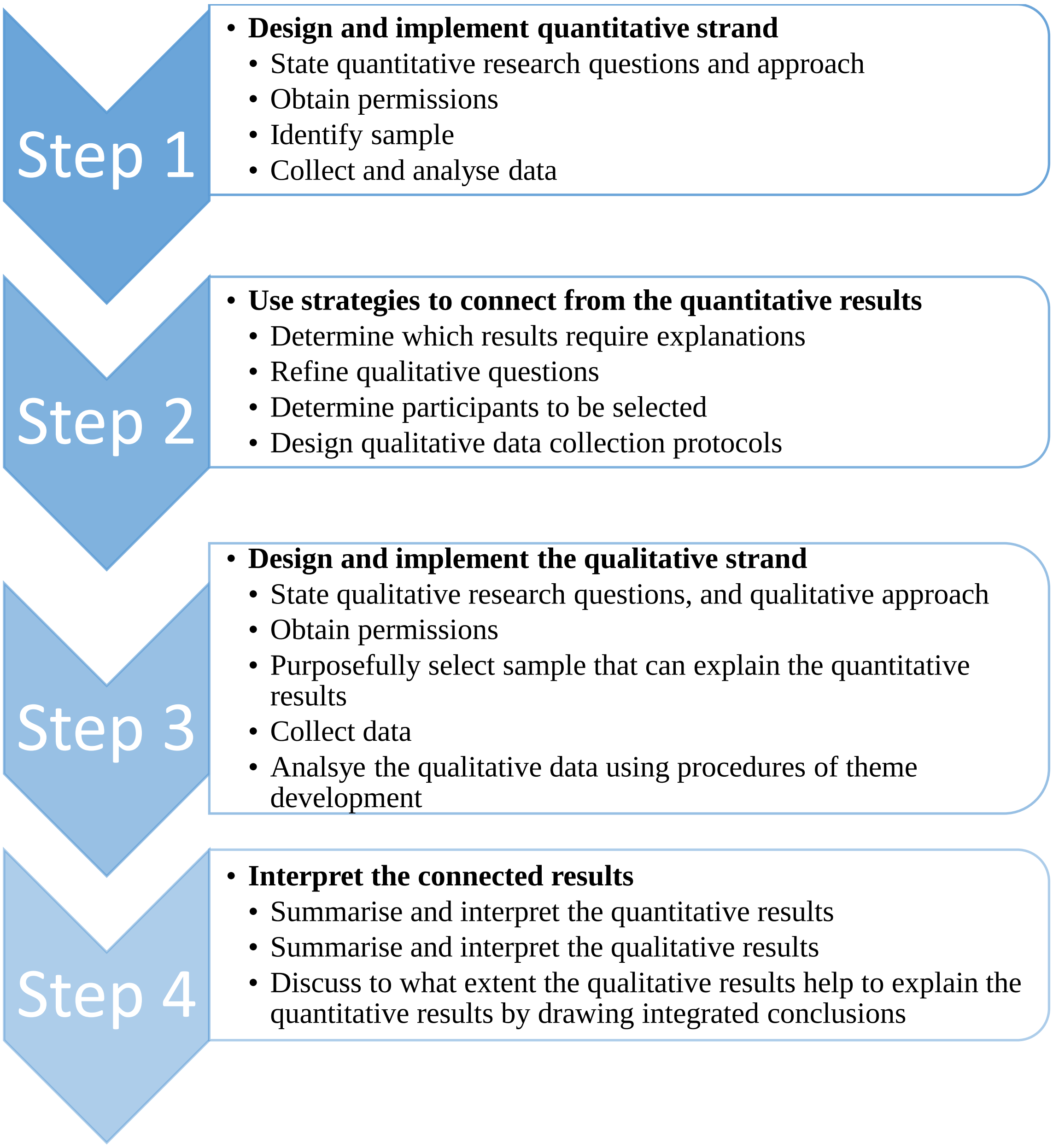
This study used an explanatory sequential mixed methods design to answer the aims and objectives of this study, and consisted of two phases. A quantitative, descriptive, cross-sectional design in Phase I, and a qualitative design in Phase II. The mixed method design chosen provided the vehicle to establish that the study phenomena exist and have relationships with each other in the quantitative phase. The qualitative phase enabled further exploration of the nature of these relationships in the clinical context of cancer care.

4.3.3 Application of the mixed methods design to the current study

A flowchart of the procedures used when implementing an explanatory sequential mixed methods design is useful in demonstrating how the quantitative and qualitative phases connected (Creswell and Plano Clark 2018). The flowchart used to guide this current study is outlined in Figure 4.2.

4.3.4 Quantitative phase

In Phase I of this explanatory mixed methods study, a cross-sectional design was used. This design enabled the researcher to answer the research questions relating to establishing that the study concepts existed in the population, and it established the relationships between the study concepts. The advantages of this type of design are that it provides an opportunity to describe and infer relationships between data (Polit and Hungler 1995). This allows the researcher to synthesise the findings of the relationships in the context of existing theory and evidence. The strength of this synthesis is that it provides new perspectives on the inter-relationships between constructs, and new insights into current knowledge. Another distinct advantage of this type of study design is that it can provide descriptive statistics such as the incidence of phenomena (Polit and Hungler 1995), so for example in this study the levels of CS and CF in a sub sample of health care professionals working in cancer care in the Republic of Ireland. Completion of the quantitative phase allows the researcher to determine the results that need to be explained in the qualitative phase (Creswell and Plano Clark 2018).



- **Design and implement quantitative strand**
  - State quantitative research questions and approach
  - Obtain permissions
  - Identify sample
  - Collect and analyse data

- **Use strategies to connect from the quantitative results**
  - Determine which results require explanations
  - Refine qualitative questions
  - Determine participants to be selected
  - Design qualitative data collection protocols

- **Design and implement the qualitative strand**
  - State qualitative research questions, and qualitative approach
  - Obtain permissions
  - Purposefully select sample that can explain the quantitative results
  - Collect data
  - Analsye the qualitative data using procedures of theme development

- **Interpret the connected results**
  - Summarise and interpret the quantitative results
  - Summarise and interpret the qualitative results
  - Discuss to what extent the qualitative results help to explain the quantitative results by drawing integrated conclusions

Figure 4. 2: Flowchart of procedures used when implementing an Explanatory Sequential Mixed Methods Design (Creswell & Plano Clark 2018).

4.3.5 Qualitative phase

The qualitative phase of an explanatory sequential mixed methods study allows the researcher to design a semi-structured interview schedule that will seek to explain the findings of the quantitative phase (Creswell and Plano Clark 2018). Additionally, in the qualitative phase the researcher is able to determine the participants who are most likely to provide answers to explain the findings. However, it is not always possible to recruit participants from the quantitative pool of participants, so purposeful selection can be employed to represent different groups, and people outside of the norm (Creswell and Plano Clark 2018).

4.3.6 Integration of the quantitative and qualitative phases

There are two parts to integrating quantitative and qualitative data in explanatory sequential mixed methods studies (Creswell and Plano Clark 2018). The first part relates to the development of the qualitative phase and semi-structured interview schedule, which is based on the quantitative results (Tappen 2011). It is essential that the results of Phase I are connected to Phase II data collection. During the second part, the researcher integrates the two sets of results, and this integration enables conclusions to be drawn about how the qualitative results support the findings of the quantitative results (Creswell and Plano Clark 2018; Tappen 2011).

4.3.7 Mixed methods: progression of the current study

It is important to provide a visual overview of the study progression in mixed methods studies, so it is clear how the phases of the study combine (Creswell and Plano Clark 2018). Table 4.3 outlines the aims, the population, the data collection processes, and type of analysis used in Phase I and Phase II of the current study.

Table 4. 3: Overview of study progression

	Phase I	**Phase II**
Aim	To examine the relationship between professional quality of life, empathy and emotional intelligence.	To examine cancer HCPs understanding of the relationships between professional quality of life, empathy and emotional intelligence, and to explore participant experiences of these constructs.
Study population	Cancer HCPs working in the Republic of Ireland	Cancer HCPs working in the Southeast of Ireland
Data collection	Demographic data Three instruments	Demographic data Semi-structured interview schedule
Analysis	Descriptive and inferential statistics	Interpretative phenomenological analysis

4.4 Phase I: quantitative phase

Quantitative research focuses on measurement and quantification of data (Porter 2000). The outcomes of quantitative research are dependent on the use of instruments to measure phenomena, and the use of descriptive and inferential statistics during analysis of the data (Creswell and Plano Clark 2018). The aim of quantitative methods traditionally sought to be objective and value-free (Porter 2000) providing an objective measure of phenomena (Tappen 2011). However, in this study the quantitative phase sought to provide insights into the relationship between the study constructs that could be explained further through the qualitative phase.

4.4.1 Population: Phase I

The population of interest are nurses, radiation therapists, and physicians working 100% of their clinical time in cancer care in the Republic of Ireland. The study established inclusion and exclusion criteria for the recruitment of participants from the population of interest (Table 4.4). Participants had to be a registered professional and work 100% of their clinical contact time in cancer care.

Table 4. 4: Study inclusion and exclusion criteria: Phase I and Phase II

Inclusion criteria	Exclusion criteria
Nurses registered with the Nursing and Midwifery Board of Ireland	HCPs other than nurses, doctors and radiation therapists
Doctors registered with the Irish Medical Council	Doctors, nurses and radiation therapists who are not caring for patients with cancer
Radiation therapists who are registered or in the process of registering with the Health and Social Care Professionals Council	
Doctors, nurses and radiation therapists whose work includes caring for adult patients with cancer 100% of their clinical contact time	

4.4.2 Sampling: Phase I

Non-probability convenience sampling was used for Phase I of the study. Although probability sampling would have enabled generalisability of the findings (Tappen 2011), for this study it was not possible to determine the full sampling frame. This was because there is no register of health care professionals working in cancer care in the Republic of Ireland. When probability sampling is not possible, non-probability sampling is used. Non-probability sampling is often used in nursing disciplines (Polit and Hungler 1995), but has a disadvantage in that generalisability of the results is not possible (Gomm 2008). Convenience sampling accesses the most convenient population who meet the inclusion criteria (Gomm 2008), but again this type of sampling is open to generalizability bias (Tappen 2011). However, Polit and Hungler (1995) argue that in using an homogenous sample, the risks of bias may be minimal. The population of interest in this study could be viewed as homogenous as the target population are HCPs working 100% of their clinical time in cancer care.

4.4.3 Study power and sample size: Phase I

Calculating a suitable sample size is an important consideration in quantitative research, and should be clearly reported (Tappen 2011). An *a priori* sample size calculation is essential to ensure that sufficient participants are recruited to establish statistically significant findings in correlational studies, and to reduce Type I and Type II errors. Type I errors relate to when the researcher incorrectly rejects a true null hypothesis, and Type II errors are considered the biggest concern for researchers as failing to reject the null hypothesis when it is false results in rejecting a true hypothesis (Bowling 2002).

In this study, a power analysis was conducted using G*Power 3.1 for two-tailed correlation studies, and an estimated medium effect size of 0.30, a significance level of 0.05, and a power of 0.80. A minimal sample size of 85 was projected to reduce the possibility of Type II error. A second sample size was determined for a hierarchical multiple regression model with 9 independent variables. The model formula $n = \geq 50 + (8 \text{ x } m)$ is often used in determining the sample size for multiple regression analysis, where m is the number of predictor variables (Wilson Van Voorhis and Morgan 2007). The predictor variables used in this study were 4 tEI factors, 3 empathy subscales, with the remaining two variables allocated to demographic details. Global tEI was not included in the calculation due to the possibility of multicollinearity with the tEI subscales. Using the Wilson VanVooris and Morgan (2007) model a sample size of 122 was required.

4.4.4 Target population: Phase I

There are nine cancer centres in the Republic of Ireland, and recruitment took place in eight of these centres (Figure 4.3). The Mater Misericordiae Hospital was not directly included in recruiting for phase I as ethical approval was not obtained within the study timeframe. However, staff from this hospital may have participated in this study by invitations e-mailed to them by their professional groups. Treatment at the cancer centres is provided by both public and private sectors, meaning that staff can either be employed by the public health service executive (HSE) or by private health care providers.

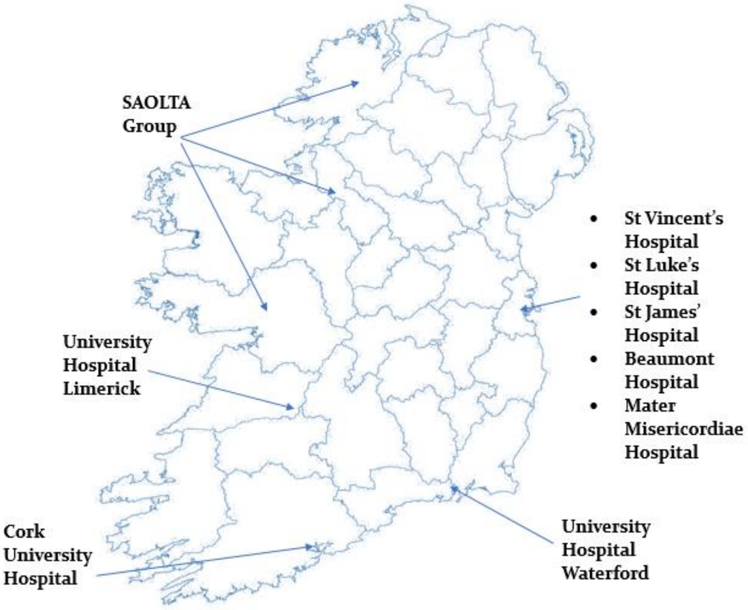


Figure 4. 3: Cancer centres in the Republic of Ireland

4.5 Instrument selection: Phase I

The selection of instruments used in a study should collect data that will answer the research questions. A number of instruments relating to each of this study's concepts, and this study's conceptual framework were identified.

4.5.1 Professional quality of life instrument selection

Only one instrument was identified that measures professional quality of life. This was the Professional Quality of Life Scale (ProQOL; Stamm 2010). The ProQOL has undergone several refinements, and the current version is the ProQOL V (Appendix II). The instrument comprises 30 statements divided into 3 subscales. Each subscale consists of 10 items. The first subscale measures the satisfaction a HCP feels when engaging in the compassionate care of others (compassion satisfaction). The second and third subscales encompass compassion fatigue, which is measured by two distinct items; secondary traumatic stress, and burnout. The ProQOL-V uses a Likert scale of 1 – 5 (1 = never, to 5 = very often), asking participants how they would score each statement that reflects how frequently they experienced these statements in the last 30 days. Participants chose a number from the Likert scale to answer each statement. Stamm (2010) provides cut scores for the ProQOL-V that provides a score for low, average, and high for each subscale (Table 4.5), but suggest that the ProQOL-V is best analysed in its continuous form. Given the paucity of instruments measuring the positive and negative aspects of professional caring, the ProQOL-V was chosen as the measure of professional quality of life in this study.

Table 4. 5: ProQOL cut scores Stamm (2010)

Level	**Compassion satisfaction**	**Burnout score**	**Secondary traumatic stress**
High	57 or above	56 or more	56 or more
Average	50	50	50
Low	44 or less	43 or less	42 or less

4.5.2 Empathy instrument selection

There are a number of instruments used to measure empathy in health care professionals (Davis 1983; Hojat and Gonnella 2017; Reynolds 2000; Yu and Kirk 2009). Several of these instruments have been developed for the measurement of empathy in a specific profession. Empathy scales such as the Reynolds Empathy Scale has been developed specifically for nurses, and the Jefferson Scale of Physician Empathy was originally developed for physicians (Yu and Kirk 2009). The Jefferson Scale of Empathy (JSE) currently has three versions; The JSE-health profession version, JSE-health profession student version, and the JSE-medical student version. However, the JSE’s focus is on cognitive empathy, and does not provide a specific measure of emotional empathy (Hojat *et al* 2002; Hojat and Gonnella 2017). Other empathy instruments provide a measure of only emotional empathy, for example, The Toronto Empathy Questionnaire (Neumann *et al* 2015).

This study aimed to measure both the emotional, and cognitive aspects of empathy. Three self-report instruments were identified as measuring emotional and cognitive empathy; The Interpersonal Reactivity Index (IRI), The Empathy Construct Rating Scale, and The Questionnaire of Cognitive and Affective Empathy. The IRI is a multidimensional self-report measure of empathy, composed of 28 items (Davis 1983). The IRI is a measure of empathy that taps into four aspects of the global concept of empathy, however, the IRI does not give a global empathy score (Davis 1983). It measures empathy in four 7-item subscales; the subscale of perspective taking measures cognitive empathy, and the three subscales (empathic concern, personal distress, and fantasy) measure emotional empathy. The items on the IRI use a 5-point Likert scale from 1 (does not describe me well) to 5 (describes me very well). The IRI has been reported as having moderate reliability and validity (Davis 1983; Yu and Kirk 2009).

The second self-report instrument measuring emotional and cognitive empathy is The Empathy Construct Rating Scale. This is an eighty-four-item, 6-point Likert scale developed for nurses (Yu and Kirk 2009). Although The Empathy Construct Rating Scale has demonstrated reasonable validity, reliability has not been widely reported (Yu and Kirk 2009). This instrument was designed for a single profession rather than multiple professions, and this coupled with its length did not make it a suitable measurement for this current study.

The third instrument examined was The Questionnaire of Cognitive and Affective Empathy. This is a 31 item, 5 factor measure of empathy which has demonstrated validity and reliability, however incremental and convergent validity of the instrument need to be investigated further (Reniers *et al* 2011). One limitation of this instrument is that test-retest reliability coefficients have not yet been determined (Neumann *et al* 2015).

Baldner and McGinley (2014) recommend that researchers need to choose a self-report empathy measure that has at least 2 subscales, and that researchers should avoid subscales that focus on fictional characters. These authors also advise against using empathy measures with personal distress subscales as it has low correlations with other component scales. However, Davis (1983) included personal distress as a subscale to reflect empathy theory, and neuroscience studies have identified personal distress in neuroimaging studies of empathy (Decety and Lamm 2009). The IRI (Appendix III) was chosen as a measure of empathy for four reasons. Firstly, it is a measure of both the cognitive and emotional aspects of empathy (Davis 1983; Pedersen 2009). Secondly, the instrument is a short 28 item questionnaire. Thirdly, the IRI is a measure of empathy that is not discipline specific. Finally, the IRI has been used in recent studies exploring empathy in health care professionals (Duarte and Pinto-Gouveia 2017a; Hayuni *et al* 2019; Kesbakhi *et al* 2017; Neumann *et al* 2012), meaning that comparisons between this study and other studies were possible.

4.5.3 Emotional intelligence instrument selection

As discussed in Chapter 2 section 2.4, there are clear differences in tEI and aEI, and measurement of these two distinct constructs requires different approaches (Cherniss 2010). This study is designed to examine the construct of trait emotional intelligence, so instruments reviewed were designed to measure this construct. There are a number of instruments available to measure tEI (Jonker and Vosloo 2004; Siegling *et al* 2015). Three instruments were identified that assess general trait emotional intelligence, and these were reviewed to identify the most appropriate measure for this study. These instruments were The Trait Emotional Intelligence Questionnaire (TEIQue), The Assessing Emotions Scale (AES), and The Trait Meta Mood Scale (TMMS).

The tEI model is based on 15 facets that were developed through a content analysis of existing models (Petrides *et al* 2008). The 15 facets provided a framework of the construct of tEI, and enabled researchers to develop the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides *et al* 2004). This questionnaire provides a measure of Global tEI, four factors (emotionality, sociability, self-control, and well-being), and 15 facets. Table 4.6 lists the 15 facets, and indicates how high scoring individuals would perceive themselves as being in emotional situations (Petrides *et al* 2008).

The TEIQue is a 153-item measure of trait emotional intelligence, consisting of an overall global trait emotional intelligence score, and four factors; emotionality, sociability, well-being, and self-control (Petrides 2009). The TEIQue use a 7-point Likert scale for each item, from 1 (disagree completely) to 7 (agree completely). The TEIQue shows strong evidence of construct, criterion, discriminant, incremental, and predictive validity (Andrei *et al* 2015; Petrides 2009). The TEIQue–short form (TEIQue-SF) is a 30 item trait emotional intelligence instrument based on the TEIQue-long form (TEIQue). The same 7-point Likert scale is used. The TEIQue-SF has been tested for validity and reliability, but there is evidence that the TEIQue-SF may not fully fit the construct of tEI (Snowden *et al* 2015).

Table 4. 6: Factors and facets of the TEIQue (Petrides 2009)

Global trait EI	
Factors	**High scorer description:**
Emotionality	In touch with their own and other people's feelings.
Sociability	Are better at social interactions, are good listeners and communicators.
Well-being	Feel positive, happy, and fulfilled.
Self-control	Have a healthy degree of control over their urges and desires.
Facets	**High scorers view themselves as:**
Adaptability	Flexible and willing to adapt to new conditions.
Assertiveness	Forthright, frank, and willing to stand up for their rights.
Emotion expression	Capable of communicating their feelings to others.
Emotion management (others)	Capable of influencing other people's feelings.
Emotion perception (self and others)	Clear about their own and other people's feelings.
Emotion regulation	Capable of controlling their emotions.
Impulsiveness (Low)	Reflective and less likely to give in to their urges.
Relationships	Capable of maintaining fulfilling personal relationships.
Self-esteem	Successful and self-confident.
Self-motivation	Driven and unlikely to give up in the face of adversity.
Social awareness	Accomplished networkers with superior social skills.
Stress management	Capable of withstanding pressure and regulating stress.
Trait empathy	Capable of taking someone else's perspective.
Trait happiness	Cheerful and satisfied with their lives.
Trait optimism	Confident and likely to 'look on the bright side' of life.

The AES is a 33 item questionnaire, using a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. This is a one factor, three category measure, with the three categories measuring; appraisal and expression of emotions in the self and others, regulation of emotion in the self and others, and utilisation of emotions in solving problems (Schutte *et al* 1998). Cronbach's alpha has been reported as 0.87 - 0.90, with test-retest reliability stable over time, and evidence of validity (Schutte *et al* 1998). The

AES provides one overall score, but there is evidence that the AES should provide separate subscale scores in addition to the overall score (Kun *et al* 2010).

The TMMS is a 48-item, self-report 3-factor (attention, clarity, and repair) questionnaire, aimed at measuring a person's tendency to attend to moods and emotions (Seigling *et al* 2015). The questionnaire uses a 5-point Likert scale, and Cronbach's alphas have been reported as between 0.64 and 0.88 (Salovey *et al* 2002). It has demonstrated good validity in most areas apart from divergent and discriminant validity (Seigling *et al* 2015). An examination of the structure of the TMMS found that although the dimensions support the strong theoretical basis for the instrument, a four-factor model may be a better fit (Palmer *et al* 2003).

The TEIQue provides a more comprehensive cover of the construct of trait emotional intelligence (Perera and DiGiacomo 2013), and it is the most used tEI measure worldwide (Siegling *et al* 2015). Therefore the TEIQue (Appendix IV) was chosen as the instrument to measure tEI in this study.

4.5.4 Validity and reliability of the study instruments: Phase I

There are several considerations to be applied when identifying an instrument to measure a construct. The reliability of an instrument relates to the ability of the instrument to reproduce similar results at another point in time, and can be calculated using Cronbach's alpha (Gomm 2008). Cronbach's alpha is a measure of internal reliability and a coefficient above 0.7 demonstrates that items within the instrument are measuring the same construct (Anthony 1999). Cronbach's alpha for the ProQOL (Stamm 2010), IRI (Davis 1983), TEIQue (2009) and the current study are presented in Table 4.7.

Establishing validity of an instrument relates to knowing the instrument measures the construct it intends to measure (Gomm 2008). Instruments used in quantitative research should be rigorously tested for validity. Construct validity is measured in two dimensions; internal validity and external validity. Internal validity is a measure of the items in the instrument, that is, are the questions being asked actually measuring the construct in question (Bowling 2002). External validity refers to the questionnaire as a whole, in that is it measuring the construct in question (Polit and Hungler 1995).

Table 4. 7: Cronbach’s alpha for the ProQOL (Stamm 2010); IRI (Davies 1983); TEIQue (Petrides 2009), and the current study

	Stamm (2010)	**Davis (1983)**	**Petrides (2009)**	**Current study**
ProQOL				
Compassion satisfaction	0.88			0.90
Burnout	0.75			0.80
Secondary traumatic stress	0.81			0.84
IRI				
Perspective taking		F = 0.75 M = 0.71		0.80
Empathic concern		F = 0.73 M = 0.68		0.80
Personal distress		F = 0.75 M = 0.77		0.72
Global trait EI			0.90	0.93
Emotionality			0.78	0.81
Sociability			0.82	0.78
Well-being			0.83	0.87
Self-control			0.79	0.82

F= female; M = male

4.5.4.1 Validity and reliability of the ProQOL-V

The validity and reliability of the ProQOL-V has been tested in a variety of health care settings, which includes cancer care (Stamm 2010). The three scales have been shown to measure separate constructs, with the shared variance between the STS and burnout dimensions reported at 34% (Stamm 2010). This shared variance is thought to reflect the distress common to both constructs, but the difference being that the STS dimension measures fear whilst the burnout dimension does not (Stamm 2010). Recently however, questions have been raised about the ability of the ProQOL V to measure the three factor structure, and in particular there are reservations relating to the burnout scale (Geoffrion *et al* 2019; Heritage *et al* 2018).

A Rasch analysis of the ProQOL-V was consistent in supporting construct validity of the CS subscale, but not the STS and burnout subscales (Heritage *et al* 2018). This in particular related to the reverse worded items on the burnout subscale, and Heritage *et al* (2018) suggest a readjustment of items on the STS and burnout subscales to form a single CF subscale. A similar finding relating to the burnout subscale was identified in an inquiry into the psychometric properties of the ProQOL-V (Hemsworth *et al* 2018). Whilst reliability, construct validity, and discriminant validity was shown across all three subscales, burnout failed to demonstrate convergent validity (Hemsworth *et al* 2018). Again, this was attributed to the reverse coded items. Although Hemsworth and colleagues (2018) suggest a revision of both the burnout and STS scale, they do conclude that the ProQOL demonstrates reasonable psychometric properties.

Similar concerns have been identified in a study of Canadian child protection workers (n=310). Geoffrion *et al* (2019) examined the construct validity of the ProQOL-V (French translation), and these findings suggest that whilst the ProQOL-V demonstrated discriminant validity, convergent validity, and acceptable reliability, it is a unidimensional instrument with three individual factor groups (CS, STS, and burnout) rather than an instrument measuring 3 separate constructs. The conclusion by Geoffrion *et al* (2019) is that the theory proposed by Stamm (2010) underpinning the ProQOL V is supported, but the instrument may reflect the general quality of life of those in the caring professions on a continuum rather than as three separate constructs. Overall, validity and reliability of the ProQOL has been demonstrated, although it is prudent that the researcher is aware of the limitations with the burnout scale.

4.5.4.2 Validity and reliability of the Interpersonal Reactivity Index

Construct validity of the IRI has been established (Davis 1983), and this measure has demonstrated moderate levels of internal consistency, and test-retest reliability, with face and content validity evaluated by a panel of experts (Yu and Kirk 2009). In terms of internal reliability, Cronbach's alpha coefficients for the subscales have been reported as above 0.70 – 0.78 (Davis 1980).

The use of the fantasy subscale has been questioned as a component of the construct of empathy. Baldner and McGinley (2014), in a correlational and factor analysis of self-report empathy scales, suggest omission of the fantasy subscale of the IRI. During the development of the IRI, Davis (1983) identified fantasy as being the subscale least grounded in theory, with it having a pattern similar (r = 0.33) to the empathic concern subscale. More recent studies of HCPs have excluded the fantasy subscale from the IRI (Duarte *et al* 2016b; Gleichgerrcht and Decety 2013; Hayuni *et al* 2019; Tei *et al* 2014). The IRI does not provide a global empathy score, therefore removing the fantasy subscale would not affect the validity of the subscale scores. The fantasy subscale was omitted from the analysis in this current study.

4.5.4.3 Validity and reliability of the Trait Emotional Intelligence Questionnaire

The TEIQue has been tested extensively for validity and reliability. Cronbach's alpha across the 4 factors is described as between 0.78 – 0.83, with Global tEI alpha of 0.90, and test-retest coefficients showed stability over time (Petrides 2009). The TEIQue shows strong evidence of construct, criterion, discriminant, incremental, and predictive validity (Andrei *et al* 2016; Petrides 2009). There is evidence from analysis of the TEIQue, and the Big-Five personality hierarchies that suggests trait EI is a distinct construct that sits at the lower end of personality hierarchies (Petrides 2009).

In summary, for phase I of the current study data was collected on the study constructs using three instruments; The Professional Quality of Life Scale, The Interpersonal Reactivity Index, and The Trait Emotional Intelligence Questionnaire. The instruments used in this study have been used extensively in research of this nature in cancer care (Arimon-Pagés *et al* 2019; Wu *et al* 2016; Yu *et al* 2016; Hooper *et al* 2010; Potter *et al* 2010; Jang *et al* 2016; McKinley *et al* 2015), which allowed for comparisons to be made between this study and other studies.

4.6 Data collection procedures: Phase I

Data collection procedures for Phase I included pilot testing the questionnaires prior to commencement of data collection. Demographic data was collected on both the personal and the professional characteristics of the participants. Data collected included, age, gender, religion, marital status, having children, working hours, shift work, years in cancer care, level of education, cancer qualification, and annual leave in the past 4 weeks (Appendix V).

4.6.1 Pilot testing of the questionnaires

Piloting questionnaires is undertaken to assess acceptability of the instrument (Murphy-Black 2000). This allows adjustments to be made to either the research instrument, or to the process by which the instrument is distributed (Gomm 2008). A pilot study of the ProQOL, IRI, and the TEIQue was undertaken.

Seven nursing lecturers within the Department of Nursing and Health Care at Waterford Institute of Technology participated in the pilot study. The purpose of this pilot study was to test the length of time required to complete each questionnaire, and to elicit feedback on the potential sensitive nature of the questions. The results of the pilot study are presented in Table 4.8.

The results indicated that the three instruments were acceptable, and qualitative feedback indicated that the questions did not elicit any undue stress in the participants. The results also indicated that the time taken to complete the questionnaires was not onerous. However, two participants indicated that the TEIQue was long. As a result of this feedback a review of the TEIQue short form was undertaken. However, this review indicated that the TEIQue short form may not fully fit with the construct of trait emotional intelligence (Snowden *et al* 2015). Following a discussion with the researcher's supervisors, no adjustments were made to the choice of the questionnaires. The information from the pilot study also assisted in developing the Phase I participant information leaflet (Appendix VI).

Table 4. 8: Pilot study results

Participant	Minutes to complete	Ease of understanding	Questionnaire length acceptable
1	17	Yes	No: TEIQue long
2	30	Yes	Yes
3	25	Yes	No: TEIQue long
4	25	Yes	Yes
5	22	Yes	Yes
6	17	Yes	Yes
7	25	Yes	Yes

4.6.2 Development of the questionnaire booklet

Following the pilot study, the demographic questions and the ProQOL, IRI and TEIQue questionnaires were uploaded onto the online survey platform Survey Monkey™ so that participants could access the questionnaires electronically. Identical information was developed into a paper questionnaire booklet, so people who wished to use the paper format of participation had the opportunity to do so. Providing different modes of access for participation in research questionnaires is posited as improving response rates (Dillman *et al* 2009).

4.6.3 Recruitment procedures

Recruitment to Phase 1 commenced in September 2015 and was completed in October 2017. Following ethical approval (section 4.13) from Waterford Institute of Technology Research Ethics Committee and from the Health Service Executive Research Ethics Committees for the study, the researcher contacted the identified gatekeeper in each of the cancer centres, and a gatekeeper in each of the professional bodies. The cancer centres were offered visits where the researcher would provide an overview of the study and would provide information on the study to the population of interest. Five cancer centres declined this offer and one gatekeeper decided not to distribute the study information in the organisation due to concerns about staff being overwhelmed. They felt staff would have access to the study through professional bodies.

The population of interest were invited to participate in the study by the gatekeepers and the researcher. Potential participants were given the option to complete the paper questionnaires booklet, or to complete the questionnaires online through Survey Monkey. The gatekeepers sent an e-mail (Appendix VII), which was prepared by the researcher, to staff who met the inclusion criteria. This e-mail included the participant information leaflet. The e-link to the questionnaires on Survey Monkey was provided at the bottom of the information leaflet, and at the end of the e-mail. A second reminder e-mail was sent to potential participants 4 weeks after the first invitation to participate in the study. The rationale for this reminder e-mail was to improve the response rate, as there is some evidence to support this strategy in increasing sample size (Willis *et al* 2013). The gatekeepers were also furnished with copies of the paper questionnaire booklet to distribute to the population of interest.

Additionally, the researcher distributed questionnaire booklets at meetings and in the cancer clinical areas at the local hospitals. Distribution of paper copies of the questionnaire booklet included the study information leaflet, and a stamped addressed envelope. The stamped addressed envelope was for participant convenience in posting the questionnaire booklet back to the researcher. Consent to Phase I of the current study was implied on completion of the questionnaires.

4.6.4 Response rates

In total 158 cancer health care professionals participated in Phase I of the study; 129 through Survey Monkey and 29 returned a paper copy of the questionnaire. It is impossible to estimate the response rates to the questionnaires as the gatekeepers were not able to provide an accurate account of the number of questionnaires distributed. This is due to internal mailing lists being used and the gatekeepers did not have details of the individuals on these mailing lists.

4.7 Statistical analysis: Phase I

Phase I data was analysed by employing statistical tests, which were run using the Statistical Package for the Social Sciences™ (SPSS) version 22.0. Data from the completed online questionnaires was downloaded from Survey Monkey and data from the paper questionnaires was entered manually into the SPSS study file. This included demographic data and the completed ProQOL, IRI and TEIQue. A Bonferroni Correction was applied to the correlation p value of 0.05 to reduce the chance of Type I error (Field 2018).

4.7.1 Data entry

During the data entry procedure into SPSS, all identifiable e-data was anonymised immediately after downloading the Survey Monkey file. This was achieved through coding variables in the e-data. All identifiable e-data was subsequently deleted from the SPSS file. Data from the completed questionnaire booklets was coded as it was entered into the SPSS study file. A code book was used to document all processes in the coding and analysis phase of the study. All data entered into the SPSS study file was double-checked by the researcher to ensure accuracy of entry.

Missing values, where possible, were completed from other information provided by the individual participants. For example, there were 8 missing values for the question about participant's profession, but these individuals had indicated their work role, therefore the individual's profession was discernible.

4.7.2 Data conversion

The ProQOL-V scores for each of the subscales were calculated according to The Precise ProQOL-V Manual (Stamm 2010). Five items on the ProQOL-V were reversed, and the sum of each subscale was computed to provide a raw score. Raw scores were converted to *z* scores, which were then converted to *t* scores using a raw score mean = 50 and a raw score standard deviation = 10. A new *t* score variable was added for each subscale.

The IRI was scored according to the manual supplied by Dr Mark Davis in a personal communication. Nine items were reversed, then the sum of each sub-scale was computed to provide a raw score. A new variable was added to the SPSS database for each subscale.

TEIQue data is computed in an excel file format by the Psychometric Lab at University College London. The TEIQue data was anonymised by the researcher and missing numerical values were inserted as 4, in accordance with the TEIQue manual (Petrides 2009). The anonymised data was transferred to an excel file before it was uploaded to the Psychometric Lab website. The website converted the study excel file into data representing the facets, and domains of the TEIQue. The researcher cross-referenced this converted data file from the Psychometric Lab with each individual participant ProQOL -V and IRI data in SPSS. To ensure accuracy of data input, all data input into SPSS was rechecked by the researcher to reduce the chance of input error.

4.7.3 Data analysis

Preliminary analysis included checking the data for errors, and screening for outliers. Screening the data is an essential part of the preparation for data analysis to identify mistakes and identify outliers who may have values well below or above other scores (Pallant 2013). Descriptive statistics in the form of percentages were computed using frequencies for categorical variables, and descriptives for continuous variables. Tests for normality are reported in Chapter 5, sections 5.3.1 and 5.4.1.

Spearman’s Rho correlation coefficient was used to explore the relationship between the continuous variables within the dataset as the tests for normality indicated violation of the assumption of normality of the data. Mann Whitney-U test was used to examine the differences between dichotomous variables and the dependent variables of compassion satisfaction, burnout and secondary traumatic stress. Kruskal-Wallis Test was used to examine differences between the three professional groups. Mann Whitney-U test was used to examine differences between groups of two professions (nurses and radiation therapists, nurses and doctors, doctors and radiation therapists) on the variables that reached statistical significance in the Kruskal-Wallis Test. A Bonferroni Correction was applied for each of the Mann Whitney-U tests to reduce the risk of Type I error. The p value of 0.05 was divided by 3 ($p < 0.017$) as there were three professional groups.

Three standard multiple regression models were run, one for each of the dependent variables. Independent variables that had reached a statistically significant correlation with each of the dependent variables were entered into a standard multiple regression model to determine the effects of independent variables on compassion satisfaction, burnout and secondary traumatic stress. The demographic variable of having children was converted to a dummy variable before being entered in the regression models. Three hierarchical multiple regression models were run, one for each of the dependent variables, to determine which of the independent variables were predictors of the dependent variables. Independent variables that reached statistical significance in the standard multiple regression analysis were subsequently entered into the three hierarchical multiple regression models.

4.8 Phase II: qualitative phase

Qualitative methods employed in this study aimed to explain the quantitative findings of Phase I. Tappen (2011) states that the results of the quantitative phase should inform the development of the qualitative phase in explanatory sequential mixed methods research. The researcher needs to decide which of the quantitative results should be examined in more detail (Creswell and Plano Clark 2018). Specifically, Creswell and Plano Clark (2018) suggest that any results of the quantitative phase that are unclear or unexpected should be investigated further in the qualitative phase. An overview of the decision process of the qualitative phase of the explanatory sequential design is presented in Table 4.9.

Table 4. 9: Explanatory Sequential Design data collection: Phase II decision process

Process (Creswell & Plano Clark 2018)	Phase II process
Decide whether to use the same sample as Phase I	Decision to use purposeful intensity sampling. Some of the participants may have participated in Phase I. Question in the semi-structured interview schedule asking about participation in Phase I.
Decide on the size of the sample	Decision to recruit 12 participants from a pool of doctors, nurses, and radiation therapists
Decide what quantitative results require explanation	Decision to ask questions about the study constructs and the study relationships identified in Phase I.
Decide how to select the best participants for the qualitative phase	Decision to use purposeful intensity sampling. Decision to use the same inclusion and exclusion criteria as Phase I. Decision to add maximal variation sampling to identify participants to explore more varied view of study phenomena.
Decide how to describe the emerging qualitative phase for ethical approval	Decision to apply for ethical approval in one cancer centre only.

Creswell and Plano Clark (2018) suggest that when planning the qualitative phase ideally the researcher should aim to include the participants from the quantitative phase, but if this is not possible a decision has to be made by the researcher to recruit a sample outside of the quantitative sample. In this study the qualitative sample was recruited from a local sample, of which some people had participated in the quantitative phase of the study, but most participants had not. There are three reasons for the decision to recruit from inside and outside the Phase I sample. Firstly, Phase I participants had the option to participate anonymously, thus reducing the number of participants who supplied contact details. Secondly, the time required to obtain ethics approval from the cancer centres in Ireland for Phase II of the study would have been in the region of 18 months, and realistically this was too long to wait for access to participants. Thirdly, local ethics committee approval for Phase II would not only provide access to some of the Phase I participants but also would provide access to all three professional groups.

4.8.1 Sample and sampling method: Phase II

Ideally probability sampling should be used in qualitative research. However, probability sampling means that all potential participants have an equal opportunity to participate (Tappen 2011). In this current study there was no means to ensure that all potential participants had equal opportunity to participate as the researcher was relying on gatekeepers for access to participants. A non-probability mixed purposive sampling method was used for Phase II, which combines two sampling methods. Firstly, this involved using a non-probability purposive intensity sampling approach, with a purposeful maximum variation sampling method added. The rationale for a mixed approach to sampling was to ensure wide-ranging views on the study results from Phase I were obtained.

Non-probability purposive intensity sampling enables the researcher to recruit people who can provide rich descriptions of the phenomena, but this type of sampling does not provide extremes of the phenomena (Patton 2002 cited by Benoot *et al* 2016; Suri 2011). However, as the interviews unfolded it was apparent that the participants who were both radiation therapists and nurses from the radiation therapy department in the private sector were providing similar rich descriptions, which fitted with this sampling method. The first interview with a nurse from the public sector identified that there was a cohort of nurses who may have experiences of the study phenomena that were outside of the rich descriptions provided so far, but would help to answer some of the questions arising from the quantitative results.

In order to obtain a holistic view of the phenomena, and not miss out on the more extreme views, it was important that a different sampling approach was used in the study going forward. The sampling approach taken from this point was purposeful maximum variation sampling. Purposeful maximum variation sampling allows the researcher to identify potential participants that would hold varied perspectives of the study phenomena (Creswell and Plano Clark 2018). By using this sampling method, participants were identified that would be able to provide views on the more extreme areas of the phenomena of the study. Recruitment using this strategy allowed the researcher to locate participants outside of the radiation therapy department.

4.8.2 Advantages and disadvantages of a non-probability mixed purposive sampling method

Using a non-probability mixed purposive sampling method gives an advantage over a single sampling method. One advantage is that by combining two sampling methods a better substantiation for the phenomena can be provided (Benoot *et al* 2016). Using a non-probability purposive intensity sampling method ensures that the researcher is guaranteed a sample who can provide information about the study phenomena without extreme views (Benoot *et al* 2016). This allows the researcher to develop an understanding of the key elements of the phenomena. Purposeful maximum variation sampling allows the researcher to explore more varied views of the phenomena (Creswell and Plano Clark 2018). Thus purposeful maximum variation sampling added depth and complexity to the understanding of the phenomena beyond purposive intensity sampling. This depth and complexity of understanding was important in this mixed methods study, as it enabled the researcher to identify participants that could help to explain the unusual and non-significant results from the quantitative phase.

There are disadvantages in using non-probability sampling. Participants are in some way selected to be invited to participate in the study, thus reducing the possibility of the participants being representative of the population of interest. Additionally, due to the nature of purposive intensity sampling, this approach has the potential to miss unusual cases or extreme views. A mixed purposive sampling method can help overcome this disadvantage (Benoot *et al* 2016). However, using maximum variation sampling also has a disadvantage, in that the researcher has to identify those cases that are unusual or varied (Creswell and Plano Clark 2018), indicating that it may take an extended time to identify and recruit potential participants.

4.8.3 Inclusion and exclusion criteria

This study used the same inclusion and exclusion criteria as Phase I (Table 4.4). The decision for using the same criteria was to identify participants who could explain the study phenomena and the Phase I results.

4.8.4 Sample size: Phase II

The sample size for this phase was determined from the literature on qualitative sample sizes. Smith *et al* (2009) suggest that sample sizes of up to 6-10 participants should be used in PhD studies as a larger number of participants can produce overwhelming amounts of data. This current study recruited a total of 12 participants for Phase II. This allowed the researcher to recruit 6 participants from the nursing and radiation therapy professions.

4.9 Recruitment and Data collection procedure: Phase II

Ethical approval for Phase II of the study is described in section 4.13. Recruitment for Phase II of this current study was confined to the South-East of Ireland only. The sample for Phase II of the study was drawn from one cancer centre that included a public hospital and a private radiation therapy facility that provides radiotherapy to private and public patients.

4.9.1 Recruitment procedure

The gatekeepers invited the population of interest to participate in Phase II of the study via e-mail. Study information leaflets (Appendix VIII) were distributed by e-mail and in paper copies by the gatekeepers. The researcher was given access to the population of interest by the gatekeepers. The researcher visited the cancer clinical areas to provide an overview of the study, distribute the study information leaflet, and recruit directly to Phase II. A reminder e-mail was sent by the gatekeeper (on the request of the researcher) to participants 2 weeks after the initial invitation. Recruitment commenced in December 2018 and was completed in May 2019. In the first 8 weeks of recruitment a total of 9 participants were interviewed. Unfortunately, this phase of the study recruited nurses and radiation therapists only. A further e-mail was sent to oncologists working in cancer care inviting them to participate but this failed to recruit any oncologists.

Preliminary analysis of the data from the first nine participants identified that some of the quantitative results could not be answered by those who had already participated. The quantitative results could be further explained by recruiting nurses who were older than the current participants, and who worked in the public sector. It was at this point the researcher reviewed the sampling method, and employed maximal variation sampling. The gatekeepers were instrumental in identifying participants who may be able to provide in depth descriptions of the more varied aspects of the study phenomena. An additional three participants were interviewed following an intense recruitment period. Using the maximum variation sampling method slowed recruitment of participants considerably, and it took an additional 14 weeks to recruit these 3 participants.

4.9.2 The qualitative research interview

Qualitative research interviews have strengths and limitations. Kvale (1996: p42) equates qualitative research interviews as being ‘a construction site of knowledge’ that allows for the development and clarification of knowledge. Research interviews generate data about people’s experiences, opinions and perceptions of phenomena, and collects participant biographical details (Pontin 2000). The advantages of using an interview to capture data is that an interview allows the researcher to record the participant experience in the participant’s own words (Tappen 2011). However, there are limitations to using interviews in research. These limitations include the fact that data collection is time consuming, and that data does not provide information about the research phenomena *per se*, but provides data that is the interviewees perception of the phenomena (Pontin 2000). This current study was interested in both participant understanding of the relationships between the study phenomena, and their experiences of the phenomena. In an explanatory sequential mixed methods research design a study interview schedule is required (Creswell and Plano Clark 2018).

4.9.3 Benefits of a semi-structured interview schedule

Interview schedules are an essential component of mixed methods studies. Semi-structured interview schedules allow the same information to be gathered from each research participant (Pontin 2000), whilst allowing the researcher to seek clarification or probe for more information from the interviewee (Tappen 2011). In explanatory sequential mixed method studies the quantitative results should inform the interview guide as this allows the researcher to explain both statistically significant results and non-statistically significant results (Creswell and Plano-Clark 2018). In doing this the aims and objectives of the study will be met.

4.9.4 Development of the semi-structured interview schedule

The results of Phase I of this current study informed the development of the semi-structured interview schedule (Appendix IX). Creswell and Plano Clark (2013) suggest that the personal experiences of participants in the qualitative interviews will shed light onto the quantitative results. With this in mind, the questions were developed to allow the interviewee to feel comfortable in the first instance, with more probing questions asked as the interview progressed. Smith *et al* (2009) suggest this strategy when developing an interview schedule. Key findings from the quantitative analysis in Phase I were specifically explored. Specific questions were developed to explore the participant’s understanding of the relationships between the study constructs. As a way of illustration as to how the questions were developed, the following examples highlight the connection between the results of Phase I and the development of the interview schedule for Phase II.

The quantitative analysis identified correlations between personal distress and all components of professional quality of life and tEI, and years in cancer care correlated with STS. To examine these Phase I results, one question was developed asking about the personal distress felt by the participants when caring for patients, and exploring how this affected their personal and professional quality of life. A second question was developed asking if the participant had noticed any changes in CS or CF over the years of clinical practice. Additionally, in line with Smith *et al* (2009) suggestions of questions for interview, the schedule questions were reviewed to include descriptive and narrative questions, and remove over-empathic, leading and closed questions. Prompts and probes were identified that could be used to clarify details that may arise from the questions.

4.9.5 Pilot testing the semi-structured interview schedule

Interview schedules should be pilot tested to assess the clarity of the questions, and to identify questions that may be open to different interpretation (Tappen 2011). A decision was made not to pilot test the interview schedule with the population of interest, as this would decrease the pool of potential participants. Instead, it was decided to peer review the interview schedule for feedback on the questions. This was for two reasons; to ensure the questions reflected the results of Phase I, and for feedback on the feasibility of the number of questions. The first interview schedule developed consisted of 34 questions, and was circulated to the researcher's academic supervisors for a critique of the questions. The final interview schedule was refined to include 16 open ended questions, and 3 closed questions.

4.9.6 Data collection

Once a potential participant had indicated interest in being interviewed, the researcher sent the interview schedule by email along with the Phase II study consent form (Appendix X), and Phase II study information leaflet. A follow up email was sent within two weeks if there was no response from the first email.

Interviews were held in a place chosen by the interviewee and at a time of their choice. Immediately prior to commencement of the interview the participant was asked if they had read the study information leaflet, and if they indicated that they had, they were asked if they had any questions. All participants had read the study information leaflet prior to attending the interview. Questions were answered prior to the consent process. The consent form was given to the participant to read prior to the start of the interview, and any outstanding questions were answered. Once the consent form was signed, and the participant was comfortable to begin, the interview commenced. Interviews were audio recorded and transcribed verbatim by the researcher.

4.10 Data analysis: Phase II

All participant identifiable data was pseudonymised and coded. Only the researcher had the key to the codes. All non-participant data that was disclosed by participants during the interviews was anonymised on the transcripts, and audio recordings. All audio recordings were deleted once analysis was completed. To assist with the storage and management of the data generated by the interviews, the computer-assisted qualitative data analysis software package NVivo-12™ was used. NVivo was designed and developed to assist researchers in undertaking analysis of the data, and it provides a package that supports a wide range of methodological approaches (Bazeley and Jackson 2013). When using a computer-assisted software package for qualitative data, Paulus *et al* (2017) advise that a rigorous, and explicit process is provided by the researcher, so that the judgements and decisions used by the researcher about the data are clear. The process used to analyse the qualitative data should be explicit throughout the data analysis section. In this current study, data was analysed through an interpretative phenomenological lens. Interpretative phenomenological analysis (IPA) has its roots in phenomenology (Smith *et al* 2009). IPA has three main theoretical perspectives; phenomenology, hermeneutics, and idiography (Smith *et al* 2009).

4.10.1 Phenomenology and IPA

The main philosophers of the phenomenological movement were Edmund Husserl, Martin Heidegger and Maurice Merleau-Ponty. Phenomenology encompasses the description of phenomena as consciously experienced by the individual (Tappen, 2011). Husserl's transcendental phenomenology requires the enquirer to consciously undertake a series of eidetic reductions, or conscious reflections, that leads the enquirer to uncover the core of the experience (Smith *et al* 2009). Fundamental to Husserl's transcendental phenomenology is the notion of bracketing (Beck 1994), where the enquirer purifies any previous experience or thoughts about the phenomena under investigation (Cerbone

2006). However, the notion of bracketing has been criticized in that it is difficult to accomplish. Indeed, Smith *et al* (2009) describe the ongoing criticism of bracketing and eidetic reduction in that there is no clear process provided by Husserl as to how to achieve these. Nevertheless, bracketing is an important part of the IPA process (Smith *et al* 2009). However, the way in which Smith *et al* (2009) describe IPA bracketing is more in line with Heideggerian existential phenomenology in that 'fore-understanding and fore-structure' of the enquirer is necessary. This means that the enquirer understands and acknowledges their own preconceptions as they move through the interpretation of the texts.

Heidegger was concerned with the ontological question of what it means to be a person (Walters 1995), which is understood through his description of '*Being'* and '*Dasein'* (Being-in-the-world: Heidegger 1962). According to Heidegger (1962), experiences are understood in light of the background of the person and their previous experiences in the world. This means that the person and their experiences cannot be separated. Indeed, Merleau-Ponty suggests that we cannot share another's experience but we see it from 'a position of difference' (Smith *et al* 2009: p19). Intertwined with 'the position of difference' is the notion from Sartre that our experiences are interpreted using the presence or absence of other personal and social relationships (Smith *et al* 2009). So prior to the interpretation of a person in the world the enquirer not only understands their own preconceptions throughout, but also knows that they are interpreting the other person's world, and the relationships in that world from this position of difference.

4.10.2 Hermeneutics and IPA

Hermeneutics, the theory of interpretation, is the second theoretical perspective of IPA. Schleiermacher identified that interpretation involved not only identifying the exact meaning of the text, but also includes the interpretation of the enquirer (Smith *et al* 2009). For Heidegger, phenomenology involved the hidden meaning of the text making an appearance to the enquirer as interpretation developed (Smith *et al* 2009). In order to make this hidden meaning appear, Gadamer (1989:p267) states that the enquirer needs '*to examine the legitimacy – i.e. the origin and validity of the fore-meanings dwelling within him'*. Fundamental to making the hidden appear is the notion of the hermeneutic circle and horizon.

Gadamer (1989) describes Heidegger's 'hermeneutic circle' as an understanding that continuously changes as the text is being interpreted. Horizon involves the enquirer looking beneath the surface of the phenomenon, and interpreting it in light of previous experiences and prejudices (Gadamer 1989). This interpretation is a non-linear process that involves immersing one's self in the data, and understanding the relationship between the 'parts' and the 'whole' of the text (Smith *et al* 2009). Coupled with this is the relationship between the enquirers fore-understanding and the emerging phenomena (Smith *et al* 2009). A 'fusion of horizons' occurs when the enquirer's horizon and the text (participant) horizons are intertwined, which leads to a deeper understanding of the situation (Ricoeur 1981). Smith *et al* (2009) highlight that making sense of the phenomena involves a double hermeneutic, where the enquirer is interpreting the voice of the participant who is making sense of the phenomena.

4.10.3 Idiography and IPA

The third theoretical perspective of IPA is idiography. Idiography is related to the particular (Smith *et al* 2009), and is synonymous with single case study designs where the focus can be a singular case or an homogenous group (Kazdin 2019; Piccirillo and Rodebaugh 2019). Smith *et al* (2009) identify that idiography involves purposive sampling of a small group of individuals who are situated in similar contexts. The focus of idiography is not to provide generalised or bold statements about a phenomena, rather it is to allow the detail of the particular in the phenomena to inform the generalisation of the phenomena within a given context (Smith *et al* 2009).

4.10.4 Analysis: Applying IPA to this study

Using IPA to analyse qualitative data uses guidelines rather than being a staged process, and it is driven to produce an iterative and inductive cycle that enables movement from the descriptive to the interpretative (Smith *et al* 2009). Within the application of the IPA guidelines the researcher interpreted the interviews by using the hermeneutic circle. Figure 4.4 provides a visual overview of how the hermeneutic circle was applied to this study. This involved interpretation of the parts of each interview, the whole of each interview, and the group of interviews whilst moving between the parts and the whole. This process was punctuated with the researcher's own understanding of the study phenomena, previous experiences, and experiences within this study. The progression of the researcher in the hermeneutic circle in Phase II of this study was applied at all points of the analysis.

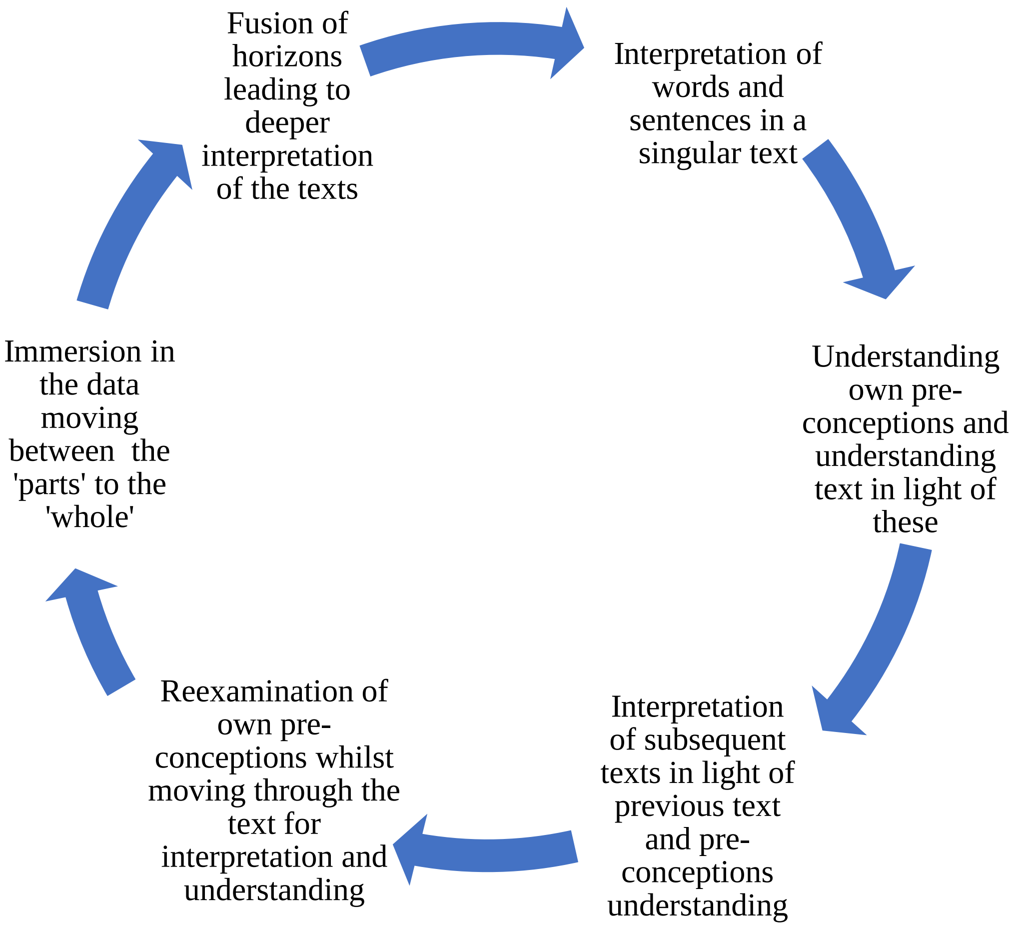


Figure 4. 4: Hermeneutic circle as applicable to this study (Adapted from Smith et al 2009)

4.10.5 Analysis procedure

The procedure of the IPA analysis for this study was based on Smith *et al* (2009) IPA analysis guidelines (Table 4.10). These authors suggest that the novice IPA researcher should use the guidelines to provide some sense of order, but they emphasise that IPA analysis is not a linear process. Smith *et al* (2009) highlight the importance of flexible thinking throughout the process in order to interpret what the participant is thinking. This type of thinking is evident in this current study as the researcher moved between phases of analysis as the interpretation unfolded.

Table 4. 10: Application of Interpretative Phenomenological Analysis guidelines to this study

Stage	IPA guide (Smith et al 2009)	Application of IPA guidelines to this study	Double hermeneutic circle process (Figure 4.4)
1.	Line by line analysis of participant claims, concerns, and understanding.	Interviews transcribed with column to the right for noting any analysis in this stage of coding. Researcher analysis of own values, beliefs, awareness of context that may manifest in interpretation.	
2.	Identification of emerging patterns / themes both convergent and divergent. Moving from one case to multiple cases.	Emerging themes identified on NVivo in first case, and themes altered, and developed as each case interpreted. Uncommon themes identified.	
3.	Development of 'dialogue' between the researcher, the coded data, and psychological knowledge about what the phenomena might mean for participants – developing the interpretative account.	Themes considered in light of researcher's continued analysis of the cases, moving from single cases to multiple cases. Ongoing researcher analysis of values, beliefs, awareness of context that may manifest in interpretation. Researcher internal dialogue developed by moving back and forth between parts of interviews, whole interviews, and interpretation as a whole.	
4.	Development of a structure to illustrate the relationships between themes	Development of a diagrammatic representation of themes. Diagrammatic representation revised in light of ongoing analysis and interpretation.	
5.	Develop an organisational structure of all of the data so that it can be traced through the process.	Initial coding, themes identified through NVivo, researcher reflections, researcher notes from the data collection phase reviewed. Analysis and interpretation reworked in light of ongoing review.	
6.	Use of audit, collaboration, supervision to test interpretation.	Invitation to participants to review own interviews. Preliminary presentation of analysis to small group of participants. Discussion with supervisors regarding ongoing analysis.	
7.	Development of full narrative of the themes with diagrams.	Writing up of results of Phase II, with ongoing interpretation drawing on all data sources, theory and researcher reflections. Ongoing researcher reflexivity by moving between own reflections, data interpretation, and other data gathered.	
8.	Reflection on researcher's perceptions, conceptions and processes.	Considered throughout the analysis and interpretative phase.	

Throughout the process of the study, and during interpretation of the interviews, the researcher kept a reflective journal. This journal was instrumental in identifying the need for a mixed purposive sampling method. Not only did the journal recount the researcher's own previous cancer experience, it also provided the researcher with insight into the feedback from the population of interest during recruitment, and feedback from participants during the recruitment, data collection stages and analysis stages. These insights enabled the researcher to understand the interpretation of the interviews in the context of the researcher's own prior cancer experience. Any identifiable information within the journal was anonymized.

Prior to applying the IPA guidelines the researcher transcribed the interviews verbatim. During the transcription phase, the researcher noted down any parts of the interview that were presenting an understanding of the phenomena by the participants. The transcription phase took place over several months. The researcher transcribed each interview within a two week time-frame of each participant taking part. Interviewees were invited to review their transcript, however, only two participants responded to the invitation. Initial coding of the transcripts was done by hand on the paper copy of the transcript. This was to overcome the critique that in only using computer-assisted software for qualitative research analysis, researchers may be alienated from the data (Bazeley and Jackson 2013).

After initial coding on the paper copies at stage 1, the interview transcripts were transferred to NVivo-12. The second and third stage of the IPA analysis began before the final 3 participants were recruited as due to the nature of the sampling method it took 14 weeks to recruit the final 3 participants. This provided the researcher with the opportunity to begin to move from small texts within interviews to whole interviews in an attempt to develop an initial interpretation of what the participants were saying. This was done both during the transcribing process, and through a process of reading and re-reading the interview transcripts.

The codes applied during the initial phase of analysis were interpreted to develop larger themes. Common themes were developed and reviewed as each transcript was added and analysed. These themes were identified on NVivo-12 as parent nodes, and subthemes as child nodes (Bergin 2011). Uncommon themes were identified, and coded as uncommon theme nodes in Nvivo-12. The uncommon themes were revised as interpretation continued. The 'query' functions, such as test search query and word frequency query, on NVivo-12 were utilised throughout the development of themes and uncommon themes, where words or text was queried in the participant's cases to ensure data was not missed. The use of the query functions in NVivo improves the management of data and provides opportunities to probe and explore the data (Bergin 2011). The theme development and probing of the qualitative data happened in conjunction with the reflexivity of the researcher reflecting on the process of the interviewing and analysis, and the researcher's prior experiences. During this time the researcher interviewed the final 3 participants.

Stage 4 overlapped with stage 3 where the diagrammatic representation of the themes was developed on NVivo-12, using the 'maps' function, and revised as interpretation of the theme parent nodes continued. During stage 5, the researcher revisited all interview coding, theme nodes, uncommon theme nodes, researcher reflections, memos, and maps in NVivo-12 and the notes on the paper transcript copies. This provided the opportunity to rework the theme nodes, and the interpretation of the whole. This is where the double hermeneutic circle began to become evident.

During stage 6, which overlapped with other stages, the participants were invited to review their transcripts so any additional aspects could be provided by the interviewees. Two participants requested to review their transcripts, and no additional information was provided as they were satisfied the interview transcripts represented their views. Additionally, a preliminary presentation of the qualitative findings was given to the radiation oncology department participants. The participants who did attend felt that the preliminary interpretation reflected how they felt. Finally, the researcher's supervisors were provided with the preliminary qualitative results, and face to face meetings were held to discuss the qualitative analysis and development of the themes.

The penultimate phase of the analysis involved the final write up of the narrative of the interpretation of the participant accounts, which required researcher reflexivity. The final narrative was written whilst the researcher retained awareness of their own clinical cancer experience, the reflections written during the recruitment, data collection and data analysis phases, and notes taken during the qualitative phase (stage 8). During the interpretative phase the researcher moved over and back from the parts (interviews, researcher reflections, notes) to the whole until transparency was achieved. The emergence of the interpretation of the experience of the participants beyond the themes resulted from understanding the descriptives within the interviews, and the meanings underneath these narratives. This allowed the researcher to construct a meaning of what the participants were thinking, and develop a fusion of horizons that sought interpretation of the phenomena that lay hidden within the themes.

4.11 Rigour in qualitative research

Rigour in mixed methods designs involves using both quantitative and qualitative approaches to rigour. Quantitative approaches of validity and reliability have been discussed in sections 4.5.4. Demonstrating rigour in qualitative research requires a different approach to quantitative research. Tuckett (2005) provides an overview of the key components of rigour in qualitative studies, which is based on the work of Guba and Lincoln, and Sandelowski. These four criteria are credibility, transferability, dependability and confirmability. Hays *et al* (2016) describe four criteria that add to those outlined by Tuckett (2005: Table 4.11). These four criteria are coherence, sampling adequacy, substantive validation and ethical validation. These four criteria add to the original four strategies outlined by Guba and Lincoln, which strengthened the research quality of this current study.

4.11.1 Rigour as applied to Phase II

During both phases of this mixed methods study, the researcher kept an electronic reflective journal. Entries to the journal depended on the stage of the research process and on what insights or challenges faced the researcher. The reflective journal was instrumental in providing evidence of the preconceptions, views, and reflexive thinking of the researcher during the research process. These insights were integrated into the understanding of the qualitative data, and in merging the quantitative and qualitative data. In addition, to ensure rigour in the use of the software package, the researcher attended and successfully completed the Waterford Institute of Technology postgraduate training on NVivo-12.

Table 4. 11: Rigour in qualitative research (Hays 2015; Tuckett, 2005)

Rigour criteria	Trustworthiness	Evaluation criteria	Criteria for rigour	Research strategy	Operational techniques
Internal validity	Credibility	Credibility	Truth value	Field/personal journal Tape recorder. Thematic log Auditing transcript	Atypical case Purposeful sampling Member checking Constant comparison Audit trail
External validity	Transferability	Fittingness	Applicability	Data display Simultaneous literature review	Purposeful sampling Thick description
Reliability	Dependability	Auditability	Consistency	Field journal Thematic log Tape recorder Participant stories Auditing transcript	Atypical case Peer review Audit trail
Objectivity	Confirmability	Confirmability	Neutrality	Field journal	Audit trail
Coherence	Congruence	Congruence	Cohesion	Documentation of steps of research process	Audit trail
Sampling	Sampling adequacy	Auditability	Appropriate composition and size of sample	Recruit cancer HCPs only	Provide detail of sampling and size
External validity	Substantive validation	Fittingness	Applicability	Field journal Participant stories	Description of applicability of findings to wider community
Ethics	Ethical validation	Credibility	Professionalism	Ethical approval	Ethics applications Participant information Voluntary participation

Creswell and Plano Clark (2018) suggest at least three validation strategies should be used when checking the validity of qualitative data. These can be from the following list of strategies; member checking, triangulation data from several sources, extended time in the field, reporting disconfirming evidence, and peer review of the data. An outline of an audit trail of validity as applied to this study is displayed in Table 4.12. Credibility was achieved through tape-recording, listening to, and checking the interviews. In the first instance, interviews were transcribed verbatim by the researcher. Following the transcription, each tape-recording was listened to again, and simultaneously, the transcript was rechecked by the researcher for accuracy. In this study, all participants were invited to review their interview transcripts. Two of the participants agreed to review their transcripts, and confirmed that the transcripts were an accurate reflection of their understanding of the interview. A presentation of the early development of themes was presented to participants for feedback.

Transferability was achieved through an explanation of the context of data collection and the sampling technique. The qualitative data was peer reviewed by the researcher's academic supervisors which generated discussion around accuracy of participant representation in the themes. Finally, this study reports on data that does not fit within the common themes which illustrates transparency within the data analysis process. Reporting on data that does not fit within the common themes is important to the credibility and trustworthiness of the research (Johnson *et al* 2020).

Table 4. 12: Audit trail of validity as applied to Phase II of this study

Criterion	Technique
Credibility	Interview schedule development explanation Researcher reflective journal Use of NVivo-12 memo function Participants invited to review transcripts
Transferability	Explain context of qualitative data collection (geographical area, organisational context, participant demographics) Detailed explanation of sampling technique
Dependability	Consistent application of interview schedule with each participant Traceability of analytical process via paper and NVivo-12 coding Clear explanation of impact of the researcher reflective journal on the process
Confirmability	Traceability of emerging themes via NVivo-12 nodes, 'run query' function, model function Storage of data on NVivo-12 and researcher reflective journal Discussion of theme generation with academic supervisors
Coherence	Detailed description of alignment of: • Research approach • Research purpose • Research questions • Data collection and analysis • Presentation of data
Sampling adequacy	Explain sample composition and size Clear explanation of the extensiveness of the information collected from the participants
Substantive validation	Detailed explanation of applicability of findings to cancer HCPs working in the wider community Construction of conceptual framework to support applicability
Ethical validation	Details of Waterford Institute of Technology and Regional Ethics Committee applications Details of dates of ethical approval received for the study Participant information leaflet provided to each participant Participant has time to ask questions Participation is voluntary and participant can withdraw at any time Provision of details of Employee Assistance Programme to participants

4.12 Process of merging Phase I and Phase II data

Merging the Phase I and Phase II data required the researcher to develop a systematic process to ensure transparency. Creswell and Plano-Clark (2013) suggest that there are key considerations when integrating quantitative and qualitative data in an explanatory sequential mixed methods design. These include developing a joint display table to illustrate how the qualitative results enhance the quantitative results. A joint display table is provided in the results section of this current study. Additionally, the researcher should provide an interpretation of the value added by the qualitative explanations (Creswell and Plano Clark 2013). Researcher reflexivity is essential during merging Phase I and Phase II.

4.12.1 Researcher reflexivity

The researcher was aware that experiences would impact on the interpretation of the data so researcher reflexivity was important to this research. Reflexivity involves the researcher knowing that they are part of and can impact upon the research process whilst reflecting on the decisions made during the research (Evans *et al* 2018). This is often achieved by the researcher journaling in a reflective journal throughout the research study. This reflective journaling enables the researcher to analyse not only their values, beliefs, experiences, decisions, and feelings during the research process, but also enables the researcher to examine any pre-existing beliefs, values, experiences, and thoughts that may impact on the analysis and interpretation of the data (Smith *et al* 2009). This awareness creates a transparent process, and enables the researcher to make sense of the participant's experiences, rather than shifting the focus of the interpretation to their own experiences (Smith *et al* 2009).

The researcher of this current study had worked for over a decade in a variety of clinical roles in caner care from junior to senior level and had spent more than a decade teaching cancer programmes to a variety of HCPs. For the purposes of this research project the researcher acknowledges that having this experience would have had an impact on the research process. The prior experiences of the researcher did mirror and at times contradict the experiences described by the participants. Therefore, acknowledging and reflecting on these experiences as they arise throughout the research process provided the researcher with insight into how those experiences related to this research, and helped the researcher stay focused on the participant experiences. The researcher kept an electronic reflective journal throughout the duration of the research study. Within this reflective journal the researcher documented prior beliefs about the study constructs and documented experiences from working in the cancer care setting. These experiences included both positive and negative aspects of the different roles undertaken throughout the researcher’s clinical career. This journal was used for the duration of the research study, and it was examined, particularly during the analysis of the qualitative data, to ensure that the focus was on the interpretation of the participant experiences. Table 4.13 outlines some extracts from the researcher’s journal that provided examples of how the reflections informed the research process.

Table 4. 13: The research process and researcher's reflective journal

Research process	Reflection extract
Decision to ask question 'have you had annual leave in the past 4 weeks?' in Phase I.	At a meeting with Dr X, they described how they felt that many doctors were feeling pressurised … they were consequently either burned out or developing burnout and compassion fatigue … Dr. X described the feeling they had before their holiday, one of being completely overwhelmed with the workload, and joked that if they had undertaken the study questionnaires prior to the holiday the results would be different … I have added this as a question to my demographic data …
Decision to use Spearman's Rho test for correlational analysis	(Meeting with statistician) The statistician feels that I have a large sample size, definitely enough to do some good analysis. … brilliant at explaining why I need to do Spearman's Rho rather than Pearson's Correlation Coefficient.
Decision relating to maximum variation sampling	I feel slightly disheartened … I had wanted to find some participants who were working on X ward … I am going to continue to go to the HSE (public health service) to recruit oncology nurses … I must persevere.

4.13 Ethical approval

Ethics must be given due consideration in any research study (Gomm 2008). The Declaration of Helsinki (World Medical Association 2018) states that health care researchers are subject to standards that promote and ensure respect for all human subjects, and protect their health and rights. In addition, The Nursing and Midwifery Board of Ireland (2007) state that nurses as researchers have a responsibility to ensure that there is no risk of harm or injury to participants of research studies, that informed consent is obtained, that participants are protected in terms of confidentiality and privacy, and nurses must adhere to The Code of Professional Conduct and Ethics (Nursing and Midwifery Board of Ireland 2014).

4.13.1 Ethical approval: Phase I and Phase II

A requirement for Phase I of this study to proceed was to gain ethical approval from the academic institution of the researcher, and from the relevant research ethics committees (REC) at the cancer centres. In Ireland, ethical approval from one REC will automatically grant approval from all RECs for clinical trials, but when accessing staff for research, individual approval must be sought from each research ethics committee. A letter of agreement from a senior person in each of the professional groups, and an identified gatekeeper was required by each cancer centre prior to ethical submission. These requirements for each cancer centre resulted in ethical applications for this study continuing over a two year period (Table 4.14). Ethical approval letters for Phase I of this study are provided in Appendix XI.

Ethical approval for Phase II of the study was granted from Waterford Institute of Technology, and the Health Service Executive South East (Appendix XII). There was a delay in ethical approval from the Health Service Executive-South East REC for Phase II of the study. This was because the REC delayed applications for 4 months in order to review the application process and apply the European General Data Protection Regulations (GDPR: European Commission 2018). Additionally, it is now a requirement of Waterford Institute of Technology that all researchers undertake the Epigeum Research Integrity online training. The researcher completed this training in October 2019 (Appendix XIII).

Table 4. 14: Research Ethics Committee approval

Institution	Date of ethics application approval
Phase I ethics approval granted	
Waterford Institute of Technology	May 2015
Health Service Executive South East	July 2015
St Vincent’s University Hospital	March 2016
St James’s Hospital	June 2016
University Hospital Limerick	July 2016
St Luke’s Hospital	July 2016
Cork University Hospital	July 2017
Beaumont Hospital	August 2017
SAOLTA Hospital Group	August 2017
Phase II ethics approval granted	
Waterford Institute of Technology	May 2018
Health Service Executive South East	October 2018

4.13.2 Ethical considerations

There were four ethical considerations in this study. Firstly, the confidentiality of the participants was of paramount importance. Researchers are bound by Data Protection legislation, and for this study the Government of Ireland (2018) Data Protection Act applies. These pieces of Irish legislation encompasses the European GDPR. This research project follows guidance set out in the following documents; the Waterford Institute of Technology Data Protection Policy 2019, Waterford Institute of Technology Data Protection Procedures 2019, Waterford Institute of Technology Data Retention Policy 2019, and Waterford Institute of Technology Date Retention Schedule 2020.

In Phase I of the study, participants could choose to complete the questionnaires anonymously. To ensure electronic anonymity, IP addresses were not collected via Survey Monkey. All personal details will be omitted when using data for academic publications. In Phase II of the study, participant interviews were audio taped. Participant information was pseudonomised, and the code was only known to the researcher. These audio tapes were listened to, and transcribed with any non-participant identifiable information anonymised. The audio equipment was wiped clean once the interviews were transcribed. The researcher coded any identifiable participant information in both Phase I and Phase II of the study. Only the researcher had the key to the code for identifying participants. All participant data was held in a locked cabinet in a locked room in The Department of Nursing and Health Care at Waterford Institute of Technology. Electronic participant data was anonymised and held on a password protected Waterford Institute of Technology computer.

Secondly, the issue of informed consent was identified. Protection of the vulnerable research populations is essential, and in Ireland staff are considered a vulnerable group in research (Health Service Executive n.d.). Informed consent is a procedure that is designed to safeguard the rights of human subjects in research. Informed consent involves disclosure, understanding, capacity, and voluntariness (Beauchamp and Childress 2013). Disclosure relates to the importance of a well-designed information leaflet, and the opportunity to ask questions, and have these answered fully. This process is designed to enhance a person's understanding of the study. Voluntariness, could be considered in terms of the decisional capacity of the individual to consent to the research (Biros 2018).

A clear path of the informed consent process was provided to participants to avoid coerciveness. This involved the provision of information leaflets with the researcher's contact details so potential participants had the opportunity to ask questions. Gatekeepers were identified in each organisation, who made the decision whether the researcher was provided access to the population of interest. Not all gatekeepers allowed the researcher to visit the organisation and this was respected by the researcher. All participants were provided with an information leaflet that was distributed either by the researcher, or by the gatekeeper. Only two invitations emails were distributed to the population of interest, so they did not feel pressurised to participate. Participants were informed that they could only withdraw their data from the quantitative phase if they supplied an e-mail address so their participation could be traced and deleted. In Phase II, HCPs who expressed an interest in participation in the study were emailed the study information leaflet, the interview schedule, the consent form, and they were invited to ask questions electronically if required. All of these documents were again provided to the participant by the researcher just before the interview commenced. The participant was given the opportunity to read these and have questions answered before signing the consent form. Participants were informed that they could withdraw at any time from the interviews. Participant consent forms were kept in a locked cabinet in a locked office at Waterford Institute of Technology.

Thirdly, there is a potential of distress to individuals due to the nature of the questions in the questionnaires and the nature of the questions in the interviews as these may involve recall of distressing clinical situations. The Employee Assistance Programme was listed on the study information leaflet so participants could self-refer for support if required. Interviews would be stopped if the participant became distressed.

Questionnaire burden is the final ethical consideration. The quantitative data collected included demographic details of the participants. It is important to collect only demographic information that is relevant to the study as this ensures that participants are not divulging potentially sensitive information that is not relevant to the study in question. This is an important aspect of data collection and relates to accountability in conducting research according to the Singapore Statement on Research Integrity (World Conferences on Research Integrity n.d.). The study invited participants to complete three measurement tools. The TEIQue, ProQOL and IRI take 20-30 minutes to complete. There was complete transparency relating to questionnaire burden as participants were informed of the time required to complete the questionnaires in the Phase I study information leaflet prior to participation in the study.

4.14 Chapter summary

The primary aim of the study was to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer health care professionals, and to explain the nature of such a relationship. An explanatory sequential mixed methods approach was used to achieve the aims and objectives of the study. The population of interest were nurses, radiation therapists, and doctors working in cancer care.

In Phase I, demographic data was gathered and three instruments were used to collect data relating to the constructs of professional quality of life, empathy and tEI. In Phase II, demographic data was gathered and a semi-structured interview was used so participants could explain the findings of Phase I and to provide a deeper understanding of the phenomena. Phase I data was analysed using Spearman’s rho correlation test, Kruskal-Wallace Test, Mann-Whitney U test, and both standard and hierarchical regression analysis. The statistical tests were completed using the software package, SPSS version 22.0. Phase II data was analysed using Interpretative Phenomenological Analysis, and the software package NVivo 12 was used to manage the qualitative data. The results of the analysis are presented in chapter 5.

Chapter 5 Results

5.0 Introduction

This chapter provides a narrative of the results of the current study. The primary aim of this study was to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer health care professionals, and to understand the nature of such relationships. The population of the study consisted of cancer nurses, radiation therapists and oncologists working in the Republic of Ireland. In Phase I of the study, the participants completed three self-report assessment tools; the ProQOL, the IRI and the TEIQue. Phase II of this current study involved interviewing six cancer nurses and six radiation therapists to further explain the results of the quantitative analysis.

Section 5.1 provides an overview of the recruitment of participants to Phase I of the current study. The demographic profile of participants in Phase I of the study are presented in section 5.2. The professional quality of life profile of the participants in Phase I of the study, the correlations between the three subscales of the ProQOL, and demographic variables and the correlations between CS and CF and empathy and tEI are reported in section 5.3. Section 5.4 presents the results of the multiple regression analysis. The comparisons between nurses, radiation therapists and oncologists professional quality of life, empathy, and tEI is presented in section 5.5. The demographic profile of the participants in Phase II is reported in section 5.6. The participants’ understanding of the study constructs is presented in section 5.7, and the themes developed from the analysis of the participant’s narratives is reported in section 5.8. The fusion of horizons is presented in section 5.9. Merging of the quantitative and qualitative data is reported in section 5.10, and the divergence between the quantitative and qualitative data is reported in section 5.11. The chapter summary is provided in section 5.12.

5.1 Participant recruitment: Phase I

One hundred and fifty eight HCPs were recruited to Phase 1 of the study. A flow diagram, based on CONSORT principles, illustrates a clear pathway of flow of participants through phase I of the study (Figure 5.1). There were 129 participants recruited through the online survey platform, SurveyMonkey. An additional 29 participants were recruited through a paper edition of the questionnaire. This resulted in 158 participants. When the inclusion and exclusion criteria was applied 20 participants were rejected as they failed to meet the criteria (Table 5.1) and were therefore not included in the analysis.

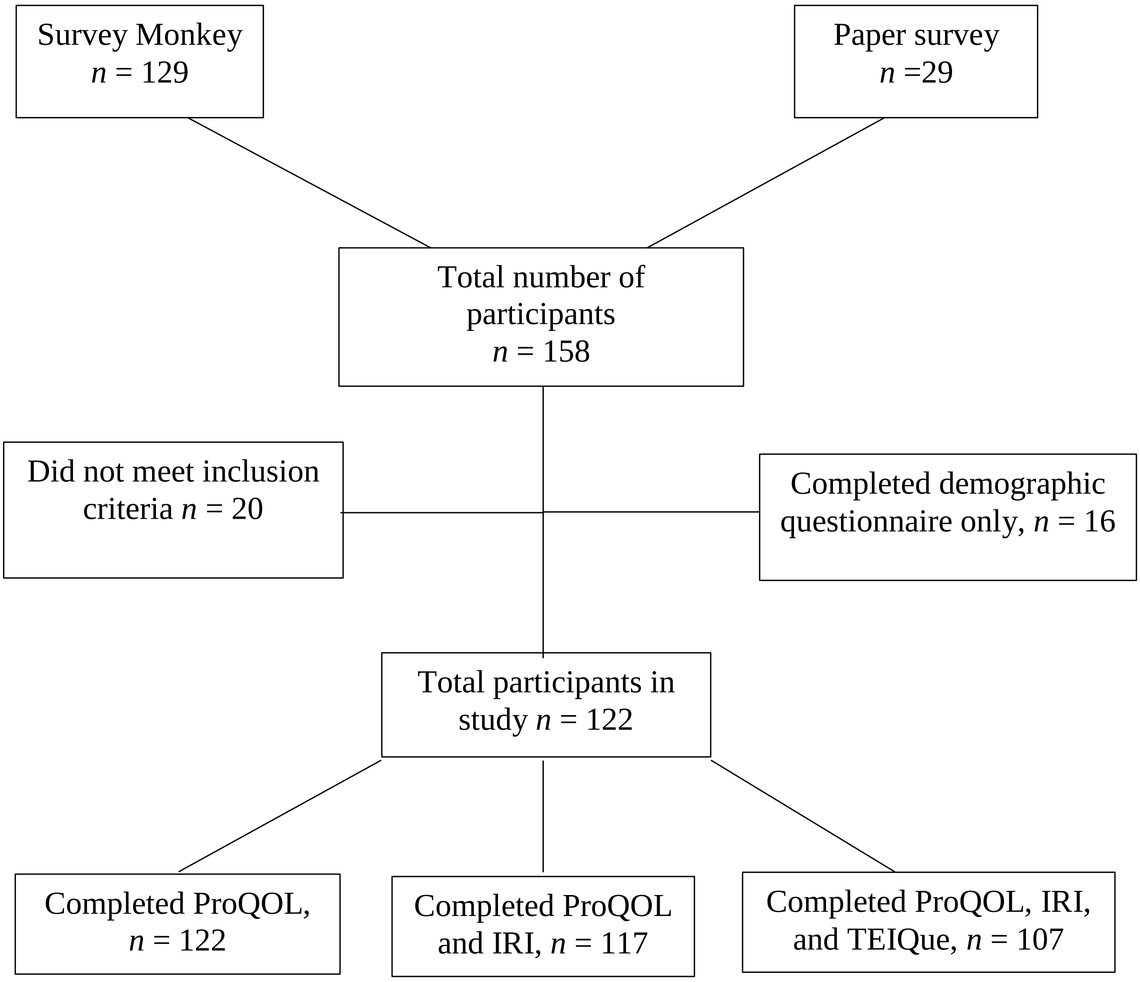


Figure 5. 1: Phase I participant numbers flow diagram

Sixteen participants completed only the demographic information. This resulted in 122 participants who had completed the demographic questionnaire and the ProQOL. Furthermore out of these 122, 117 completed the IRI, and 107 completed the TEIQue.

Table 5. 1: Numbers of participants excluded from study and rationale for exclusion

Number of participants	**Rationale**
2	Physiotherapist
15	Non-cancer nurses
1	Palliative care nurse
1	Non-clinical manager
1	Medical physicist

There were five hypotheses tested in this study. These were developed from the review of the literature. The findings of the hypotheses tested in Phase I of the study are presented in Table 5.2. Hypothesis three was confirmed. Hypothesis one, two, four and five were partially confirmed.

Table 5. 2: Study hypotheses and findings from Phase I of the study

Hypothesis	**Finding**
H1. Compassion satisfaction will be negatively correlated and compassion fatigue will be positively correlated with emotional empathy	**Partially confirmed**
H2. Compassion satisfaction will be positively correlated and compassion fatigue will be negatively correlated with cognitive empathy	**Partially confirmed**
H3. Compassion satisfaction will be positively correlated and compassion fatigue will be negatively correlated with high levels of tEI	**Confirmed**
H4. Radiation therapists will have lower levels of compassion satisfaction and higher levels of compassion fatigue than cancer nurses and oncologists	**Partially confirmed**
H5. High levels of tEI and cognitive empathy will be predictors of higher levels of compassion satisfaction, and lower levels of tEI and higher levels of emotional empathy will be predictors of higher levels of compassion fatigue	**Partially confirmed**

5.2 Demographic profile of the sample: Phase I

An overview of participants' personal characteristics are presented in Table 5.3. Participants (*n* = 122) were predominately female (*n* = 116, 95%), and white Irish (*n* =

108, 89%). More than half of participants were married or living with a partner (*n* = 72, 59%). Almost half of the participants reported having children (*n* = 53, 43%). Over a third of the participants disclosed having had a significant life event in the past 2 years (*n* = 47, 38%). The participants' reported ages ranged from 21 to 63 years old (*n* = 116, $\bar{X}$ = 36.53, *SD* = 10.29). There was a difference in the mean ages of nurses 40.69 (*n* = 58, *SD* = 9.08), radiation therapists 31.45 (*n* = 47, *SD*=8.61) and doctors 36.27 (*n* = 11, *SD* = 13.60).

Table 5. 3: Participant personal characteristics

Gender	**Number (n)**	**Percent (%)**	**P value**		
			1	**2**	**3**
Female	116	95			
Male	6	5			
Race / ethnicity					
White Irish	108	89			
White other	5	4			
Black other	2	1.5			
Asian Irish	5	4			
Asian other	2	1.5			
Relationship status					
Married / living with partner	72	59	0.79	0.56	0.70
Not Married/living with partner	49	41			
Have children					
Yes	53	43	0.02*	0.02*	0.02*
No	64	53			
Missing	5	4			
Significant life event					
Yes	47	38	0.09	0.41	0.08
Not disclosed	75	62			

1 = Compassion satisfaction; 2 = burnout; 3 = secondary traumatic stress

Significant at the 0.05 level *

Some participants reported engaging in social activities; smoking, drinking alcohol, and having a hobby (Figure 5.2). Participants could disclose engaging in more than one of the three listed social activities so total values exceed the number of participants in the study.

Eight participants disclosed engaging in smoking behaviours, 94 participants disclosed drinking alcohol, and 102 participants reported engaging in a hobby.

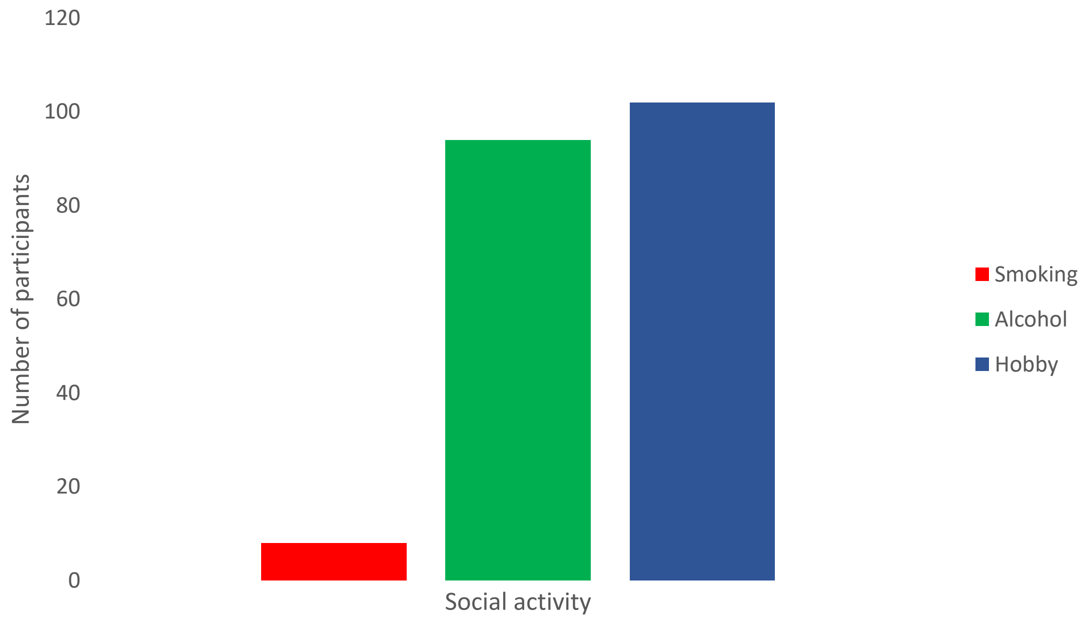


Figure 5. 2: Participant social activities

Professional demographics are reported in Table 5.4. By profession, the majority of participants were nurses (*n* = 64, 52%) and radiation therapists (*n* = 47, 39%), with a small number of doctors participating (*n* = 11, 9%). All participants were educated to at least undergraduate degree level, with almost two thirds of participants holding a post-graduate qualification (*n* = 75, 62%). The majority of participants had a cancer qualification (*n* = 101, 83%). Of this percentage, oncologists and radiation therapists by the nature of their role would be viewed as having a cancer qualification, but 55 (86%) nurses reported as having a cancer qualification. Three quarters of the participants worked more than 50% of their worktime in direct clinical care (*n* = 93, 76%).

Almost all of the participants worked full time (*n* = 111, 91%). The number of years the participants had worked in cancer care, ranged from 1 to 40 (*n* = 101, $\bar{X}$ = 11.95, *SD* = 8.5). The average weekly working hours ranged from 6 to 60 (*n* = 94, $\bar{X}$ = 38.02, SD = 7.13), with fifteen participants working 12 hour shifts (*n* = 15, 12%). A small number of participants reported having annual leave in the past 4 weeks (*n* = 19, 16%).

Table 5. 4: Participant professional characteristics

		Number (n)	Percent (%)	P value		
				1	2	3
Profession	Doctor	11	9	0.28	0.001**	0.28
	Nurse	64	52			
	Radiation therapist	47	39			
Education	PhD	3	3			
	Master’s degree	31	25			
	Post-graduate diploma	33	27			
	Post-graduate certificate	8	7			
	Degree	46	38			
Cancer qualification	Yes	101	83	0.10	0.88	0.86
	No	21	17			
Percentage of time in clinical care	Less than 50%	29	24	0.63	0.32	0.62
	More than 50%	93	76			
Working pattern	Full time	111	91			
	Part time	11	9			
12 hour shifts	Yes	15	12			
	No	101	83			
	Missing	6	5			
Annual leave in past 4 weeks	Yes	19	16	0.64	0.13	0.20
	No	70	57			
	Missing	33	27			

1 = Compassion satisfaction; 2 = burnout; 3 = secondary traumatic stress
Significant at the 0.01 level **

5.3 Profile of the participant's professional quality of life

Stamm (2010) provides cut scores for the ProQOL based on the bottom, mean and top quartiles that can determine levels of high, average, and low on all three sub-scales of professional quality of life. Cut scores for the ProQOL are presented in Table 5.5.

Table 5. 5: ProQOL subscale cut scores (Stamm 2010)

	High	Average	Low
Compassion satisfaction	57	50	44
Burnout	56	50	43
Secondary traumatic stress	56	50	42

Figure 5.3 provides an overview of the participant numbers for each quartile of the ProQOL subscales. Thirty (25%) participants scored high in the compassion satisfaction subscale, whilst 68 (56%) participants scored average, and 23 (19%) participants scored low. In the burnout subscale 27 (22%) participants scored high, 62 (51%) scored average, and 33 (27%) participants scored low. Thirty four (28%) participants scored high in the secondary traumatic stress subscale, whilst 61 (50%) scored average, and 27 (22%) scored low. Six percent (*n* =7) of the participants scored high CS levels and high CF levels.

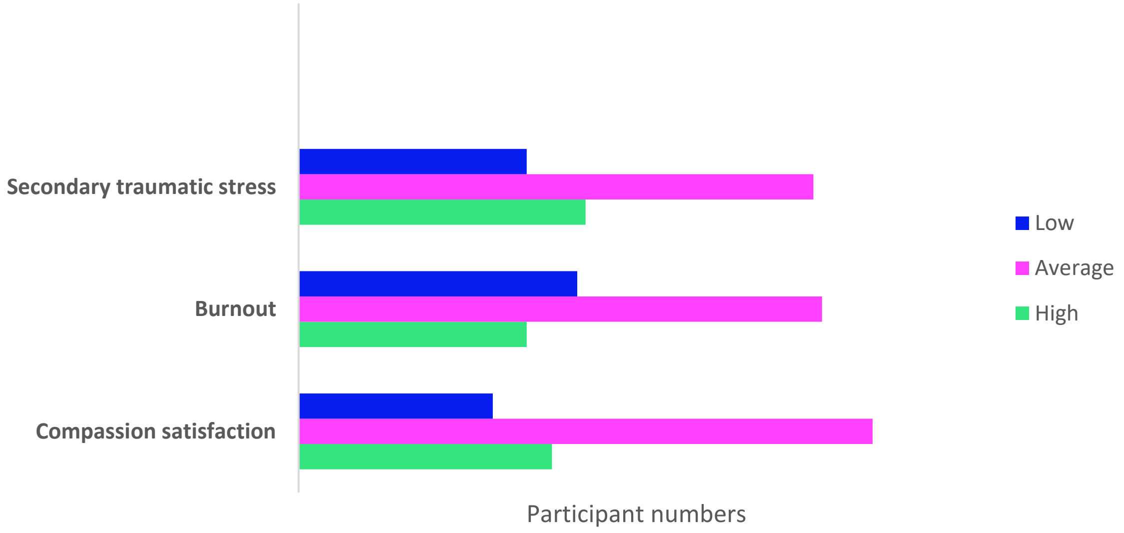


Figure 5. 3: Proportion of participants classified into the bottom quartile, mean and top quartile of the ProQOL subscales

5.3.1 Tests for normality

Prior to conducting statistical analysis on the data, tests were run to check for violation of the assumption of normality, and linearity to determine the need to run parametric, or non-parametric tests. One reason for data not being normally distributed can be the use of instruments from the social sciences. These instruments often reflect the nature of the construct being measured, which may be positively or negatively skewed (Pallant 2013). Histograms and the Kolmogorov-Smirnov statistic indicated that not all the data was normally distributed. The sub-scales of CS and burnout on the ProQOL, the sub-scale of personal distress on the IRI, and tEI subscales had Kolmogorov-Smirnov scores of > 0.05. Kolmogorov-Smirnov scores of >0.05 suggest normality (Pallant 2013). The sub-scales of perspective taking and empathic concern on the IRI, and the subs-scale STS on the ProQOL had Kolmogorov-Smirnov scores < 0.05. Kolmogorov-Smirnov scores of <0.05 suggest violation of the assumption of normality (Pallant 2013).

Outliers were identified on box-plots, and outliers were removed one by one before rerunning the tests for normality. The Kolmogorov-Smirnov statistic still indicated that not all the data was normally distributed. Pallant (2013) suggests that Spearman's Rank Order Correlation coefficient (rho) is used where Kolmogorov-Smirnov scores were < 0.05. The researcher of this current study also consulted a statistician who suggested the use of Spearman's rho. Therefore, in this current study Spearman's rho was used to explore the relationship between the variables within this dataset. The results of the correlational analysis are displayed in Table 5.6.

5.3.2 Professional quality of life correlation to age, working hours, years in cancer care and level of education

There was a negative correlation found between secondary traumatic stress and age that reached statistical significance ($n = 116$, $r_s = -0.26$, $p < 0.004$). A negative correlation was found between years in cancer care and secondary traumatic stress ($n = 122$, $r_s = -0.26$, $p < 0.01$). No relationship was found between working hours or level of education and secondary traumatic stress. No relationship was found between age, working hours, years in cancer care or level of education and the subscales of compassion satisfaction or burnout.

Table 5. 6: Spearman’s Rho correlations between dependent and independent variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Compassion satisfaction	1														
2 Burnout	-.64**	1													
3 Secondary traumatic stress	-.24**	.53**	1												
4 Perspective taking	.25**	-.20	.13	1											
5 Empathic concern	.18	.11	.28*	.59**	1										
6 Personal distress	-.37**	.26*	.31**	-.08	.03	1									
7 Global tEI	.51**	-.56**	-.41**	.40**	.25	-.54**	1								
8 Sociability	.42**	-.37**	-.36**	.16	.13	-.50**	.76**	1							
9 Self-control	.34**	-.49**	-.38**	.31*	.04	-.35**	.76**	.47**	1						
10 Emotionality	.48**	-.56**	-.29*	.48**	.42**	-.45**	.85**	.65**	.58**	1					
11 Well-being	.51**	-.54**	-.44**	.24	.13	-.47**	.82**	.65**	.64**	.68**	1				
12 Age	.16	-.18	-.26*	.00	.05	-.26*	.26*	.25	.34*	-.21	.25	1			
13 Working hours	.10	.13	.08	-.05	.02	-.02	-.02	.01	-.06	-.04	-.09	.07	1		
14 Years in cancer care	.11	-.03	-.26*	.10	.09	-.32**	.20	.26	.29*	.19	.14	.87**	.08	1	
15 Level of education	.13	-.14	-.07	.09	.10	-.23	.24	.09	.27*	.16	.19	.37**	.20	.37**	1
M	50.33	49.89	49.97	19.14	21.63	9.43	5.04	4.78	4.77	5.27	5.47	36.53	38.02	11.95	
SD	9.24	10.04	10.08	4.50	4.58	4.40	.72	.76	.79	.80	.93	10.29	7.13	8.55	
Range	10-100	10-100	10-100	5-35	5-35	5-35	1-7	1-7	1-7	1-7	1-7	0-63	6-60	1-40	
n	121	122	122	114	114	115	107	107	107	107	107	116	94	101	
α	.90	.80	.84	.80	.80	.72	.93	.78	.82	.81	.87				

tEI = trait emotional intelligence *= significant at the .01 level ** = significant at the .001 level (2-tailed: Bonferroni correction)

5.3.3 Effect of dichotomous demographic variables on professional quality of life

The effect of demographic variables on professional quality of life was examined using Mann-Whitney U test. No significant differences were found between marital status, having a cancer qualification, the percentage of time spent in direct clinical care, having had annual leave in the past four weeks or having experienced a significant life event in the past two years and any of the three dependent variables.

5.3.4 Effect of having children on professional quality of life

Having children had a significant impact on all three quality of life subscales. Figure 5.4 shows the results of the influence of having children on professional quality of life levels. A significant difference was found in levels of CS for participants who had children (*Md* = 50.99, *n* = 52) and those who had no children (*Md* =48.61 , *n* = 54) *U* = 1256, *z* =-2.27, *p* = 0.02, *r* = 0.21. Similarly, a significant difference was found in levels of burnout for those who had children (*Md* = 47.12, *n* = 53) and those who did not have children (*Md* = 51.39, *n* = 64), *U* = 1274, *z* = -2.32, *p* = 0.02, *r* = 0.21, and in levels of STS for participants with children (*Md* = 45.96, *n* =53), and those who did not (*Md* = 51.21, *n* = 64), *U* = 1280, *z* = -2.82, *p* = 0.02, *r* = 0.26.

Figure 5. 4: Effect of having children on the median scores of the subscales of professional quality of life

5.3.5 Effect of gender, and working 12-hour shifts on professional quality of life

Due to the large difference in group sizes statistical tests were not carried out as Mann-Whitney U test would not provide further clarity to the result. However, a clear difference was observed in the median values for gender (Table 5.7) and working 12 hours shifts (Table 5.8). There is a large observed difference in the median burnout values between females (*Md* 48.83, *n* = 116) and males (*Md* 58.22, *n* = 5).

Table 5. 7: Effect of gender on professional quality of life

	Female		**Male**	
	Median	Number	Median	Number
Compassion satisfaction	50.98	116	47.83	5
Burnout	48.83	116	58.22	6
Secondary traumatic stress	48.59	116	47.71	6

A large observed difference was identified in the median values of burnout for participants who worked 12-hour shifts (*Md* 59.07, *n* =15) and those who did not work 12-hour shifts (*Md* 48.83, *n* = 101).

Table 5. 8: Effect of working 12-hour shifts on professional quality of life

	12-hour shifts		**No 12 hour shifts**	
	Median	Number	Median	Number
Compassion satisfaction	46.25	14	50.98	101
Burnout	59.07	15	48.83	101
Secondary traumatic stress	52.96	15	47.71	101

5.3.6 Professional quality of life correlation to empathy subscales

The correlation data between professional quality of life and empathy revealed that cognitive empathy was positively correlated with compassion satisfaction but showed no significant correlation with burnout or STS. Empathic concern only showed significant correlation with secondary traumatic stress, but not either of the other two subscales of professional quality of life. Personal distress was correlated with all three subscales of professional quality of life. The results are described below.

5.3.6.1 Compassion satisfaction and the empathy subscales of empathic concern, perspective taking, and personal distress.

There was a significant positive correlation between CS and the empathy subscale perspective taking ($n = 114$, $r_s = 0.25$, $p < 0.008$). A significant negative correlation was identified between CS and the empathy subscale of personal distress ($n = 115$, $r_s = -0.37$, $p < 0.001$). There was no significant correlation between CS and the empathic concern subscale of the IRI.

5.3.6.2 Burnout and the empathy subscales of empathic concern, perspective taking, and personal distress

There was no significance found in correlations between burnout and perspective taking or empathic concern. There was a significant positive correlation between burnout and the subscale of personal distress ($n = 115$, $r_s = 0.26$, $p < 0.006$).

5.3.6.3 Secondary traumatic stress and empathy subscales of empathic concern, perspective taking, and personal distress

There was a positive correlation between STS and the empathy subscale of empathic concern ($n = 114$, $r_s = 0.28$, $p < 0.003$). There was also a positive correlation between STS and the personal distress subscale of the IRI ($n = 115$, $r_s = 0.31$, $p < 0.001$).

5.3.7 Professional quality of life correlation to trait emotional intelligence

Table 5.6 illustrates the strength of the correlations between Global tEI and all subscales of the ProQOL. The general pattern of the correlations indicates that there was a positive relationship between the subscales of tEI and compassion satisfaction, and there was a negative relationship between the subscales of tEI and the compassion fatigue subscales. The results are described in further detail below.

5.3.7.1 Compassion satisfaction and trait emotional intelligence

There was a significant positive correlation between CS and Global tEI ($n = 107$, $r_s = 0.51$, $p < 0.00$). A significant positive correlation was found between CS and the four factors of the TEIQue, sociability ($n = 107$, $r_s = 0.42$, $p < 0.001$), emotionality ($n = 107$, $r_s = 0.48$, $p < 0.001$), self-control ($n = 107$, $r_s = 0.34$, $p < 0.001$), and well-being ($n = 107$, $r_s = 0.51$, $p < 0.001$).

5.3.7.2 Burnout and trait emotional intelligence

A significant negative correlation was found between burnout and Global tEI ($n = 107$, $r_s = -0.56$, $p < 0.001$). There was a significant negative correlation between burnout and sociability ($n = 107$, $r_s = -0.37$, $p < 0.001$), and self-control ($n = 107$, $r_s = -0.49$, $p < 0.001$), emotionality ($n = 107$, $r_s = -0.56$, $p < 0.001$), and well-being ($n = 107$, $r_s = -0.54$, $p < 0.001$).

5.3.7.3 Secondary traumatic stress and trait emotional intelligence

There was a significant negative correlation between STS and Global tEI ($n = 107$, $r_s = -0.41$, $p < 0.001$). Secondary traumatic stress also had a negative correlation that reached significance with all four factors of the TEIQue; sociability ($n = 107$, $r_s = -0.36$, $p < 0.001$), self-control ($n = 107$, $r_s = -0.38$, $p < 0.001$), well-being ($n = 107$, $r_s = -0.44$, $p < 0.001$), and emotionality ($n = 107$, $r_s = - 0.29$, $p < 0.003$).

5.4 Multiple regression analysis

Both standard multiple regression and hierarchical multiple regression analysis was carried out on the data. Prior to running the multiple regression models, tests were conducted to check for violation of assumptions of the data.

5.4.1 Tests for multiple regression analysis

Tests were conducted to ensure there was no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Correlations for all the standard and multiple regression analyses indicated that multicollinearity was a problem. Correlations greater than 0.70 indicate a problem with multicollinearity (Field 2018) and independent variables that reveal correlations above 0.70 require one variable to be removed. For all standard and hierarchical multiple regression models, global tEI and emotionality showed multicollinearity above 0.70 with other tEI subscales. Both global tEI and emotionality were removed before running the models. Additionally, for the standard and hierarchical multiple regression STS models, age and years in cancer care showed multicollinearity above 0.70 and therefore age was removed from the regression models.

Tolerance and Variance Inflation Fraction (VIF) values were analysed. Tolerance values should be greater than 0.10, and VIF values should be less than 10 (Pallant 2013). In this current study, tolerance and VIF values indicated no problems with multicollinearity. Normal probability (P-P) plots and scatterplots were examined and these suggested normality of the data. Malhalanobis distances were computed for each of the models, using critical values described by Pallant (2013). Some values fell just outside this critical value therefore, casewise diagnostics were run to identify unusual cases. The same case, 41, was outside the parameters of the standardised residual -3 to +3 (Field 2018), indicating that this may be an unusual case. Pallant (2013) suggests only 1% of cases should fall outside of these parameters. Outliers and unusual cases may not be influential cases and therefore may not affect the model so cases may not need to be deleted (Field, 2018: p385). Cook's Distance was used to identify cases where the predictor variable might influence the predicted value of the outcome variable (Field, 2018). The Cook's Distance values for outliers and unusual cases fell within the required parameters. In fact, in all models, Cook's Distance were below 1, Field (2018) suggests this indicates no undue influence of any case on the models. However, the tests were rerun with case 41 omitted and the results indicated that this case was unusual, therefore case 41 was omitted from the final standard and hierarchical multiple regression models.

5.4.2 Standard multiple regression

Standard multiple regression was used to further explore the relationships between the dependent variables (compassion satisfaction, burnout, and secondary traumatic stress), and the independent variables. The independent variables were chosen based on the correlation data, the results of the Mann-Whitney U Tests on demographics, and the theoretical relationships between the independent variables and the dependent variables (Table 5.9).

A standard multiple linear regression was calculated to assess the ability for 6 independent variables to predict CS. The results of the regression indicated that the model explained 33% of the variance, and that the model was a significant predictor of CS, F (6, 94) = 7.79, $p < 0.001$. The model predicted that if well-being scores could be increased by 1 *SD* (0.93) then CS scores would increase by 0.35 *SD*.

Table 5. 9: Standard multiple regression for study variables and the dependent variables

	B	*SE*	*β*	*t*	*p*	R^2	Ad R^2
CS						0.33	0.29
Sociability	1.05	1.44	.09	0.73	0.47		
Self-control	0.95	1.29	.01	0.74	0.94		
Well-being	3.40	1.30	.35	2.62	0.01*		
Personal distress	-0.20	0.21	-.10	-0.93	0.35		
Perspective taking	0.28	0.19	.14	1.50	0.14		
Children	-2.07	1.59	-.12	-1.30	0.20		
Burnout						0.40	0.37
Sociability	0.40	1.50	.03	0.26	0.79		
Self-control	-2.49	1.30	-.20	-1.92	0.06		
Well-being	-5.56	1.33	-.52	-4.18	0.00**		
Personal distress	-0.09	0.22	-.04	-0.39	0.70		
Children	0.89	1.65	.05	0.54	0.59		
STS						0.37	0.31
Sociability	-1.16	1.71	-.89	-0.68	0.50		
Self-control	-1.61	1.52	-.13	-1.06	0.29		
Well-being	-3.47	1.62	-.33	-2.14	0.04*		
Personal distress	0.13	0.26	.06	0.51	0.61		
Empathic concern	0.76	0.21	.35	3.63	0.00**		
YCC	-0.15	0.13	-.13	-1.14	0.26		
Children	-0.13	2.10	-.006	-.06	0.95		

CS = compassion satisfaction; STS = secondary traumatic stress; YCC = years in cancer care; Ad R2 = Adjusted R2; *= significant at the 0.05 level; **= significance at the 0.001 level

Similarly, a standard multiple linear regression was calculated to assess the ability of 5 independent variables to predict burnout. The results of the regression indicated that the model for burnout explained 40% of the variance, and the model was a significant predictor of burnout, *F* (5, 95) = 12.79 $p < 0.001$. The model predicted that if well-being could be increased by 1 *SD* (0.93), then burnout would decrease by 0.52 *SD*.

A standard multiple linear regression was calculated to assess the ability of 7 independent variables to predict STS. Two independent variables, empathic concern and well-being, were statistically significant. The results of the regression indicated that the model for STS explained 37% of the variance, and the model was a significant predictor of STS, *F* (7, 78) = 6.42, $p < 0.001$. The model predicted that if empathic concern was to increase by 1 standard deviation (4.59), then STS scores would increase by 0.35 SD, and if well-being was to increase by 1 standard deviation (0.93) then STS would decrease by 0.33 SD.

5.4.3 Hierarchical multiple regression analysis models

Hierarchical multiple regression was conducted to examine the results of the standard multiple regression analysis. Three models were assessed. The independent variables were chosen based on the results of standard multiple regression analysis, and the Spearman's rho correlations. Table 5.10 presents the results of each stage of the three models.

Table 5. 10: Outcome variables: hierarchical multiple regression models

	B	*SE*	*β*	*t*	*p*	*F*	*p*	R^2	*Ad* R^2	R^2 *Ch*
CS: Model 1										
Step 1						8.72	0.004*	0.08	0.07	0.08
Perspective taking	0.56	0.19	.28	2.95	.004*					
Step 2						21.93	0.00**	0.31	0.29	0.23
Perspective taking	0.23	0.18	.12	1.33	0.19					
Well-being	4.82	0.85	.50	5.69	0.00**					
Burnout: Model 2										
Step 1						34.39	0.00**	0.25	0.24	0.25
Self-control	-6.30	1.07	-.50	-5.86	0.00**					
Step 2						34.14	0.00**	0.40	0.39	0.15
Self-control	-2.51	1.22	-.20	-2.05	0.04*					
Well-being	-5.22	1.03	-.49	-5.07	0.00**					
STS: Model 3										
Step 1						23.20	0.00**	0.19	0.18	0.19
Well-being	-4.59	0.95	-.43	-4.82	0.00**					
Step 2						23.06	0.00**	0.32	0.30	0.13
Well-being	-5.43	0.90	-.51	-6.04	0.00**					
EC	.79	.18	.37	4.34	0.00**					

CS = compassion satisfaction; STS = secondary traumatic stress; EC = empathic concern; Ad R2 = Adjusted R2; R2 Ch = R2 Change

Model 1

In this model hierarchical multiple regression was used to assess the ability of the tEI subscale of well-being to predict CS after perspective taking was controlled for. Perspective taking was entered at Step 1, explaining 8% of the variance in CS. After entering well-being at Step 2, the total variance explained by the model as a whole was

31%, *F* (2, 100) = 21.93, *p* < 0.001. Well-being predicted an additional 23% of the variance in CS, after controlling for perspective taking, *R* Squared change = 0.23, F change (1, 100) = 32.42, *p* = 0.001. In the final model only well-being was statistically significant recording a beta value (*beta* = 0.50, *p* < 0.001).

Model 2

In this model hierarchical multiple regression was used to assess the ability of the tEI subscale of well-being to predict burnout after self-control was controlled for. Self-control was entered at Step 1, explaining 25% of the variance in burnout. After entry of well-being at Step 2, the total variance explained by the model as a whole was 40%, *F* (2, 103) = 34.14, *p* < 0.001. Well-being predicted an additional 15% of the variance in burnout, after controlling for self-control, *R* Squared change = 0.15, *F* change (1, 103) = 25.72, *p* < 0.001. In the final model, both independent variables were statistically significant, with well-being recording a higher beta value (*beta* = -.49, *p* < 0.001) than self-control (*beta* = -.20, *p* < 0.04).

Model 3

In this model hierarchical multiple regression was used to assess the ability of the empathy subscale of empathic concern to predict STS after well-being was controlled for. Well-being was entered at Step 1, explaining 19% of the variance in STS. After entry of empathic concern at Step 2, the total variance explained by the model as a whole was 32%, *F* (2, 100) = 23.06, *p* < 0.001. Empathic concern explained an additional 13% of the variance in STS, after controlling for well-being. *R* Squared change = 0.13, *F* change (1, 100) = 18.81, *p* < 0.001. In the final model, both well-being and empathic concern were statistically significant, with well-being recording a higher beta value (*beta* = -0.51, *p* < 0.001) than empathic concern (*beta* = 0.37, *p* < 0.001).

5.5 Comparison of professional quality of life, empathy, and trait emotional intelligence by profession

Comparisons were made between professional quality of life, empathy subscales, general tEI, and tEI subscales for nurses, radiation therapists and doctors. Kruskal-Wallis Test was carried out to determine the differences between the groups for each of the constructs. Mann-Whitney U tests were carried out to determine differences between the groups based on the statistically significant findings of the Kruskal-Wallis Test.

5.5.1 Tests for differences between nurses, radiation therapists and doctors

A Kruskal-Wallis Test revealed a statistically significant difference in burnout levels across the professions (Gp1, *n* = 11: doctors, Gp2, *n* = 64, nurses, Gp3, *n* = 47, radiation therapists), X^2 (2, *n* = 122) = 14.68, *p* = 0.001 (Table 5.11). Doctors recorded a higher median score (*Md* = 57.37) than nurses (*Md* = 47.12) or radiation therapists (*Md* = 52.25). A Kruskal-Wallis Test revealed no differences in CS or STS levels across the professional groups.

Table 5. 11: Kruskal-Wallis Test results: professional quality of life

	N	Mean of ranks	X^2	*p*
Compassion satisfaction				
Nurses	64	65.71		
Radiation therapists	47	55.07	2.55	0.28
Doctors	10	58.70		
Burnout				
Nurses	64	50.40		
Radiation therapists	47	68.36	14.68	0.001**
Doctors	11	90.95		
Secondary traumatic stress				
Nurses	64	58.27		
Radiation therapists	47	62.40	2.54	0.28
Doctors	11	76.45		

Significant at 0.001

A Kruskal-Wallis Test revealed a statistically significant difference in the tEI subscale of self-control levels across the professions (Gp1, *n* = 10: doctors, Gp2, *n* =58: nurses, Gp 3, *n* = 39, radiation therapists), X^2 (2, n = 107) = 13.57, *p* = 0.001 (Table 5.12). A Kruskal-Wallis Test revealed no differences in global tEI, emotionality, well-being and sociability levels between the professional groups.

Table 5. 12: Kruskal-Wallis Test results: trait emotional intelligence

	N	Mean of ranks	X^2	*p*
Global trait emotional intelligence				
Nurses	58	60.22		
Radiation therapists	39	48.51	5.78	0.06
Doctors	10	39.35		
Self-control				
Nurses	58	63.43		
Radiation therapists	39	45.91	13.57	0.001**
Doctors	10	30.85		
Emotionality				
Nurses	58	57.59		
Radiation therapists	39	50.95	1.99	0.37
Doctors	10	45.05		
Sociability				
Nurses	58	55.50		
Radiation therapists	39	53.91	0.86	0.65
Doctors	10	45.65		
Well-being				
Nurses	58	59.98		
Radiation therapists	39	48.04	4.96	0.08
Doctors	10	42.55		

** significant at 0.001:

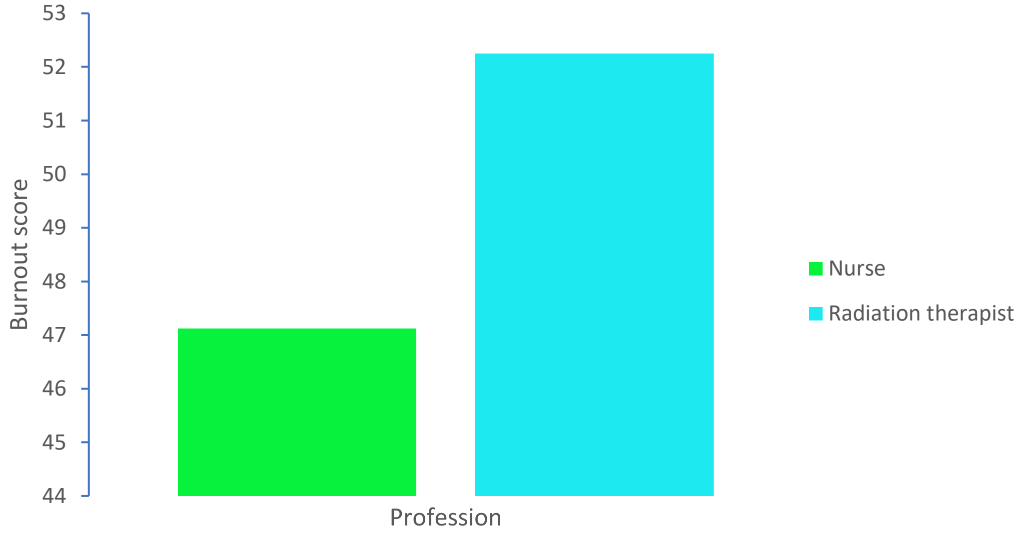
A Kruskal-Wallis Test revealed no differences in the perspective taking, personal distress and empathic concern levels across the professions (Table 5.13). The differences between the two groups burnout and self-control was examined in more detail using Mann-Whitney U tests.

Table 5. 13: Kruskal-Wallis Test results: empathy

	N	Mean of ranks	X^2	*p*
Perspective taking				
Nurses	58	59.82		
Radiation therapists	45	55.77	0.68	0.71
Doctors	11	52.36		
Empathic concern				
Nurses	59	57.98		
Radiation therapists	44	57.73	0.14	0.93
Doctors	11	54.00		
Personal distress				
Nurses	59	57.68		
Radiation therapists	45	58.47	0.02	0.99
Doctors	11	57.82		

5.5.2 Mann-Whitney U Tests of burnout across professions

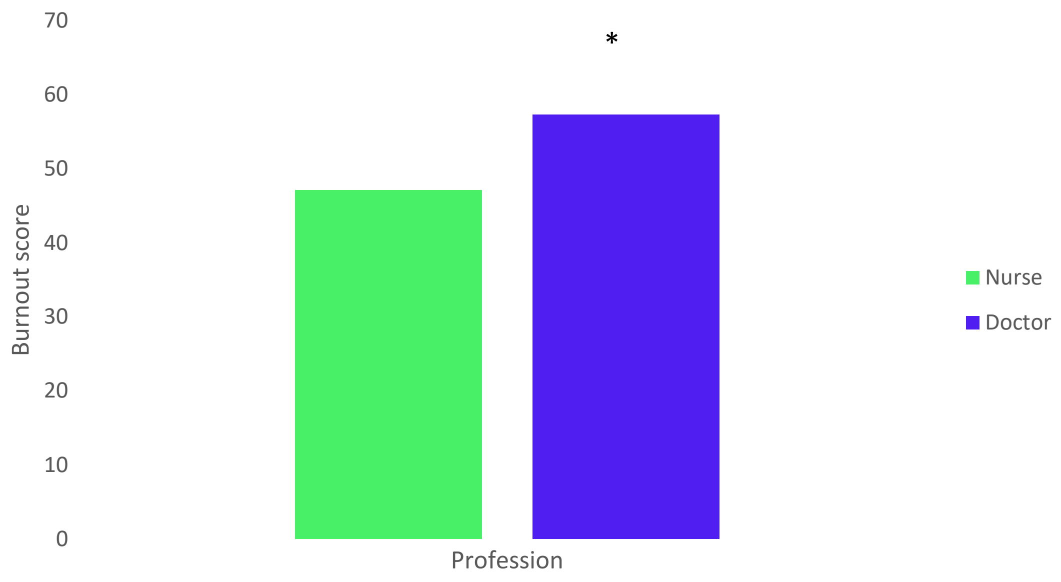
Mann-Whitney U tests were conducted to compare the burnout scores for nurses and radiation therapists, nurses and doctors, and doctors and radiation therapists. A significant difference was found in the burnout scores for nurses (*Md* = 47.12, *n* = 64,) and radiation therapists (*Md* = 52.25, n = 47); *U* = 1088, *z* = -2.49, *p* = 0.01, *r* = 0.24 (Figure 5.5). This effect was small (*r* = 0.24) using Cohen (1988) criteria of 0.1 = small effect, 0.3 = medium effect and 0.5 = large effect.



* Significance at the 0.017 level (2-tailed: Bonferroni correction applied)

Figure 5. 5: Nurses and radiation therapists: comparison of burnout scores

There was a significant difference in the burnout scores for nurses (*Md* = 47.12, n = 64), and doctors (*Md* = 57.37, *n* = 11), *U* = 121.50, *z* = -3.46, *p* = 0.001, *r* = 0.40 (Figure 5.6). This is a medium effect (*r* = 0.40) using Cohen (1988) criteria of 0.1 = small effect, 0.3 = medium effect and 0.5 = large effect. There was no difference in burnout scores for radiation therapists (*Md* = 52.25, *n* = 47) and doctors (*Md* = 57.37, *n* = 11), *U* =, 165, *z* = -1.86, *p* = 0.06, *r* = 0.24.

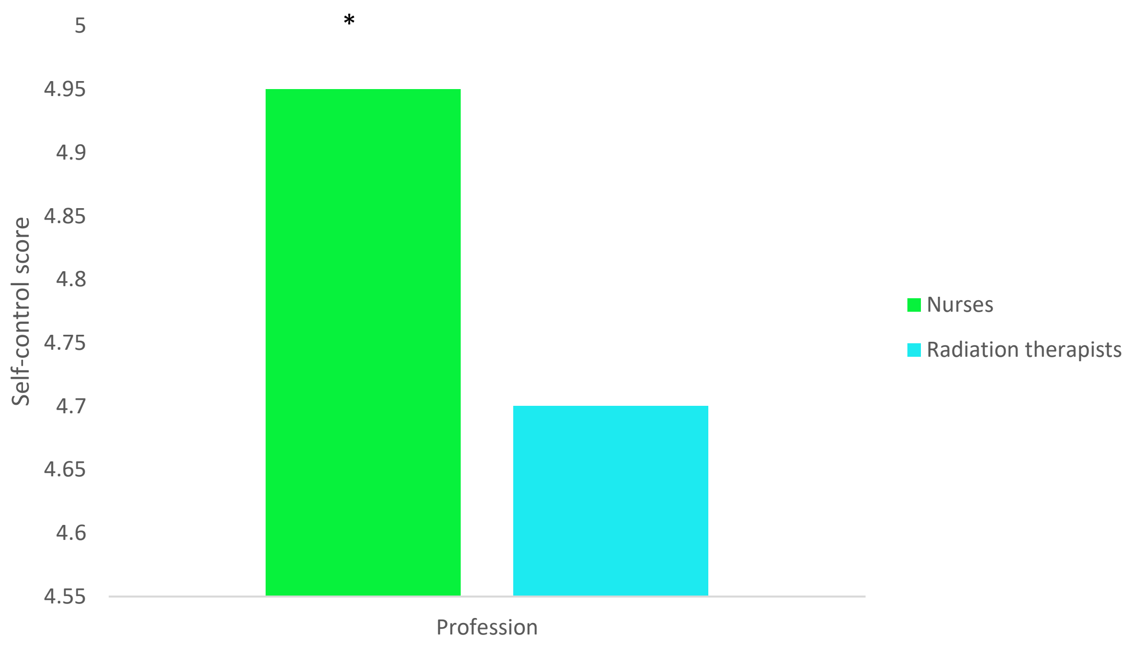


* Significance at the 0.017 level (2-tailed: Bonferroni correction applied)

Figure 5. 6: Nurses and doctors: comparison of burnout scores

5.5.3 Mann-Whitney U Tests of self-control across professions

There was a significant difference identified in the self-control scores for nurses (*Md* = 4.95, *n* = 58) and radiation therapists (*Md* = 4.70, n = 39), *U* = 775.5, *z* = -2.62, *p* = 0.009, *r* = 0.27 (Figure 5.7). This was a small effect (*r* = 0.27) using Cohen (1988) criteria of 0.1 = small effect, 0.3 = medium effect and 0.5 = large effect.. There was a significant difference in self-control scores for nurses (*Md* = 4.95, *n* = 58) and doctors (*Md* = 4.23, *n* = 10), *U* = 98.50, *z* = -3.32, *p* = 0.001, *r* = 0.40 (Figure 5.8). This is a medium effect (*r* = 0.40) using Cohen (1988) criteria of 0.1 = small effect, 0.3 = medium effect and 0.5 = large effect. There was no difference in self-control for radiation therapists (*Md* = 4.70, *n* = 39) and doctors (*Md* = 4.23, *n* = 10) *U* = 155.00, *z* = -0.99, *p* = 0.33, *r* = 0.14.



* Significance at the 0.017 level (2-tailed: Bonferroni correction applied)

Figure 5. 7: Nurses and radiation therapists: comparison of levels of self-control

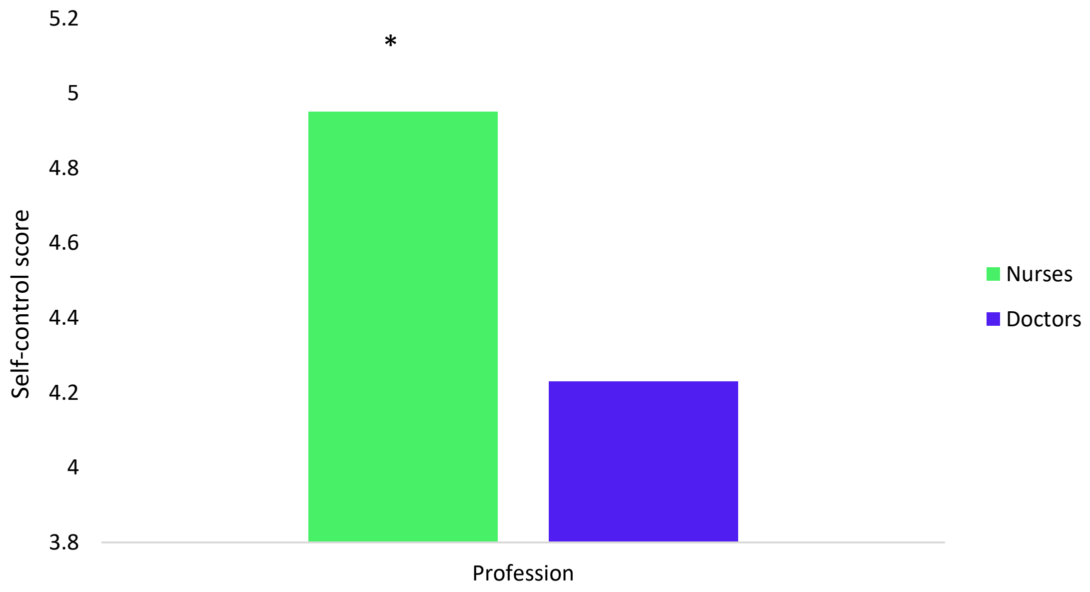


Figure 5. 8: Nurses and doctors: comparison of levels of self-control

5.6 Phase II: qualitative phase

The results of the qualitative phase are presented as themes and subthemes. Participant quotes are used throughout the results to illustrate the themes and subthemes.

5.6.1 Phase II: demographic profile of the participants in the interviews

The demographic details of the participants of Phase II are presented in Table 5.14. Six nurses and six radiation therapists who worked full time in cancer care were interviewed. The nurses had worked in cancer care over five years and all of the radiation therapists were qualified less than five years. Eleven participants were female and one participant was male.

Table 5. 14: Phase II: participant demographics

Participant	Profession	Years in cancer care	Workplace
N01	Nurse	11-15	Public
N02	Nurse	6-10	Public
N03	Nurse	11-15	Private
N04	Nurse	11-15	Private
N05	Nurse	6-10	Public
N06	Nurse	6-10	Private
RT01	Radiation therapist	< 5	Private
RT02	Radiation therapist	< 5	Private
RT03	Radiation therapist	< 5	Private
RT04	Radiation therapist	< 5	Private
RT05	Radiation therapist	< 5	Private
RT06	Radiation therapist	< 5	Private

5.7 Participant understanding of the study concepts and relationships between the constructs

At the beginning of each interview participants were asked to explain what they thought each of the study concepts were. All participants knew about compassion fatigue, but some did not know about compassion satisfaction. All participants had some understanding of empathy, however, many participants had not heard of EI and those that had did not fully understand the concept.

5.7.1 Participant understanding of compassion satisfaction

Overall, participants spoke about CS in terms of ‘doing for someone’ in a positive way. The focus was on the ‘other’ and not on the ‘self’. The focus on other seemed to be important for CS.

> *‘You feel like you’ve made an impact on their journey ... you’ve made a difference in their lives.’*
>
> **(RT05)**

> *‘... bringing that small bit of relief you know…’*
>
> **(RT03)**

Participants spoke about making a difference to people, helping people through a difficult time, and improving the quality of life of patients.

> *‘... you feel you’re really impacting on somebody’s quality of life, and their experience of something that is probably a very difficult time, one of the most difficult times in their life…’*
>
> **(N02)**

> *‘... Keeping a good quality of life for the patients as well.’*
>
> **(N05)**

The majority of participants had heard of the term compassion satisfaction. However, one radiation therapist and one nurse had never heard of this term before and had no concept of what this was.

> *‘No, no, I’ve actually never heard of it.’*
>
> **(RT06)**

> *‘Well as a term I actually have never heard of it.’*
>
> **(N01)**

5.7.2 Participant understanding of compassion fatigue

For the participants, understanding compassion fatigue seemed to encompass a weariness that was felt through reaching some type of limit. This was coupled with not being able to give patients equal consideration.

'You're under stress or you're just a little bit burnt out from your job ... can't give that person 100% of your attention ... thinking I could have done better ... you're just not able to commit to it.

(N01)

'When you've reached your limit ... am I going to be able to give them as much of myself as I've given the last person.'

(N02)

Compassion fatigue was identified as being a serious issue, with one participant putting it in those specific words. Another participant described it as taking over one's whole life.

'Is a serious kind of issue ...'

(RT06)

'... starts to take over your whole life ...'

(RT01)

5.7.3 Participants understanding of empathy

Empathy was seen as an emotional concept that focused on the 'other', that is the patient and family. The majority of participants' understanding of empathy focused around putting yourself in someone else's shoes.

'Putting yourself in somebody else's shoes and saying you know they feel this way, how would I feel if that was me.'

(RT05)

'I suppose it's putting yourself in that person's shoes…'

(N03)

Participants spoke about understanding what the patient was going through from personal experience, and seeing things from the patient's perspective. In order to be empathic participants spoke about being sensitive to situations, listening to the patient and being compassionate.

'understand how that person is feeling from maybe our own personal experience or something similar…'

(RT02)

'being able to listen to their perspective and how they feel about something … support them in a productive and compassionate way.'

(N05)

5.7.4 Participant understanding of emotional intelligence

Participants understanding of EI was incomplete, and some described what they thought EI was, but were not sure.

'… is it like understanding or recognising your own emotions and somebody else's with that, because, I don't know?'

(N02)

'I'm not sure exactly what emotional intelligence means, is it being aware of other's emotions or what, I'm not sure.'

(RT03)

It focused around recognising emotions, being aware of emotions, and understanding emotions. This included the emotions within themselves and the emotions of others.

'… to understand your own emotions … to understand someone else's emotions…'

(RT01)

'More that you are able to recognise their emotional needs and hopefully deliver the attention and care they need to meet those needs.'

(RT04)

Some participants were not clear what EI was, and linked it to knowing. Nobody talked about EI in terms of managing either their own emotions or managing the emotions of others.

> *'… is knowing that this is happening and then knowing what you need to do about it I think…'*
>
> **(N03)**

> *'I think it is being able to know what emotions are going on in you and others.'*
>
> **(N04)**

Some of the participants disclosed after their interview that they had to look EI up on the internet prior to the interview. One participant said during the interview that they were not sure of the term EI. In general, EI seemed to be an alien concept to many of the participants, where they had to look it up prior to the interview or they had an incomplete understanding of the concept.

5.7.5 Participant views of the relationships between the study constructs

At the end of the interview the nurses and radiation therapists were asked what their opinion was of the three main relationships of the study constructs. Sometimes these study questions seemed to trigger memories of challenging situations from the interviewees cancer care experience, resulting in further rich descriptions of the experiences of the participant relating to the study concepts. The questions were complex, and depended on the HCP understanding of the concepts, therefore the questions were not always fully understood by the participants. However, all HCPs did attempt to tease out the relationships based on their knowledge of the concepts.

Relationship 1: Do you think that HCPs in cancer care who have high compassion satisfaction are more or less empathic? Why?

The majority of participants felt that HCPs in cancer care who have high CS would be more empathic. The reasons given related to receiving something back from the patient when empathising that results in CS, and feeling that if you have a lot of empathy then CS would naturally follow.

> *'Definitely more, I've had this conversation with other girls as well … because you're getting something out of it I suppose …'*
>
> **(N02)**

I do, I do think that once you have high compassion satisfaction you're more empathic … the patient kind of responds … you do get it back.'

(RT05)

However, there were 4 participants who felt they didn't know because they made the point that some HCPs may feel CS, but they may not be doing a good job, or may not be demonstrating empathy. In this instance the HCP may be unaware that they are not demonstrating empathy and may think they are providing good care.

'So I think people might feel good in their job but they might not be doing a good job … someone who maybe isn't empathic they might not understand they're not providing, they're not having empathy … and they might not feel bad about it.'

(RT01)

'Like I think you could have someone with high compassion satisfaction and you think you've done a great job, but actually have you done a good job?'

(N05)

Relationship 2: Do you think that HCPs in cancer care who are high in emotional intelligence experience more or less compassion satisfaction? Why?

Nine of the HCPs felt that HCPs in cancer care who are high in EI would experience more compassion satisfaction, the rest of the HCPs (n=3) were not sure. Reasons for this related to the HCP understanding their own emotions and the emotions of the patient, and thus resulting in CS.

'yes, 'cos I think that you are aware of your feelings, their feelings, you're able to deal with them.'

(RT03)

'Probably more as they are able to know when to hand things over, I think it comes with experience.'

(N04)

Some participants felt that high EI would result in HCPs recognising the signs of CF or perhaps they may just not be experiencing compassion fatigue.

'I think if you're high in emotional intelligence, you'll recognise sooner when you're experiencing compassion fatigue.'

(N01)

'if you have high emotional intelligence maybe you would feel more compassion satisfaction because you may not be as fatigued as well.'

(RT02)

One radiation therapist pointed out that compassion satisfaction may not follow if someone is high in EI as external resources (time) may not be available to deal with the patient's suffering, thus the HCP may be more likely to experience CF.

'I don't know if that one would necessarily follow ... they may be able to pick up on it but not really able to act on it, which might give you the reverse of satisfaction ... I know this patient is suffering but I don't have time to help...'

(RT05)

Relationship 3: Do you think there is a relationship between a person's emotional intelligence, empathy and compassion satisfaction / compassion fatigue? If yes, what is the relationship and why? If no, why?

Participants found this a complex and hard question making interpretation difficult. Most interviewees did not understand the question, yet they did attempt to answer it. This difficulty in answering this question in particular reflects the complexity of the study constructs.

'Yes I do yeah for sure. I think empathy there is a huge thing for compassion satisfaction, but then being able to make sure that you're not fatigued by it comes from emotional intelligence.'

(RT02)

'I suppose they're all intertwined in some way, it's like a balancing act, I suppose ... you may have a difficult case that you may not feel satisfied with the outcome and maybe the patient does ...'

(N05)

5.7.6 Education and professional quality of life

The interviewees were asked if they had any thoughts about how HCP working in cancer care could be taught about compassion satisfaction, compassion fatigue, empathy, and emotional intelligence. This question was asked as the literature supports interventions for managing CS and CF. The participants had many experiences of education that related to these constructs. Some of the education related directly to particular constructs, and some indirectly to the constructs.

'We did role-play ... which I thought was going to be a very simple exercise for me ... when I was put in the situation it was very different ... I've taken a lot of learning out of that.'

(N01)

'I find for myself kind of watching documentaries and stuff like that ... real life stories of people going through cancer.'

(RT06)

All of the participants felt that some sort of education or support was essential. One nurse felt that self-care might be something that could be included in education. However, the majority of the interviewees told of courses, study days, or workshops that were beneficial, but these were *ad hoc* and sometimes had to be taken on their days off.

'It was more of a kind of wellness workshop actually ... on a Saturday ... so it is hard to get staff to come back into work on a Saturday for it.'

(RT02)

'Maybe self-care is something that you can teach.'

(N03)

Reflective practice was spoken about by both nurses and radiation therapists as an important part of practice. Both professions spoke about either having experienced reflective practice as part of undergraduate training, or for older participants as something that they see undergraduate students participating in now.

'I think reflection on practice helps as the students these days have reflection as part of their training.'

(N04)

> *'I think reflection, it's really important... maybe compassion fatigue workshops'*
>
> **(RT01)**

Of all the participants only one nurse had participated in a regular structured debriefing support. This had been during a previous job to her current role.

> *'... debriefing ... so it was brilliant ... we had a different, three meetings at least every two months or something where we'd come together and talk and like that, there was always somebody with an upset or crying ... just being able to see that other people were there was reassuring'*
>
> **(N02)**

5.8 Phase II: Themes and subthemes

The purpose of Phase II was to obtain a deeper understanding of the findings of Phase I of the study. In addition, a secondary purpose was to elicit the experiences of health care professionals working in cancer care as to the nature of the relationships between professional quality of life, empathy and emotional intelligence. Phase II is presented following interpretative phenomenological analysis of the semi-structured interviews. This process involved a rigorous and systematic reading and re-reading, coding, interpretation and understanding of the texts as outlined in Chapter 4, section 4.10.5. The process resulted in the development of themes, and a fusion of horizons that provides a deeper understanding of the interview content.

Five major themes emerged from the transcripts; making a difference, making connections with patients, identify with, taking a toll, and restoration. The major themes and associated sub-themes are presented in Figure 5.9. The participant quotations are identified using the code in Table 5.14.

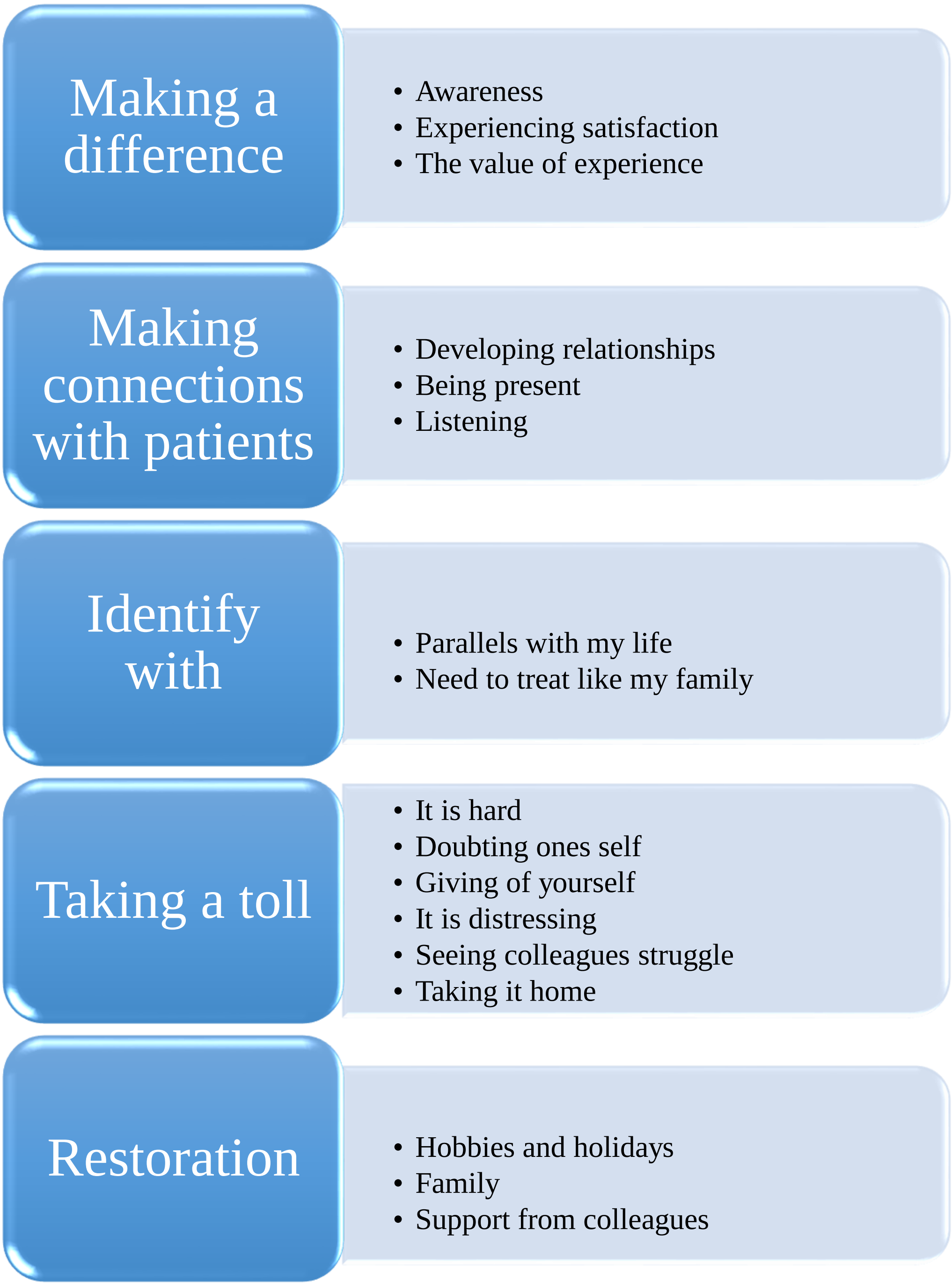


Figure 5. 9: Emerging themes and sub-themes from nurses and radiation therapists

5.8.1 Theme one: Making a difference

This theme was characterised by the participants discussing their experiences of making a difference to patients with cancer (Figure 5.10). The subthemes included awareness, experiencing satisfaction, and the value of experience.

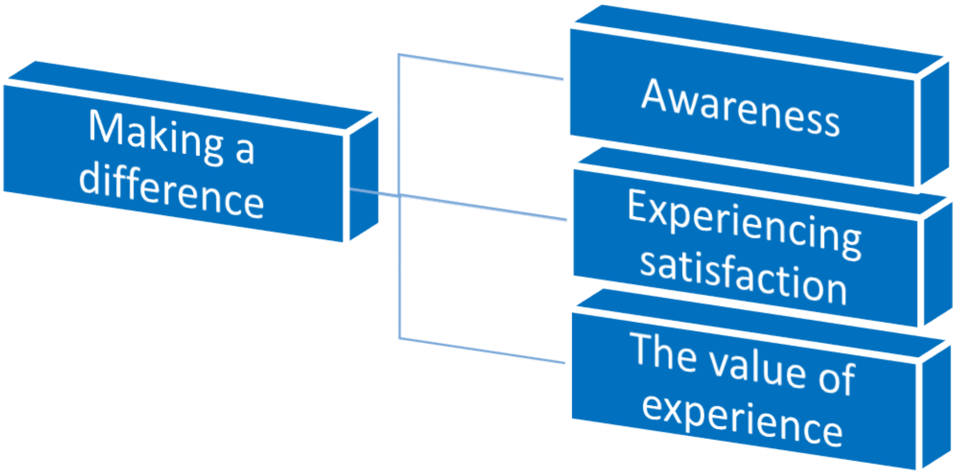


Figure 5. 10: Theme 1: Making a difference with subthemes

5.8.1.1 Awareness

In this sub-theme participants reported that they were aware of many different aspects of providing care. When discussing this awareness participants talked about aspects of compassionate and empathic practice. There was an awareness of where the patient and family were coming from, and participants spoke about the need to change their approach to patients depending on the patient's condition or prognosis.

> *'I can understand that they're in a lot of pain and it's something that I just need to be aware of … it's something I need to understand.'*
>
> **(RT01)**

> *'… you can have the patient is (sic) very unwell, very sick … And then you could have a patient in the next session really happy, in a good place, so like I suppose you need to be able to engage the patients as they are.'*
>
> **(N05)**

One nurse spoke about how a personal experience of cancer as a family member has increased their awareness of how families need support when a patient has cancer.

> *'But sometimes I think just the family … as a family member we didn't have that support, so you're kind of more aware to give family members support … and sometimes empathy wise I can understand, or I feel I can understand, and I can empathise with family members.'*
>
> **(N06)**

Many participants described an awareness of their own limitations, and were able to question if they were doing the right thing by the patient in terms of care or treatment provision.

> *'I suppose being able to recognise your limitations as well.'*
>
> **(N05)**

> *'… but at the same time you have to be able to be like – 'oh is this really the right thing?' And question some of the decisions you know whatever it is that you can do to kind of make sure…'*
>
> **(RT05)**

Many participants spoke about an awareness of compassion fatigue in terms of where it might originate from. One radiation therapists spoke about how compassion fatigue can sometimes come on without any warning.

> *'…but you're always going to have stuff that hits you emotionally, and it kind of catches you off guard every now and again … you need to be able to have the emotional quality to realise something is kind of getting to you a bit more than it normally does and recognise it's happening'*
>
> **(RT04)**

> *'…Well I suppose I've always been mindful of the fact that people burn-out..'*
>
> **(N01)**

A number of participants were aware of the need to switch off from work, take a step back, or they were aware that they could separate their emotions from those of the patient.

'… gets a bit draining, but you still try your best to do it, I think it's important to recognise when you're not doing it then to take a step back at that point, outside of work and just look after yourself then as well."

(RT04)

'I am able to compartmentalise what they are feeling, I don't take it with me. I might think about it on the drive home, or watch some telly but that would be it. I can keep work and home life separate like that.'

(N04)

5.8.1.2 Experiencing satisfaction

Participants talked about experiencing satisfaction in their work. This often came from simple things, like having time to talk, which had an impact on the patient and family.

'It's not … detecting symptoms of an early recurrence, that doesn't give me satisfaction. It's the lady who walks out the door and says 'do you know what, nobody has ever acknowledged that, you know, fatigue is normal and I feel I was cracking up' do you know and that is what gives me satisfaction'

(N01)

'But then at the very end of his very last treatment I was kind of finishing up; I was probably the last person he saw, he just kinda kissed my hand and was like 'you's (sic) are angels, you have made such a difference.' … you may just feel like you're going in and doing your job, then you do feel like maybe you are making a bit of a difference for them.'

(RT05)

A feeling of satisfaction was experienced when patients showed appreciation for what the nurses and radiation therapists, or colleagues had done during their care episodes. Patients or family giving thanks to the HCPs appeared to be well received. These thanks were most often verbal thanks and appreciation, but one nurse spoke about how the wife of a patient with cancer gave her Christmas presents for her children. This gesture helped the nurse appreciate what she had done for the patient, and how the nurse derived satisfaction from that thanks.

'so that felt really good and like she bought my kids amazing Christmas presents for all this … I didn't realise what I done as much as she is still saying thank you and stuff. So that was, that felt really, really good. Those little things are really, really nice to do.'

(N02)

One radiation therapists spoke about a nervous patient with breast cancer who was anxious about exposing her breasts during treatment. The RT recounted the sense of satisfaction felt when the patient expressed thanks for the small adjustments made to her treatment plan to accommodate the anxiety.

> *'…I did her first day chat … I was able to talk her through it and get her through it … I said to her the first day 'if you'd prefer only females in the room than that's not a problem …. And I suppose in a way that I felt myself satisfied that I kinda helped her get through it, and she thanked me afterwards.'*
>
> **(RT06)**

Several participants from one particular care facility spoke about how the department had installed a wall mounted bell that patients could ring to signify the end of their treatment regimen. The nurses and radiation therapists at this care facility told how they felt satisfied and emotional when they heard the bell ring at different points in the day. They recounted feeling this even if they only heard the bell and did not see the patient ring it.

> *'They have completed their treatment, and they are walking out that door, and they are smiling and they're ringing that bell. We can hear it from in here, and I have found that actually I get a lift, and if you are out in the waiting area, you'll actually clap. Everybody claps when the bell goes.'*
>
> **(N03)**

> *'At first I was a bit cynical and I thought it was a bit cheesy, but patients, like it's a goal for them you know to get there, and then to hear them … if you're in a treatment, even just hearing the bell, you're kind of 'oh they're done, they've got there.' You know you sometimes get a little bit emotional.*
>
> **(RT05)**

5.8.1.3 The value of experience

Although the nurses in this study had more years of experience in cancer care than the radiation therapists, both professions valued their professional experience no matter how short or long that was. It seemed that valuing professional experience helped cancer health care professionals to understand the patients' perspective and provide empathic care. A radiation therapist spoke about a patient who had breast cancer and was on the therapy table for her first treatment. The radiation therapist noticed the patient was crying and did not commence treatment, but instead went back into the room to speak with the patient.

The radiation therapist talks about how their professional experience enabled them to respond in this way.

> *'…Whereas now I think I've gained a lot of experience too. Like that there's two sides …but there's no point doing that (treatment) if she isn't happy or she's crying like. I think that's something that I've learned with experience as well.'*
>
> **(RT03)**

Life experience was discussed by nurses in relation to their role, and this life experience seemed to be a double edged sword for nurses. One of the nurses identified how she lacked life experience earlier in her career and now in hindsight they recounted how experience has enabled her to be more empathic.

> *'… when you get older, taking on more things like mortgages and life, and you realise the responsibility and that is behind all of these people sitting in the chair. You know, complications they may have in their life and things, so when we are young we don't really have those kinds of things so I'd say it's helped my empathy and that but I am a bit wiser, I can see where they're coming from.*
>
> **(N02)**

Other nurses discussed how experiences in life such as loss of a loved one to cancer, having children or having a partner impacted on their ability to provide care. This impact could cause rumination on the personal experience, or enabling positive emotions towards the patient.

> *'…I mean maybe if there's similar related…and then I have a family member that would have died of cancer … So sometimes if there's a similar case to that it can kind of make me think about my own experience as being the family, on the family end of it you know.'*
>
> **(N05)**

> *'…that's where I suppose being, having it (cancer) in the family, and having it so close you can sometimes understand what people are going through and like I was saying probably I feel a lot more empathy towards family members.'*
>
> **(N06)**

To summarise, the theme 'making a difference' highlighted that nurses and radiation therapists were aware of where the patient and family are coming from, and the HCPs were also aware of the consequences of providing empathic and compassion in practice, in terms of both compassion satisfaction and compassion fatigue. Although the nurses who participated in these interviews had more clinical experience than the radiation therapists interviewed, both professions valued their clinical experience however short, and spoke about how experience gained helped them make a difference in the lives of patients with cancer.

5.8.2 Theme two: Making connections with patients

Making connections with patients appeared to be a very important aspect of cancer care for the participants. This was achieved through various means and enabled the participants to feel compassion satisfaction through their work. The three emerging sub-themes (Figure 5.11) identified included developing relationships with patients, being present, and listening.

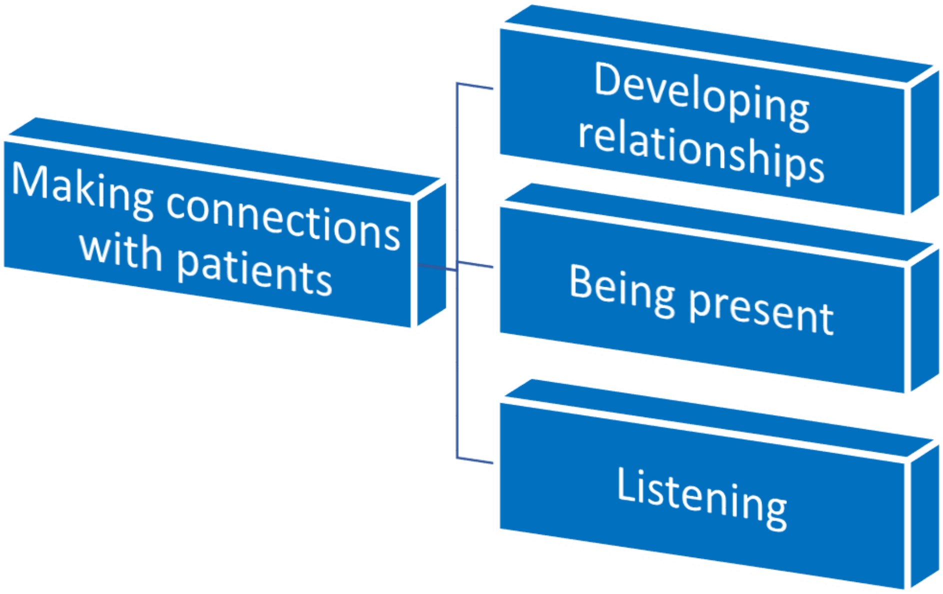


Figure 5. 11: Theme 2: Making connections with patients with subthemes

5.8.2.1 Developing relationships

Participants spoke of the importance of developing relationships with patients and families. These relationships appeared to develop over the time patients were attending for treatment, which often lasted for weeks to months.

'You see them maybe every week or two weeks through their whole cycle of treatment. So, I found that's the time when I feel most connected to the person…'

(N02)

'A lot of them (patients) are coming for say five weeks and you know five days a week, like you know I think it's important to have that relationship with them, with the people and to let them know that we are, you know, open.'

(RT06)

Developing these relationships for some of the nurses and radiation therapists involved becoming close to particular patients. This closeness enabled the HCPs to develop special bonds with these patients, but this also had a personal impact on the HCP.

'… but you know that was a friendship that we build up, and you know she had to go through new treatment and then later on we heard that she had passed away … you hear that she's passed away but (pause) and I had a few tears.'

(N03)

'I remember we had a patient like recently … he had lung cancer and he was really nice to me like, we got on really well and he would bring me in chocolates. … and then maybe two weeks after treatment he died and it was really unexpected … so I kind of thought about it a bit more … but there are some people who are, they are just special to you.'

(RT01)

However, radiation therapists spoke about how other work duties or time factors hindered the development of relationships with patients, and this seemed to cause a sense of dissatisfaction for the RT with the episode of care. This did not appear to be a feature for nurses.

'… the two of us will be treating and you kind of nip out during one of the bits to grab the next patient in and bring them in. And they're trying to tell you something and you, you want to stay with them, but then you're like 'oh I have to go back because I have to get the next patient off the bed', and you are like oh I wish I could (pause) get to the bottom of this.'

(RT05)

'We have 15 minutes with each patient, … a bit of a conveyor belt at times … I find that hard because I just want to be able to spend that time with the patients, and get to know them … So you do kind of have to sacrifice I suppose a bit of that emotional (pause) I

suppose emotional connection there as well, it's kind of conflicting views that I'm probably experiencing.'

(RT06)

5.8.2.2 Being present

Many nurses and RTs spoke about being present with the patient and ensuring that they could give their full attention to that patient. This was a source of satisfaction for most participants.

'You obviously have to put anything aside that is making you feel a bit more uncomfortable emotionally, when you're sat in front of the patient, whether it is if the last patient was a bit distressing, or you had a bad sleep … you have to shelve it I think, and focus on the patient in front of you at the time.'

(RT04)

'I feel compassion satisfaction a lot. (Pause). For me in every job that I have done, it's being able to just be present with the patient.'

(N01)

'Just being there to listen to them and understand and you know help in whatever way you can …'

(RT02)

Being present with patients did not always provide a sense of satisfaction. One participant spoke about how they used to get satisfaction from being present with patients when providing education about treatments, but lately the satisfaction is replaced by more negative feelings like guilt. However, this nurse demonstrated an awareness of this lack of being present with the patient.

'… and the education, I used to love that. That was my favourite part of the new patient, educating them. I found that's a bit boring now, yes, oh I have to go through all this again sort of thing, and this is terrible because that person is their first time, so I should be giving them the full time, so the guilt of that is at me a little bit too.'

(N02)

5.8.2.3 Listening

A number of nurses and RTs spoke about the importance of listening to patients, and allowing them to have time to disclose their anxieties and feelings. This ability to listen to the patient enabled the participants to understand the patient's perspective, and this appeared to be a source of connecting with patients as well as a source of satisfaction for the HCPs. Participants also felt that listening to patients allowed them to know when support for the patient was beyond their scope and to know when it was time to refer to other professionals.

> *'So a lot of the time I understand that although someone come (sic) across a little bit angry or a little bit upset or anxious with maybe the staff or just in general, a lot of the time they just want to be heard and listened to and not necessarily have you solve all of their problems.'*
>
> **(RT02)**

> *'… like we listen and we can be supportive to patients, but sometimes they need more than us. I suppose it's not just trying to keep the patient, and sort of you know to yourself, that there are other services and there is (sic) other people who are more experienced in dealing with these issues.'*
>
> **(N05)**

One nurse did report sometimes feeling stressed from listening to patients, and described how this could be a source of fatigue.

> *'I suppose you can become fatigued from caring for that cohort (patients with cancer) because I suppose you do, you listen a lot, you're taking a lot, it can be stressful sometimes dealing with some of the issues…'*
>
> **(N05)**

A number of nurses spoke about the importance of listening to patients, and how patients had said to them that they did not feel listened to before. The fact that the patient voiced that they felt listened to was a source of satisfaction for two of these nurses. This aspect of listening was not discussed by radiation therapists.

> *'And what I'm now getting from the job is that patients are walking away saying, 'do you know, thanks, that's the first time someone actually listened to me … and that for me is great satisfaction when somebody walks away satisfied with the care that they got'.*
>
> **(N01)**

> *'… and she (the patient) was like ' nobody is listening to me' and so I called the haematologist at home … that was about three months ago, and they've come back several times to me to say 'thank you so much, you are the only person that listened that day'… so that felt really good…'*
>
> **(N02)**

Making connections with patients was an important part of the nurses and radiation therapists role. In summary, this involved listening to patients, developing close relationships with patients, and being present with patients, however, these close relationships impacted on the HCP. Two differences stand out between nurses and radiation therapists in this theme. The first relates to the short length of time radiation therapists have to spend with patients, which appeared to hinder relationship development. This did not appear to be an issue for the nurses interviewed. The second difference related to nurses reporting that sometimes patients relayed how they felt an episode of care with the nurse was the first time the patient felt listened to, which was not a feature for RTs.

5.8.3 Theme three: Identify with

This theme was divided into two sub-themes; parallels with my life, and need to treat like my family (Figure 5.12). All participants described aspects of this theme, and they all identified in some way with patients and this appeared to be a conscious process. Participants spoke about being able to relate to patients where there was a similarity between patients they care for and parallels with their own lives. Several participants spoke about a need to care for patients like they were a family member.

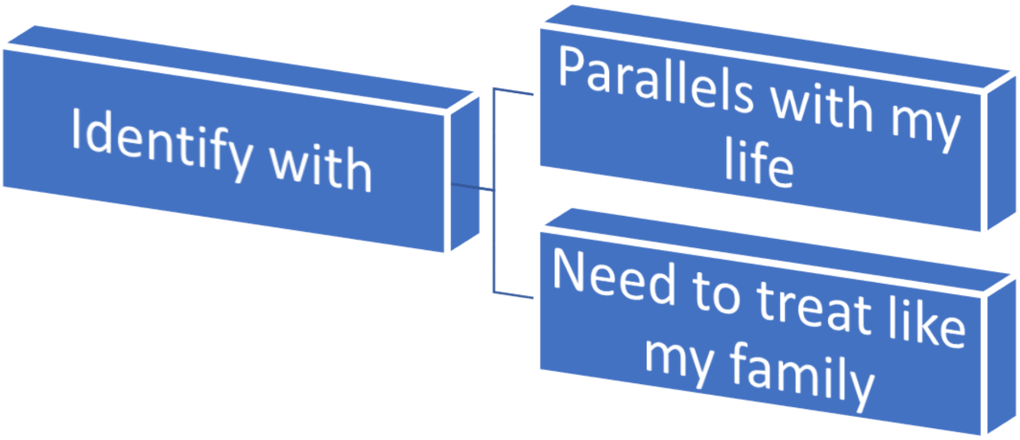


Figure 5. 12: Theme three: Identify with and sub-themes

5.8.3.1 Parallels with my life

These parallels made included being of a similar age, and having similarity to the participants' family in some way. This could be having a similar family unit or a similar family role.

> *'… people coming through my service were actually my own age, and particularly now as a mother I could relate to them … that's I suppose the most distressing …'*
>
> **(N01)**

> *She's X age and two kids … she just like mirrored my life.'*
>
> **(N02)**

This similarity seemed to magnify the emotional response of the HCPs, often with negative consequences. One radiation therapists sums it up by describing what it was like to care for a patient of a similar age to them.

> *'I was on placement … one of the girls was 19 and it was my 19th birthday while I was there … she wasn't able to do anything, and she had a six month prognosis, and here's*

me celebrating my birthday … I actually felt guilty … I suppose that was quite hard because it was always on my mind.'

(RT01)

For some of the participants when patients reminded them of someone in their family who had died of cancer, they could use this experience to relate better to the patient or family member and show empathic concern. Interestingly, participants only compared patients to family members who had died or had advanced cancer. No participant spoke about family members who were cancer survivors.

'I have a family member who would have died from cancer so sometimes, like it was my mother, if there's a similar case it can kind of make me think about my own experiences of being on the family end of it.'

(N05)

'My own personal experiences with my Dad (relapsed cancer) … I recognise this is how I felt, and how my family felt you know how my Dad felt as we went through a similar time.'

(RT02)

5.8.3.2 Need to treat like my family

Some nurses and radiation therapists felt quite strongly that patients and their families should be cared for the same way a family member of the health care professional should be cared for. This seemed to help the participants show empathic concern for the patient.

'But in my head I always remind myself this is someone's Mam, this is someone's sister, this could be, you know … this could be my family.'

(RT03)

I just treat someone as if they are my Mum and Dad, and when they are under my care I just want them to feel really supported and safe …'

(N01)

'I'm very warm to my patients … and yes it could be my mother or my sister … you want to be treated the same way.'

(N03)

One radiation therapist spoke about a distressing incident with a particular patient when she was a student radiation therapist. That situation prompted the radiation therapist to think about using the strategy of putting their own family in the family of the patient's shoes. This appeared to be an attempt by the radiation therapist to help them understand what was happening from the patient's perspective but also caused the radiation therapist some personal distress.

'We had a very elderly man, he had dementia ... he was very distressed ... so kind of putting my own family in his shoes, ... but would I want my family member to have to go through this ...'

(RT05)

The radiation therapist goes on to say that this incident comes back to them when they are faced with complex situations, and they remember the distressing time with that patient. So this challenges the radiation therapist to think through possible options that would be in the patient's best interests.

'We work in CT ... but I think that one (the distressing incident) will make me question more kind of the set up ... don't just do the standard for the patient, you know, think about them a bit more and adapt it a bit more.'

(RT05)

To summarise this theme, it was apparent that both nurses and radiation therapists drew parallels between the patient and themselves and their own family. Drawing parallels enabled the nurses and radiation therapists better understand the patient's perspective and show empathic concern, but the similarities between them and the patient was also a source of distress particularly if the patient's life mirrored the HCP's life.

5.8.4 Theme four: Taking a toll

This theme featured most dominantly throughout the interviews, and it was characterised by the negative consequences of working in cancer care (Figure 5.13). Taking a toll related to aspects of both the professional and the personal lives of the nurses and radiation therapists. The nature of this theme is reflected in the subthemes: It is hard, doubting oneself, giving of yourself, it is distressing, seeing colleagues struggle and taking it home.

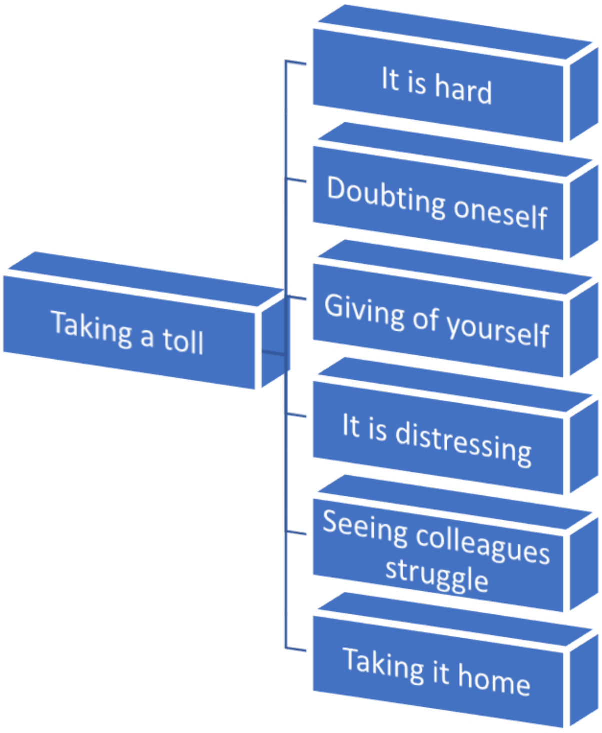


Figure 5. 13: Theme four: Taking a toll with subthemes

3.8.4.1 It is hard.

This subtheme was characterised by the participants identifying the difficult nature of cancer care. It was hard work emotionally. This led to both nurses and radiation therapists voicing how the job affects their emotions and their lives.

> *'So it is hard, because you don't want to see anybody uncomfortable or in pain, but like that you have to give this treatment to help with that pain…'*
>
> **(RT03)**

> *'I find it hard that you see a patient and then you'd feel, you know, you think about them when you went home, and then obviously that takes a toll on you because your whole life is just obsessed with, you know, you feel sorry for the patient, and you bring it home with you.'*
>
> **(RT01)**

> *'… I would never cry in front of a patient, but it would bring on that certain emotion, but oh yeah, definitely it would affect you for the rest of the day'*
>
> **(N02)**

This nurse went on to say how difficult it was at work to find a minute to process difficult emotions, causing a delay in dealing with them until the work shift was finished.

> *'You might need to take a minute, and you don't really have a minute so it's when you go home I suppose, you are in the car on the way home.'*
>
> **(N02)**

Although this nurse is the only person in this study that labelled the lack of time to process emotions felt, other participants similarly described processing difficult emotions outside of the work-space, for example, in the car or at home.

> *'I remember sitting out in the car, and being upset and crying.'*
>
> **(RT02)**

> *'Absolutely going home in the car, you're upset, and you're crying.'*
>
> **(N01)**

One radiation therapist found it difficult to comprehend that compassion fatigue would be experienced so early in their career. This radiation therapist was qualified less than 1 year.

> *'I find it hard to believe that compassion fatigue would be, (pause) like part of my job already. Do you know? I kind of always thought it would be a concept that would happen later down the line.'*
>
> **(RT06)**

There were aspects within the work organisation that were hard. Some HCPs spoke about the high work load, or faulty equipment that impacted on the ability to deliver care.

> *'if you're on time obviously you have that bit of extra time with the patient ... but then when you're under pressure and the machines break and things like that then it really does put pressure on you.'*
>
> **(RT06)**

> *'I find I've found sometimes I'm doing both the management and clinical so I find combining both can be a little bit difficult when you're trying to do everything.'*
>
> **(N03)**

One nurse described how they had previously worked in a department, but now finds it hard it is to watch colleagues struggle with the pressure of increasingly complex care, lack of resources, and feeling undervalued by the organisation.

'They're down staff ... the complexity of the care they are expected to deliver has just doubled since I worked as a nurse on that ward, and there are no extra resources being put in and certainly from chatting to staff they don't feel very valued ... when people are under pressure they just can't empathise in the same way as they would if they're satisfied'

(N01)

Like the nurse above other nurses and radiation therapists felt the lack of support within the organisation towards staff as having a negative effect on the care they deliver and on their professional quality of life.

You sometimes don't feel like you have enough hours in the day…'

(N05)

'I'm really busting myself in here and nobody seems to care and I did like 2 and a half hours overtime that day (unpaid).'

(N02)

'... unfortunately resources is (sic) always the thing that limits us ...'

(RT04)

5.8.4.2 Doubting oneself

There were many instances where participants questioned their clinical practice, their decision making, and their experience. This questioning happened during the work day, but it also filtered into the personal lives of the participants. The doubt appeared to be related to decisions that would have a negative impact on the patient.

'Often at the weekend I think, did I do something or check something because everything is so stressful, you're checking and double checking.'

(N06)

> *'You're worried at the end of the day, did I calculate that chemo right. I don't know if I want to do this again tomorrow or just a just a small bit of a freak out, yeah, no, it's happened to me a good few times.'*
>
> **(N02)**

The doubt, and questioning oneself seemed to caused distress to the nurses and radiation therapists. One radiation therapist summed this up when describing an ethical dilemma that happened in the radiation therapy room.

> *'... obviously that was just so distressing, and then you kind of question (pause), God did I do the right thing? ... definitely distressing, and impacted on my personal life in a way that I questioned our role, and what it means to be a radiation therapist, and is there a point where I can say no.'*
>
> **(RT01)**

Similar experiences of ethical and moral dilemmas were described by other radiation therapists. The radiation therapists pointed to their lack of experience in clinical practice, particularly when they felt uncomfortable with the decision made by more senior staff. They spoke about valuing the experience of senior staff, even if they were unsure that the decision made was the right one.

> *'... When you are in that position where you kind of like, Oh what is this, maybe it isn't the best (pause). I'm one of the more junior members here ... so if someone from the kind of senior sector is telling you we need to do this you kinda just have to power on and do it.'*
>
> **(RT04)**

> *'Well the person I was working with at the time would have been a lot more senior, so X was probably very much used to these scenarios , you know, had experiences, you know, a lot more experience that I did.'*
>
> **(RT06)**

One radiation therapist spoke about how they felt experience has helped them to see both sides of their role; supporting the patient whilst delivering technically complex treatment. When recounting the story of their interventions with a woman who was distressed on her first visit to the department they compared their practice as a newly qualified radiation therapist to how they practice now. The experience gained seemed to lessen the doubt about what to do when faced with difficult situations.

'...I probably would have thought, Oh I need to give her treatment ... this is an important thing. Whereas now, I think I've gained a lot of experience to see that there's two sides. Yes, we need to give her treatment ... but there's no point doing that if she isn't happy or she's crying like. I think that's something I've learned with experience as well.'

(RT03)

5.8.4.3 Giving of yourself

The majority of participants spoke about aspects of the job where they give of themselves, setting themselves high expectations. This could be small aspects of care or more complex aspects of care. There was a sense that there was a need to be giving 100% of yourself.

'And you're giving them that 100% commitment. And it's the small little things that you can do for them.'

(N01)

'You want to be sure you're delivering the best you can give to them (patients), you want to give 110% all the time.'

(RT04)

There was a sense from the nurses and radiation therapists that they should be able to give as much of themselves to the last person they see on a shift as they did to the first person they saw on a shift. However, some HCPs did question if they could achieve this.

'... who is the next person coming now, and you know, and then am I going to be able to give them as much of myself as I've given the last person.'

(N02)

'I suppose, yeah, if you have a bad case, you know, you've given everything you can to something, but you just can't make a difference ... you really can't give the time you need to give to people as well I suppose it becomes a bit stressful.'

(N05)

One of the nurses spoke about making sure she did not give all of herself, as they felt giving all of yourself could be detrimental to them. This nurse and another nurse spoke about seeing colleagues getting very emotionally involved with patients, and that this can have a detrimental effect on the HCP.

'... you can't give, you give a certain amount of yourself, but if you give too much you just ... you can't actually function.'
'... maybe if you see younger staff coming in they are giving too much of themselves.'

(N03)

'I am able to compartmentalise what they (patients) are feeling, I don't take it with me ... yes, some people get very emotionally involved with patients, and then this can make it difficult for them.

(N04)

One nurse in particular spoke about the idealistic view they held before they went into oncology care, where they felt that they had a lot to give to patients with cancer, but this has changed over time.

'I always want to work in (cancer care) and it is very hard to get into it. So I was excited, I felt I was going to give loads to people, and I felt really happy going home every day and making a difference ... now maybe I'm hearing the same stories over and over again, and you just think Oh no I can't hear this again today.'

(N06)

5.8.4.4 It's distressing

This theme was characterised by the distressing nature of cancer that the participants were exposed to. Bearing witness to the patients' distress caused a very real emotional distress for the nurses and radiation therapists. Often there were physical manifestations of the distress like crying or trying not to cry in front of patients.

'I felt very distressed after that, then so I kind of took on all of that myself ... it was terrible.'

(No2)

'Often times you're kind of choking back the tears ... and you have to be positive for patients ... and you get upset, like it's hard not to.'

(N06)

'... the last patient of that day, I left work and I was actually upset, like crying just because it was an overwhelming time for this relatively young man that we were treating.'

(RT02)

There was a moral distress that was mainly discussed by radiation therapists. The majority of participants from this profession retold of the distressing nature of watching or participating in care that challenged their moral and ethical principles. One radiation therapist spoke about trying to give treatment to a woman who had dementia. Each time the radiation therapists positioned the woman and left the room to start the treatment, the woman forgot what she was in the treatment room for. This scenario caused the radiation therapist to question if what they were doing with this woman was right.

> *'…in her 90's and she had dementia and (pause) every time we left the room she kept forgetting, she just forgot where she was and that was so distressing … and then you kind of question, God did I do the right thing… she wanted the treatment and yeah you would bring that home and you'd be like … I can't believe that happened.'*
>
> **(RT01)**

Other ethical issues related to the difficulty in balancing the need for treatment against the potential benefits that the patient may get from that treatment. When the benefits were not clear it seemed to cause distress to the radiation therapists.

> *'Oh you feel terrible,… there was a patient who was in pain like that … the reason we would be giving the treatment is probably to relieve that pain. So that is where you have to manage your thoughts … we have to do this to help with this pain ultimately.'*
>
> **(RT03)**

> *'… when you see someone coming on a stretcher who is extremely ill, and you know at this point you know unfortunately they might only have weeks to live … why are they here, why are they taking a day out of their day, their days are unfortunately numbered and why are they taking all that time to come and see us for treatment …'*
>
> **(RT04)**

5.8.4.5 Seeing colleagues struggle

All of the nurses spoke about seeing colleagues struggle, the radiation therapists did not identify this in their stories. All of the nurses were able to identify several reasons why they felt their colleagues were struggling such as a lack of support from the institution, low team morale, poor promotional prospects, becoming too emotionally involved with patients. Radiation therapists did not seem to see colleagues struggle.

'They've (nurses) fought the battle and they've lost it many a time ... when you start to see people withdrawing, you know that it's the start and it's a shame to see ... the light going out of their character, out of their job. ... Because all the investment goes into the likes of us who want to do other courses.'

(N01)

'Yes some people get very emotionally involved with patients, and then this can make it difficult for them.'

(N04)

Several of the nurses spoke about how they try to support colleagues who they see struggling, but this was in an informal way rather than having a structured process.

'But if say I see my colleagues getting upset, then I know I can go in there to them and say I will look after them (patient) today, ... you know that way we are good at helping each other.'

(N06)

'You'd know somebody (colleague) who finds certain situations difficult, you might check in with them and see how they are, ... you might just pop your head in, and say listen are you alright there, that was tough.'

(N01)

5.8.4.6 Taking it home

The majority of nurses and radiation therapists spoke about how they would take aspects of their work home with them. They recounted aspects of their work such as emotional worry, concerns relating to having completed tasks, or completing certain tasks correctly as sources of work related issues that seeped into home life. For some HCPs, taking it home had a detrimental effect on them, but some were able to manage and coped with it.

'I find it hard ... you see a patient and then you'd feel, you think about them when you get home and then obviously that takes a toll on you…'

(RT01)

'I definitely take it home, I'm in the shower at night thinking about people as opposed to what I'm going to have for my dinner, or what did the kids do today.'

(N02)

'And I did kind of think about it when I went home at the time, but it didn't stick with me.'

(RT05)

For several nurses the worry of work related issues resulted in sleep disturbances, and two of these nurses identified that this did not happen in their work prior to coming into cancer care.

'… taking things home and waking up at three in the morning, and I thought of stuff or worrying about people, or did I do that … I would never have been like that…'

(N02)

'I'm afraid I miss something at work … and if I wake up in the middle of the night, and remembered something that stresses me, I don't sleep well…'

(N05)

'It's harder to deal with, sometimes you have to go home and you're not sleeping because you're thinking that could be me or that was my family … It affects my sleep … I know that's a negative on me.'

(N06)

However, one nurse spoke about being able to completely compartmentalise work and home. This meant that they were able to leave the emotional side of work at work, which they put this down to having developed this coping mechanism with gaining experience.

'I can keep what happens in work at work. I think that comes with experience, and I have gotten better as I have become more experienced.'

(N04)

One nurse spoke about strategies she had been taught in previous jobs that would help to leave the emotions of work at work, although she had not implemented these in her current role.

'It was my manager who told me about it … at the end of the day I would close the door … in my head I would say right leave it all there now. I found that helpful … I'm not doing something like that (now).

(N02)

Theme four identified how professional caring in cancer care takes a toll on the nurses and radiation therapists. This theme reflects the difficult and distressing nature of cancer care. Nurses and radiation therapists gave of themselves, but this came at a cost such as doubting clinical decisions, questioning one's own practice and experiencing personal distress. The interviewees also reflected on how tough it was to witness colleagues struggle. Nurses and radiation therapists described how they took the emotional stress of the job home, and this leached into their personal lives causing physical symptoms such as sleep disturbances.

5.8.5 Theme five: Restoration

The participants spoke about aspects of their lives that help to restore equilibrium, and help them achieve a work-life balance. This theme was characterised by participants discussing both aspects of their professional life and private life that help restore balance. The theme of restoration (Figure 5.14) is subdivided into four sub-themes; hobbies and holidays, family, and support from colleagues.

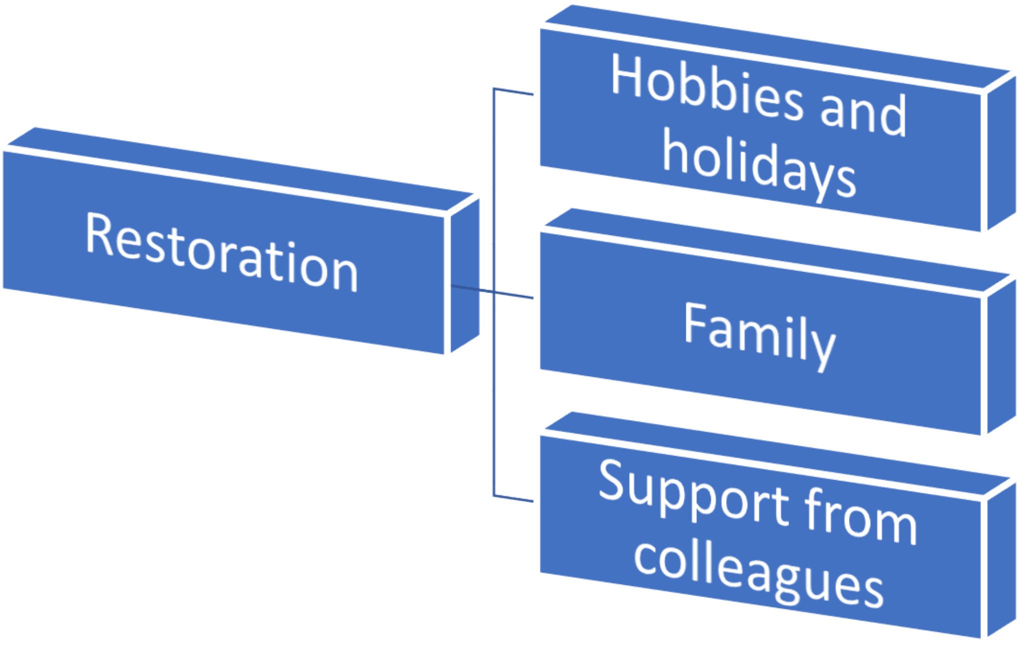


Figure 5. 14: Theme five: Restoration with subthemes

5.8.5.1 Hobbies and holidays

Most nurses and RTs spoke about having a good work life balance, and for both professions this was achieved through the pursuit of hobbies. The hobbies varied but all of them included some form of exercise, with some of the participants stating that they need to get outside. These hobbies appeared to help if a work day has been particularly difficult or emotional.

'I also do a lot of things in sports and exercise, I do Irish dancing so I do think exercise kind of helps as well.'

(RT01)

'I go to the gym 3 times a week, I walk the other 3 nights … if I don't go to the gym or I'm not walking I need to get out, it absolutely makes a difference for my mental health.

(N06)

The nurses spoke about the need to take regular holidays to recover but the radiation therapists did not. Several of the nurses said that they would know the time when they would need a break and would hopefully come back refreshed.

'But you know then you have a week off and you come back refreshed hopefully.'

(N05)

'It's a long gap in between so I'm kind of (pause) need to take a regular holiday you know.'

(N03)

5.8.5.2 Family

Nurses and RTs spoke about their own family, and the different ways in which their family were supportive of the distressing nature of the work. One nurse who spoke about being able to go home to family said it had helped them appreciate what they had in life.

'…You're going home to your beautiful family …you really appreciate what you have in life because of it you know, you have a healthy family...'

(N01)

Some professionals used a family member as a way of offloading stress at the end of a day or a particularly difficult and distressing episode of care. However, the HCPs stressed the need to be aware of confidentiality issues.

> *'Well, I talk about it to X, because X is good, and obviously I wouldn't say patient names or details.'*
>
> **(RT01)**

> *'I mean and I would talk to my family about, you know I'd say I had a really hard case or whatever.'*
>
> **(N03)**

However, not all HCPs spoke about the positive aspects of family support. One nurse did speak about how the small stresses of family life can add to personal stress after a hard emotional day at work. For this nurse, grappling with the difficult circumstances they experienced with patients with cancer made it hard to relate to the issues their own family were experiencing. The issues that their own family members experienced were felt to be minor, and a cause for the nurse to feel annoyed.

> *'if you're bringing it home sometimes I can find that people at home have issues, and they're just not issues when you see the big picture in here. X (family member) was complaining about little things, their health issues, but not really important but to them they are important. And then to me I might just be getting cross with them, and say it's not an issue like if you were looking at what I was looking at every day then you might have an issue.'*
>
> **(N06)**

5.8.5.3 Support from colleagues

It appears that participants gain a lot from supportive colleagues. All participant identified times when support was given by colleagues, however this support was *ad hoc* and unstructured.

> *'I think it helps me keep work and home separate. I feel if things are getting too much for me, say if a patient is difficult then I can ask some of my colleagues to take over.'*
>
> **(N04)**

> *'absolutely, if I see that someone was upset I suppose I'll say I'll do that, you go away like. We are very much like that, we are aware of each other and how everybody else is coping as well… I definitely think we are on that kind of level with each other.'*
>
> **(RT03)**

Support from colleagues did seem to help with nurses and radiation therapists deal with the stress of cancer care. This support was described in an informal format, mostly in the form of chatting, and sharing stressful situations.

> *'If something is particularly stressful I suppose knowing that I have colleagues I can rely on and supported by, I suppose I get a lot off my chest.'*
>
> **(N05)**

> *'Having worked the last year and a half I've been able to chat with other RTs, and different things like that, so maybe that (compassion fatigue) has improved as well, because I don't take as much things home with me as I would have before I qualified.'*
>
> **(RT01)**

The provision of support from colleagues in a more structured way was discussed by two nurses. One nurse spoke several times about providing support to others, and the importance of providing opportunities for staff to talk about stressful events.

> *'If they've had like a really crappy day …, while you might be able to handle it … you're aware that maybe somebody else in the unit found that really tricky because it was perhaps a horrible situation. And you might, particularly when I was managing the unit, maybe the next morning when you were sitting at handover and you might say, okay, this happened last night, how is everyone after it?'*
>
> **(N01)**

The second nurse recounted the supportive environment of a previous job, and how that was provided in a more structured way than their current role. This nurse tells the story of how they were supported and helped after speaking with a patient who was trying to attempt suicide as a result of living with cancer.

> *'…and I rang my manager in X and I would say they were fantastic, and the girl who does the debriefing, we had a debriefing the following week. So it was brilliant… we had different meetings at least every two months where we'd come together and talk…'*
>
> **(N02)**

However, this nurse also spoke about their current job, and how debriefing after stressful situations should be available. They describe how a colleague tried to set up a debriefing to support the multi-disciplinary team, where there would be opportunity to discuss particularly stressful and distressing situations, but the debriefing only happened once in the previous six months.

'… so yes there needs to be something like that, and somebody needs to recognise that or say something. There is nothing happening, and I know X is great here, one of the nurses, she organised a thing of a Friday afternoon … a proper team debriefing. And that was the first one that ever happened there about six months ago … nothing since.'

(N02)

Theme three identified the ways in which nurses and radiation therapists restored their emotional energy and enhanced well-being. Having a hobby and taking holidays were seen as important ways to have time and space to process the difficult work of cancer care. Family could be a source of support to allow HCPs to restore emotional well-being, but for one nurse family were also a source of increasing the distress felt from work. The support received from colleagues was identified by all participants as being positive in nature, although this support was informal, with more formal supportive processes non-existent.

5.8.6. Uncommon theme: Work diversification

Some HCPs found moving to various jobs and roles within their profession as helpful in restoring emotional equilibrium. Three nurses spoke about how they had diversified into different jobs during their career. One nurse had approached this in a structured and career planned way. The others talked about how they had undertaken other roles prior to changing career to cancer care. They felt that this diversification made a difference to the feelings of CF.

'I was never longer than 3 or 4 years in a job … so that probably made a difference (to CF).

(N06)

'I do find the change (different jobs) … I think that probably helped me.'

(N02)

Although all of the radiation therapists who were interviewed had no more than 5 years of experience, one radiation therapist had rotated into a different role. This role was working with the radiation physicists, and radiation oncologists in radiation planning, and did not involve direct patient contact. It was only after this move that the radiation therapist was able to identify how CF was not a consequence of their work anymore, however they also noted that the satisfaction felt was no longer present.

> *'… a different kind of tiredness, just being mentally drained … it's completely different … not anything like the fatigue like I would working on the machines (with patients) … don't get any dealings with patients … I realise how important the satisfaction side is.'*
>
> ***(RT02)***

Although this theme was not a common feature of the analysis of the interviews, it warrants a place in the results as work diversification had featured in combating CF for some.

5.9 Fusion of horizons: constructions of the cancer patient

Following on from the development of the themes, the interviews were understood in a broader context, where there was fusion of horizons between the horizon of the researcher, and the participant horizons. This fusion of horizons was constructed through an in-depth emerging of the researcher into the texts, where there was movement from the micro-meaning to the macro meaning. Coupled with this, entries from the diary of the researcher was used to demonstrate reflexivity in the process. The fusion of horizons revealed that when nurses and radiation therapists are asked to describe professional quality of life, the highly empathic nature of the individual participants was very apparent in the narratives. Due to the highly empathic nature of the participants a construction of a 'cancer patient' emerged from their empathic interactions with patients. This 'cancer patient' is constructed as the individual and constructed as a collective.

5.9.1 The cancer patient as collective

The 'cancer patient as collective' is described by Phase II participants when talking about cancer patients in general, and is mainly seen through an objective lens, where the impact of empathic interactions on professional quality of life were spoken about from a point of distance. This 'cancer patient as collective' was vulnerable, where needs were met through empathic engagement. This allowed the nurses and radiation therapists to know that they could meet the needs of the patient with cancer and could feel compassion satisfaction through providing an empathic approach to cancer patients in general.

"I just want them to feel really supported and safe … when they feel very satisfied with you and you feel very satisfied with what care you've given them.'

(N01)

The participants were drawn to the specialty of cancer, and this may be because they felt that they had a lot to give. One nurse in particular embodied what the other participants alluded to when they recounted how they had longed to get into cancer care. Many of the participants spoke about wanting to make a difference to the lives 'cancer patient as collective'.

'I was excited … I felt I was going to give loads to people … making a difference.'

(N06)

Aspects of compassion satisfaction featured more readily than compassion fatigue in the 'cancer patient as collective', and enabled the HCPs to understand how they as a professional would empathise with the patient with cancer.

'I put in 110% with my patients and they, as I said I can see from a personal point of view I think if it was a family member … I think it does help making sure that patients are okay'

(RT03)

5.9.2 The cancer patient as individual

The nurses and radiation therapists constructed the 'cancer patient as individual' from interactions with specific patients. This construction was mainly seen through a personal lens, where the HCP spoke about the impact of empathic interactions on professional quality of life on a personal level. Almost all of the stories related to patients with either advancing cancer, complex care needs, or patients who had died. There were very few stories provided about cancer survivors when nurses and radiation therapists were talking about the ‘cancer patient as individual’.

The evolving personal construction of the ‘cancer patient as individual’ that emerged, was a person who was vulnerable, distressed, and was suffering. The ‘cancer patient as individual’ often came out of the work place and into the HCPs home, but this did not appear to happen with the ‘cancer patient as collective’. Bringing the ‘cancer patient as individual’ out of the work place could be distressing. This meant that participants were often processing negative emotions when they should have been switching off from work, and enjoying home life, for example, either in the car, in the shower, or when speaking with family. This ‘delayed emotion processing’ by the participants resulted in crying, sleeplessness, night-time waking, and the delay had an impact on other home relationships.

> *‘I left work and I was actually upset, crying ... quite overwhelming ... just seeing how devastating this cancer diagnosis is for this person but also for their family as well’*
>
> **(RT02)**

However the personal construction of the ‘cancer patient as individual’ enabled participants to make connections and to develop therapeutic relationships with patients, which was fuelled by the desire to make a difference.

> *‘ the other day treating a person who got quite upset ... feeling sore and only half way through treatment ... you have to make time to realise that person on that day needed a bit more attention’.*
>
> **(RT04)**

However, there was a cost to caring for the constructed ‘cancer patient as individual’, where it took a toll on the participants. Both nurses and radiation therapists retold patient stories that were painful, distressing, and difficult. The participants spoke about the exposure to a patients’ distress as having a negative emotional impact, where there was not always time to process these emotions.

'you might need to take a minute, and you don't really have a minute.'

(N02)

'... find it really hard to sleep, and you think did I tell them everything to do – the right things ... and I often wake up in the middle of the night in a panic ...'

(N06)

The emotional distress of the HCP was fluid and unfixed, oscillating moment to moment, day to day. The fluidity of the distress took participants by surprise at times, but it was accepted as a consequence of the job. The negative aspects of caring were evident early in the cancer caring career, and persisted as roles changed and diversified. However, the support of colleagues was an important aspect of managing the trauma from caring for patients with cancer. There were also attempts to rebalance, and restore the self through hobbies and family time. These restorative practices could stem the ebb and flow of the trauma, but were often not sufficient in managing the negative emotional impact of caring for patients with cancer.

5.10 Merging the quantitative and qualitative results

Merging the quantitative and qualitative results provided a deeper understanding of the quantitative results. This was achieved by organising the results of the quantitative analysis into the three subscales of professional quality of life, and then mapping the themes from the qualitative analysis to the quantitative data. Table 5.15 provides an overview of the integration of the two Phases of the study.

Table 5. 15: Merged quantitative and qualitative results

	Significant correlations	SMR	HMR	Theme	Example of responses
CS	PT (0.25) PD (-0.37) Total tEI (0.51) Emotionality (0.48) Sociability (0.42) Well-being (0.51) Self-control (0.34)	Well-being significant in predicting CS levels	Model 1: Only well-being significant in predicting CS.	• Making a difference (experiencing satisfaction, awareness, the value of experience) • Making connections (being present, developing relationships, listening) • Restoration (family, hobbies and holidays, supportive colleagues. • Identify with (treat like my family) • Uncommon theme - work diversification	‘… they have completed their treatment … ringing that bell … actually I get a little lift (N03) ‘feel empathy towards patients … I would be taken aback by their emotions … I think I’m able to deal with that … separating that from my own’ (N05) ‘… you are the only person who listened that day… so that felt really good’ (N02) ‘Planning RT treatments … don’t get any dealings with patients … I realise how important the satisfaction side is (being with patients) …’ (RT) I just treat someone as if they are my Mum and Dad … want them to feel supported and safe (N01)
BO	PD (0.26) Total tEI (-0.56) Emotionality (-0.56) Sociability (-0.37) Well-being (-0.54) Self-control (-0.49)	Well-being significant in predicting burnout levels	Model 2: Well-being and self - control significant in predicting burnout.	• Taking a toll (taking it home, seeing colleagues struggle, it is hard, giving of yourself) • Restoration (hobbies and holidays) • Identify with (parallels with my life)	‘I couldn’t keep doing this for the next few years’ (N02) ‘some people get very emotionally involved’ (N04) ‘I need to get outside … makes a difference to my mental health’ (RT06) ‘I’m afraid I will miss something at work, if I wake up in the middle of the night and remember something … stresses me, I don’t sleep well’ (N05)
STS	PD (0.31) EC (0.28) Total tEI (-0.41) Emotionality (-0.36) Sociability (-0.36) Well-being (-0.44) Self-control (-0.38)	Empathic concern and well-being significant in predicting STS levels	Model 3: Well-being significant in predicting STS at step 1. Empathic concern and well-being significant in predicting STS at step 2.	• Making a difference (awareness) • Making connections (being present, developing relationships) • Taking a toll (doubting one’s self, it is distressing, taking it home) • Restoration (family, hobbies and holidays) • Identify with (parallels with my life, treat like my family)	‘’I can understand they’re in a lot of pain … I need to be aware of it’ (RT01) ‘That was a friendship we built up (patient and nurse) … heard they passed away … I had a few tears’ (N03) ‘left work and I was actually upset, like crying … it was an overwhelming time for this young man we were treating’ (RT02) ‘I suppose when you get older … it has helped my empathy’ (N02) One of the patients was 19 … it was my 19th birthday … she had a six month prognosis … that was quite hard, it was always on my mind (RT01)

CS = compassion satisfaction; BO = burnout; STS = secondary traumatic stress; SMR = standard multiple regression; HMR = hierarchical multiple regression; PT = perspective taking; PD = personal distress; EC = empathic concern; tEI = trait emotional intelligence

5.10.1 Compassion satisfaction statistics and supporting qualitative data

The quantitative analysis found a positive correlation between cognitive empathy (perspective taking) and CS, and a negative correlation between emotional empathy (personal distress) and CS. Global tEI and the four tEI subscales showed positive correlations with CS. Standard multiple regression analysis demonstrated that well-being was significant in predicting CS. In the multiple regression analysis model, when perspective taking was controlled for, only well-being being significant in predicting CS levels.

These findings are supported by the qualitative literature. The themes of 'Making a difference' and 'Making connections', support the findings that the perspective taking component of cognitive empathy and tEI have a relationship with CS. This was demonstrated in the way nurses and radiation therapists discussed being able to take the perspective of the patient.

'being able to listen to their perspective and how they feel about something … support them in a productive and compassionate way.'

(N05)

'So being in the patient situation, and thinking about you know how would I feel if I was in that situation … really empathizing with their emotions and their situation.'

(N02)

Compassion satisfaction was described by the HCPs in terms of clinical episodes where patient interactions demonstrated the benefit of social relationships and CS provided a sense of well-being for the HCP. The sense of well-being came from positive interactions or doing something to support the patient with cancer.

'The little things you can do for them (patient), you can see the impact that had, and that gives me huge satisfaction, you walk away saying I made someone feel better'

(N01)

'You build great rapport with your patient … develop communication with them, I think that's the best part of our job'

(RT04)

Emotional intelligence was not overtly described by the interviewees unless specifically asked by the researcher. Nurses and radiation therapists were able to discuss elements of emotional intelligence through their narratives. Being able to pick up on emotional cues during clinical episodes was deemed important by the HCPs.

'I think being able to pick up on it (patient upset) quickly would benefit our job.'

(RT05)

5.10.2 Burnout statistics and the qualitative data

The quantitative analysis revealed that only the emotional empathy subscale of emotional distress was positively correlated with burnout. In addition, Global tEI, and the four tEI subscales were negatively correlated with burnout. Standard multiple regression indicated that well-being were significant in predicting burnout levels. The multiple regression model revealed that well-being and self-control were significant in predicting burnout levels after self-control was controlled for.

Most of the nurses, and all of the radiation therapists did not explicitly describe feeling burnout in the qualitative interviews. Two nurses did express that they often felt like they could not continue in cancer care.

'…Oh no, I don't know if I want to do this tomorrow … yeah, it's happened to me a good few times.'

(N02)

However, a variety of perspectives were expressed in the interviews to support the quantitative analysis results. The tEI subscale of sociability in relation to burnout was expressed by the nurses and radiation therapists through being able to talk with family or colleagues about difficult clinical issues. This seemed to bolster their wellbeing and reduce personal distress.

> *'I would talk to my family about X, say that was a really hard case'*
>
> **(N03)**

> *'I definitely think talking about it helps, I think if you were to keep it in it definitely would be hard.'*
>
> **(RT01)**

Two nurses and one radiation therapist spoke about how work diversification within cancer care helped them reduce the risk of burnout. One nurse spoke about how they avoid burnout by working towards very clear career goals.

> *'Made me realise that I was a little bit burnt out ... I am a great believer in 5-year plans ... I would have other visions for the future.'*
>
> **(N01)**

5.10.3 Secondary traumatic stress and the qualitative data

Results from the quantitative analysis revealed a positive correlation between STS and both aspects of emotional empathy (personal distress, and empathic concern). Standard multiple regression results showed that empathic concern and well-being were significant in predicting STS levels. The hierarchical regression model revealed that both empathic concern and wellbeing were significant in predicting STS after well-being was controlled for. From analysis of the interviews, stress, distress and traumatizing experiences were identified by both nurses and radiation therapists. The narratives of the stress, distress, and trauma were bound up in the empathic concern of the HCPs in encounters with patients.

> *'Oh you feel terrible ... there was a patient who was in pain ... so that is where you have to manage your thoughts ... we do have to help with this pain ultimately.'*
>
> **(RT03)**

'left work and I was actually upset … like crying.'

(RT02)

Nurses and radiation therapists described how during clinical encounters, either being more experienced in cancer care or working with someone who is more experienced in cancer care was beneficial to seeing the bigger picture.

''Over the years I've gotten better, I don't take it home, but there will be that occasional case … the person is around the same age or similar background to me…'

(N05)

I was quite stressed … staying focused and trying to reassure her (patient) … the person I was working with at the time was a lot more senior and would have had a lot more experience.'

(RT06)

Although the narratives were filled with patient stories that caused distress to the nurses and radiation therapists, the interviewees did put effort into ensuring that their wellbeing was attended to. This was recounted as being through talking with family and the pursuit of hobbies, such as yoga, walking, horse riding, and Irish dancing. One radiation therapist identified how they felt everybody needs a hobby to enhance well-being. This radiation therapist said that they feel putting time into a hobby they enjoyed was important in feeling happy.

"I love show jumping horses, … best thing ever for clearing my mind … I took a massive step back … probably not the best idea … I firmly believe everybody needs a hobby or something outside of their working life to be the happiest they can be.'

(RT04)

5.11 Divergence between the quantitative and qualitative data

There were a few areas where the quantitative and qualitative data diverged. This was particularly evident in the qualitative literature, where some areas were highlighted that could not have been understood from the quantitative literature. One aspect of this is that the quantitative data revealed levels of CS and CF (burnout and STS), but the qualitative data revealed that nurses and radiation therapists oscillated between CS and CF at different times in clinical practice. One nurse spoke about feeling both in the one day.

'Yes, I can (feel CS and CF in the one day)'

(N04)

The second area where there was divergence between Phase I and Phase II of the data relates to emotional intelligence. Although the quantitative analysis on EI and professional quality of life revealed a strong positive relationship between tEI and CS, and a strong negative correlation between tEI and CF, this relationship was not described as clearly by the interviewees. The hierarchical multiple regression analysis indicated that wellbeing was significant in predicting all three professional quality of life subscales, again an area that the nurses and radiation therapists in the interviews did not equate feeling of wellbeing with emotional intelligence. The qualitative analysis revealed the restorative practices used were linked more clearly to reducing distress for the interviewees. The additive value of the qualitative data suggests cancer HCPs understand EI in terms of separating and understanding their own emotions and the patient's emotions but the nurses and radiation therapists did not equate well-being with EI.

'... like the yoga in the evening ... not dwelling on the day that has gone ... helps me destress as well.'

(RT02)

The interviews revealed a personal construction of the cancer patient by the interviewees. This is a theme that is not identified in the quantitative data. This is a strength of using a mixed methods approach in research in that it provided an understanding of the nature of professional quality of life, empathy, and emotional intelligence as experienced by the nurses and radiation therapists in everyday cancer practice. The interviewees described two constructions of the cancer patient, the ‘cancer patient as collective’ and the ‘cancer patient as individual’. The empathic concern aspects of caring for the cancer patient was often used by the HCP by viewing patients through a mirror of their own lives. The seemed to be a conscious process.

‘I always remind myself this is someone’s Mam, this is someone’s sister, this could be my family.’

(RT03)

‘She’s X age and two kids … she just mirrored my life.’

(N02)

Understanding the nature of professional quality of life, empathy, and EI in everyday practice as described by participants of the interviews enabled a deeper understanding of the relationships between the constructs as was identified in the quantitative analysis. The qualitative data supported the results of the quantitative data, but the interviewee narratives also revealed the unconscious utilization of the constructs, and in particular, emotional intelligence, in clinical care. Nurses and radiation therapists did not have to have a clear understanding of the EI construct to understand how they use it in their everyday care of patients with cancer.

5.12 Chapter summary

One hundred and twenty two participants were included in the final analysis of Phase I, and 12 participants were included in the final analysis of Phase II of current study. The majority of participants were married females, who were educated to post-graduate level, and spent more than 50% of their work time in clinical care. Nurses and radiation therapists made up the majority of participants, with only 11 doctors participating in Phase I.

The results of the current study identified that cancer HCPs working in Ireland do experience CS and CF, and in particular cancer HCPs in Ireland report higher levels of STS than most other studies. Four of the current study's five hypotheses were partially confirmed and one hypothesis was confirmed. Compassion satisfaction was positively associated with cognitive empathy and negatively associated with one element of emotional empathy, that is personal distress. Compassion satisfaction was positively associated with global tEI and all four subscales or tEI. Secondary traumatic stress was positively associated with empathic concern, and both burnout and STS were positively associated with personal distress. Burnout and STS were negatively associated with global tEI and all four tEI subscales. Multiple regression analysis revealed that well-being was the most consistent predictor of professional quality of life. In terms of professions, nurses reported higher levels of self-control and lower levels of burnout than radiation therapists and doctors.

Five themes emerged from the data collected in Phase II of this current study. These themes were; making a difference, making connections with patients, identify with, taking a toll, and restoration. The construction of a cancer patient emerged from the fusion of horizons, and this construction included the 'cancer patient as collective' and the 'cancer patient as individual'. The Phase II results supported the Phase I results but there were some areas of divergence. The Phase I data was able to clearly identify the tEI of the participants but the Phase II data analysis revealed that cancer nurses and radiation therapists do not understand the relevance of tEI in clinical practice. The next chapter will discuss the results of this study in light of the current evidence.

Chapter 6 Discussion

6.0 Introduction

The main aim of this study was to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer health care professionals, and to explain the nature of such relationships. This chapter provides a discussion of the results of the current study in relation to current evidence and presents the unique contribution of the study to current knowledge in the field. An analysis of the unique contribution of the study to knowledge is presented. It draws on relevant theory to provide an analysis of how the new theoretical model fits into current clinical practice.

The discussion of the findings of this study are sequenced as follows

- Demographic profile of the participants
- Professional quality of life profile of the participants
- Relationships between professional quality of life, empathy and trait emotional intelligence
- Predictors of professional quality of life
- Comparison between nurses', radiation therapists' and oncologists' levels of professional quality of life, empathy, and emotional intelligence
- Digression between Phase I and Phase II
- Additional contribution of Phase II in understanding professional quality of life, empathy and trait emotional intelligence in cancer health care professionals
- Application of the current study findings to the conceptual model

6.1 Demographic profile of the participants

Health care professionals in this study were defined as oncologists, radiation therapists, and nurses working in cancer care. In this current study eleven (9%) oncologists were recruited, which is a low number in comparison to the nurse and radiation therapist participants, but comparable to other professional quality of life studies using similar methods to this current study. Previous evidence suggests that oncologists are less likely than other professionals to participate in studies examining professional quality of life. Pfaff *et al* (2017) reported only 2 oncologists (7%) as participants in a mixed methods study on professional quality of life. Also, a cross-sectional study from Canada identified lower numbers of oncologists as participants (n = 25: 19.5%) than nurses (n = 44: 34.4%) or radiation therapists (n = 42: 32.8%: Bellicoso *et al* (2017). Other studies examining only burnout in cancer HCPs report oncologist participation as 13.5% (Jasperse *et al* 2014) and 16.5% (Poulsen *et al* 2015). In fact, Banerjee *et al* (2017) reported on burnout syndrome in young oncologists in Europe, and discussed participation as only 12-22% of the oncologist workforce across European countries. The reasons for low numbers of oncologist participating in studies is not clear, but it may be multifactorial.

One possible explanation for low participation is that oncologists in this current and other studies may not be as open as other professions in discussing the emotional impact of their work. A systematic review of compassion fatigue studies identified this as a possible explanation for the low participation of oncologists (Najjar *et al* 2009). A second possible explanation is highlighted in a study of young oncologists from Italy (Dieci *et al* 2018). Deici and colleagues purposely developed a short 24-question instrument as questionnaire fatigue was highlighted as a concern by the authors. Shortening questionnaire length to enhance response rates in oncologists has also been reported by Kleiner and Wallace (2017). In this current study questionnaire fatigue may have been a factor in explaining the low number of oncologist participants as the TEIQue alone is a 153-item questionnaire. Indeed, questionnaire fatigue may have affected nurse and radiation therapist participation, but this may be less noticeable as there is a larger pool of participants to draw from. Additionally, non-response to health care professional research surveys is increasing steadily (Cook *et al* 2009).

Non-response to health care professional surveys is identified in the literature as being multi-factorial, and includes procrastination and time required to complete the questionnaire as possible problems (Ford and Bammer 2009). Several methods have been suggested to improve responses in research involving questionnaires, including the use of two or more survey access modes (Dillman *et al* 2009), personalised contact, first class stamps on return envelopes, and monetary incentives (Field *et al* 2002). Several of these methods were incorporated in this current study in an attempt to increase questionnaire response including, multimodal survey access (SurveyMonkey and paper questionnaires), handwritten envelopes, stamped addressed return envelopes, and a follow up invitation 4 weeks after the first invitation to participate in Phase I. However, recontacting physicians to improve response rates to surveys has been reported as unsuccessful (Willis *et al* 2013), indicating that the problem with low physician responses to surveys is not limited to the current study.

6.1.1 Personal characteristics

One of the objectives of this current study was to determine the relationships between professional quality of life and a variety of personal and professional variables. Fifty nine percent of participants in this study were reported as being married or co-habiting, which is slightly lower to reports in other studies. Sixty-nine percent of cancer nurses from the USA and 70% of nurses from Canada were married in a study of professional quality of life (Wu *et al* 2016). Similarly, Koo *et al* (2013) described 65% of cancer HCPs as married. A much higher percentage of married participants was found in two Israeli studies examining the professional quality of life of oncologists. Ninety six percent of oncologists reported as being married in both studies (Hayuni *et al* 2019; Laor-Maaynay *et al* 2020). Other studies have described lower percentages of married participants. Jang *et al* (2016) reported 33% of Korean cancer nurses as married, and Duarte and Pinto-Gouveia (2017a) reported 48% of Portuguese cancer nurses as married, but neither of these studies specified if this statistic included co-habiting couples. Attitudes towards marriage has changed over the past few decades, and cultural and geographical differences have been identified. Gubernskaya (2010) observed changes in attitudes towards marriage from six countries, of which one was Ireland, and cross-national differences were also observed such as views of traditional roles in marriage. The differences in the number of married participants in this current study and other studies may reflect cultural differences, and society's changing view of marriage.

Ninety-five (n = 116) percent of participants identified as female in this current study. These findings are similar to other professional quality of life studies in cancer nurses where 90% (Hooper *et al* 2010), 94% (Wu *et al* 2016), and 99.69% (Yu *et al* 2016) of participants were female. Other studies examining the negative aspect of burnout in cancer health care professionals had a higher percentage of males in comparison to this study, where 23% (Jasperse *et al* 2014), and 20% (Poulsen *et al* 2015) of participants were identified as male. Jasperse *et al* (2014) and Poulsen *et al* (2015) included radiation physicists, radiation oncologists, and medical oncologists, whereas most participants in this study were nurses and radiation therapists, which may account for this gender difference. Indeed, the World Health Organisation (Boniol *et al* 2019) identified from 104 countries that 67% of the health care workforce is female, with the majority of nurses in Europe identifying as female (84%).

It was not possible to run statistical tests in this current study to identify a difference between gender and professional quality of life as the male group was small (*n* = 6) compared to the female group (*n* = 116). However, a large observed difference in the median burnout scores suggests that males may be at higher risk of burnout than females. This is in contrast to other studies, where no differences were identified between males and females and the professional quality of life subscales (Duarte and Pinto-Gouevia 2017a; Gilles *et al* 2014; Laor-Maaynay *et al* 2020; Yilmaz and Üstün 2019). One study identified female oncologists as having higher burnout and STS levels than male oncologists (Kleiner and Wallace 2017). These differences in gender findings may be explained in part by the low number of male participants in studies, particularly the studies of nurses and radiation therapists, although a note of caution is necessary. One study examining burnout, measured using the Maslach Burnout Inventory in young oncologists (*n* = 595) in Europe included 38% male respondents (Banerjee *et al* 2017). The results showed no significant gender difference in burnout syndrome prevalence, although males had statistically significant higher depersonalisation scores (Banerjee *et al* 2017). Similarly, Mooney *et al* (2017) described male nurses as having higher levels of burnout than females. However, in the Mooney *et al* (2017) study only 14% of participants were males with no indication of how many of these were oncology nurses. The findings of this current study and other studies raise the question as to whether there is a gender difference in levels of professional quality of life, or whether the difference relates to the aspect of depersonalisation of burnout syndrome as indicated by Banerjee et al., (2017). The difference in the professional quality of life by gender is an important question to answer as knowing this will assist in targeting interventions appropriately.

Almost half of the participants in this current study had children. Consistent with this study, other studies examining professional quality of life of cancer HCPs reported 46% - 66% of participants as having children (Arimon-Pagés *et al* 2019; Giarelli *et al* 2016; Kleiner and Wallace 2017; Yilmaz *et al* 2017; Yilmaz and Üstün 2019). In this current study participants who had children had significantly higher CS and lower burnout and STS than those participants who did not have children. One study reported no differences for cancer nurses on any of the professional quality of life subscales and having children (Yilmaz and Üstün 2019), whereas Kleiner and Wallace (2017) reported that oncologists who had children reported lower levels of burnout and STS. However, Kleiner & Wallace (2017) shortened both the Maslach Burnout Inventory, and the ProQOL for their study, and did not report on tests for validity or reliability of the abridged scales, indicating results should be evaluated with caution. The results of this current study would suggest that having children may impact positively on professional quality of life. However, evidence suggests that having children can initially increase happiness for parents, but happiness decreases afterward to before-child levels (Myrskylä and Margolis 2014). In a study of 22 Organisation for Economic Cooperation and Development (OECD) countries, it was reported that in Ireland parents as less happy than non-parents (Glass *et al* 2016). The results of this OECD study would question the possibility that being a parent in Ireland may impact positively on professional quality of life, therefore this finding would require further exploration in future studies.

This current study is unique in that it asked participants if they had a significant stressful life event in the previous two years. Although over one third of participants (n = 47) in this current study disclosed a significant stressful life event in the previous two years, no significant difference was found between the professional quality of life of participants who had and the participants who had not disclosed such a significant event. This finding is not supported by the current literature. Ludick and Figley (2017) include other life demands, such as financial difficulties or changes in social status in the CFRM. These authors identify other life demands as potentially overextending someone who is already at high risk of STS (Ludick and Figley 2017). Indeed Brint (2016), a cancer nurse, discusses the significant life event of divorce as perhaps adding to the development of compassion fatigue. Although this was a personal narrative, it provided a humanist insight into the personal experience of compassion fatigue in cancer care. The reasons the finding in this current study differ to those identified by Brint (2016) and Ludick and Figley (2017) may be because participants in this current study could choose whether or not to answer the question on a significant stressful life event. This means that participants could leave this question unanswered but may have experienced such an event and chose not to disclose this.

The age range of participants in this study (21 – 63 years old) reflects the working life age trajectory in Ireland, where graduates would be in their early twenties, and the current retirement age being 65 years old. The mean age of participants in this study (36.53) compares similarly with the mean age in other studies of professional quality of life in cancer health care professionals (Bellicoso *et al* 2017; Duarte and Pinto-Gouevia 2017a; Wells-English *et al* 2019; Wentzel and Brysiewicz 2018; Yilmaz *et al* 2019). Age was correlated with STS and will be discussed further in section 6.1.3.

6.1.2 Professional characteristics

The majority of the participants in this study had a post-graduate cancer qualification, which was a higher academic award than those reported in other studies of nurses and radiation oncology staff (Jang *et al* 2016; Poulsen *et al* 2015; Wu *et al* 2016: Yilmaz *et al* 2018). This result may reflect the professional registration entry level of Batchelor of Science for both nurses and radiation therapists in Ireland, with most additional specialist professional qualifications at post-graduate level. One interesting finding is that 86% of nurses in this current study had a cancer qualification, although a statistically significant difference in CS, burnout or STS was not identified between those participants who had a cancer qualification and those who had not. A higher percentage of nurses in this study held a cancer qualification when compared to previous studies of professional quality of life in cancer nurses, where specialist cancer qualifications were reported by 58% of Chinese participants (Yu *et al* 2016), and 19% of Turkish participants (Yilmaz *et al* 2018). However, in contrast to the results of this current study, Arimon-Pagès *et al* (2019) found that nurses who did not have specialist oncology training reported higher levels of STS. The result in this current study where no correlation between having a cancer qualification and CS, burnout or STS was found may be explained by the high percentage of nurses who had a cancer qualification (86%) in this current study when compared to the nurses who had a cancer qualification (18%) in the study by Arimon-Pagés *et al* (2019). Specialist cancer practice requires specialist skills, which oncologists and radiation therapists gain as part of their training, whereas nurses do not. Nurses who have undertaken specialist cancer education have reported higher CS levels and lower burnout levels (Yilmaz *et al* 2019; Yu *et al* 2016), suggesting countries that encourage specialist cancer nurse education may benefit in terms of the professional quality of life of the workforce.

In this current study a negative correlation was found between years in cancer care and STS. These findings support a study by Yilmaz and Üstün (2019) that reported cancer nurses with 1 – 4 years of experience had higher levels of STS than nurses with more than 5 years of experience. Yilmaz and Üstün’s (2019) findings are reflected in two qualitative studies. Partlak Günüsen *et al* (2018) reported that inexperienced nurses were at greater risk of STS, and Perry et al., (2011) describe how oncology nurses described maturity and experiences as circumstances that lessen CF. However, there are numerous studies that found no correlation between years in cancer care and any of the professional quality of life sub-scales (Hooper *et al* 2010; Laor-Maanay *et al* 2020; Potter *et al* 2010; Wells-English *et al* 2019; Wentzel and Brysiewicz 2018; Wu *et al* 2016; Yu *et al* 2016). A personal narrative highlighted how increasing years in cancer care increased CF, as Brint (2016) reported feeling physical pain when caring for patients with cancer as her career progressed. A study of cancer HCPs work related stress reported that those HCPs who were qualified longer reported greater control over their work role (Jones *et al* 2013) suggesting that confidence and autonomy in clinical practice may come with experience. The findings of Phase II of this current study identified that both younger and older nurses and radiation therapist described STS type symptoms, but for the majority they had developed ways of coping with these symptoms through receiving support from colleagues, family and friend and through the pursuit of hobbies. Koo *et al* (2013) identified that cancer HCPs who participated in stress-relieving activities reported lower levels of distress, and self-care strategies and work life balance were reported as reducing the risk of CF (Perry *et al* 2011, Pfaff *et al* 2017). It may be that support mechanisms are important across the work trajectory of cancer HCPs and if these are in place then STS can be managed more easily.

Three quarters of the participants in this current study were spending more than fifty percent of their time in direct clinical care. Working in cancer care has been identified as having a cost to caring (Rohan and Bausch 2009), where exposure to patients who are suffering has been described as a factor that cause compassion fatigue (Perry *et al* 2011). In Phase I of this current study a statistically significant negative correlation was identified between CS and personal distress and a statistically significant positive correlation was found between personal distress and both CF subscales. Similarly, Duarte and Pinto-Gouveia (2017a) identified a negative correlation between CS and personal distress and a positive correlation between personal distress and burnout in cancer nurses. The finding in Phase I of the current study is supported by the results of Phase II. Nurses and radiation therapists described their time with patients in the clinical setting, and revealed how difficult it was to witness patients in pain. The nurses and radiation therapists in this current study recounted how they felt distressed after bearing witness to patients' distress. The findings of cancer HCPs in this current study support findings reported in previous research, where staff are dealing with continuous crises (Finley and Sheppard 2017), and witnessing suffering on a regular basis (Fukumori *et al* 2020). The exposure to suffering and distress in the clinical setting for participants in Phase II of this current study resulted in personal distress that blurred boundaries between work and home in that the distress seeped into their homelife. The distress in Phase II of the current study surfaced as crying on the way home, waking up in the middle of the night in a panic, and being irritable with family. This blurring of boundaries between work and homelife has been reported in other studies of cancer nurses (Fukumori *et al* 2018; Wentzel *et al* 2019). The consequences of exposure to distress and stress in the oncology workforce can result in work related stress sick leave, or intention to leave (Jones *et al* 2013). Therefore, availability of strategies and interventions aimed at reducing work related stress are vitally important.

Only 9% of participants in this study worked part-time so it was not possible to determine if working part-time had any effect on professional quality of life scores. Only one other study of professional quality of life reported on part-time work (Yilmaz *et al* 2017), where 56% of participants worked less than the average working week hours. The finding of only 9% of participants working part time is lower than the national average of part-time workers in Ireland (23%) in 2016 (Bobek *et al* 2017).

6.1.3 Professional quality of life and demographic variables

The current study found no significant difference in professional quality of life and marital status, having a cancer qualification, the percentage of time spent in direct clinical care, having had annual leave in the past 4 weeks, and having had a significant stressful life event in the past 2 years. Similar to the findings in this current study, no relationship was found between marital status and any of the sub scales of professional quality of life in 4 studies (Gilles *et al* 2015; Granek *et al* 2016; Yilmaz and Üstün 2019; Yu *et al* 2016). However, Jang *et al* (2016) reported a positive correlation with CS and marital status in cancer nurses, and Kleiner and Wallace (2017) reported an interesting finding where there was a positive correlation between being married and STS in oncologists.

In this current study, age showed a negative correlation with STS, which reached statistical significance. The qualitative results from Phase II of this study partially support these findings. One nurse spoke about how they had lacked an ability to understand cancer patients when they were younger, but age had helped them have more understanding during care episodes. However, in Phase II of the current study, where nurses were older and radiation therapists were younger, almost all of the nurses and radiation therapists in study spoke about being distressed as a result of being part of distressing patient encounters. This finding would indicate that STS is present in both younger and older HCPs in this current study. The results relating to age in Phase I of this current study also reflect those of oncologists (Granek *et al* 2016), and cancer nurses (Mooney *et al* 2017; Wu *et al* 2016). However, a range of studies identified no correlation with age and professional quality of life (Gilles *et al* 2014; Hooper *et al* 2010; Laor-Maaynay *et al* 2020; Potter *et al* 2010; Sarra and Fuez 2018; Wells-English *et al* 2019; Wentzel and Brysiewicz 2018; Yu *et al* 2016). It may be that age is a negligible factor in the experience of professional quality of life, particularly as HCPs tend to diversify into more senior clinical roles as they get older, which leads to less patient contact and provides more autonomy in practice. Radiation oncology professors in the USA have reported low levels of burnout (Holliday *et al* 2017), and consultant oncologists in Europe have reported lower levels of burnout than junior colleagues (Lazarescu *et al* 2018). Increasing age may also indicate increasing years of experience, as it is likely that older HCPs have spent more years working in cancer care and have therefore moved into more autonomous roles with less clinical contact time.

6.2 Professional quality of life profile of the participants

One of the objectives of this study was to determine levels of compassion satisfaction, burnout, and secondary traumatic stress in cancer health care professionals in the Republic of Ireland. The levels of the professional quality of life subscales reported by participants of this study yield different results to levels reported in previous studies from the USA, and Canada, but similar results to studies from Europe and Asia.

6.2.1 Levels of compassion satisfaction

In Phase II of this current study theme one ‘making a difference’ and theme two ‘making connections with patients’ reflect the levels of compassion satisfaction felt by the nurses and radiation therapists. Most of the participants in Phase II of the current study spoke about the satisfaction they feel every day as a result of working in cancer care and their desire to work in cancer care, with one nurse saying it had been an ambition to get into cancer care as they felt that they had so much to give. Findings from a qualitative study by Rohan and Bausch (2009) support these findings. Cancer HCPs talked about working in cancer care as a journey with a definite objective, and a journey that the world at large could not undertake (Rohan and Bausch 2009).

Phase I of the current study found 25% of participants experienced high levels of CS, 56% scored average levels and 19% scored low levels. These levels of CS are consistent with professional quality of life research within Europe. Duarte and Pinto-Gouveia (2017a) reported high levels of CS in 25% of cancer nurses, with average levels at 48% and low levels at 27%. A greater percentage (34%) of high levels of CS was reported in Spanish cancer nurses, but similar low levels (18%) of CS were described (Arimon-Pagés *et al* 2019). Two Asian studies report findings similar to the European studies (Jang *et al* 2016; Yu *et al* 2016). In contrast to this current study, levels of CS in the USA, Canada, and South Africa suggest a higher percentage of cancer HCPs report high levels of CS in those countries. Participants of professional quality of life studies from the USA, Canada, and South Africa have reported levels of CS as high in 50% - 68%, and average in 32% - 50% of cancer nurses and radiation therapists (Hooper *et al* 2010; Jakel *et al* 2016; Sarra and Fuez 2018; Wells-English *et al* 2019, Wentzel and Brysiewicz 2018; Wu *et al* 2016; Zajac *et al* 2017). No low levels of CS were reported in any of these studies. Several factors could explain this observation. Firstly, higher levels of CS in some studies may be due to social and cultural differences in cancer care. Cultural and social differences have previously been identified as a possible factor in differing results from a professional quality of life study of cancer nurses in the USA and Canada (Wu *et al* 2016). Cultural and social issues such as professions like nursing have a low status in some countries (Nguyen *et al* 2017), health care professional and patient attitudes towards truth telling in health care (Xue *et al* 2011), and inequity of access to specialist education for cancer across countries (Sheldon 2010) could contribute to these social and cultural differences.

Secondly, the global pattern of cancer is changing significantly, with low and middle income countries experiencing an increasing cancer burden (World Health Organisation 2016), and cancer control programmes in countries globally are at different points of development (Anderson *et al* 2015). High income countries are more likely to have National Cancer Plans, programmes for early cancer diagnosis, screening programmes and access to treatment than low and middle income countries (World Health Organisation 2016). The cancer profile of a country, and the stage of implementation of a cancer control programme within the health service could impact on the workload, work conditions, level of stress, and specialist education of the HCPs, and could account for different geographical profiles of professional quality of life levels.

6.2.2 Levels of burnout

In this study, 22% of participants experienced high levels, 51% scored average levels, and 27% scored low levels of burnout. These levels of burnout mirror those that have been reported in European and Asian studies. Duarteand Pinto-Gouveia (2017a) reported high levels (27%) of burnout in Portuguese cancer nurses, with 20% reported as high by Spanish cancer nurses (Arimon-Pagés *et al* 2019), and 25% of Korean cancer nurses reporting high levels (Jang *et al* 206). None of the studies of cancer nurses from the USA, Canada, or South Africa reported high levels of burnout on the professional quality of life scale (Jakel *et al* 2016; Potter *et al* 2010; Sarra and Fuez 2018; Wells-English *et al* 2019, Wu *et al* 2016; Zajac *et al* 2017). However, one study that examined professional quality of life of cancer nurses (*n* = 12) as part of a larger study of nurses in the USA found 25% of cancer nurses reported high burnout levels (Hooper *et al* 2010). The studies of oncologists' and radiation therapists' professional quality of life reported burnout means as average (Hayuni *et al* 2019; Koo *et al* 2013; Laor-Maayany *et al* 2020), with one study reporting no high levels of burnout (Sarra and Fuez 2018). Interestingly, oncologists have identified high levels of burnout syndrome, and again with differences between Europe and the USA. Banerjee *et al* (2017) reported levels of burnout in young European oncologists as 71%, and Shanafelt *et al* (2014) reported levels of burnout as 45% in oncologists from the USA. High levels of burnout have been identified in radiation therapists in the USA (Akroyd *et al* 2002) and New Zealand (Jasperse *et al* 2014). All of these studies (Akroyd *et al* 2002; Banerjee *et al* 2017; Jasperse *et al* 2014; Shanafelt *et al* 2014) measured burnout syndrome using the MBI.

A possible explanation for the findings of these four studies using the MBI showing different levels of burnout to studies measuring burnout with the ProQOL possibly relate to the ability of the MBI to measure burnout more accurately in health service personnel than the burnout scale on the ProQOL. van Mol *et al* (2015) identified that the burnout dimension of the PROQol is less sensitive than the MBI, particularly if burnout is severe. In fact, Vanheule *et al* (2007) in a study examining the factorial validity of the MBI for human services professions, highlight that nurses interpreted the meaning of the three subscales of the MBI (emotional exhaustion, depersonalisation, and reduced personal accomplishment) differently to other human service professionals. These authors suggest that other variables such as work circumstances, professional goals and differences in work content can influence interpretation of the scales. The difficulty in interpreting the constructs of professional quality of life was evident in Phase II of the current study where nurses and radiation therapist were unable to fully explain the study constructs, with some participants stating that they had to Google these prior to interview.

Interestingly, one Canadian study that used the ProQOL to measure professional quality of life described how radiation therapists did not report high levels of either burnout or STS, but they did report burnout related symptomology (Gillies *et al* 2014). This symptomology was described as work-related headaches, anxiety, depression and mental exhaustion (Gilles *et al* 2014). These findings may indicate that even though health care professionals are feeling stress related symptoms, they do not recognise it as burnout or STS, or it may mean that the instruments measuring burnout and STS are not sensitive enough to pick up on stress related symptomology. In Phase II of this current study theme four 'taking a toll' highlights the negative impact of caring for patients with cancer, where participants described compassion fatigue as being tired of caring, and reaching a limit. Therefore, it may be that cancer HCPs can describe experiencing burnout or STS, but construct these in a way that is different to the instruments designed to measure the constructs.

6.2.3 Levels of Secondary traumatic stress

A significant finding in this current study is the high level of STS reported by the participants (28%), which is higher than the normative sample (25%) reported by Stamm (2010), and higher than the 25% described in a European study (Duarte and Pinto-Gouveia 2017a). However, the STS levels in this study are similar (28%) to the Korean study of cancer nurses (Jang *et al* 2016). Interestingly, the results of STS levels in this study are much lower than the high levels of STS (38%) reported by Spanish nurses (Arimon-Pagés *et al* 2019). Studies of cancer nurses from the USA and Canada report no high levels of STS (Jakel *et al* 2016; Wells-English *et al* 2019; Wu *et al* 2016). In contrast, other studies from the USA report high levels (33%) of STS in cancer nurses (*n* = 12: Hooper *et al* 2010). Similarly, 12% of cancer nurses (*n* = 33) met the criteria for STS (Quinal *et al* 2009), and Al-Majid *et al* (2018) reported population means of cancer nurse's (*n* = 18) STS as high. However, the Hooper *et al* (2010) and Al-Majid *et al* (2018) studies included a small number of cancer nurses as part of a larger sample of nurses, and Qunial *et al* (2009) used the STSS as a measure of professional quality of life. Interestingly, European oncologists have reported high levels of STS (Granek *et al* 2016; Hayuni *et al* 2019), which reflects the reports of STS from European cancer nurses. The small number of studies examining the STS levels of radiation therapists originate in Canada, and indicate that levels in this population are low (Koo *et al* 2013; Gilles *et al*

2014; Sarra and Fuez 2018). The findings in this current study indicate that HCPs working in cancer care in Ireland are reporting high levels of STS.

Interventions have been successful in reducing levels of STS in cancer HCPs. Mindfulness and meditation-based interventions have been successful in decreasing levels of STS and burnout, and increasing levels of CS (Duarte and Pinto-Gouveia 2016a; Hevezi 2016). Compassion fatigue resilience programmes have also been studied and have reduced STS in cancer nurses (Potter *et al* 2013), and cancer HCPs report more awareness of CF in the self and others as a result of participation in such programmes (Pfaff *et al* 2107). However, mode of delivery may be an important factor to consider when implementing an intervention to reduce STS or burnout. A pilot study of a mobile application to develop resilience by Jakel *et al* (2016) found no changes in professional quality of life scores between pre-intervention and post-intervention. This indicates that not all interventions are successful in reducing CF, and further studies are necessary to evaluate the type of intervention programmes that would be most successful in managing professional quality of life.

Although the difference in care models and resource availability may in some part account for the differences in the levels of CS, burnout and STS globally, these do not fully answer why the levels of professional quality of life in this study differ compared to the USA and Canada. Further research is required to understand the reasons for differences in professional quality of life levels globally.

6.2.4 Implications of levels of professional quality of life for cancer policy in Ireland

The issue that emerges from the results of this current study are that the high levels of CS, burnout and STS are comparable to other studies of professional quality of life in European and Asian countries, but differ to descriptions within studies from the USA, Canada and South Africa. Patients describe the distress felt as a consequence of having cancer (Unseld *et al* 2019), and cancer HCPs have described the difficult nature of witnessing patients' suffering (Fukumori *et al* 2020). It has been well established that working in cancer care is extremely stressful (Breen *et al* 2014; Brint 2016; Rohan and Bausch 2009), but global differences in approaches to cancer care may impact on the stress felt by cancer HCPs. Models of health care differ between countries that may affect equity of access for patients, and availability of resources (Anderson *et al* 2006). Yi, (2016) points out that care models for cancer are based on western culture, which may not be applicable to Asian countries. Some countries in parts of Asia have not established advanced practice roles (Yi 2016), whereas these roles are established in other countries such as Ireland, the UK, Canada, and the USA (Begley *et al* 2012). Indeed, a study from the USA identified that HCPs in advanced practice roles in oncology are extremely satisfied with their work (Bruinooge *et al* 2018).

A second reason why differences are seen globally may relate to workforce planning that fails to take the impact of professional caring in cancer on the individual into account. In Ireland, the Irish National Cancer Strategy 2017-2026 (Department of Health 2017) includes detailed guidance on areas that require addressing in terms of workforce planning such as staff shortages, access to specialist postgraduate education, and the development of advanced practice roles for nurses and radiation therapists. However, no reference is made to resource planning aimed at implementing strategies to reduce the impact of professional caring in terms of compassion fatigue or burnout in the document (Department of Health 2017). Concerns regarding the health of the cancer care workforce is beginning to emerge globally as can be seen by the explosion of compassion fatigue and burnout studies published in the past 3 years (Arimon-Pagès *et al* 2019; Banerjee *et al* 2017; Bellicoso *et al* 2017; Duarte and Pinto-Gouveia 2017a; Duarte and Pinto-Gouveia 2017b; Fukumori *et al* 2020; Günüsen *et al* 2018; Hayuni *et al* 2019; Kleiner and Wallace 2017; Laor-Maaynay *et al* 2020; Sarra and Fuez 2018; Wells-English *et al* 2019). One example of a country that has utilised workforce surveys to improve the health of HCPs is Canada. The Canadian Medical Association have invested in physician health, and have published a Physician Health Policy (The Canadian Medical Association 2017) in response to results from their recent annual workforce surveys.

Although the Republic of Ireland is committed to developing oncologist posts, and nurse and radiation therapy advanced practice roles (Department of Health 2017), there is a need to ensure that the whole of the cancer workforce is supported, and a commitment to investing in maintaining the professional quality of life of cancer HCPs is essential. Nurses in the Republic Ireland have reported high work volumes, limited resources, resistance to change, and reduction in front line staff as possible threats to developing their education in cancer care (Hanan *et al* 2012), but nurses in advanced practice roles in the Republic of Ireland emphasised that they have a role in policy and planning of health services (Begley *et al* 2012). The findings of this study could inform national policy for the cancer workforce, and could be instrumental in identifying key areas for investment in the health of the cancer workforce in Ireland.

6.3 Relationships between professional quality of life, empathy and trait emotional intelligence

The main aim of the current study was to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer health care professionals, and to examine the nature of such relationships. Three of the objectives of the current study were to examine the relationships between professional quality of life, empathy and trait emotional intelligence, to explore cancer health care professionals understanding of the relationships between professional quality of life, empathy and tEI using interviews, and to explain the findings of the quantitative analysis through qualitative interviews. The findings of the qualitative interviews in Phase II assisted in explaining the results of the quantitative results identified in Phase I.

6.3.1 Professional quality of life and emotional empathy

A statistically significant negative relationship was identified between CS and the emotional empathy subscale of personal distress, and a statistically significant positive relationship was found between personal distress and both burnout and STS. Only STS showed a positive statistically significant relationship with empathic concern. These results confirm hypothesis 2.

6.3.1.1 Professional quality of life and empathic concern

In this current study, a positive correlation was identified between empathic concern and STS, but not with CS or burnout. A positive correlation between all three subscales of professional quality of life (CS, burnout and STS) and empathic concern has been identified in the nursing literature (Duarte *et al* 2016b), and between empathic concern and the two subscales of CS and STS in the cancer nursing literature (Duarte and Pinto-Gouveia 2017a). In contrast, Hayuni *et al* (2019) reported a negative correlation between empathic concern and burnout but not CS or STS in oncologists. Empathic concern is a natural response to eliciting helping behaviour when observing another’s distress (Lamm *et al* 2007), and is considered to be an automatic response (Decety 2011a).

In Phase I of this current study it is not clear why empathic concern was positively correlated with STS only and not burnout or CS. The finding by Duarte and Pinto-Gouveia (2017a) where a positive correlation was identified between empathic concern and both CS and STS in cancer nurses suggests there may be a positive and negative aspect to empathic concern. Cancer nurses have reported empathic concern as the highest scoring subscale of the IRI in one study (Kesbakhi *et al* 2017), indicating the highly empathic nature of cancer nurses. Empathic concern is a requirement of altruistic motivation in the Theory of Empathy-induced Altruistic Motivation (Batson *et al* 2014). In Phase II of the current study, nurses and radiation therapist stories identified high empathic concern for patients where the altruistic motivation to relieve the patients' distress was evident. In Phase II of the current study the HCPs spoke about this concern resulting in both CS and CF. Decety and Lamm (2006) provide insight into the complexity of empathic concern, which pertains specifically to imagining the feelings as if one was the patient experiencing distress, or as imagining what the patient is feeling; the distinction between 'self' and 'other'. This self-other distinction relates to the perspective taking aspect of cognitive empathy (Davis 1983). In a study of general practice physicians, Lamothe *et al* (2014) reported that physicians with high empathic concern and high perspective taking reported lower levels of burnout, leaving the authors to conclude that there is an interaction between empathic concern and perspective taking. Interestingly, in Phase I of this current study, empathic concern showed a positive correlation with the tEI subscale of emotionality and not with global tEI or any of the other tEI subscales. The subscale of emotionality includes the facets of empathy, emotional perception, emotional expression and relationships, which high scorers include the ability to decode one's own and other's emotions, and can communicate their emotions to others (Petrides 2009). The positive correlation between empathic concern and emotionality in Phase I of this current study would suggest that aspects of emotionality may be used when HCPs are experiencing empathic concern. This finding supports the Lamothe *et al* (2014) conclusion that there is an interaction between empathic concern and perspective taking.

It may be that there is a tipping point at which empathic concern moves from having a positive purpose to having a personal detrimental effect. This may involve the complex interplay between empathic concern and perspective taking. The perspective taking component of empathy, where one is able to distinguish between the emotions of one's self and others may be less developed in some health care professionals, leaving them open to imagining as if they were the patient rather than focusing on what the patient is feeling. Findings from Phase II of this current study would support the complexity of the relationship between perspective taking and empathic concern, particularly in relation to the HCP finding similarities between the patient and the HCPs life. Nurses and radiation therapists in this current study described how they would employ empathic concern whilst being empathic with patients, which was an unconscious emotional response, but when they imagined the patient as a family member, or drew parallels between their own life and the patient's life this seemed to be a conscious process.

One study from cognitive neuroscience reported that demonstrating empathic concern as if one was the distressed person resulted in increased anxiety and personal distress, whereas demonstrating empathic concern toward what the distressed person is feeling resulted in decreased anxiety and personal distress, and increased empathic concern (Decety and Lamm 2006). There is a possibility that imagining the patient as one's own family member or drawing parallels from the patient to one's own life has a similar effect during the empathic concern process in that there is disruption of emotion regulation for the HCP. This is particularly important if the health care professional's process of drawing parallels with one's own family is a conscious one. This finding in the current study could support the development of interventions that target this conscious process, and may enable the HCP to be more aware of the negative impact of drawing such parallels with family.

Empathy skills training for cancer nurses has been successful in increasing attention given to psychological issues and decreasing the amount of biomedical information given during patient consultations (Langewitz *et al* 2010). However, situational factors such as duration of the consultation (Lelorain *et al* 2015), the patient's levels of emotional skills (Lelorain *et al* 2018a) and type of news being delivered (Neumann *et al* 2007) all impact on patient perceived empathy. The uniqueness of the finding of the current study requires further investigation to establish if indeed the drawing of parallels with family members is a conscious process and if it prevents the HCP engaging in adaptive cognitive empathy.

6.3.1.2 Professional quality of life and personal distress

The statistically significant correlations between the emotional empathy subscale of personal distress and all three professional quality of life subscales was expected in the current study. The results found that compassion satisfaction was negatively correlated with, and burnout and STS were positively correlated with personal distress. Personal distress occurs when there is over-arousal of emotions during the emotional contagion aspect of empathic engagement (Rushton *et al* 2013). Given that the emotions of the distressed individual activate similar representations in the empathiser (Decety and Lamm 2009), it is not surprising that HCP working in cancer care are at risk of personal distress. Personal distress was found to have similar correlations with all three professional quality of life subscales in a study of Portuguese nurses (Duarte *et al* 2016b), and in a study of cancer nurses personal distress showed a similar correlation pattern with CS and burnout (Duarte and Pinto-Gouveia 2017a). Similarly, positive correlation was found between personal distress and both burnout and STS was found in oncologists (Hayuni *et al* 2019).

The positive correlation between personal distress and CF in phase I of this current study is supported by the findings of Phase II. The use of empathy in practice by participants in Phase II was described as emotional contagion, particularly in circumstances where the patient was very distressed. The HCP descriptions spoke about a delayed processing of their own distress, such as not crying in front of the patient, and participants often delayed their emotional response until driving home. A concept analysis of STS in nursing supports Phase II results in that a bonding relationship is established between the nurse and the patient before STS occurs, and that empathy is a key component of this process that manifests in symptoms of avoidance, intrusion, and arousal (Arnold 2019).

The literature in health care reinforces the notion of empathy as ‘putting ones-self in the other person’s shoes’, but the findings of the current study suggests that this may not be an adaptive strategy. Lamm *et al* (2007) suggest that “putting ones-self into another’s shoes” leads to higher personal distress, whereas focusing on the emotional responses of others leads to higher empathic concern and lower personal distress. This evidence from the field of social neuroscience questions the focus on ‘putting oneself into the shoes of another’ in order to be empathic, as this has been reported as an arduous task for nurses (Strandberg and Jansson 2003). In Phase I of the current study it is not known if participants who experience personal distress are more likely to ‘put themselves into the shoes of another’ or instead focus on the emotional responses of the others distress. Interestingly, it is reported that a certain amount of personal distress is necessary to experience CS (Gleichgerrcht and Decety 2014), but it is not clear how much personal distress is healthy or at which point this leads to a risk of CF. However, in Phase II of this current study participants did link being empathic with having a similar background to the patient or having a similar family experience. In doing this it may be that participants in the current study are not focusing on the emotional responses of the patient but are putting themselves into the person’s shoes instead, leading to higher levels of personal distress than if they were focused solely on the emotional responses of the patient. It was not clear in Phase II of the current study if the similarity to one’s self or one’s family involved a cost-benefit analysis of the possible behaviours required to relieve the patients’ distress. In the Theory of Empathy-induced Altruistic Motivation Batson *et al* (2014) outline that the empathiser will undertake a cost-benefit analysis before acting to help the person in distress. One possible explanation for the findings of the current study in relation to theme three ‘identify with’ is that the HCP may be applying a cost-benefit analysis to helping someone who they can identify with. This cost-benefit analysis may result in not acting to relieve personal distress or asking for help.

In this current study a statistically significant correlation was not found between either subscale of CF and perspective taking. However, the statistically significant positive correlation between both subscales of CF and personal distress partially confirm hypothesis one.

6.3.2 Professional quality of life and cognitive empathy

One of the objectives of the current study was to examine the relationships between professional quality of life and cognitive empathy. The positive correlation between CS and the cognitive empathy component of perspective taking in this current study was an expected finding. This finding is consistent with conclusions from previous studies in cancer nurses (Duarte and Pinto-Gouveia 2017a: Yu *et al* 2016) and in general physicians (Gleichgerrcht and Decety 2013). However, the relationship between perspective taking and both subscales of CF in the current study did not reach statistical significance. This is contrary to what is reported in the literature. In a cross-sectional study of Portuguese cancer nurses, Duarte and Pinto-Gouveia (2017a) found a negative correlation between perspective taking and burnout but not STS. Also a study by Hayuni *et al* (2019) identified a negative correlation between perspective taking and burnout and STS. A possible explanation for the difference between the other studies (Duarte and Pinto-Gouveia, 2017a; Gleichgerrcht and Decety, 2013; Hayuni *et al* 2019; Yu *et al* 2016) and this current study may be attributed to the application of the Bonferroni correction in the current study. The negative correlation between perspective taking and burnout did show a significance value of 0.02, but this did not reach statistical significance once the Bonferroni correction was applied.

Perspective taking is a component of cognitive empathy, and involves resources such as self-regulation and cognitive flexibility (Decety and Lamm 2006). Cognitive inflexibility has been identified as a possible maintenance factor in STS (Duarte and Pinto-Gouveia 2017b). Perspective taking enables the person to identify and manage their own emotions when empathising with someone in distress. This component of cognitive empathy is essential in determining whose distressing emotions belong to whom during empathic encounters, and has been associated with positive patient outcomes. In a study of medical students, the impact of perspective taking during patient interactions was a key component in patient satisfaction (Blatt *et al* 2010). Similar findings of perspective taking being a key component in patient satisfaction was identified in a study of oncologists (Lelorain *et al* 2015). Aspects of perspective taking, such as understanding and exploring patients' emotions have been identified as high in oncologist's consultations (van Vliet *et al* 2019), indicating oncologists may have high levels of cognitive empathy.

Empathy is one of the facets of the emotionality factor in the TEIQue, and this emotionality factor relates to people being in touch with their own and other people's feelings, in that high scorers can perceive and express emotions (Petrides 2009). In the current study the mean on the emotionality subscale (5.27) was above the norm means (3.5) identified by Petrides (2009). In Phase II of this current study, nurses and radiation therapists identified that taking the perspective of the patient was a component of empathy, however, when asked if they thought there was a relationship between professional quality of life and empathy respondents did not describe perspective taking specifically. Instead, participants felt that being empathic would lead to CS as you would get something back from the patient. Rohani *et al* (2018) described how cancer nurses felt that being able to take the perspective of others was an important component of clinical empathy. Identifying emotions in the self and other is a key aspect of perspective taking (Decety and Hodges 2006). However, being aware that perspective taking is an important component of empathy may be different to operationalising that cognitive aspect of empathy in practice. A study to evaluate the impact of an EI development programme for cancer nurses identified a trend in that a number of nurses who were unable to identify their own emotions were also not able to identify patients' emotions, although this finding did not reach statistical significance (Codier *et al* 2013).

A second aspect of how the use of the cognitive aspect of perspective taking may be affected in cancer practice relates to identifying with the patient. This type of overidentification with the patient has been reported in previous studies (Duarte and Pinto-Gouveia 2016a; Fukumori *et al* 2018). Talegnani *et al* (2017) reported that empathy was higher if nurses had personal experience of cancer, either they had cancer or a family member had cancer, and Wiseman (2007) describes how nurses were empathic with patients of a similar background and life experience. However, Wiseman goes on to say that this familiarity also made being empathic more draining for the nurses. In Phase II of this current study, nurses and radiation therapists describe how they identify with some cancer patients through the patient being similar to an aspect of the HCPs life and through needing to treat the patient like a family member. This identification seemed to be a conscious process in that the nurses and radiation therapists were aware they were doing this.

However, it is the identification of similar characteristics between cancer patients and the HCP or their family that are most interesting. Perspective taking involves suppression of one's own egocentric perspective, and perspective taking can be limited if the empathiser does not have sufficient self-regulation resources (Fennis 2011). Evidence from social neuroscience suggests that empathy is grounded in a shared representation between the self and other, and requires regulation through perspective taking to allow the empathiser to distinguish between the self and other (Decety and Hodges 2006). In this current study, it is possible that overidentification with cancer patients through HCPs imagining the patient like a family member, or remembering a family member who has been through a similar experience, may mean that the HCP fails to supress their own egocentric perspective and subsequently do not adequately employ perspective taking, thus resulting in personal distress for the cancer HCP. However, empathy is highly complex and the use of egocentric motives does not mean that empathic action is not altruistically motivated (Batson *et al* 2014).

Other variables may interfere with engaging in perspective taking in cancer practice that the results of Phase I of this current study could not identify. Barriers to empathy in cancer nursing have been identified in the literature and include poor work conditions (Kesbakhi and Rohani 2020), task focused care, job strain, and patients with a poor prognosis (Taleghani *et al* 2018), limited time, low staffing levels, lack of support (Wiseman 2007), and cultural and language difficulties (Hope-Stone and Mills 2011). In Phase II of the current study participants identified lack of time, juggling different job roles, and staff shortages as some of the challenges they encounter when delivering empathic cancer care. It may be that time pressures, staff shortages and other work-related variables could affect the ability to employ perspective taking in cancer practice.

In this current study no statistically significant relationship was found between perspective taking and burnout or STS, but the statistically significant positive relationship between CS and perspective taking partially confirms hypothesis two.

6.3.3 Professional quality of life and trait emotional intelligence

A very clear pattern emerged in the correlations between tEI and all dimensions of professional quality of life. Compassion satisfaction was positively correlated with global tEI and all four factors of tEI, and burnout and STS were negatively correlated with global tEI and all four factors of tEI. These findings confirm hypothesis three. The results of the current study are consistent with findings in other studies of non-cancer HCPs. In studies of physicians, trait emotional intelligence was positively correlated with CS (Zeidner *et* *al* 2013) and negatively correlated with burnout (Swami *et al* 2013; Weng *et al* 2011; Zeidner *et al* 2013).

Oncologists have reported high levels of tEI and low levels of burnout. In a cross-sectional study of oncology professors in the USA, a negative correlation was identified between tEI and burnout, however, overall the participants had high levels of tEI and low levels of burnout (Holliday *et al* 2017). Holliday and colleagues put the high tEI and low burnout out levels in this population down to the leadership roles of the participants, the high academic education and clinical experience of the cohort. When comparing the means of global tEI for oncology professors (Holliday *et al* 2017) and this current study, the tEI means in the current study are lower. This may reflect the multi-professional cohort, and the lack of leadership roles in this current study. Leadership roles provide a certain amount of autonomy and leadership type roles have been identified as leading to increased job satisfaction and retention of cancer nurses (Black and Farmer 2013; Cummings *et al* 2008; O'Keeffe *et al* 2015). Similarly, radiation therapists identified that the autonomy would be a benefit of the advanced practice role (Kinamore 2014). In Phase II of this current study, four nurses were in specialist and advanced practice roles. The narratives of these four nurses reflected an ability to provide leadership to more junior colleagues, and demonstrated more autonomy in their clinical decision making. The narrative of the nurses and radiation therapists in Phase II of this current study who had less autonomous roles reflected a need to be more compliant to the clinical decisions of others when solving problems during distressing clinical encounters. It may be that cancer HCPs emotional intelligence levels are more apparent when undertaking leadership roles where autonomy is practiced. This would suggest that providing opportunities for HCPs working in junior roles to be more autonomous may enhance levels of emotional intelligence.

Emotional intelligence has also been linked to coping abilities of cancer health care professionals. In a study of physicians (*n* = 182), Zeidner *et al* (2013) report that emotional intelligence is important for physicians, where physicians with higher emotional intelligence were more likely to engage with problem-focused coping strategies to conserve resources and maintain work engagement. Nurses who had higher EI scores also used problem-focused coping more than emotion-focused coping (Mazzella Ebstein *et al* 2019). In Phase II of this current study nurses and radiation therapists demonstrated tEI in the clinical setting through some of their narratives. These narratives focused on resolving a problem for distressed patients through the use of emotion perception, emotional management and assertiveness, thus resulting in a positive outcome for the patient problem. It is plausible that high levels tEI enhanced the problem focused coping skills of the nurses and radiation therapists and resulted in positive patient outcomes. Emotional intelligence has been associated with quality of patient care (Adams and Iseler 2014). It is established that emotionally intelligent nurses foster a supportive and creative work environment (Akerjordet and Severinsson 2008), with improved nurse retention (Codier *et al* 2009). It is suggested that emotional intelligence has predictive value in job performance, and intervention programmes aimed at increasing EI should be based on emotional intelligence theoretical foundations (Zeidner *et al* 2008). In Phase II of this current study not all nurses and radiation therapists had an understanding of EI so interventions aimed at enhancing EI would require planning around not only a particular intervention but also information on the construct of EI.

Interventions to enhance emotional intelligence in cancer HCPs have not been extensively researched. Two studies evaluated EI interventions in cancer HCPs, and as suggested by Zeidner *et al* (2008) both of these studies identified that the theoretical foundation of the intervention was embedded in EI theory. A study by Codier *et al* (2013) used an emotional intelligence development programme intervention to improve the emotional intelligence abilities of cancer nurses. This intervention included nurses rating their own emotional state before EI Check-in rounds, after which the nurses had to identify the emotions both they and the patients were experiencing on that day. Codier *et al* (2013) concluded that cancer nurses ability to identify emotions in the self and others was limited. Unfortunately participation in the post-testing phase was too low to allow for comparisons to be made between pre and post intervention, however qualitative findings indicated that there was an improvement in emotional care documentation and planning (Codier *et al* 2013). A study by Tadmor *et al* (2016) used an expert outside team who specialise in EI training to support an intervention to improve EI levels. The study used a control group and an intervention group (Tadmor *et al* 2016). The intervention included 10 two hour sessions, spaced out every 2 weeks, and post intervention EI scores demonstrated a statistically significant improvement in EI levels when compared to the control group (Tadmor *et al* 2016). Qualitative findings by Tadmor and colleagues reported improved well-being and team coherence in the intervention group. One limitation of the Tadmor *et al* (2016) study is that two of the authors were the owners of the specialist company in addition to working in the Faculty of Medicine. Although the findings from these two intervention studies indicate that there is a benefit to both patients and cancer HCPs from interventions to improve emotional intelligence, there are challenges to overcome.

Health care professionals are time poor so it is prudent that interventions are developed that do not require a protracted time investment either inside or outside of the work setting. Both the Tadmor *et al* (2016) and Codier *et al* (2013) studies included lengthy interventions, which were time consuming, and for one study involved the use of a specialist company which would have financial implications. There is a considerable investment by staff in lengthy interventions, and although attrition rates were low in the Tadmor *et al* (2016) study, the Codier *et al* (2013) study were unable to evaluate pre and post intervention EI scores due to the low number of post intervention EI evaluations. Cancer HCPs from Phase II of the current study did acknowledge the usefulness of education programmes aimed at improving professional quality of life, but they identified that often these programmes are undertaken in their own time. One radiation therapist recalled attending a very helpful workshop but this it involved Saturday attendance. Interventions aimed at improving professional quality of life, empathy or EI would require investment from both the cancer HCP in terms of time and commitment, but also investment from the organisation in terms of releasing staff, and the financial commitment. It is essential that interventions to improve HCPs emotional intelligence have a robust evidence base, particularly if there is a heavy investment from individual health care professionals and organisations in terms of time and financial resources.

6.4 Predictors of professional quality of life

One unexpected finding in the current study was the extent to which well-being predicted levels of all professional quality of life subscales. Global tEI and emotionality had to be removed from the regression models due to multicollinearity. However well-being was the tEI subscale that was consistent in predicting higher levels of CS and lower levels of burnout and STS in the multiple regression models of the current study. Higher levels of self-control predicted lower levels of burnout, and higher levels of empathic concern predicted higher levels of STS. These results in the current study partially support hypothesis five, which was that high levels of trait EI and cognitive empathy would be predictors of higher CS levels, and low levels of trait EI and emotional empathy would be predictors of higher levels of CF.

Well-being is synonymous with happiness and satisfaction with life. Well-being as part of the tEI model encompasses high self-esteem, feeling happy and satisfied with life, and a sense of optimism (Petrides *et al* 2016), where people who have high levels of well-being tend to feel happy, positive, and fulfilled (Petrides 2009). Trait EI has been found to be positively correlated with life satisfaction, and negatively correlated with loneliness and proneness to depression (Saklofske *et al* 2003). The quantitative results of Phase I of the current study in that well-being predicted all three subscales of professional quality of life is supported by the Phase II results. Theme five ‘restoration’ highlights the importance nurses and radiation therapists in the current study placed on well-being. Participants described how participating in hobbies and holidays and the support of family and colleagues were an integral part of staying mentally and physically well and combat compassion fatigue. The strategies used by the participants in the current study to promote well-being were important to them given that they described how much they give of themselves when caring for cancer patients.

It would appear from the literature that self-care strategies are important in maintaining well-being for cancer HCPs. Finley and Shepard (2017) describe how cancer nurses use self-care practices such as connecting with friends and family, support from colleagues, and exercise to cope with CF. Similarly, Sarra and Fuez (2018) describe radiation therapists as using exercise, and going to family, friends and colleagues for support as strategies in preventing CF. In fact, in an intervention study using a compassion fatigue resiliency programme, Pfaff *et al* (2018) describe how cancer HCPs identified the benefit of using the intervention’s self-care practices in the promotion of well-being and prevention of CF. Interestingly, in a study of the UK and Australian radiography workforce, which included radiation therapists, Mackay *et al* (2013) identified well-being as the only trait EI factor that was different between the countries, with higher well-being scores reported in Australia. Explanations given for the difference in wellbeing between the two countries were the differing work context, and the intensity and duration of sunlight (Mackay *et al* 2013), indicating that both work and environmental factors may impact on well-being.

In addition to the tEI factor of well-being predicting changes in all professional quality of life subscales in the current study, two other variables were also significant in predicting CF. Both of the variables relate to emotion regulation. Self-control predicted lower levels of burnout and empathic concern predicted higher levels of STS. Empathic concern was the only empathy subscale that was predictive of any of the three professional quality of life subscales in this current study, in that higher levels of empathic concern predicted higher levels of STS in the multiple regression model. Similar to the results of the current study, empathic concern was positively correlated with STS, and predicted higher levels of STS in a study of oncology nurses (Duarte and Pinto-Gouveia

2017a). However, in contrast to this current study Duarte and Pinto-Gouveia (2017a) reported a similar pattern for empathic concern and CS.

Empathic concern is one component of emotional empathy alongside personal distress. The exposure to distress where there is sharing of emotions or emotional contagion between the distressed person and the empathiser leads to empathic concern (Decety and Cowell 2014; Decety and Fotopoulou 2015). Evidence indicates that physicians subconsciously inhibit the negative arousal process during empathic engagement with a distressed patient in order to free up cognitive resources (Decety 2011b). The freeing up of cognitive resources allows the physician to intervene with the distressed person and express empathic concern (Decety 2011b). Additionally, the empathiser must be able to recognise that the emotions felt during emotional contagion are in response to another's emotional state, as this recognition enables the empathiser to engage in empathic concern rather than feel personal distress (Decety and Cowell 2014). Therefore, the process of empathic concern would indicate a positive outcome for the empathiser as there is avoidance of personal distress, but this does not seem to be the case. Other processes involved in the complex empathic process must be considered. For health care professionals, self-regulation of emotions is crucial in managing the empathic emotional response (Decety & Fotopoulou 2015). The descriptions of nurses and radiation therapists in Phase II of the current study described not having time to process emotions, and expressed participating in distressing clinical encounters that did not match their own values and beliefs, sometimes just having to 'power on and do it'. It is possible that not having time to process emotions or to self-regulate emotions can detract from true empathic concern and lead to personal distress.

Linked to self-regulation of emotions is the finding in Phase I of the current study that self-control was predictive of burnout. Self-control as a factor of tEI relates to emotion regulation and will power, and regulating external pressure and stress (Petrides 2009). In Phase II of the current study none of the participants were able to identify emotion regulation as part of emotional intelligence. In fact, regulating emotions was not spoken about overtly by nurses or radiation therapists in the interviews. However, in Phase II of this current study emotion regulation was discussed as part of the participants stories, in that nurses and radiation therapists made sure not to cry or display distress in front of patients, but instead waited until they were in the car or somewhere private.

One possible explanation for empathic concern being a predictor of higher levels of STS, and self-control being a predictor of lower burnout levels in the current study is that HCPs in cancer care have little time to self-regulate the emotions felt during empathic engagement, and are processing not only patient distress, but at times are also processing moral distress resulting in over-arousal of the HCPs emotions. The results of Phase I and Phase II of the current study would support this explanation. This explanation is also supported by Rushton *et al* (2013) where emotional over-arousal and an inability to regulate one's own emotions may contribute to moral distress in health care professionals. It is also important that time is available for a person to exert control over emotion regulation (Zapf 2002), where in Phase II of the current study HCPs reported that time was not always available to process emotions. Another possible explanation is that the self-regulation strategies employed by some HCPs when showing empathic concern are not regulating emotions effectively, thus the HCP experiences STS.

Emotion regulation is an important skill in life, and two common emotion regulation strategies are cognitive reappraisal and expressive suppression. Cognitive reappraisal is categorised as a cognitive change emotion regulation strategy (Allen and Windsor 2019), and cognitive reappraisal involves choosing an alternative explanation of a situation from a number of possible less harmful alternatives (Brummer *et al* 2014). Expressive suppression is categorised as response modulation emotion regulation strategy, and is where there is a suppression of a response to an emotion felt (Allen and Windsor 2019). The use of cognitive reappraisal is related to more positive emotions for the individual, and expressive suppression leads to more negative emotions for the individual (Cutuli 2014). The cognitive flexibility required to reappraise emotions may to be important in reducing STS as cognitive inflexibility is thought to be a maintenance factor in STS (Duarte and Pinto-Gouveia 2017b). Cognitive reappraisal as a self-regulation emotion strategy has been positively related to well-being, and expressive suppression was negatively related to well-being (Haga *et al* 2007). Given that higher well-being was predictive of lower STS in this current study, it may be that participants in the current study used adaptive self-regulation strategies during the use of empathic concern to avoid increasing STS and enhance well-being.

6.5 Comparison of professional quality of life, empathy and emotional intelligence between professions

One of the aims of the current study was to compare levels of professional quality of life, empathy and tEI between cancer professions. The finding of the current study partially confirms hypothesis four, which stated that radiation therapists would have lower levels of compassion satisfaction and higher levels of compassion fatigue than nurses and doctors. The current study identified that radiation therapists and doctors reported statistically significant higher burnout scores than cancer nurses. This is an interesting finding considering the mean age of radiation therapists was nine years younger, and the mean age of doctors was four years younger than nurses in the current study.

6.5.1 Comparison of professional quality of life between professions

This is the first study that compared levels of professional quality of life across the professions of cancer nurses, oncologists and radiation therapists. Nurses in Europe have reported high levels of burnout as between 20-27% (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2017a), and means of burnout as average (Duarte and Pinto-Gouveia 2016a; Yilmaz et al., 2018)., and radiation therapists reported average levels of burnout (Sarra and Fuez 2018). It is difficult to draw conclusions from the results of the current study but it does suggest that radiation therapists may be at higher risk of burnout than nurse and oncologist colleagues. Akroyd *et al* (2002) highlight that radiation therapists levels of burnout were higher than population norms. Both nurses and radiation therapists were found to report more stress related to patient stressors than other professionals working in radiation oncology (Jasperse *et al* 2014), indicating that both these professions suffer as a result of exposure to patient distress in cancer care. Interestingly, doctors have reported high levels of burnout (Hayuni *et al* 2019; Laor-Maanay *et al* 2020), with female doctors reporting higher burnout than male colleagues (Kleiner and Wallace 2017).

One explanation for the differences in burnout between nurses and oncologists may relate to the age of the participant oncologists in this current study. The mean age of oncologists who participated in the current study was 36.27 indicating that these oncologists were early career oncologists. Oncologists in Europe have reported average levels of burnout (Hayuni *et al* 2019; Laor-Maayany *et al* 2020) but in both of these studies the mean age was higher, with Hayuni *et al* (2019) reporting a mean age of 44.4, and Laor-Maayany *et al* (2020) reporting a mean age of 45.1. Young oncologists in Europe have reported high levels of burnout (Banerjee *et al* 2017), and high levels of burnout have been reported in young oncologists in Italy (Dieci *et al* 2018). However Banerjee *et al* (2017) and Dieci *et al* (2018) both used the MBI which is more sensitive at detecting high levels of burnout than the ProQOL (van Mol *et al* 2015).

The differences in burnout between nurses and radiation therapists may relate to the nature of the work. In Phase II of the current study, radiation therapists spoke about two aspects of their role that may explain these differences in burnout between their profession and nurses. Firstly, the radiation therapists struggled with lack of time to make emotional connections with patients, and this lack of time related to the very quick turnaround time between patients. The radiation therapists described how they would identify that the patient was distressed or needed to talk but there would just not be sufficient time, and they would have to hand the patient over to a nurse or counsellor colleague. Working in a fast paced environment with little time to think about the emotional impact of the work (Sarra and Fuez 2018), and large work-loads, understaffing, and long work hours (Halkett *et al* 2016) have previously been identified in studies of radiation therapists as contributing to CF. Secondly, in Phase II of the current study, radiation therapists described the high turnover of patients each day, where they used the words ‘conveyor belt’ to describe the process of the work role. The use of the term ‘conveyor belt’ is an interesting analogy that is often kept for factory production lines. In factory production lines productivity, increased efficiency, and cost reduction are drivers, where production line workers are motivated in terms of increased productivity by increased wages (Lollo and O’Rourke 2020). However, factory production lines do not include humans as the product, so it may be in the current study that the lack of time to make emotional connections with patients in such a fast paced ‘conveyor belt’ type work environment impacts negatively on radiation therapists.

The repetitive and monotonous nature of the work in radiation oncology has been identified previously (Halkett *et al* 2016). However, in Phase II of the current study motivation in the workplace for radiation therapists appeared to be being able to connect with the patient and provide the patient with the appropriate support, but this required time that they did not always have. Bolderston *et al* (2010) highlight that radiation therapists consider caring as integral to their role, and developing reciprocal relationships with patients is important, however there is a dissonance between the humanistic and technical aspects of the role. Bolderston *et al* (2010) suggest that the technical aspects of the role are unique to radiation therapy which are not seen in the nursing profession. These differences in the role aspects may explain in part the reason for higher burnout scores among radiation therapists in the current study, but this tentative explanation would require further investigation. Indeed, radiation therapists and oncologists experiencing more burnout than cancer nurses may put them at an increased risk of STS, as Shoji *et al* (2015) identified a unidirectional causal pathway from burnout to STS. This infers that radiation therapists and oncologists as a profession may be at higher risk of STS. It was observed that radiation therapists reported higher levels of STS than cancer nursing colleagues (Koo *et al* 2013). The results of the current study did not find a statistically significant difference in STS scores between nurses and radiation therapists, and therefore do not support the findings of Koo *et al* (2013).

6.5.2 Comparison of empathy between professions

There were no differences in levels of empathy between nurses, oncologists and radiation therapists in this current study. Empathy is an important part of cancer care (Wiseman, 2007) and this is the first study where comparisons between these three professional groups have been made. The findings tentatively indicate that empathy characteristics in cancer professionals are consistent across certain professions, although this would require further exploration in future studies.

6.5.3 Comparison of tEI between professions

In Phase I of this current study, no significant differences were found in the Global tEI scores of the three groups, but nurses reported significantly higher levels in the self-control factor of tEI than radiation therapists and oncologists. This finding is difficult to explain. Radiation therapists tEI scores and self-control scores have been reported as higher than a normative sample (Mackay *et al* 2012), and Holliday *et al* (2017) have reported oncology professors tEI scores as high, whereas cancer nurses ability emotional intelligence was reported as average (Codier *et al* 2013; Mazzella Ebstein *et al* 2019). However, these studies used different EI questionnaires making it difficult to draw comparisons. Self-control as measured by the TEIQue relates to emotion regulation, stress management, and impulsiveness (Petrides 2009). In a study of radiographers Mackay *et al* (2012) reported that the self-control factor of tEI was higher in senior radiographers than junior radiographers, and suggests this may be due to the leadership roles of the senior radiographers. Although it is difficult to draw parallels between Mackay's results and results of this current study in relation to the differences in the self-control factor, it may be that radiation therapists and oncologists were in a more junior position than nurses in Phase I of the current study.

There was a difference in the mean ages of the radiation therapists, oncologists and nurses in Phase I of the current study, with the radiation therapists and oncologists being younger. The difference in age and level of experience between nurses and radiation therapists was also evident in Phase II of the current study, where all of the radiation therapists had less than 5 years of experience and all of the nurses had more than 5 years of experience. Brummer *et al* (2014) identified that levels of anxiety and stress as lower in older adults. In this current study as the nurses were older than the radiation therapists, they may have been more likely to use self-control measures to manage stress.

Radiation therapists have reported high levels of stress related symptomology including stress related headaches, anxiety, depression, and mental exhaustion (Gilles *et al* 2014), suggesting that stress management strategies in radiation therapists may not be sufficient to reduce work related stress symptomology. Additionally, although there is insufficient evidence to establish a clear understanding of how increasing age relates to emotion regulation (Allen and Windsor 2019; Livingstone and Isaacowitz 2018). Evidence suggests that the use of suboptimal emotion regulation strategies such as expression suppression is associated with psychological distress in young and middle-aged adults (Brummer *et al* 2014). In the current study it is not possible to draw any conclusions about emotion regulation strategies across the professions. However, considering that self-control was predictive of burnout in the hierarchical multiple regression model in Phase I of this current study, and coupled with the findings that self-control levels are higher in nurses when compared to radiation therapists and oncologists indicates that self-control should be explored further in professional quality of life studies of cancer HCPs.

6.6 Digression between quantitative and qualitative results

One area where the results of Phase II in the current study could not be mapped onto the results of Phase I was in the uncommon theme of work diversification. This is an interesting finding, but clearly no conclusions can be drawn from this in the current study. The only radiation therapist who had moved responsibilities from a patient contact role to a non-patient contact role in radiotherapy planning clearly identified how the move had significantly reduced their compassion fatigue. This radiation therapist related the reduction in CF to non-patient contact, but voiced that they missed the sense of satisfaction they felt from developing relationships with patients. Radiation therapists have indicated they wish to remain with some clinical contact but they have identified diversification into teaching and research as part of their work role to combat CF (Halkett *et al* 2016). There was a suggestion by one nurse of a structured approach to a nursing career that focused on progressing into a more autonomous role as nurses gained experience. Autonomous roles have been linked to job satisfaction in Irish nurses (Curtis 2007). This nurse had moved up to a more senior role in a less structured but somewhat planned way. The nurses in the current study who described job role moves did identify that this diversification had helped combat their compassion fatigue. Job satisfaction has been identified as being higher in more senior cancer nurses (Kitajima *et al* 2020), and offering professional development opportunities has been suggested as a strategy to improve cancer nurses job satisfaction (Cummings *et al* 2013), and the radiotherapy work force job satisfaction (Hutton *et al* 2012). However, even with structured career pathways, Organisations may not always make these known to front line health care workers (Dill *et al* 2014) indicating that organisations need to ensure career pathways are available and open to HCPs at all levels.

A second aspect where Phase I and Phase II results differed related to feeling CS and CF in one day. In Phase I of the current study 6% of participants reported high levels of CS and CF in the past 30 days. However, Stamm (2010) suggests that CS and CF can be experienced at the same time. The findings of Phase II of the current study supports Stamm (2010) in that CS and CF were experienced in the one day, and suggests that there is a complex relationship between CS and CF. Brint (2016) does describe experiencing CF when caring for patients with cancer, but also describes the sense of satisfaction felt during care episodes. Experiencing CS and CF during the one day is not well reported in the literature, but understanding the complex interplay between them will inform the development of interventions targeted at increasing CS and reducing the risk of CF.

6.7 Additive aspects of the qualitative results to the quantitative results

One of the objectives of this current study was to explore cancer health care professional's understanding of and relationships between professional quality of life, empathy and trait emotional intelligence. The qualitative results from Phase II of the current study provide an insight into the relationships between professional quality of life, empathy and emotional intelligence, and supported and added to the findings of Phase I. However, the results of the analysis of Phase II provided an additional insight into cancer nurses and radiation therapists descriptions of professional quality of life, empathy and emotional intelligence. This further insight related to the construction of the cancer patient through the nurses' and radiation therapists' narratives.

What is interesting about the construction of the 'cancer patient' in this current study, is that the nurses and radiation therapists constructed the 'cancer patient' predominately from the point of reference of distress and vulnerability, rather than from a point of patient survivorship and positive patient outcomes. It is almost two decades since Kearney *et al* (2003) examined cancer health care professionals' (n = 197) attitudes to cancer. Cancer health care professionals held negative attitudes towards cancer, like fear of cancer and hopelessness, and this did not differ by gender, clinical experience or education support (Kearney *et al* 2003). In Phase II of this current study the nurses and radiation therapists construction of the 'cancer patient as individual' seemed to impact more negatively on the nurses and radiation therapists professional quality of life.

The more negative connotation of the 'cancer patient as individual' described by nurses and radiation therapists in the current study reflects the more current general public views of the cancer patient. A qualitative study in the UK interviewed the general public (*n*=30), none of whom had cancer, about their general view of cancer and reported that people continue to be fearful of cancer and the majority of those people interviewed saw cancer as synonymous with death (Robb *et al* 2014). The public's knowledge in Ireland of cancer risk factors is poor, and some members of the public continue to have fatalistic views that modification of the risks of cancer is not possible (Ryan *et al* 2015). A possible explanation as to why the nurses' and radiation therapists' construction of the 'cancer patient as individual' had more of a negative impact on professional quality of life may be in some way influenced or reinforced by public views. Another possible explanation is that the construction of the 'cancer patient as individual' in this current study related to individual patient stories that were distressing, and it was this distress that was brought into the home of the nurses and radiation therapists. This blurring of boundaries is also reported in other studies of cancer nurses (Fukumori *et al* 2018; Wentzel *et al* 2019), but not in studies of radiation therapists (Gilles *et al* 2014; Halkett *et al* 2016; Koo *et al* 2013).

The constructed 'cancer patient as collective', enabled the nurses and radiation therapists in the current study to be more objective about cancer patient care and the subsequent impact on professional quality of life was predominately more positive in this construction. One explanation for this construction of the cancer patient is that nurses and radiation therapists in this current study were able to apply their acquired cancer knowledge and skills in a more positive way to the 'cancer patient as collective' when talking in general about cancer patients. This enabled the nurses and radiation therapists to speak about caring for patients with cancer from a more detached objective view. Robb *et al* (2014) discussed that dramatic negative images were recounted by people describing the tragedy of cancer, but images of survivorship were not as vivid. The public were able to intellectualise that outcomes were improving for people with cancer, but that this knowledge was unable to lessen the deep negatively held beliefs (Robb *et al* 2014). It may be that when HCPs in this current study were intellectualizing the impact of caring for patients with cancer on professional quality of life, they were able to view this from a theoretical and knowledge perspective, but being close to the patient reinforced subconscious negative imagery of the cancer patient. This view is similar to how the constructed 'cancer patient as collective' was a more objective view of the cancer patient in the current study, and the 'cancer patient as individual' construction reflects the public's negative views of cancer. The finding about the construction of the cancer patient by cancer health care professionals has not been identified previously in the literature. Although this current study interviewed a small cohort of cancer nurses and radiation therapists in one country, this finding cannot be ignored and warrants further investigation.

6.8 Application of the current study findings to the conceptual model

The conceptual framework developed from the literature review for the current study proposed that HCPs working in cancer care who had higher tEI would be able to distinguish between the emotions of the self and other as they engage empathically resulting in higher levels of CS and a lower risk of CF. Conversely, HCPs who had lower levels of tEI would be less able to distinguish between the emotions of the self and others as they engage empathically resulting in lower levels of CS and at higher risk of CF.

The results of Phase I of the current study would partially support this conceptual framework and the results of Phase II add to the framework construction. A revised conceptual framework is provided in Figure 6.1. Phase I results identified that the tEI subscale of well-being was consistent in predicting CS and CF, self-control was significant in predicting burnout, and empathic concern was significant in predicting STS. These constructs have been moved within the conceptual framework to reflect the findings of Phase I of the current study. The results of Phase II showed that cancer HCPs have high empathic concern, which is a prerequisite for altruistically motivated empathy (Batson *et al* 2014). The results of Phase II also indicated that the construction of the cancer patient as a frame of reference for the nurses and radiation therapists could impact positively or negatively on professional quality of life. The personal distress of the nurses and radiation therapists was more pronounced when speaking about empathic interactions from the point of ‘cancer patient as individual’, and this could have a negative impact on the professional quality of life of the HCP. However, when the nurses and radiation therapists were speaking about the ‘cancer patient as collective’, the HCPs had a more objective stance, and could be more detached about the patient’s perspective, viewing the HCP role as more supportive with a result of feelings of compassion satisfaction. This finding adds to the study conceptual framework.

Empathic engagement is an integral part of cancer practice (Lelorain *et al* 2012; Wiseman 2007), however the use of empathy can have both positive and negative effects on professional quality of life (Duarte and Pinto-Goveia 2017a; Hayuni *et al* 2020; Yu et al., 2016). This conceptual framework (Figure 6.1) adds to the current body of literature in that the construction of the cancer patient may impact on professional quality of life. The conceptual framework could be used by educationist, clinicians and policy makers to enhance the professional quality of life of cancer HCPs. Educationist could integrate the findings of this conceptual framework to support learning about well-being, empathic practice and reflection on how HCPs personally construct the cancer patient. Clinicians could understand this framework in the context of clinical practice, with the possibility of integrating it into reflective practice. Policy makers could use the conceptual framework to inform policy relating to the development of, support of and retention of cancer workforce.

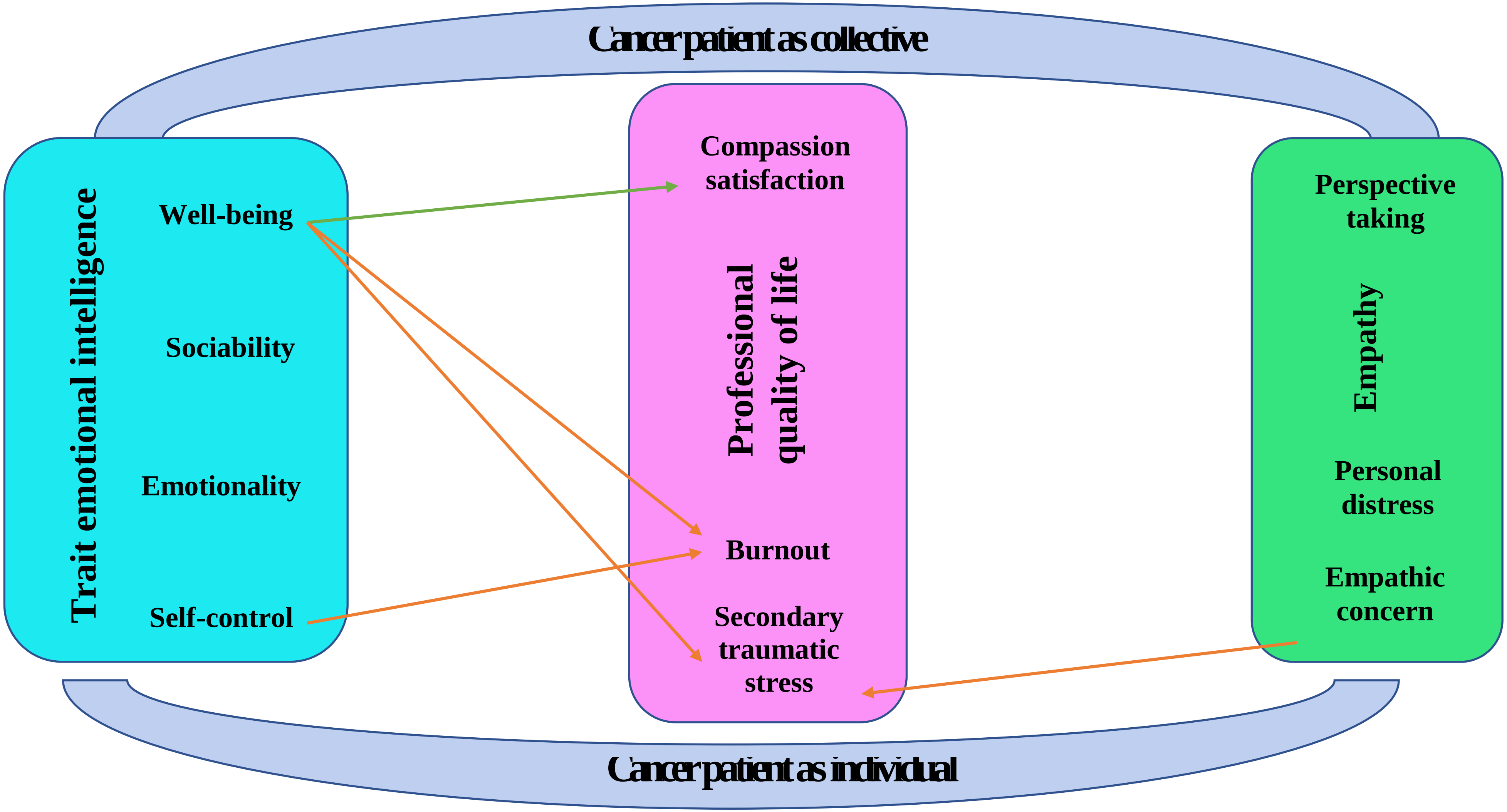


Figure 6. 1: Amended conceptual framework based on (Batson et al., 2014; Figley, 2005; Petrides, 2002; Stamm, 2010) and the findings of the current study

6.9 Chapter summary

This chapter considered the findings of the current study, and critically analysed the findings with current literature. Results from Phase I of the study revealed that although levels of compassion satisfaction are comparable to other European studies, levels of STS are higher than most other European and global studies. The tEI subscale of well-being was predictive of all professional quality of life subscales, self-control was predictive of burnout, and empathic concern was predictive of STS. It is evident from the Phase I results that knowledge of the high levels of STS in particular need to be considered and integrated into education and policy development to counter the impact of empathic practice on cancer HCPs. The results of Phase II of this current study supported the findings of Phase I, and contributed an additional understanding of how the complexity of the relationships of the three constructs are played out in clinical practice. The narratives of the nurses and radiation therapists in Phase II of the study added a unique contribution to the literature in terms of how the cancer patient is constructed in clinical practice, and how this construction impacts on professional quality of life. The development of a conceptual framework from the literature and the findings of this current study have implications for clinical practice, education, and policy development. The next chapter will discuss the conclusion to the study.

Chapter 7 Study conclusions and recommendations

7.0 Introduction

The main aim of this current study was to examine the relationships between professional quality of life, empathy and emotional intelligence in HCPs working in cancer care, and to understand the nature of these relationships. This is the first study to undertake this examination. Section 7.1 states the unique contribution of this current study in relation to the current literature. The strengths and limitations of the study will be outlined in section 7.2. Recommendations from the findings of the current study to policy, education and clinical practice in section 7.3 and recommendations for future research will be presented in section 7.4.

7.1 Unique contribution of the study

The findings of the current study are unique in that this is the first study to examine the levels of professional quality of life in cancer HCPs working in the Republic of Ireland, and it is the first study to examine these constructs in radiation therapists in Europe. This study is also unique in that it is the first study to examine the relationships between professional quality of life, empathy and tEI in cancer HCPs. A particular strength of this study is that it identified a unique ‘construction of the cancer patient’ by the cancer HCPs, and illustrated how this construction contributes to the study conceptual framework.

7.1.1 Contribution to understanding levels of professional quality of life

Previous studies have identified that there are geographical differences in levels of CS, burnout and STS in cancer HCPs. Levels of CS were reported as higher in the USA (Jakel *et al* 2016; Sarra and Fuez 2018; Wells-English *et al* 2019), Canada (Wu *et al* 2016) and South Africa (Wentzel and Brysiewicz 2017) than those in Europe (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2017a) and Asia (Jang *et al* 2016). A similar pattern was reported for levels of burnout and STS, where cancer HCP levels of burnout and STS were reported as higher in Europe (Arimon-Pagès *et al* 2019; Duarte and Pinto-Gouveia 2017a) and Asia (Jang *et al* 2016) than cancer HCPs in the USA (Giarelli *et al* 2016; Jakel *et al* 2016; Potter *et al* 2010; Wells-English *et al* 2019), Canada (Bellicoso *et al* 2017; Koo *et al* 2013; Sarra and Fuez 2018; Wu *et al* 2016) and South Africa (Wentzel and Brysiewicz 2017). However, these studies did not identify the levels of CS, burnout or

STS in the Irish cancer work-force. A particular strength of this study is that it represents a wide geographical spread of cancer HCPs in the Republic of Ireland. Consequently, it adds to the global literature on cancer HCPs levels of professional quality of life in that levels in the Republic of Ireland reflect the levels found in Europe and Asia, and are higher than those found in the USA, Canada and South Africa. It establishes a reference point of levels of professional quality of life of cancer HCPs in the Republic of Ireland from which policy makers, educators, clinicians, and researchers can work from.

7.1.2 Contribution to understanding the relationships between professional quality of life, empathy and trait emotional intelligence

The results of Phase II of the current study established the highly empathic nature of the nurses and radiation therapists. The use of empathy in cancer practice results in feelings of tranquillity and psychological satisfaction for cancer nurses (Kesbakhi and Rohani 2020), and the use of physician empathy (Lelorain *et al* 2015; Lelorain *et al* 2018a) and nurse empathy (Wiseman 2007) is linked to better outcomes for patients with cancer. This finding of the highly empathic nature of cancer nurses and radiation therapists in the current study is an important one, and raises crucial questions about how these HCPs use empathy in practice. In Phase II of the current study nurses and radiation therapists described a cost to caring for patients with cancer where they experienced personal distress as a result of using empathy in practice, and this subsequently impacted on their professional quality of life. The results from Phase II of the current study strengthen the Phase I results. Phase I of this current study showed personal distress was negatively correlated with CS and positively correlated with burnout and STS. Phase II results highlighted the negative impact on nurses and radiation therapists of witnessing and caring for distressed patients in practice. This negative impact resulted in HCP distress such as crying in the car and interruptions to their sleep.

The experience of personal distress as a result of HCPs' empathy and the correlations between personal distress and professional quality of life in the current study add to the small body of evidence in this area. Hayuni *et al* (2019) identified a positive correlation between personal distress and burnout and STS in oncologists, and Duarte and Pinto-Gouveia (2017a) identified a positive correlation between personal distress and burnout but not STS in cancer nurses. Qualitative studies provide a deeper understanding of the nature of empathy in cancer practice. A qualitative study by Hope-Stone and Mills (2001) identified that the use of empathy made cancer nurses feel vulnerable but less is known about the impact of use of empathy on oncologists and radiation therapists. This current study has established the experiences of radiation therapists use of empathy in practice, which provides a basis for understanding the impact of empathy on the professional quality of life of this professional group.

Three significant findings from Phase I of this current study are that well-being was the only tEI subscale that predicted all three subscales of professional quality of life; higher levels of self-control predicted lower levels of burnout; and higher levels of empathic concern predicted higher levels of STS. The current study is the first to identify well-being as a part of tEI as being important in predicting levels of professional quality of life in cancer HCPs. Empathic concern involves the sharing of emotions as a result of exposure to anothers' distress (Decety and Fotopoulou, 2015) where the empathiser recognises that the emotions felt are in response to the other persons' distress. In Phase II of the current study, nurses and radiation therapists described having little or no time to process their own emotions when dealing with highly empathic encounters with cancer patients. This resulted in delayed emotion processing where in Phase II nurses and radiation therapists often processed emotions after leaving work. Expressive suppression is a maladaptive emotion regulation strategy (Cutuli 2019) where there is suppression of a response to an emotion felt (Allen and Windsor 2019). The delayed emotion processing described in Phase II of the current study resulted in nurses and radiation therapists supressing the response to the earlier empathic encounter. Emotion regulation is a part of the tEI subscale of self-control (Petrides 2009), and emotion regulation includes the use of adaptive strategies such as cognitive reappraisal (Cutuli 2019). Cognitive reappraisal has been linked to well-being (Haga *et al* 2007). In Phase II of the current study cancer nurses and radiation therapists described how participation in hobbies, going on holiday, and support received from family and colleagues was essential in combating compassion fatigue. Cancer nurses (Finley and Shepard, 2017) and radiation therapists (Sarra and Fuez 2018) have described the importance of self-care strategies in coping with CF. The finding that well-being is significant in predicting both CS and CF will be of interest to cancer HCPs who can use this information to focus on improving well-being through hobbies, holidays or connecting with family and friends.

One highly significant finding in Phase I of this current study is the correlation between perspective taking and CS. This finding would not be important on its own, but the findings of Phase II of the current study provided an additional understanding of the complexity of this Phase I finding. Perspective taking is an intentional process that involves the ability to understand and manage the emotions of another person and one's self (Decety and Lamm 2006). In Phase II of the current study nurses and radiation therapists understood empathy as 'putting one's self in another's shoes' and described distressing empathic encounters where they wanted to treat patients like they would want their family to be treated, which appeared to be a conscious process. The nurses and radiation therapists in Phase II also described how this familiarity and similarity between cancer patients and their lives was a source of distress. Whilst it is often proposed that being truly empathic in health care the HCP must put themselves into the shoes of the other person and treat the patient how the HCP would like their family to be treated, the results of the current study would not support this proposition. Evidence indicates that perspective taking involves the suppression of one's own egocentric perspective (Fennis 2011), but the results of the current study indicate that treating the patient like the HCP would want family to be treated is not supressing their egocentric perspective and is increasing the cancer HCPs personal distress instead. However, the findings from the current study in relation to participants not supressing their own egocentric perspective are supported by the Theory of Empathy-induced Altruistic Motivation in that empathic concern induces altruistic motives, but also induces egoistic motives through a cost-benefit analysis (Batson *et al* 2014). The finding that HCPs identifying familiarity and similarity between their lives and the patient with cancer can be a source of distress will be of interest to clinicians who would want to improve their perspective taking abilities, and this finding would also be of interest to educators who could implement education initiatives around adaptive empathy strategies. Interventions to improve empathy in cancer HCPs have been successful in improving empathy abilities in cancer HCPs (Langewitz *et al* 2010).

7.1.3 Contribution to understanding differences in professional quality of life between professions.

Results from Phase I of the current study confirmed that nurses had lower burnout levels than oncologists and radiation therapists. High levels of burnout have been reported in radiation therapists (Koo *et al* 2013) and oncologists (Hayuni *et al* 2019; Laor-Maaynay *et al* 2020) but high levels of burnout have also been reported by cancer nurses (Arimon-Pagès *et al* 2017; Duarte and Pinto-Gouveia 2017a). This finding builds on the evidence of burnout levels among cancer professions. However, of significant interest is how Phase II findings provide a more comprehensive understanding of the difference in burnout levels between nurses and radiation therapists, where radiation therapists described that the high turnover ‘conveyor belt’ type work detracted from developing meaningful relationships with patients. This finding adds to the body of literature where radiation therapists report similar descriptions (Bolderston *et al* 2010; Halkett *et al* 2016; Sarra and Fuez 2018). This finding would be of interest to managers and policy makers who could implement strategies to overcome the unique role aspects of radiation therapists.

7.1.4 Contribution to the literature: construction of the cancer patient and contribution to the study conceptual framework

A strength of this current study is the use of IPA within Phase II of the mixed methods design. The use of IPA had not been used in mixed methods studies examining professional quality of life in cancer HCPs previously. The unique finding of this current study in that cancer nurses and radiation therapists constructed two types of cancer patient, ‘cancer patient as individual’ and ‘cancer patient as collective’. This construction of the cancer patient contributed to the study conceptual framework. The conceptual framework (Figure 6.1) provides an understanding of how the constructs of tEI and empathy relate to professional quality of life in cancer HCPs. Understanding the connections between professional quality of life, empathy and tEI in light of how HCPs construct the cancer patient will provide clinicians with information on factors that they can seek support with, managers can use the conceptual framework to ensure the appropriate support strategies are available to cancer HCPs, and educators can use this to inform interventions, research and education initiatives.

7.2 Study strengths and limitations

There are several strengths to the current study. One strength is the use of the explanatory sequential mixed methods design which allowed for a deeper exploration of the study concepts through semi-structured interviews. The use of IPA to analyse the interviews provided a more meaningful understanding of professional quality of life. This type of study design has benefits beyond either a quantitative or qualitative only design in that it allows the researcher to gather quantitative data in phase I and use the results of phase I to design an interview schedule to gather qualitative data in the form of participant narratives that help explain the findings from the quantitative phase. The quantitative results showed interesting findings, however, the participants’ narratives revealed more than the instruments could measure. Results from the qualitative phase enabled the researcher to explain the results of the quantitative phase, and provided an understanding of the participant narratives that has not previously been understood. This type of design and analysis adds depth and complexity to the study constructs.

Another strength of this study is the inclusion of multiple professions in the cancer setting to both Phase I and Phase II. Cancer HCPs rarely work in isolation and advanced practice roles have blurred the boundaries between professions so understanding the study constructs from a multi-professional perspective provides an understanding of the professional quality of life, empathy and tEI of cancer HCPs. Phase I of this study recruited participants from across the Republic of Ireland. This is a strength of the study in that it captures data from multiple cancer centres allowing for study conclusions to be applied nationally.

There are several limitations in this study that need to be considered alongside the results and conclusions. This study used a cross-sectional design in Phase I, where data is collected at one point in time. This type of design allows for relationships to be established between the study constructs but it does not allow for causal pathways to be determined. The time-frame required to garner ethical approval from the RECs is another limitation as this resulted in gathering Phase I data over a period of two years. This impacted on the possibility of recruiting Phase I participants to Phase II of the study.

The recruitment of participants for Phase II from a population outside of the Phase I participants is another limitation of the study. Ideally, Phase II participants in an explanatory sequential mixed methods design are recruited from the Phase I pool of participants. It was not possible to determine the sampling frame for this study as there is no register of cancer HCPs in Ireland. This is a limitation of this study. Determining the population sampling frame would provide information on the percentage of cancer HCPs who participated in this study. Although recruitment of participants from a range of cancer professions was a strength of this study it is also a limitation in that only 11 oncologists were recruited. However, even though it is a limitation it does provide evidence that recruiting oncologists to studies of this nature is challenging.

A final limitation of this study is that the results and conclusions should be understood in the context of the study’s location, sampling methods used and processes of analysis. This limitation is reduced by the detailed explanation provided of the population, location of the data collection, sampling methods used and process of analysis of Phase I and Phase II data. Even given this limitation, these details provide an audit trail of each process that enables others to conclude whether it is generalisable to their context.

7.3 Recommendations for policy, education, and clinical practice

The following recommendations are drawn from the conclusions of the study.

- The levels of STS and burnout identified in the current study should be considered when developing national cancer policy. In particular the results could be used to provide evidence that financial resources and supportive interventions should be incorporated into policy development at a local and national level.

- Cancer nurses, radiation therapists and oncologists should have the opportunity to understand the nature of empathic work and understand how this impacts on professional quality of life through education and supportive work practices.

- Local and national guidelines to support cancer HCPs in practice could be developed using the conceptual framework from this study. The guidelines could inform managers, educators and clinicians of strategies that could be used to help cancer HCPs engage in adaptive empathic practice, and ways to enhance wellbeing.

- Employee assistance programmes could use the conceptual framework to assist in understanding the challenges cancer HCPs face in clinical practice.

- Empathy and tEI intervention initiatives that are based on current evidence should be implemented and evaluated to improve the professional quality of life of cancer HCPs.

- Educators could integrate the conceptual framework into cancer education programmes, highlighting the importance of understanding professional quality of life, empathy and tEI, and including ways of enhancing well-being.

- The length of time taken to receive ethical approval across Ireland should be reduced. Regional Ethics Committees and the Health Research Board could review the ethics process for national multi-centre studies that sit outside the remit of clinical trials to ensure that reasonable time-frames for research can be achieved.

7.4 Recommendations for future research

The following research recommendations are suggested from the conclusions of this study.

1. Nationally, there should be further research examining the levels of professional quality of life of cancer HCPs with an emphasis on estimating the population sampling frame. This research should include an option to gather demographic data on non-responders that will provide information on whether non-responders differ in terms of demographic profile to responders.

2. Internationally there should be collaboration between researchers examining professional quality of life of cancer HCPs. International collaboration would provide further evidence as to the reasons why there are geographical differences in levels of professional quality of life, and it would provide evidence relating to the complexity of experiencing CS and CF simultaneously.

3. Given the high levels of STS in cancer HCPs in the Republic of Ireland a natural development of this study would be to determine how levels of STS fluctuate over time, and what variables may impact on these levels.

4. Further research into the interplay between perspective taking and empathic concern may provide some insight into the complexity of this relationship. In particular, the way in which cancer HCPs draw similarities between the patient and the HCPs family should be explored as to whether this is egocentric. Research of this nature would require collaboration between health care and psychology researchers.

5. The importance of the tEI subscale of well-being in predicting levels of professional quality of life should be further examined. Research could focus on ways that the tEI subscale of well-being can be enhanced.

6. The conceptual framework developed from this research, and in particular the construction of the cancer patient should be tested to provide further evidence for the relationships between the constructs.

7. Research should focus on the ability of interventions to improve both empathy and tEI in cancer HCPs. Research of this nature would require collaboration between researchers as most intervention studies fail to recruit sufficient numbers to draw meaningful conclusions. Interventions should be developed that are short, flexible and require minimal financial outlay.

7.5 Conclusion

In summary, this study is unique in that it is the first study in the Republic of Ireland to examine levels of professional quality of life in cancer HCPs, and the first study in Europe to examine levels of professional quality of life in radiation therapists. It is also the first study to examine the relationships between professional quality of life, empathy and emotional intelligence in cancer HCPs using a mixed methods approach. The findings of this study illustrate the strength of using an explanatory sequential mixed methods design in that the qualitative results in Phase II provided a deeper understanding of the quantitative results from Phase I of the study.

This study contributes to the body of knowledge by providing evidence of the levels of CS, burnout and STS in cancer HCPs in the Republic of Ireland, this is the first study to establish this. This study also makes unique contributions to the body of knowledge in that cancer HCPs who draw parallels between their own families or themselves and the cancer patient may be contributing to their own personal distress. Additionally, this study established that well-being as a component of tEI is an important factor in professional quality of life of cancer HCPs. Finally, the way in which cancer HCPs construct the cancer patient, that is ‘cancer patient as individual’ and ‘cancer patient as collective’, and how this construction impacts on professional quality of life has not been described in the literature before. This study provides a basis for further research into how cancer nurses and radiation therapists construct the cancer patient, and how this construction impacts on professional quality of life.

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Appendix I

Table of evidence

Journal article	Aim	Sample	Study design	Study instruments	Findings
Professional quality of life and cancer (39 studies)					
Al-Majid S, Carlson N, Kiyohara M, Faith M & Rakovski C (2018) Assessing the degree of compassion satisfaction and compassion fatigue among critical care, oncology, and charge nurses. *The Journal of Nursing Administration*. 48(6) 310-315.	To assess the degree of compassion satisfaction and compassion fatigue among critical care, oncology, and charge nurses.	Convenience sample in USA. (*n*=48; direct care ICU nurses *n*=30, direct care oncology nurses *n*=18, charge nurse *n*=10).	Descriptive, cross sectional.	ProQOL-V	• Charge nurses had significantly higher STS scores than direct care nurses • Nurses who had less than 10 years-experience scored significantly lower CS.
Arimon-Pagès E, Torres-Puig-Gros J, Fernández-Ortega P & Canela-Soler J (2019) Emotional impact and compassion fatigue in oncology nurses: results of a multicentre study. *European Journal of*	To assess the prevalence of CS	Multicentre study. Convenience sample of oncology nurses in Spain. (*n*=297)	Descriptive, cross sectional.	ProQOL (Spanish) State-Trait Anxiety Inventory	• CS: 34% reported high levels and 18% reported low levels • Burnout: 20% reported high levels and 17% reported low levels • STS: 37% reported high levels and 11% reported low levels • CS did not mitigate burnout and STS levels • Low CS, high burnout and high STS were associated with a nurse

Journal article	Aim	Sample	Study design	Study instruments	Findings
Oncology Nursing. 43. E-publication 1-5.					having considered transfer to another unit • High STS was associated with not having specialised training • High levels of trait anxiety was associated with a nurse having considered to another unit • High state anxiety was associated with a nurse considering changing profession. • Almost all nurses said emotion management training was required
Bellicoso D, Trudeau M, Fitch MI & Ralph MR (2017) Chronobiological factors for compassion satisfaction and fatigue among ambulatory oncology caregivers. *Chronobiology International* 34(6) 808-818.	To understand how the internal factors of chronotype and sleep quality influence CS, STS and burnout.	Convenience sample of oncology staff (oncology outpatient nurses, oncologists, radiation therapists and oncology pharmacists) in Canada. (*n*=120)	Descriptive, cross sectional.	ProQOL Morningness Eveningness Questionnaire Pittsburgh Sleep Quality Index Job Satisfaction Scale Ten Item Personality Inventory	• Participants scored high for CS, low to average burnout, and low STS (means) • Sleep Quality Index negative correlation with CS and positive correlation with STS and burnout. • Greater morningness (chronotype) is correlated with higher CS and not correlated with burnout or STS • Chronotype weak factor in predicting CS • Sleep quality negatively predicts burnout • Agreeableness significantly predicts CS • Emotional stability significantly predicts burnout and STS

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Openness predicts both CS and burnout • CS correlated positively with job satisfaction and burnout correlated negatively with job satisfaction. • Not all aspects of job satisfaction correlated with STS • Total Job Satisfaction Scale values did not have any predictive value on the development of CS, STS or burnout. Suggests specific components of job satisfaction play a larger role in contributing to professional quality of life.
Brint S. (2016) Obligated to care: a personal narrative of compassion fatigue in an oncology nurse. *Journal of Holistic Nursing*. E-publication.	To illustrate, through a personal narrative, the manifestation of compassion fatigue in an oncology nurse.	(*n*=1) From the U.S.A.	Personal narrative		• The power of human relationship based nursing care can change the patient experience but shapes the nurses internal cognitive and emotional life • Used coping methods such as education and changing jobs to cope with emotional labour of oncology nursing • Began to feel physical pain when caring for patients with cancer • Had several 'life events' in her own life • Attempted self-care practices • Was reluctant to admit needing support

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- Feelings of hopelessness Did not find 'other life demands' articulated in the literature
Duarte J & Pinto-Gouveia (2016a) Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: a non-randomized study. *International Journal of Nursing Studies* 64, 98-107.	To explore the effectiveness of an on-site abbreviated mindfulness-based intervention (6-week) for oncology nurses.	Convenience sample of oncology nurses in Portugal. (*n*=94)	Non-randomized, wait-list comparison design. Intervention: 6-week group mindfulness based intervention.	Portuguese versions ProQOL-V Depression and Anxiety Scale Acceptance and Action Questionnaire Ruminative Responses Scale-Short Five Facets of Mindfulness Questionnaire Self-Compassion Scale Satisfaction with Life Scale Questionnaires distributed prior to intervention, immediately after intervention & 3 months post intervention.	- No significant demographic differences between groups - Significant decrease of STS from pre to post test in the intervention group only - Significant decreases in burnout, over identification and satisfaction with life in the intervention group. - Significant increases in mindfulness, self-compassion, and non-judging in the intervention group only. - ANCOVA showed STS and experience avoidance scores were lower post intervention, and observing and non-judging were higher post intervention than the comparison group - Changes in burnout, depression, isolation, over-identification and self-compassion were significant for participants who practiced the intervention more. - 98% reported that they learned something important from the intervention

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• 72% reported making some changes to their lifestyle as a result of participating in the intervention • 71% reported they changed the way they perceive and respond to stress from participating • 80% reported their relationship with thoughts and emotional states changed for the better.
Duarte J & Pinto-Gouveia J (2017a) The role of psychological factors in oncology nurses' burnout and compassion fatigue symptoms. *European Journal of Oncology Nursing*. 28, 114 – 121. *	To explore and clarify the links between several dispositional factors (empathy, self-compassion and psychological inflexibility) and CS, burnout and STS in oncology nurses.	Convenience sample of oncology nurses from Portugal (*n*= 221)	Descriptive, cross sectional.	Portuguese versions ProQOL-V IRI Self -compassion Scale Acceptance and Action Questionnaire	• 25% scored high CS, 27% scored high burnout, 25% scored high STS • CS positively correlated with perspective taking and empathic concern, and negatively correlated with personal distress • Burnout negatively correlated with perspective taking and positively correlated with personal distress • STS positively correlate with empathic concern. • Self-compassion positively correlated with CS and negatively correlated with burnout and STS • Psychological inflexibility negatively correlated with CS and positively correlated with burnout and STS

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Empathic concern significantly predicted higher levels of CS and STS • Personal distress significantly predicted lower levels of CS and higher levels of burnout • Self-compassion significantly increased the variance in all hierarchical regression models • Psychological inflexibility significantly predicted higher levels of burnout and STS.
Duarte J & Pinto-Gouveia J (2017b) Mindfulness, self-compassion and psychological inflexibility mediate the effects of a mindfulness-based intervention in a sample of oncology nurses. *Journal of Contextual Behavioural Science*. 6, 125-133.	To explore the mechanisms underlying the effects of an MBI with oncology nurses (using data from a previous study: Duarte and Pinto-Gouveia 2016a)	Participants from two oncology hospitals in Portugal (*n*=93).	Non-randomised controlled study. (Intervention arm *n*=45, control arm *n*=48.	ProQOL-V Depression, Anxiety, Stress Scale Satisfaction with Life Scale Self Compassion Scale Acceptance and Action Questionnaire – II Five Facets of Mindfulness Questionnaire	• Final analysis on intervention arm (*n*=29), control arm (*n*=19). • Psychological inflexibility significantly mediated the effects of the mindfulness intervention burnout, STS, depression and stress • Trait mindfulness mediated the effects of the intervention on burnout, anxiety and stress, and satisfaction with life • Self-compassion significantly mediated the effects of the mindfulness intervention on burnout, depression, anxiety and stress, and satisfaction with life. • Self-compassion did not mediate the impact of the mindfulness intervention on STS

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- Suggests psychological inflexibility may be a maintenance factor in STS
Finley BA & Sheppard KG (2017) Compassion fatigue: exploring early-career oncology nurses' experiences. *Clinical Journal of Oncology Nursing* 21(3) e61-e66.	To understand early-career oncology nurses' unique compassion fatigue experiences	Purposive sample of oncology nurses with less than 7-years of experience (*n*=5)	Qualitative using thematic analysis.	Semi-structured interview schedule	Six themes developed: - I did not pick oncology but it did pick me - Forming and losing long-term connections with patients and families - Grief, loss and endless suffering - Burnout is all in a day's work: expectations, disappointment and exhaustion - All your emotions are spent but you still have them - What I do here makes me a better person Nurses used spending time with friends and family, co-worker support, therapy, and using self-care practices as positive coping sources. Poor care practices such as alcohol, binge eating unhealthy foods & sleep deprivation negatively affected coping.

Journal article	Aim	Sample	Study design	Study instruments	Findings
Fukumori T, Miyazaki A, Takaba C, Taniguchi S & Asai M (2018) Cognitive reactions of nurses exposed to cancer patients' traumatic experiences: A qualitative study to identify triggers of the onset of compassion fatigue. *Psycho-Oncology* 27, 620-625.	To describe the components of nurses' cognitive reactions from their exposure to cancer patients' traumatic experiences to the onset of compassion fatigue.	Oncology nurses who had a history of CF (*n*=30)	Qualitative using content analysis and constant comparative method.	Semi-structured interview schedule	11 categories identified. • Sense of professional inadequacy • Compassion for patients and families – even when not on duty – prerequisite cognitive reaction for CF • Desire to support patients and families • Rumination on oneself or one's family – own family wondering how they felt or how they would feel if it happened in their family – blurring boundaries • Sense of professional mission – felt drive by responsibility and pride as a professional • Dissatisfaction with medical staff • Desire to integrate with colleagues • Desire to avoid one's duties – with deteriorating patients • Conflict between one's belief and reality • Reconsideration of the meaning of life – thinking about what death meant to the nurse • Sense of powerlessness over cancer – element of self-sacrifice.

Journal article	Aim	Sample	Study design	Study instruments	Findings
Fukumori T, Miyazaki A, Takaba C, Taniguchi S & Asai M (2020) Traumatic events among cancer patients that lead to compassion fatigue in nurses: a qualitative study. *Journal of Pain and Symptom Management* 59(2) 254-260.	To describe the components and frequencies of traumatic events among patients with cancer which give rise to nurse compassion fatigue as described by nurses.	Purposive sample oncology nurses in Japan (*n*=30: part of larger study: Fukumori et al 2018).	Qualitative -Content analysis.	Semi-structured interview schedule	Nurses described patent traumatic events as giving rise to CF as: • Worsening of physical condition (symptoms of progression, facing changes in appearance) • Bad news from doctors (informed of cancer diagnosis, recurrence, advanced disease) • Difficulty in treatment (suffering, not having expected outcome of treatment) • Emotional conflict with family (patient having insufficient emotional support from family)
Giarelli, E., Denigris, J., Fisher, K., Maley, M. and Nolan E. (2016) Perceived quality of work life and risk for compassion fatigue among oncology nurses: a mixed methods study. *Oncology Nursing Forum*. 43(3) e121-131.	To describe the relationship among nurse characteristics and perceived quality of work life. To describe the relationship between personal life stress and perceived quality of work life. To describe the nurse's beliefs about his or her risk for CF	Self-selecting strategy: haemato-oncology nurses in U.S.A. (*n*=20)	Mixed methods study: descriptive statistics and thematic analysis	ProQOL Life Events Scale Impact of Events Scale Semi-structured interviews	• All nurses scored average to high for compassion satisfaction • 30% of nurses scored moderate for burnout and STS • 30% scored high on levels of stress with current clinical responsibilities. • Nurses described sources of work related stress; communication breakdown, structure of work / institutional environment, & care driven factors such as demands from patients and families • Qualitative data indicates that nurses recommend institutional

Journal article	Aim	Sample	Study design	Study instruments	Findings
					change and personal change to mitigate work related stress - No relationship between the nurse's personal life and risk for CF - Suggests risk for CF may be in the social aspects of the work environment. - Maintaining perspective through self-talk
Gilles, C., Bristow, B., Gallant, F., Osmar, K., Lange-Mechlen, I. and Tran, W.T. (2014) Results of a Canadian Study examining the prevalence and potential for developing compassion fatigue and burnout in radiation therapists. *Journal of Radiotherapy in Practice* 13, 383-392.	To examine levels of CF, STS, and burnout To identify radiation therapist groups at risk of STS and burnout To investigate the level of social support radiation therapists receive	Radiation therapists in Canada (*n*=477)	Cross-sectional design.	ProQOL Revision-V The multidimensional Scale of Perceived Social Support	- Radiation therapists reported high levels of CS - No relationship between CS, STS and burnout with age, gender, marital status, years in cancer care or level of education - 46% of radiation therapists reported headaches, and 67.5% of those reported these as stress related - 29% reported to have been diagnosed with anxiety, depression, post-traumatic stress disorder, mental exhaustion, fatigue and other mental health conditions. - 61% of radiation therapists over identified with a particular type of patient

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- 59% of radiation therapists had been told they have a tendency to self-sacrifice for the needs of patients and families
Granek, L., Nakash, O., Cohen, M., Ben-David, M. and Ariad, S. (2016) Oncologists' communication about end of life: the relationship among secondary traumatic stress, compassion satisfaction, and approach and avoidance communication. *Psycho-Oncology*, e-publication.	To examine the associations between STS and compassion satisfaction and approach and avoidant communication about end of life with cancer patients	Convenience sample of oncologists in Israel (*n*=79)	Cross-sectional design	ProQOL IV. BO scale not used as Cronbach's a 0.50 Communication about end of life survey	- Oncologists reported high levels of CS - Oncologists reported high levels of STS - STS associated with avoidant approach communication - CS associated with proactive communication approaches

Halkett GKB, McKay J, Hegney DG, Breen LJ, Berg M, Ebert MA, Davis M & Kearvell R (2016) Radiation therapists' and radiation oncology medical physicists' perceptions of work	To investigate RTs' and radiation oncology medical physicists' perceptions of work and the working environment in Australia.
	To determine the factors that influence the ability of RTs and radiation oncology
		Radiation therapists (*n*=28)
		Radiation oncology medical physicists (*n*=21)
		Large participant numbers resulting from this being part of a larger study where
			Qualitative design	Semi-structured interview schedule	4 themes that both enhanced the role and did not enhance the role:
					- Delivering care
					  ○ Need to build relationships
					  ○ Make a difference
					  ○ Repetitive and monotonous work
					  ○ Engage in teaching and research

Journal article	Aim	Sample	Study design	Study instruments	Findings
and the working environment in Australia: a qualitative study. *European Journal of Cancer Care* epub e12511	medical physicists to undertake their work. To describe how these factors affect recruitment and retention in the workforce.	participants in a quantitative phase were asked to participate in a qualitative phase.			• Support at work ○ Relationships with colleagues ○ Working with a supportive multi-disciplinary team • Working conditions ○ Pressure at work, large workloads, long hours, understaffing ○ Receiving relocation support ○ Work-life balance – family friendly, lack of flexibility with work hours • Lifestyle ○ Reside in location close to family / work
Hayuni G, Hasson-Ohayon I, Goldzweig G, Bar Sela G & Braun M (2019) Between empathy and grief: the mediating effect of compassion fatigue among oncologists. *Psycho-Oncology* 1-7. *	To examine the mediating role of secondary traumatic stress and burnout in the relation between empathy and grief in oncologists.	Oncologists attending two 2018 oncology meetings in Israel (*n*=71)	Descriptive cross-sectional design	ProQOL (CS scale omitted) Interpersonal Reactivity Index (fantasy scale omitted) Texas Revised Inventory of Grief-Present Scale	• Reported high levels of STS and burnout. • Grief was positively correlated with STS and burnout. • Personal distress was positively related to STS and burnout. • Perspective taking was negatively correlated with STS and burnout. • Empathic concern was negatively associated with burnout.

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Reported high levels of perspective taking, empathic concern and personal distress. • Grief positively correlated to personal distress and negatively correlated with perspective taking. • STS and burnout mediated the relationship between empathy and grief
Hevezi JA (2016) Evaluation of a meditation intervention to reduce the effects of stressors associated with compassion fatigue among nurses. *Journal of Holistic Nursing*. 34(4) 343-350.	To evaluate the effectiveness of a short (10 minute) 4-week breathing and meditation intervention on reducing CF and improving CS among oncology nurses.	Convenience sample cancer nurses (*n*=15).	Non-randomised pre-post intervention pilot study. Intervention: short (4-8 minutes) breathing and meditation 5 days a week for 4 weeks.	ProQOL-V	• Statistically significant increase in CS and decrease in burnout and STS post intervention. • Participants reported increased feelings of relaxation, development of sense of self-compassion, positive changes in physical, emotional and mental reactions to stress. • Participants responded they are likely to incorporate meditation into their self-care regimes.
Hooper, C., Craig, J., Janvrin, D.R., Wetsel, M.A., and Reimels, E. (2010) Compassion satisfaction, burnout, and compassion fatigue among emergency nurses	To explore the prevalence of CS, STS and burnout in nurses of selected inpatient specialties	Nurses from oncology, emergency department, nephrology, and intensive care in USA. (*n*=109; oncology nurses *n*=12)	Cross-sectional design	ProQOL R-IV	• Females had higher STS than males • 28% of nurses reported high levels of CS • 27% of nurses reported high levels of burnout • 28% of nurses reported high levels of STS

Journal article	Aim	Sample	Study design	Study instruments	Findings
compared with nurses in other selected inpatient specialties. *Journal of Emergency Nursing*. 36(5) 420-427.					• Oncology nurses: 16.7% high CS; 25% high burnout, 33% high STS • Oncology nurses reflected a higher risk of STS
Jakel P, Kenny J, Ludan N, Miller PS, McNair N and Matesic E (2016) Effect of the use of the Provider Resilience mobile application in reducing compassion fatigue in oncology nursing. *Clinical Journal of Oncology Nursing* 20(6) 611-616	Pilot feasibility study to examine if the use of the Provider Resilience mobile application will improve oncology nurse' professional quality of life.	Nurses in an oncology unit (*n*=25). Intervention group (*n*=16), control group (*n*=9).	Prospective quasiexperimental design – longitudinal approach; two non-randomised groups. 6-Week resilience intervention app use.	ProQOL-V Provider Resilience mobile application tracking software	• Control and intervention groups comparable in age, gender, number of years as a registered nurse, education level, oncology qualifications and oncology experience • Pre intervention; 56% reported average STS, 68% reported high CS; 40% average burnout. • Post intervention; there were no significant differences between the groups in any of the ProQOL subscales.
Jang, I., Kim, Y. and Kim, K. (2016) professionalism and professional quality of life for oncology nurses. *Journal of Clinical Nursing*. 25, 2835-2845.	To identify the relationship between professionalism and professional quality of life in oncology nurses	Nurses in two general hospitals in Korea (*n*=285)	Descriptive, cross-sectional design	ProQOL V Hall's Professionalism Inventory	• 28% of nurses reported high levels of CS • 75.8% of nurses reported higher than moderate levels of burnout • 79.7% of nurses reported higher than moderate levels of STS • Higher professionalism was associated with higher CS • Older nurses, married nurses, nurses with higher education

Journal article	Aim	Sample	Study design	Study instruments	Findings
					levels, nurses longer in clinical practice, nurses with more senior positions had higher CS • Increased professionalism increased CS
Kleiner S & Wallace JE (2017) Oncologist burnout and compassion fatigue: investigating time pressure at work as a predictor and the mediating role of work-family conflict. *BMC Health Services Research* 17(639) e1-8.	To determine whether time pressure at work is a significant, independent predictor of oncologists' burnout and compassion fatigue, and whether this occurs through greater work-family conflict.	Oncologists in Canada (*n*=312)	Descriptive, cross sectional.	ProQOL – 3 items from the STS subscale MBI – 5 items from the emotional exhaustion subscale Subjective time pressure at work – 4 questions Quantitative work load – 4 questions Work family conflict – 3 questions	• Females reported higher levels of burnout and STS • Subjective perception of time pressure at work is a significant predictor of burnout and STS • Work-family conflict mediates the effect of time pressure at work on burnout and STS • Parenthood, working in an academic centre, and treating sarcoma are negatively associated with burnout • Treating sarcoma is significantly associated with lower STS • Working hours spent at work and at home, being female, medical oncologists, and fewer years of oncology experience reported greater time pressure at work.
Koo K, Zeng L, Zhang L, DasGupta T, Vachon MLS, Holden L, Jon F, Chow E & Di Prospero L (2013)	To assess the predisposing factors for occupational stress within the Rapid Response Radiotherapy Programme.	Convenience sample nurses and radiation therapists (*n*=63; nurses *n*=25, RT *n*=26,	Descriptive, cross sectional design.	ProQOL MBI General Health Questionnaire-12	• RTs scored higher STS scores than nurses • RT scored higher in depersonalisation than nurses • General Health scores were higher in the nurses group

Journal article	Aim	Sample	Study design	Study instruments	Findings
Comparison and literature review of occupational stress in a palliative radiotherapy clinic's interprofessional team, the radiation therapist and the nurses at an academic cancer centre. *Journal of Medical Imaging and Radiation Sciences*. 44, 14-22.		radiation physicist *n*=12).			• CS was positively correlated with spirituality • Burnout was negatively correlated with spirituality • HCP who spent a larger percentage of their time with palliative patients reported greater distress than those who spent less time • HCPs who participated in stress-relieving activities had lower distress scores • Females had higher personal accomplishment than males • Depersonalisation scales were higher for younger respondents, male respondents, RTs, and respondents with less work experience.
Laor-Maayany R, Foldzweig G, Hasson-Ohayon I, Bar-Sela G, Engler-Gross A & Braun M (2020) Compassion fatigue among oncologists: the role of grief, sense of failure, and exposure to suffering and death. *Supportive*	To explore the predictors of CS, burnout and STS. To assess whether grief over patients and sense of failure affected CS, burnout and STS	Convenience sample recruited two Annual Meetings for oncologists in Israel. (*n*=74)	Descriptive, cross sectional.	ProQOL-V Texas Revised Inventory of Grief - present scale. (Hebrew language version of all instruments) Sense of failure measured by one question	• Participants reported higher level of exposure to emotional suffering than physical suffering. • Participants reported 33% of patients suffer moderate to severe physical pain and 54% of patients suffer moderate to severe emotional pain • Levels of STS were reported as high • Levels of burnout were reported as high

Journal article	Aim	Sample	Study design	Study instruments	Findings
Care in Cancer 28, 2025 – 2031.				Exposure to suffering measured by 3 questions	• Levels of CS reported as moderate • Levels of grief were reported as high • Levels of sense of failure reported as mild • Grief was highly positively correlated with STS, moderately positively correlated with burnout • Sense of failure was moderately positively correlated with STS and burnout and moderately negatively correlated with CS • Grief and sense of failure were significant in predicting STS and burnout.
Mooney C, Fetter K, Gross BW, Rinehart C, Lynch C and Rogers FB (2017) A preliminary analysis of compassion satisfaction and compassion fatigue with considerations for nursing unit specialisation and demographic factors. *Journal of Trauma Nursing* 24(3) 158-163.	To characterise and compare the levels of CS, STS and burnout in oncology and intensive care unit nurses.	E-mail survey distributed to all intensive care and oncology nursing staff in a MAGNET designated community hospital (*n*=86; oncology nurses *n*=18, ICU nurses *n*=68).	Descriptive, cross sectional.	ProQOL-IV	• ICU and oncology: 34% reported high CS, 66% average burnout, 31% average STS. • No high scores on burnout or STS • ICU nurses reported significantly lower levels of CS than oncology nurses • Male nurses reported significantly higher levels of CS than female nurses • ICU nurses reported significantly higher levels of burnout than oncology nurses • Male nurses reported significantly lower levels of burnout and STS than female nurses

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- Years of nursing experience was negatively correlated with STS. - Levels of STS decreased significantly with age and years in current position - 64% of respondents had access to support programmes; 47% of these had accessed this support - Use of support only provided an improvement in the CS subscale
Partlak Günüsen NP, Üstün B, Serçekus P& Bensen DB (2018) Secondary traumatic stress experiences of nurses caring for cancer patients. *International Journal of Nursing Practice* 25: e12717	To explore secondary traumatic stress experiences of nurses caring for cancer patients.	Purposeful sample of oncology nurses in Turkey (*n*=13)	Qualitative descriptive design: phenomenological approach – content analysis	Semi-structured interviews	3 main themes: - Cycle of desperation - Coping - Change Findings suggest inexperienced nurses and nurses who look after paediatric oncology are at greater risk of STS. Nurses cope with the stress of oncology work by making changes in what they find as important in life and by acquiring new perspectives on how to cope with work related stress. Suggest the broader health care team in oncology should be conducted.
Perry, B., Toffner, G., Merrick, T. and Dalton, J. (2011) An exploration of the	To explore how registered nurses in clinical oncology described their experiences of CF	Convenience sample of registered nurses working in oncology (*n*=19) in Canada	Descriptive, exploratory qualitative study	Online questionnaire and a written narrative describing a	Five major themes: - Defining CF – knew something was wrong

Journal article	Aim	Sample	Study design	Study instruments	Findings
experience of compassion fatigue in clinical oncology nurses. *Canadian Oncology Nursing Journal*. Spring, 91 – 97.				time the nurse had experienced CF	• Causes of CF – lack of support, lack of knowledge of CF, lack of time and ability to deliver high quality care • Factors that worsen CF – being unable to ease suffering, co-existing physical and emotional stress outside of work, excessive emotional attachment and involvement • Outcomes of CF – profound fatigue of mind and body, negative effects on personal relationships, considering leaving • Circumstances that lessen CF – colleague support, work-life balance, connecting with others, acknowledgement from patients / peers, maturity and experience
Pfaff KA, Freeman-Gibb L, Patrick LJ, DiBaise R & Moretti O (2017) Reducing the 'cost of caring' in cancer care: evaluation of a pilot interprofessional compassion fatigue resiliency programme. *Journal*	To evaluate the impact of a 6-week compassion fatigue resilience programme on CF, CS and clinical stress among oncology staff.	Professionals working in cancer care (*n*=27; nurses *n*=11, oncologists *n*=2, RT *n*=3, other *n*=11) Complete data sets (*n*=12)	Experimental embedded mixed methods design.	ProQOL-V The Index of Clinical Stress The Silencing Response Scale Focus groups and individual interviews mid- and end of programme using a	Pre-intervention: • Average on ProQOL subscales • 31% reported low levels of job satisfaction • 90% reported significant clinical stress Qualitative mid-intervention: two themes • Self-reflection and perceived risk of developing CF

Journal article	Aim	Sample	Study design	Study instruments	Findings
of Interprofessional Care 31(4) 512-519				semi-structured interview schedule.	• Seeking personal balance through the use of self-care strategies Post-intervention: • Reduction in levels of clinical stress reached significance. Qualitative post intervention: 3 themes • Heightened awareness of CF in day-to-day interaction • Collaborative practice and caring for the team • Compassion satisfaction through self-care strategies Merged findings: There is a reduction in clinical stress explained by increased awareness and recognition of CF in self and others.
Potter P, Deshields T, Berger JA, Clarke M, Olsen S & Chen L. (2013) Evaluation of a compassion fatigue resiliency program for oncology nurses. *Oncology Nursing Forum* 40(2) 180 – 187.	To evaluate a 5-week compassion fatigue resiliency programme.	Oncology nurses (*n*=13)	Descriptive pilot study.	ProQOL IV, MBI, IES-R, Nursing Job Satisfaction Scale.	• Statistically significant drop in STS scores from pre-programme to 6 months post programme. • Positive narrative evaluation of the programme by nurses in relation to compassion fatigue symptoms.

Journal article	Aim	Sample	Study design	Study instruments	Findings
Potter P, Deshileds T, Divanbeigi J, Berger, JA, Cipriano D, Norris L. & Olsen S. (2010) Compassion fatigue and burnout: prevalence among oncology nurses. *Clinical Journal of Oncology Nursing*. 14(5) e56-e62.	To explore the prevalence of burnout and STS among oncology health care providers in a large oncology medical centre	Oncology workers in the USA. (*n*=153; of which nurses *n*=132).	Descriptive, cross-sectional design	ProQOL R-IV	• Staff working in in-patient setting had the lower CS scores • Staff working in the inpatient setting had a high risk of burnout compared to staff in the out-patient setting – trend to significance • No relationship found between oncology experience and CS, STS, or burnout • No relationship between age or education level and CS, STS or burnout
Quinal L, Harford S & Rutledge (2009) Secondary traumatic stress in oncology staff *Cancer Nursing*. 32(4) e1-7	To explore the prevalence of STS in oncology staff from one inpatient unit at a 500 bed Magnet hospital.	Oncology staff (*n*=42; nurses *n*=33, nursing assistant *n*=6, secretary *n*=2) in the USA.	Descriptive, corss-sectional	Secondary Traumatic Stress Scale	• 91% female, 9% male • Minor STS identified in the population • Mean (33.9, *SD* 9.9) cut for high STS 38 • STS present 12% of cancer nurses
Rohan E & Bausch J (2009) Climbing Everest: oncology work as an expedition in caring. *Journal of Psychosocial Oncology*. 27(1) 84-118.	To investigate the effects of repeated exposure to death and dying on oncology staff.	Theoretical sampling (*n*=21; nurses *n*=7, doctors *n*=7, social workers *n*=7).	Qualitative phase of mixed methods explanatory design	Semi-structured interview schedule	• Oncology work conceptualised as an expedition (a journey with a definite objective) • Work the world at large cannot tolerate • Conscientious preparation was required but not always provided or accessed • Division of labour but roles overlapped

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Multidisciplinary teamwork was beneficial and enhanced patient care • Laborious and intense work • Significant cost to caring in oncology • Great obstacles potentially damaging to emotional wellbeing – need to establish clear boundaries. • Need replenishing to continue to work – seeking refuge from the emotional intensity of the work • Abundant rewards – able to ease suffering having intimate emotional connections with patients.
Sarra A & Feuz C (2018) Examining the prevalence of compassion fatigue and burnout in radiation therapists caring for palliative care patients. *Journal of Medical Imaging and Radiation Sciences*. 49, 49-55	To investigate the prevalence of compassion fatigue among radiation therapists caring for palliative cancer patients. To examine the role of intrinsic and extrinsic factors play in CF	Convenience sample of radiation therapists in Canada (*n*=42)	Descriptive cross sectional	ProQOL-V 16 questions developed by the researcher (8 intrinsic factor questions and 8 extrinsic factor questions.	• All had average to high CS, low to average burnout and STS • 50% felt that they did not have education that assists them supporting and communicating with palliative cancer patients • 63% reported high patient load impacted on their approach to palliative patients • 47% reported lack of education and resources about CF • 53% reported the fast pace of the environment does not allow time

Journal article	Aim	Sample	Study design	Study instruments	Findings
					to think about the emotional impact - 38% reported the team does not express opinions about the emotional impact of work - 64% reported treating patients who are younger or the same age than them has a significant emotional impact
Wells-English D, Giese J & Price J (2019) Compassion fatigue and satisfaction: influence on turnover among oncology nurses at an urban cancer centre. *Clinical Journal of Oncology Nursing* 25(5) 487-493.	To examine the relationships between CS and CF and turnover intention among oncology nurses.	Convenience sample in one hospital oncology unit in USA (*n*=93)	Descriptive, cross-sectional design.	ProQQOL-V Turnover Intention Scale-6	- 50% high CS, 50% average CS - 60% low STS, 40% average STS - 41% low burnout, 59% average burnout - No correlation between BO or STS and years in clinical practice (<7 years average) - No correlation between BO and STS and years in cancer practice (<5 years average) - CS a significant predictor of intention to stay - BO a significant predictor of intention to leave
Wentzel D & Brysiewicz P (2018) A survey of compassion satisfaction, burnout and compassion fatigue in nurses	To survey compassion fatigue and compassion satisfaction in three oncology settings in South Africa.	Convenience sample of oncology nurses (*n*=83)	Descriptive, cross sectional	ProQOL-V	Compassion satisfaction: - High 55% - Average 45% Burnout: - Average 61%

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practicing in three oncology departments in Durban, South Africa. *International Journal of Africa Nursing Sciences* 8, 82-86.					- Low 39% STS: - High 4% - Average 75% - Low 22% No correlation with CS, BO or STS and age, years of experience, or oncology experience
Wentzel D, Collins A & Brysiewicz P (2019) Describing compassion fatigue from the perspective of oncology nurses in Durban, South Africa. *Health SA Gesondheid* 24(0) a1279	To describe compassion fatigue from the perspective of oncology nurses	Purposive sampling (*n*=8)	Qualitative, content analysis (part of a larger study using mixed-methods sequential explanatory design)	Semi-structured interview schedule	Five categories emerged: - Emotional connection - Emotional fatigue - Emotional loss - Blurring boundaries - Acceptance
Wu S, Singh-Carlson S, Odell A, Reynolds G & Su Y (2016) Compassion fatigue, burnout, and compassion satisfaction among oncology nurses in the United States and Canada. *Oncology*	- To explore the demographic, personal, health, and work related characteristics that contribute to the risk for STS and burnout in oncology nurses in the U.S.A. and Canada - To compare the relationship between CS,	Convenience sample of Canadian Association of Nurses in Oncology and the Oncology Nursing Society databases (Canada *n*=63, U.S.A. *n*=486)	Descriptive, non-experimental study	- Modified Abendroth Demographic Questionnaire - ProQOL-V	- No differences in CS, STS, or burnout scores between the two countries. - Younger nurses more likely to experience moderate to high levels of STS as compared to older nurses (41 years or older) - Higher levels of education (masters or doctoral degrees) had higher levels of CS

Journal article	Aim	Sample	Study design	Study instruments	Findings
Nursing Forum. 43(4) e161-e169.	STS, and burnout among cancer nurses in the U.S.A. compared to cancer nurses in Canada				• American nurses who had depression, post-traumatic stress disorder (PTSD), and episodes of headaches were more likely to experience moderate to high levels of STS and high levels of burnout • Canadian nurses who had episodes of headaches were more likely to experience high levels of STS and burnout (but not PTSD or depression) • American and Canadian nurses reported stressors related to personal finances linked to high levels of STS, and burnout • STS and burnout was experienced if nurses experienced a traumatic death • STS and burnout was experienced when nurses felt the need to sacrifice their own personal and psychological needs to satisfy their patients • If nurses felt a cohesive teamwork environment in the work-place then this buffered the negative experiences • Nurses who worked longer hours and encountered a greater number of patient deaths experienced high levels of CS

Journal article	Aim	Sample	Study design	Study instruments	Findings
Yilmaz G, Üstün B & Günüsen NP (2018) Effect of a nurse-led intervention programme on professional quality of life and post-traumatic growth in oncology nurses. *International Journal of Nursing Practice* 24 e12687	To evaluate the effects of a nurse-led intervention programme (4 sessions) on CS, CF, and post traumatic growth.	Registered nurses in oncology (*n*=43)	Single group pre-intervention and post-intervention test comparisons	ProQOL-IV (Turkish) Post-traumatic Growth Inventory	• Statistically significant reduction in burnout and STS scores post test • Statistically significant increase in CS scores post test • Statistically significant increase in scores on all sub-scales of the Post-traumatic Growth Inventory
Yilmaz G & Üstün B (2019) Sociodemographic and professional factors influencing the professional quality of life and post-traumatic growth of oncology nurses. *Journal of Psychiatric Nursing* 10(4), 241-250.	To determine sociodemographic and occupational factors affecting oncology nurses' professional quality of life and post-traumatic growth levels.	Registered nurses working in oncology in Turkey (n=182)		ProQOL-IV The Post-Traumatic Growth Inventory	• Older nurses scored higher CS scores than younger nurses • Nurses who worked shifts had lower CS scores and higher burnout scores than those who did not work shifts • Nurses who worked more than 45 hours per week had lower CS scores and higher burnout scores than those who worked less than 45 hours • Nurses with an oncology education and nurses who were willing to work with oncology patients scored higher CS scores and lower BO scores than those who did not

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Nurses who had 1-4 years of cancer work experience had higher STS scores than nurses with less than 1 year or nurses with more than 5 years of experience • Age, gender, marital status, having children, and education level did not reach statistical significance with any ProQOL subscale. • Older nurses reported better post-traumatic growth than younger nurses • Nurses who worked shifts, and nurses had no children scored higher post-traumatic growth scores.
Yu, H., Jiang, A. and Shen, J. (2016) Prevalence and predictors of compassion fatigue, burnout and compassion satisfaction among oncology nurses: a cross-sectional survey. *International Journal of Nursing Studies.* 57, 28-38. *	To describe and explore the prevalence of predictors of professional quality of life.	Registered oncology nurses in China (*n*=669)	Cross-sectional design	ProQOL (Chinese version) Jefferson Scales of Empathy Simplified Coping Style Questionnaire Perceived Social Support Scale Chinese Big Five Personality Inventory Brief version	• Nurses who had specific oncology training showed higher CS levels than nurses who had none • Nurses working in secondary hospitals, and who adopted passive coping styles showed higher levels of STS • Nurses who had support from colleagues and leaders reported less burnout • Cognitive empathy was negatively correlated with burnout • Cognitive empathy was positively correlated with CS

Journal article	**Aim**	**Sample**	**Study design**	**Study instruments**	**Findings**
					• Cognitive empathy had protective factors against burnout • Nurses using passive coping and who scored high in the personality domain of neuroticism were at higher risk of STS and burnout
Zajac LM, Moran KJ & Groh CH (2017) Confronting compassion fatigue: assessment and intervention in inpatient oncology. *Clinical Journal of Oncology Nursing*. 21(4) 446 – 453.	To develop an intervention to support staff experiencing grief after a patient death. To decrease staff compassion fatigue and increase patient satisfaction with nursing care.	Oncology nurses (USA) Pre-intervention survey (*n*=107) Post intervention survey (*n*=136) Pre and post intervention survey not matched (*n*=91) Intervention participation (*n*=42)	Mixed methods sequential design.	ProQOL-V Press Ganey patient satisfaction survey 3-month intervention: structured debriefing after every patient death	• Participants reported high CS and low burnout and STS • Nurses below 40 years had significantly lower CS and higher burnout scores • Nurses with fewer than 10 years of experience had significantly lower CS • No differences in level of education • Participants not matched for analysis (confidentiality reasons reported) • Those who participated in the intervention had significantly higher CS than those who did not • Burnout and STS decreased overall but did not reach statistical significance • 60% of participants reported the intervention as helpful • Only skill of the nurse significantly higher in patient satisfaction

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Significant limitations: participant data not matched pre and post intervention; analysis on n=91 but only n=42 attended the intervention.
Empathy and cancer (22 studies; 19 detailed below and 3 empathy and professional quality of life studies; Duarte and Pinto-Gouveia 2017a; Hayuni et al., 2019; Yu et al., 2016)					
Hope-Stone LD & Mills BJ (2001) Developing empathy to improve patient care: a pilot study of cancer nurses. *International Journal of Palliative Nursing* 7(3) 146-150	To assess cancer nurses' interpretation of empathy Establish how nurses believe empathy is developed Examine the conditions that influence empathy Identify nurses' perceptions of the possible benefits and disadvantages of expressing empathy	Cancer nurses (*n*=14; female *n*=13; male *n*=1) in the UK. Nurses recruited from the inpatient and outpatient setting	Descriptive, qualitative	Semi-structured interview schedule	• Having an understanding of the patients' experience integral to nurses' empathy • Empathy increased job satisfaction, promoted reciprocal relationships, enabled patients to feel secure in care • Empathy increased stress and vulnerability of patients and nurses • Empathy happened at major and minor patient events – through emotional support, communicating, and meeting information needs • Most nurses (72%) felt empathy was acquired from personal and professional experience • Half of nurses felt empathy could be taught • Conditions that influence empathy were reported as environment,

Journal article	Aim	Sample	Study design	Study instruments	Findings
					adequate time, good patient / nurse relationship - Barriers to empathy identified as cultural and language differences, patient willing to communicate
Kesbakhi MS, Rohani C, Mohtashami J & Nasiri (2017) Empathy from the perspective of oncology nurses. *Journal of Compassionate Health Care*. 4(7) epublication	To determine the level and typo of empathy in Iranian oncology nurses To investigate the relationship between nurses' empathy and their demographic characteristics	Convenience sample of cancer nurses (*n*=181) Solid tumour, haemato-oncology and stem cell transplantation nurses	Cross-sectional design	Jefferson Scale of Empathy (Persian version) Interpersonal Reactivity Index	- Cancer nurses levels of empathy were average and above - 6% scored low empathy levels - The majority of cancer nurses reported positive attitudes towards empathic behaviour - Empathic concern subscale scored higher than the other subscales of the IRI - Emotional component of empathy stronger than the cognitive component - Age, marital status and having children positively correlated with empathy - Married nurses had higher cognitive empathy (perspective taking) and emotional empathy (personal distress) than single nurses - Age, having children, type of employment (haemato-oncology highest) and type of hospital explained 32% of the variance in empathic concern

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- Nurses working in solid tumour wards scored higher empathy than those in stem cell transplantation wards
Kesbakhi MS and Rohani C (2020) Exploring oncology nurses' perception of the consequences of clinical empathy in patient and nurses: a qualitative study. *Supportive Care in Cancer* 28, 2985-2993	To explore oncology nurses' perception of the consequences of clinical empathy in patients and nurses The explore the factors influencing empathy	Iranian oncology nurses (*n*=15) Male (*n*=6), female (*n*=9)	Qualitative part of a mixed methods sequential explanatory design	Semi structured interview schedule	Two themes: - Empathy as a double-sided mirror: positive and negative effects of empathy. Empathy is beneficial to the patient and nurse. Empathy can have a detrimental effect on the nurse. - Organisational factors: organisational defects included workload, poor work conditions, financial difficulties – management factors included managers can be a barrier or a motivator for empathy – communication-professional nursing issues included coordination and communication inside and outside the organisation and reaction of colleagues. Influencing factors: - Patient and family characteristics – nurses characteristics – environmental & cultural features.

Journal article	Aim	Sample	Study design	Study instruments	Findings
Langewitz W, Heydrich L, Nübling M, Szirt L, Weber H & Grossman P (2010) Swiss Cancer League communication skills training programme for oncology nurses: an evaluation. *Journal of Advanced Nursing*. 66(10) 2266-2277.	To evaluate the effectiveness of a communication skills training programme for oncology nurses	Cancer nurses (*n*=61), female (*n*=54), male (*n*=7) in Switzerland	Non-ramdomised intervention study Intervention of 2 and a half day advanced communication skills training, 5 follow up telephone calls and a one and a half day communication seminar after 6 months. Actors as simulated patients for interview analysis at initial training and at seminar Videos were analysed by 3 raters	Roter Interaction Analysis System Length of uninterrupted speech analysis Calculation of reciprocities analysis	6 months post communication skills training • Significant increase in empathic responses • Significant increase in professional reassurance and optimistic utterances • Significant increases in attention given to psychosocial issues • Significant reduction in biomedical information • Significant decrease in counselling about biomedical issues • Statistically significant increase in patient uninterrupted speech
Lelorain S, Brédart A, Dolbeault S, Cano A, Bonnaud-Antignac A, Cousson-Gélie F & Sultan S. (2015) How does a physician's accurate understanding of a cancer patient's unmet needs contribute to patient perception of	To investigate the unresolved issue of how accurate understanding could contribute to physician empathy.	Oncologists (*n*=28) and patients (*n*=201) in French hospitals.	Cross-sectional design	Consultation and Relational Empathy Measure (patients) Jefferson Scale of Physician Empathy (oncologists) Emotion Regulation Questionnaire (patients) Supportive Care Needs Survey – Short	• Oncologists had a high mean physician empathy $\bar{X}$=38.4 (*SD* = 8.9) • Physicians underestimated patient needs • Empathy differed significantly between physicians • The duration of the consultation had a positive correlation with empathy

Journal article	Aim	Sample	Study design	Study instruments	Findings
physician empathy? *Patient Education and Counselling* 98, 734-741				Form 34 (patients and oncologists) One question using a 7-point Likert scale "What is the quality 0f your relationship with this patient?"	• Physician's oncology experience negatively correlated to empathy – suggesting experience desensitises • Perspective taking was positively correlated with empathy – highlights perspective taking as a key component of patient satisfaction. • Patient unmet needs (staff related) strong negative correlation to physician empathy • Patient's unmet psychological needs strongly negatively correlated with physician empathy • High physician empathy was reported when there was high accurate understanding even if the physician perceived the consultation as low rapport.
Lelorain S, Cattan S, Lordick F, Mehnert A, Mariette C, Christophe V & Cortot A (2018a) In which context is physician empathy associated with cancer patient quality of life? *Patient Education and*	To understand the conditions in which physician empathy could be beneficial for patients' emotional quality of life in cancer settings.	Oncologists from France (*n*=14) and Germany (*n*= 8) and patients (*n*=296).	Cross-sectional design.	Consultation and Relational Empathy Measure (patients) Short-Profile of Emotional Competence Scale Functional Assessment of Cancer Therapy –	• Patient-reported physician empathy had an effect on patient emotional quality of life but it was dependent on the whether the consultation was a follow-up or a bad news consultation, and on the emotional skills of the patient. • Patient-reported physician empathy was significantly associated with better emotional quality of life for patients with low and average emotional skills but

Journal article	Aim	Sample	Study design	Study instruments	Findings
Counselling. 101, 1216-1222				General (emotional dimension only)	not for those with high emotional skills. • In bad news consultations patients with low emotional skills had poor emotional quality of life regardless of physician empathy – patients with average or high emotional skills did have better emotional quality of life if empathy present.
Lelorain S, Cortot A, Cristophe V, Pinçon C & Gidron Y (2018b) Physician empathy interacts with breaking bad news in predicting lung cancer and pleural mesothelioma patient survival: timing may be crucial. *Journal of Clinical Medicine*. 7, 364 (epublication)	To examine the prognostic role of physician empathy in interactions with bad news consultations versus follow up consultations for patients with thoracic cancers.	Patients (*n*=179) Physicians (*n*=5)	Cross-sectional design	Consultation and Relational Empathy Measure Functional Assessment of Cancer Therapy Short-Profile of Emotional Competence Scale	• Patients had similar emotional skills in the follow up and bad news consultations • Cancer-related distress higher in bad news consultations • In bad news consultations patient perceived empathy was associated with higher risk of death after controlling for other variables – may indicate to patients that there is no hope in the situation
McHenry M, Parker PA, Baile WF & Lenzi R (2011) Voice analysis during bad news discussion in oncology: reduced pitch, decreased	To determine if differences exist in the speaking rate and pitch of oncologists when discussing bad news versus neutral topics.	Oncology physicians (*n*=12) in the USA	Linguistic and speech sound analysis	Transcripts of consultations	• Speech rate and pitch was reduced in the delivery of bad news • Reduced rate and pitch was viewed as physicians being more caring and sympathetic

Journal article	Aim	Sample	Study design	Study instruments	Findings
speaking rate, and nonverbal communication of empathy. *Supportive Care in Cancer*. 20, 1073-1078.	To assess listeners' ability to perceive voice differences in the absence of speech content.				
Neumann M, Wirtz M, Bollschweiler E, Mercer SW, Warm M, Wolf J & Pfaff H (2007) Determinants and patient-reported long-term outcomes of physician empathy in oncology: a structural equation modelling approach. *Patient Education and Counselling*. 69, 63-75.	To explore patient and physician specific determinants of physician empathy To analyse the influence of physician empathy on patient-reported long-term outcomes	Cancer patients in Germany (*n*=326)	Cross-sectional retrospective design.	Consultation and Relational Empathy Measure Desire for more illness-related information (designed for the study) Cologne Patient Questionnaire Major Depression Inventory Quality of Life Questionnaire – C30	• Patient perceived busyness of hospital staff had a negative influence on patient perceived physician empathy • Physician empathy has a moderate indirect effect on depression • Physician empathy has a small indirect effect on socio-emotional-cognitive quality of life • Physician empathy had a strong influence on the desire for more information • Physician empathy was moderately positively correlated with a desire for more information about health promotion
Parker PA, Banerjee SC, Matasar MJ, Bylund CL, Schofield E, Li Y, Jacobsen PB, Astrow AB, Leventhal H, Horwitz S & Kissane D (2020) Cancer worry and	To examine the impact of a survivorship planning consultation on quality of life of patients with lymphoma To assess cancer worry and perceived physician empathy	Physicians (*n*=42) Patients (*n*=198)	Cluster randomized design (multi-centre study) Two arms: Survivorship Planning Consultation (5 hour specific	Cancer Worry Inventory Consultation and Relational Empathy Measure	• Patients in the Survivor Planning Consultation arm had significant difference to the Wellness Rehabilitation Consultation arm of perceived empathy • Significant increase in perceived physician empathy

Journal article	Aim	Sample	Study design	Study instruments	Findings
empathy moderate the effect of a survivorship-focused intervention on quality of life. *Psycho-Oncology*. 29, 1012-1018	on patient quality of life outcomes		communication skills training) Wellness Rehabilitation Consultation (2 hour training programme on wellness and lifestyle factors Assessments at 5 timepoints: baseline, 1,3,6,12 months	Quality of Life Cancer Survivor	• Worry significantly declined over time • Significant increase in physical, social, and psychological quality of life • No differences in quality of life after 12 months between the arms • The interventions were more effective for those patients who had more cancer worry and who perceived their doctors as having lower levels of empathy
Rohani C, Kesbakhi MS & Mohtashami J (2018) Clinical empathy with cancer patients: a content analysis of oncology nurses' perception. *Patient Preference and Adherence* 12, 1089-1098.	To explore the nature of clinical empathy with cancer patients from the viewpoint of cancer nurses.	Purposive sampling cancer nurses (*n*=15) female (*n*=9), male (*n*=6)	Qualitative part of mixed methods study	Semi-structured interview schedule Data saturation after 12 interviews	5 themes identified: • Co-presence – developing attentive and affectionate relationships with patients – physical and emotional presence • Metacognition – ability to recognise situations, use of emotional reflection, be self-aware, demonstrate self-control • Perception – being able to take the perspective of others • Inherent nature – empathy as an automatic trait within the nurse • Didactic nature – empathy is learned from an early age

Journal article	Aim	Sample	Study design	Study instruments	Findings
Taleghani F, Ashouri E & Saburi M (2017) Empathy, burnout, demographic variables and their relationshi**ps** with oncology nurses. *Iranian Journal of Nursing and Midwifery Research*. 22, 41-45.	To define the level of empathy and its association with burnout and some demographic characteristics of nurses in an oncology ward.	Convenience sample of oncology nurses (*n*=67) in Iran.	Descriptive, cross-sectional	Maslach Burnout Inventory Jefferson Scale of Nursing Empathy	• Negative correlation between empathy and burnout • Negative correlation between empathy and depersonalisation and lack of personal accomplishment • Positive correlation between work experience and empathy • Negative correlation between age and burnout • Empathy was higher if the nurse had experience of a family member with cancer or a personal history of hospitalisation • Permanent nurses had higher empathy scores than contracted nurses
Taleghani F, Ashouri E, Memarzadeh M & Saburi M (2018) Barriers to empathy-based care: oncology nurses' perceptions. *International Journal of Health Care Quality Assurance*. 31(3)249-259.	To explore oncology nurses' perceptions concerning barriers to empathy-based care	Purposive sampling of oncology nurses (*n*=18) in Iran.	Descriptive qualitative	Semi-structured interview guide	• Participants believed nurses must be compassionate, kind and willing to help others in order to provide empathic care • Participants seemed to self-criticise – lack of self-compassion 3 categories identified: • Nurse related barriers – lack of compassion, lack of interest in oncology nursing, psychological distress such as sadness, exposure to patient distress

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Health care system related barriers – workload related e.g. job strain, focus on tasks rather than patients, empathy training, managerial support, gender imbalance (nurse: patient – cultural related) • Cancer care related barriers – maintaining empathy with patients with a poor prognosis
van Vliet LM, Francke AL, Meijers MC, Westendorp J, Hoffstädt H, Evers AWM, van der Wall E, de Jong P, Peerdeman KJ, Stouthard J & van Dulmen (2019) The use of expectancy and empathy when communicating with patients with advanced breast cancer: an observational study of clinician-patient consultations. *Frontiers in Psychiatry* 10 e publication	To provide further insight into how often and how oncologists use expectancy and empathy expressions in consultations with patients with advanced breast cancer.	Dutch oncologists (*n*=12) and patients (*n*=45)	Multi-centre observational study	Demographic questionnaire Consultations were audiotaped and coded	• In consultations oncologists showed : ○ understanding of emotions (64%) ○ respecting (38%) ○ supporting (36%) ○ exploring patients' emotions (36%) ○ Showing interest in patient (29%) • Non-empathic behaviours infrequently displayed – interrupting (16%), lack of understanding (9%), lack of interest (1%) • Empathy expressions were generic or specific to the individual situation or emotion or showing interest • Cues sometimes missed • Lack of empathy did not occur frequently

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Positive expectations characterised by a high degree of explicit reassurance – emphasis on the doctor patient relationship • Negative expectations characterised by a high degree of personal reflections – less emphasis on relationship building • Uncertain expectations characterised by an emphasis on what the oncologist hoped for but could not guarantee – it was a balancing act
Visser LNC, Schepers S, Tollenaar MS, de Haes HCJM & Smets EMA (2018) Patients' and oncologists' views on how oncologists may best address patients' emotions during consultations: an interview study. *Patient Education and Counselling* 101, 1223-1231.	To examine cancer patients' and oncologists' views on oncologists' communication in response to patients' emotional expressions	Purposive snowball sampling oncologists (*n*=10) and patients (*n*=10) in the Netherlands	Qualitative Participants viewed three versions of scripted videotaped consultations	Demographic instrument Video scripts (3) Structured interview schedule – (audiotaped)	• Many patients and oncologists preferred the emotion-oriented speech video as they felt the oncologists was more empathic and supportive, although some saw aspects as oppressive or excessive (e.g. naming emotions) • Some patients and oncologists preferred the emotion oriented silence video • Several patients had difficulty detecting differences between standard video and emotion-oriented silence video and these patients disliked both these approaches

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Oncologists were able to differentiate between the approaches in the videos • Oncologists emotions hinder their ability to manage patients' emotions • Oncologists felt communication training would improve responding to patients' emotions
Wiseman T (2007) Toward a holistic conceptualisation of empath for nursing practice. *Advances in Nursing Science.* 30(3) E61-E72.	To explore the concept of empathy in practice	Patients (*n*=16) and staff (*n*=24) on a 14-bed mixed gender ward for patients with cancer. Study from the United Kingdom.	Ethnographic approach	Observations Interviews	• Empathy is complex and the context of care is important to facilitate the development of empathy – e.g. positive role models, ward philosophy. • Empathy is developed along a 4 point continuum but oscillation occurs along this continuum • Empathy in nursing may be different to empathy used in counselling • Ways of knowing and socialisation contribute to the development of empathy skills • Empathy as incident – episodes of empathy e.g. patient admission. Actively empathising. • Empathy as a way of knowing – as a result of developing a relationship with the patient through episodes of empathy - more unconsciously empathising

Journal article	Aim	Sample	Study design	Study instruments	Findings
					as the relationship with the patient developed to think about the whole experience of the patient • Empathy as process – empathy skills developed from interactions with specific patients were then effortlessly applied to more patients • Empathy as a way of being – nurses self-awareness enabled them to be empathic with everyone in encounters (families, colleagues) • Nurses were empathic with patients of similar background and experience at the beginning of the empathic continuum – familiarity could make the experience of empathy more draining • Tiredness and frustration served as barriers to empathy • Nurses who had more self-awareness used empathy more frequently • Barriers identified time, low staffing levels, lack of support, being removed from the patient, stress, blocking empathy from patients • Patients reported feeling valued when they experienced empathy

Journal article	Aim	Sample	Study design	Study instruments	Findings
Yang N, Cao Y, Li X, Li S, Yan H & Geng Q (2018a) Mediating effects of patients' stigma and self-efficacy on relationships between doctors' empathy abilities and patients' cellular immunity in male breast cancer patients. *Medical Science Monitor* 24, 3978-3986.	To explore the relationships among male breast cancer patients' psychological and immunological indexes and their doctors' empathy abilities.	Oncologists (*n*=256) and patients (*n*=256) from China	Descriptive, cross sectional	Demographic questionnaire (doctors and patients) Social Impact Scale (patients) Brief Version Cancer Behaviour Inventory (patients) Patient blood sampling T cells, B cells and NK cells (on day of admission and + 3 months) Jefferson scale of Empathy (doctors)	• Oncologists empathic abilities were negatively correlated with patient stigma • Oncologists empathic abilities were positively correlated with patient's self-efficacy and NK activity. • Oncologists empathic abilities did not directly affect patients NK activity but affected patients' NK activity through intermediary factors of patients' stigma and self-efficacy • Smoking had a significant negative effect on NK activity
Yang N, Xiao H, Cao Y, Li S, Yan H & Wang Y (2018b) Influence of oncology nurses' empathy on lung cancer patients' cellular immunity. *Psychology Research and Behaviour Management.* 11, 279-287.	To study the effect of oncology nurses' empathy on cellular immunity of lung cancer patients in China.	Oncology nurses (*n*=30) and patients (*n*=365)	Descriptive, cross sectional.	Demographic questionnaire (nurses and patients) Patient blood sampling T cells, B cells and NK cells on day of admission and day of discharge Jefferson Scale of Empathy (nurses)	• On discharge those patients who were nursed by nurses with moderate and high empathy scores had significantly higher B cells • On discharge those patients who were nursed by nurses with high empathy scores had significantly higher NK activity. • Nurses empathic ability was lower than that reported from other countries.

Journal article	Aim	Sample	Study design	Study instruments	Findings
Yang N, Xiao H, Wang W, Li S, Yan H & Wang Y (2018c) Effects of doctors' empathy abilities on the cellular immunity of patients with advanced prostate cancer treated by orchiectomy: the mediating role of patients' stigma, self-efficacy, and anxiety. *Patient Preference and Adherence*. 12 1305-1314.	To confirm the effect of doctors' empathy on the physical and mental health of patients with prostate cancer in China.	Oncologists (*n*=41) and patients (*n*=175)	Descriptive, cross sectional	Demographic questionnaire (doctors and patients) Social Impact Scale (patients) Brief Version Cancer Behaviour Inventory (patients) Hospital Depression and Anxiety Scale (patients) Jefferson scale of Empathy (doctors) – at commencement of study All patient questionnaires and patient blood sampling T cells, B cells and NK cells administered on admission (T1), 2 weeks after T1, and 3 months after T1	• Oncologists empathy was negatively correlated with patients' stigma and anxiety and positively correlated with patients' self-efficacy and NK activity • Effect of empathy on NK activity was not significant when intermediary variables removed • Oncologists empathic abilities did not directly affect patients NK activity but affected patients' NK activity through intermediary factors of patients' stigma and self-efficacy • Patients reported significantly increased anxiety and stigma and reduced self-efficacy at 14 days after being in hospital but this improved by 3 months. • Smoking had a significant negative effect on NK activity

Journal article	Aim	Sample	Study design	Study instruments	Findings
Emotional intelligence in cancer (6 studies)					
Codier E, Freitas B & Muneno L (2013) Developing emotional intelligence ability in oncology nurses: a clinical rounds approach. *Oncology Nursing Forum*. 40(1) 22-29.	To evaluate the feasibility and impact of an emotional intelligence development programme on inpatient oncology nurses.	Cancer nurses (*n*=10) in a 24 bed inpatient ward in the USA - 10 month study.	Descriptive, exploratory study using mixed methods, pre/post-test design Intervention: Emotional Intelligence Check-In Rounds	Demographic questionnaire Mayer Salovey Caruso Emotional Intelligence Test Self-report of emotional state, energy and mood Nurse Satisfaction Survey (organisation's own) During EI Check-In Rounds – 3 tailored questions	• 69 rounds conducted in 10 months • Participation in post-testing too low to test if EI abilities changed • Nurses scored average for emotional intelligence • Nurses scored identifying emotions subscale in the MSCEIT higher than the other 3 subscales • No nurse scored managing emotions subscale as their highest subscale of the MSCEIT • No statistically significant correlations between demographics and MSCEIT subscales • No statistical difference between the nurses' ability to identify emotions in themselves and their ability to identify emotions in their patients • Nurses described patients' emotions as physical assessment findings more frequently than describing their own emotions • A number of nurses who were unable to identify own emotions were also not able to identify the patients' emotions (trend but not statistically significant)

Journal article	Aim	Sample	Study design	Study instruments	Findings
					• Nurses managed their own emotions through: ○ Relationships ○ Physical means ○ Tasks and activities ○ Emotional self-management strategies (Positive, inadequate, denial) • Significant increase in charting and care planning for patients' emotions poststudy • No significant difference in nurse satisfaction or turnover between pre- and post-study • All nurses identified the intervention rounds were helpful
Holliday EB, Bonner JA, Formenti SC, Hahn SM, Kalnicki S, Liu FF, Movsas B, Fuller CD & Thomas CR (2017) Emotional intelligence and burnout in academic radiation oncology chairs. *Journal of Healthcare Management*. 62(5) 302-313.	To determine the emotional intelligence of chairs of academic radiation oncology departments To determine whether emotional intelligence differs significantly on the basis of a range of demographic variables	Radiation oncology Chairs (*n*=60; female *n*=9; male n=51) from the USA (*n*=59) and Canada (*n*=1)	Descriptive, cross-sectional	Demographic questionnaire TEIQue – Short Form Abbreviated Maslach Burnout Inventory 6 additional questions relating to satisfaction with medicine and oncology chair position	• Oncologists scored high levels of emotional intelligence • No significant differences in emotional intelligence scores by age, ethnicity, gender, geographical region, appointment type, institution type or size, hours worked, or years of chair experience. • Burnout scores were low on emotional exhaustion and depersonalisation subscales • Personal accomplishment scored high

Journal article	Aim	Sample	Study design	Study instruments	Findings
					- Higher emotional intelligence global scores were significantly correlated lower depersonalisation and emotional exhaustion scores and higher personal accomplishment scores
Mackay SJ, Hogg P, Cooke G, Baker RD & Dawkes T (2012) A UK-wide analysis of trait emotional intelligence within the radiography profession. *Radiography*. 18 166-171.	To provide baseline data to profile the emotional intelligence within the radiography profession in the UK.	Radiographers (*n*=1997; female *n*=1690; male *n*=307) of which 244 (12%) were radiation therapists	Descriptive, cross sectional	Demographic questionnaire TEIQue – Short Form	- There were no differences identified between diagnostic and therapeutic radiographers - Researchers reported a coding problem during online data collection that may have affected results - tEI higher if more senior
Mackay SJ, Baker R, Collier D & Lewis S (2013) A comparative analysis of emotional intelligence in the UK and Australian radiographer workforce. *Radiography*. 19, 151-155.	To benchmark the Global and four factor scores of trait emotional intelligence in the Australian radiographer population To explore any differences between diagnostic and therapy radiographers To compare the Australian radiographer population scores with those of the UK radiography population	Radiographers in Australia (*n*=954) of which 21% were radiation therapists	Descriptive, cross sectional	Demographic questionnaire TEIQue – Short Form	- No significant differences found between diagnostic radiographers and therapeutic radiographers - Emotional intelligence levels appeared to be similar between radiographers (therapy and diagnostic) in the UK and Australia except for the well-being dimension, where Australian radiographers scores were statistically significantly higher - Differences in global emotional intelligence and wellbeing were found between age groups with

Journal article	Aim	Sample	Study design	Study instruments	Findings
					participants' scores reducing in the third and fourth decade before increasing again. Limitation noted that low representation of participants in their 20's (3rd decade)
Mazzella Ebstein AMM, Eller LS, Tan KS, Cherniss C, Ruggiero JS & Cimiotti JP (2019) The relationships between coping, occupations stress, and emotional intelligence in newly hired oncology nurses. *Psycho-Oncology* 28, 278-283.	To examine the associations between emotional intelligence, occupations stress, and coping strategies To examine the extent to which occupations stress was experienced by newly hired cancer nurses	Newly hired (no previous cancer work experience) cancer nurses (n=114; female n=108, male n=5, not documented n=1) in the USA	Descriptive, cross-sectional	Demographic questionnaire Ways of Coping Questionnaire Nursing Stress Scale Emotional Quotient Inventory	• Nurses scored average for emotional intelligence • Significant negative correlation between occupational stress and problem focused coping • Significant negative correlation between occupational stress and emotional intelligence • Significant negative correlation between emotional intelligence and emotion focused coping • Significant positive correlation between occupations stress and emotion focused coping • Significant positive correlation between emotional intelligence and problem focused coping • Newly hired nurses experienced occupations stress during initial employment period • Newly hired nurses were emotionally intelligent and used problem focused coping to deal with stress

Journal article	Aim	Sample	Study design	Study instruments	Findings
Tadmor T, Dolev N, Attias D, Lelong AR & Rofe A (2016) Emotional intelligence: a unique group training in a haematology-oncology unit. *Education for Health* 29(3) 179-185.	To assess the impact of an active interventional process attempting to improve the haematology-oncology unit emotional intelligence	Intervention group: Staff of haematology-oncology unit in Israel (*n*=15; oncologists n=5; nurses *n*=5; administrators *n*=4; social worker *n*=1) Control group: staff members (*n*=15; doctors *n*=10; nurses *n*=5) non oncology	Pre- and post-training design Intervention: Series of workshops and seminars 2 hours in length, 2 weeks apart over 10 month timeframe	Demographic questionnaire Emotional Quotient Inventory (Baseline and at programme conclusion at 10 months)	• Participants scored average emotional intelligence at baseline • Pre and post analysis – statistically significant improvement in general emotional intelligence (from average to above average) • All subscales (general mood, adaptability, intrapersonal skills, interpersonal skills) showed significant improvement except for stress management • Control group showed no statistically significant difference in general emotional intelligence or any subscale in the pre-and post-test analysis Qualitative findings: Interviews post programme completion • Improved relationships within the team – more considerate toward each other, better conflict resolution • Improved teamwork – greater tolerance, offering help • Improved unit atmosphere – enhanced unit pride • Improved well-being – enhanced awareness of emotions • Improved work-related changes – feelings of inclusion and respect.

Appendix II

Professional quality of Life Scale (ProQOL)

Compassion Satisfaction and Compassion Fatigue (ProQOL) Version 5 (2009)

When you care for people you have direct contact with their lives. As you may have found, your compassion for those you care for can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a health care professional. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1 = Never	**2 = Rarely**	**3 = Sometimes**	**4 = Often**	**5 = Very often**

	Question	**Answer**
1	I am happy.	
2	I am preoccupied with more than one person I care for.	
3	I get satisfaction from being able to care for people.	
4	I feel connected to others.	
5	I jump or am startled by unexpected sounds.	
6	I feel invigorated after working with those I care for.	
7	I find it difficult to separate my personal life from my life as a health care professional.	
8	I am not as productive at work because I am losing sleep over traumatic experiences of a person I care for.	
9	I think that I might have been affected by the traumatic stress of those I care for.	
10	I feel trapped by my job as a health care professional.	
11	Because of my professional caring I have felt "on edge" about various things.	
12	I like my work as a health care professional.	
13	I feel depressed because of the traumatic experiences of the people I care for.	

14	I feel as though I am experiencing the trauma of someone I have cared for.	
15	I have beliefs that sustain me.	
16	I am pleased with how I am able to keep up with professional caring techniques and protocols.	
17	I am the person I always wanted to be.	
18	My work makes me feel satisfied.	
19	I feel worn out because of my work as a health care professional.	
20	I have happy thoughts and feelings about those I care for and how I could help them.	
21	I feel overwhelmed because my patient case-load seems endless.	
22	I believe I can make a difference through my work.	
23	I avoid certain activities or situations because they remind me of frightening experiences of the people I care for.	
24	I am proud of what I can do to help.	
25	As a result of my caring, I have intrusive, frightening thoughts.	
26	I feel "bogged down" by the system.	
27	I have thoughts that I am a "success" as a health care professional.	
28	I can't recall important parts of my work with trauma victims.	
29	I am a very caring person.	
30	I am happy that I chose to do this work.	

Appendix III

INTERPERSONAL REACTIVITY INDEX

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL			DESCRIBES ME VERY WELL	

	Question	**Answer**
1	I daydream and fantasize, with some regularity, about things that might happen to me.	
2	I often have tender, concerned feelings for people less fortunate than me.	
3	I sometimes find it difficult to see things from the "other guy's" point of view.	
4	Sometimes I don't feel very sorry for other people when they are having problems.	
5	I really get involved with the feelings of the characters in a novel.	
6	In emergency situations, I feel apprehensive and ill-at-ease.	
7	I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.	
8	I try to look at everybody's side of a disagreement before I make a decision.	
9	When I see someone being taken advantage of, I feel kind of protective towards them.	
10	I sometimes feel helpless when I am in the middle of a very emotional situation.	
11	I sometimes try to understand my friends better by imagining how things look from their perspective.	
12	Becoming extremely involved in a good book or movie is somewhat rare for me.	
13	When I see someone get hurt, I tend to remain calm.	

14	Other people's misfortunes do not usually disturb me a great deal.	
15	If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.	
16	After seeing a play or movie, I have felt as though I were one of the characters.	
17	Being in a tense emotional situation scares me.	
18	When I see someone being treated unfairly, I sometimes don't feel very much pity for them.	
19	I am usually pretty effective in dealing with emergencies.	
20	I am often quite touched by things that I see happen.	
21	I believe that there are two sides to every question and try to look at them both.	
22	I would describe myself as a pretty soft-hearted person.	
23	When I watch a good movie, I can very easily put myself in the place of a leading character.	
24	I tend to lose control during emergencies.	
25	When I'm upset at someone, I usually try to "put myself in his shoes" for a while.	
26	When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.	
27	When I see someone who badly needs help in an emergency, I go to pieces.	
28	Before criticizing somebody, I try to imagine how I would feel if I were in their place.	

Davis, M. (1983) Measuring individual differences in empathy: evidence for a multi-dimensional approach. *Journal of Personality and Social Psychology* 44 113-126.

Appendix IV

The Trait Emotional Intelligence Questionnaire

Instructions

- Please complete this questionnaire on your own and in quiet conditions.
- Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. *There are no right or wrong answers*.
- Work quickly, and don't think too long about the exact meaning of the statements.
- Try to answer as accurately as possible.
- You have seven possible responses, ranging from 1=Completely Disagree to 7=Completely Agree
- Many thanks for your time and interest

		Disagree completely				**Agree completely**		
1.	I'm usually able to control other people	1	2	3	4	5	6	7
2.	Generally, I don't take notice of other people's emotions	1	2	3	4	5	6	7
3.	When I receive wonderful news, I find it difficult to calm down quickly	1	2	3	4	5	6	7
4.	I tend to see difficulties in every opportunity rather than opportunities in every difficulty	1	2	3	4	5	6	7
5.	On the whole, I have a gloomy perspective on most things	1	2	3	4	5	6	7
6.	I don't have a lot of happy memories	1	2	3	4	5	6	7
7.	Understanding the needs and desires of others is not a problem for me	1	2	3	4	5	6	7
8.	I generally believe that things will work out fine in my life	1	2	3	4	5	6	7
9.	I often find it difficult to recognise what emotion I'm feeling	1	2	3	4	5	6	7
10.	I'm not socially skilled	1	2	3	4	5	6	7
11.	I find it difficult to tell others that I love them even when I want to	1	2	3	4	5	6	7
12.	Others admire me for being relaxed	1	2	3	4	5	6	7
13.	I rarely think about old friends from the past	1	2	3	4	5	6	7
14.	Generally, I find it easy to tell others how much they really mean to me	1	2	3	4	5	6	7
15.	Generally, I must be under pressure to really work hard	1	2	3	4	5	6	7
16.	tend to get involved in things I later wish I could get out of	1	2	3	4	5	6	7

17.	I’m able to “read” most people's feelings like an open book	1	2	3	4	5	6	7
18.	I’m usually able to influence the way other people feel	1	2	3	4	5	6	7
19.	I normally find it difficult to calm angry people down	1	2	3	4	5	6	7
20.	I find it difficult to take control of situations at home	1	2	3	4	5	6	7
21.	I generally hope for the best	1	2	3	4	5	6	7
22.	Others tell me that they admire me for my integrity	1	2	3	4	5	6	7
23.	I really don’t like listening to my friends’ problems	1	2	3	4	5	6	7
24.	I’m normally able to “get into someone’s shoes” and experience their emotions	1	2	3	4	5	6	7
25.	I believe I’m full of personal weaknesses	1	2	3	4	5	6	7
26.	I find it difficult to give up things I know and like	1	2	3	4	5	6	7
27.	I always find ways to express my affection to others when I want to	1	2	3	4	5	6	7
28.	I feel that I have a number of good qualities	1	2	3	4	5	6	7
29.	I tend to rush into things without much planning	1	2	3	4	5	6	7
30.	I find it difficult to speak about my intimate feelings even to my closest friends	1	2	3	4	5	6	7
31.	I’m not able to do things as well as most people	1	2	3	4	5	6	7
32.	I’m never really sure what I’m feeling	1	2	3	4	5	6	7
33.	I’m usually able to express my emotions when I want to	1	2	3	4	5	6	7
34.	When I disagree with someone, I usually find it easy to say so	1	2	3	4	5	6	7
35.	I normally find it difficult to keep myself motivated	1	2	3	4	5	6	7
36.	I know how to snap out of my negative moods	1	2	3	4	5	6	7
37.	On the whole, I find it difficult to describe my feelings	1	2	3	4	5	6	7
38.	I find it difficult not to feel sad when someone tells me about something bad that happened to them	1	2	3	4	5	6	7
39.	When something surprises me, I find it difficult to get it out of my mind	1	2	3	4	5	6	7
40.	I often pause and think about my feelings	1	2	3	4	5	6	7
41.	I tend to see the glass as half-empty rather than as half-full	1	2	3	4	5	6	7

42.	I often find it difficult to see things from another person’s viewpoint	1	2	3	4	5	6	7

43.	I’m a follower, not a leader	1	2	3	4	5	6	7
44.	Those close to me often complain that I don’t treat them right	1	2	3	4	5	6	7
45.	Many times, I can’t figure out what emotion I'm feeling	1	2	3	4	5	6	7
46.	couldn’t affect other people’s feelings even if I wanted to	1	2	3	4	5	6	7
47.	If I’m jealous of someone, I find it difficult not to behave badly towards them	1	2	3	4	5	6	7
48.	I get stressed by situations that others find comfortable	1	2	3	4	5	6	7
49.	I find it difficult to sympathize with other people’s plights	1	2	3	4	5	6	7
50.	In the past, I have taken credit for someone else’s input	1	2	3	4	5	6	7
51.	On the whole, I can cope with change effectively	1	2	3	4	5	6	7
52.	I don’t seem to have any power at all over other people’s feelings	1	2	3	4	5	6	7
53.	I have many reasons for not giving up easily	1	2	3	4	5	6	7
54.	I like putting effort even into things that are not really important	1	2	3	4	5	6	7
55.	I always take responsibility when I do something wrong	1	2	3	4	5	6	7
56.	I tend to change my mind frequently	1	2	3	4	5	6	7
57.	When I argue with someone, I can only see my point of view	1	2	3	4	5	6	7
58.	Things tend to turn out right in the end	1	2	3	4	5	6	7
59.	When I disagree with someone, I generally prefer to remain silent rather than make a scene	1	2	3	4	5	6	7
60.	If I wanted to, it would be easy for me to make someone feel bad	1	2	3	4	5	6	7
61.	I would describe myself as a calm person	1	2	3	4	5	6	7
62.	I often find it difficult to show my affection to those close to me	1	2	3	4	5	6	7
63.	There are many reasons to expect the worst in life	1	2	3	4	5	6	7
64.	I usually find it difficult to express myself clearly	1	2	3	4	5	6	7
65.	I don’t mind frequently changing my daily routine	1	2	3	4	5	6	7
66.	Most people are better liked than I am	1	2	3	4	5	6	7
67.	Those close to me rarely complain about how I behave toward them	1	2	3	4	5	6	7
68.	I usually find it difficult to express my emotions the way I would like to	1	2	3	4	5	6	7
69.	Generally, I’m able to adapt to new environments	1	2	3	4	5	6	7
70.	I often find it difficult to adjust my life according to the circumstances	1	2	3	4	5	6	7
71.	I would describe myself as a good negotiator	1	2	3	4	5	6	7
72.	I can deal effectively with people	1	2	3	4	5	6	7
73.	On the whole, I’m a highly motivated person	1	2	3	4	5	6	7
74.	I have stolen things as a child	1	2	3	4	5	6	7
75.	On the whole, I’m pleased with my life	1	2	3	4	5	6	7
76.	I find it difficult to control myself when I’m extremely happy	1	2	3	4	5	6	7

77.	Sometimes, it feels like I’m producing a lot of good work effortlessly	1	2	3	4	5	6	7
78.	When I take a decision, I’m always sure it is the right one	1	2	3	4	5	6	7
79.	If I went on a blind date, the other person would be disappointed with my looks	1	2	3	4	5	6	7
80.	I normally find it difficult to adjust my behaviour according to the people I’m with	1	2	3	4	5	6	7
81.	On the whole, I’m able to identify myself with others	1	2	3	4	5	6	7
82.	I try to regulate pressures in order to control my stress levels	1	2	3	4	5	6	7
83.	I don’t think I’m a useless person	1	2	3	4	5	6	7
84.	I usually find it difficult to regulate my emotions	1	2	3	4	5	6	7
85.	I can handle most difficulties in my life in a cool and composed manner	1	2	3	4	5	6	7
86.	If I wanted to, it would be easy for me to make someone angry	1	2	3	4	5	6	7
87.	On the whole, I like myself	1	2	3	4	5	6	7
88.	I believe I’m full of personal strengths	1	2	3	4	5	6	7
89.	I generally don’t find life enjoyable	1	2	3	4	5	6	7
90.	’m usually able to calm down quickly after I’ve got mad at someone	1	2	3	4	5	6	7
91.	I can remain calm even when I’m extremely happy	1	2	3	4	5	6	7
92.	enerally, I’m not good at consoling others when they feel bad	1	2	3	4	5	6	7
93.	I’m usually able to settle disputes	1	2	3	4	5	6	7
94.	I never put pleasure before business	1	2	3	4	5	6	7
95.	Imagining myself in someone else’s position is not a problem for me	1	2	3	4	5	6	7
96.	I need a lot of self-control to keep myself out of trouble	1	2	3	4	5	6	7
97.	It is easy for me to find the right words to describe my feelings	1	2	3	4	5	6	7
98.	I expect that most of my life will be enjoyable	1	2	3	4	5	6	7
99.	I am an ordinary person	1	2	3	4	5	6	7
100	I tend to get “carried away” easily	1	2	3	4	5	6	7
101	I usually try to resist negative thoughts and think of positive alternatives	1	2	3	4	5	6	7
102	I don’t like planning ahead	1	2	3	4	5	6	7
103	Just by looking at somebody, I can understand what he or she feels	1	2	3	4	5	6	7
104	Life is beautiful	1	2	3	4	5	6	7
105	I normally find it easy to calm down after I have been scared	1	2	3	4	5	6	7
106	I want to be in command of things	1	2	3	4	5	6	7
107	I usually find it difficult to change other people’s opinions	1	2	3	4	5	6	7
108	I’m generally good at social chit-chat	1	2	3	4	5	6	7
109	Controlling my urges is not a big problem for me	1	2	3	4	5	6	7
110	I really don’t like my physical appearance	1	2	3	4	5	6	7
111	I tend to speak well and clearly	1	2	3	4	5	6	7
112	On the whole, I’m not satisfied with how I tackle stress	1	2	3	4	5	6	7
113	Most of the time, I know exactly why I feel the way I do	1	2	3	4	5	6	7

114	I find it difficult to calm down after I have been strongly surprised	1	2	3	4	5	6	7
115	On the whole, I would describe myself as assertive	1	2	3	4	5	6	7
116	On the whole, I'm not a happy person	1	2	3	4	5	6	7
117	When someone offends me, I'm usually able to remain calm	1	2	3	4	5	6	7
118	Most of the things I manage to do well seem to require a lot of effort	1	2	3	4	5	6	7
119	I have never lied to spare someone else's feelings	1	2	3	4	5	6	7
120	I find it difficult to bond well even with those close to me	1	2	3	4	5	6	7
121	I consider all the advantages and disadvantages before making up my mind	1	2	3	4	5	6	7
122	I don't know how to make others feel better when they need it	1	2	3	4	5	6	7
123	I usually find it difficult to change my attitudes and views	1	2	3	4	5	6	7
124	Others tell me that I rarely speak about how I feel	1	2	3	4	5	6	7
125	On the whole, I'm satisfied with my close relationships	1	2	3	4	5	6	7
126	I can identify an emotion from the moment it starts to develop in me	1	2	3	4	5	6	7
127	On the whole, I like to put other people's interests above mine	1	2	3	4	5	6	7
128	Most days, I feel great to be alive	1	2	3	4	5	6	7
129	I tend to get a lot of pleasure just from doing something well	1	2	3	4	5	6	7
130	It is very important to me to get along with all my close friends and family	1	2	3	4	5	6	7
131	I frequently have happy thoughts	1	2	3	4	5	6	7
132	I have many fierce arguments with those close to me	1	2	3	4	5	6	7
133	Expressing my emotions with words is not a problem for me	1	2	3	4	5	6	7
134	I find it difficult to take pleasure in life	1	2	3	4	5	6	7
135	I'm usually able to influence other people	1	2	3	4	5	6	7
136	When I'm under pressure, I tend to lose my cool	1	2	3	4	5	6	7
137	I usually find it difficult to change my behaviour	1	2	3	4	5	6	7
138	Others look up to me	1	2	3	4	5	6	7
139	Others tell me that I get stressed very easily	1	2	3	4	5	6	7
140	I'm usually able to find ways to control my emotions when I want to	1	2	3	4	5	6	7
141	I believe that I would make a good salesperson	1	2	3	4	5	6	7
142	I lose interest in what I do quite easily	1	2	3	4	5	6	7
143	On the whole, I'm a creature of habit	1	2	3	4	5	6	7
144	I would normally defend my opinions even if it meant arguing with important people	1	2	3	4	5	6	7
145	I would describe myself as a flexible person	1	2	3	4	5	6	7
146	Generally, I need a lot of incentives in order to do my best	1	2	3	4	5	6	7
147	Even when I'm arguing with someone, I'm usually able to take their perspective	1	2	3	4	5	6	7
148	On the whole, I'm able to deal with stress	1	2	3	4	5	6	7
149	I try to avoid people who may stress me out	1	2	3	4	5	6	7
150	I often indulge without considering all the consequences	1	2	3	4	5	6	7

151	I tend to “back down” even if I know I’m right	1	2	3	4	5	6	7
152	I find it difficult to take control of situations at work	1	2	3	4	5	6	7
151	Some of my responses on this questionnaire are not 100% honest	1	2	3	4	5	6	7

Petrides, K. V. & Furnham, A. (2003). Trait emotional intelligence: Behavioural validation in two studies of emotion recognition and reactivity to mood induction. *European Journal of Personality, 17,* 39-57*.*

Appendix V

Demographic questionnaire

Demographics

Thank you for participating in this research. This form asks for demographic information. Please tick the appropriate boxe(s) or write the appropriate answer in the space provided.

What is your gender:
Male ☐
Female ☐
How old are you? ___________
Ethnicity
Which race / ethnicity best describes you?
White Irish ☐ Black Irish ☐ Asian Irish ☐
White other ☐ Black other ☐ Asian other ☐

Other, please specify: ________________________________
Marital status
Which of the following best describes your current relationship status?
Single ☐ Married/Living with partner ☐
Widowed ☐ Divorced/ Separated ☐

Do you have children?
Children: Yes ☐ No ☐
Religion
Do you identify with one of the following religions?
Roman Catholic ☐ Protestant ☐ Orthodox ☐
Christian other ☐ Islam ☐ Hinduism ☐
None ☐ Other belief system, please specify ____________________

Professional information
What is your Profession?
Doctor ☐ Nurse ☐ Radiation therapist ☐

What is your role?
Medical oncologist ☐ Radiation oncologist ☐ Surgical oncologist ☐
Specialist registrar ☐ Clinical nurse manager ☐ Staff nurse
☐
Clinical nurse specialist ☐ Advanced nurse practitioner ☐
Cancer Liaison nurse ☐ Clinical nurse manager ☐ Cancer nurse co-ordinator ☐
Cancer research nurse ☐ Radiation oncology nurse ☐ Radiation therapist ☐
Senior radiation therapist ☐ Radiotherapy services manager ☐
Clinical specialist radiation therapist ☐

Other, please specify___________________
Highest Educational Qualification:
What is the highest level of education you have completed?
PhD ☐ Degree ☐
Masters ☐ Other, please specify:_____________________________
Post-graduate level ☐

Do you have a cancer qualification?
Cancer qualification: Yes ☐ No ☐ If yes, please specify____________________
Work pattern

How many years have you worked in cancer care? _______
Do you work: Full time ☐ Part time ☐
What are your average weekly working hours? ___________________
Do you work 12- hour shifts? Yes ☐ No ☐
Have you had annual leave, 5 days or longer, in the past 4 weeks? Yes ☐ No ☐
What percentage of work-time do you engage in clinical care?
Less than 25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐
Significant life event in past 2 years
Have you experienced a significant life event in the past 2 years? (please tick as many as are appropriate)
Separation ☐ Divorce ☐ Illness ☐
Financial stress ☐ Bereavement ☐
Other, please specify if appropriate: ____

Social information:

Do you smoke? Yes ☐ No ☐
Do you drink alcohol? Yes ☐ No ☐
Do you enjoy a hobby? Yes ☐ No ☐

Appendix VI

Participant Information Leaflet: Phase I

Study title: Examining professional quality of life in cancer health care professionals: relationships to empathy and emotional intelligence

You are being invited to take part in a research study. Before you decide whether you wish to take part or not, you should read the information provided below carefully and contact the researcher if there are any questions you would like to ask.

You should clearly understand the risks and benefits of taking part in this research study so you can make a decision that is right for you. You do not have to take part in this study; participation is entirely voluntary.

You can withdraw from this study during the data collection phase if you have provided an e-mail address as this means you data is coded and retrievable. You cannot withdraw from the study if you have completed the questionnaires anonymously.

Why is this study being done?

This research study is taking place to examine the relationship between professional quality of life (compassion satisfaction and compassion fatigue), empathy, and emotional intelligence. The ability to manage one's own emotions and the emotions of others is described as emotional intelligence. It is not known is if a health care professionals' level of emotional intelligence influences their empathy, and how this may then influence compassion satisfaction or the risk of compassion fatigue.

Who is organising and funding this study?

Patricia Hunt is undertaking this study as a PhD thesis at Waterford Institute of Technology. Dr. Suzanne Denieffe and Dr. Martina Gooney are supervising the PhD. Patricia Hunt has 22 years of experience in cancer nursing. The PhD is being funded by the Nursing and Midwifery Planning Development Unit, HSE South-South East.

Why am I being asked to take part?

This study is examining professional quality of life in cancer health care professionals. You are being asked to take part as you currently work with cancer patients. To participate in this study you must be working 100% of your clinical time with patients with cancer.

How will the study be carried out?

Your participation in this study will involve completing questionnaires, either online through Survey Monkey or in paper format. You can complete the questionnaires at a time and place of your convenience.

What will happen to me if I agree to take part?

This study asks you to complete three questionnaires and provide demographic information. You can choose to complete these questionnaires on Survey Monkey. A web-link to the questionnaires is at the end of this information leaflet. Alternatively, you can choose to request the questionnaires in paper format by contacting Patricia Hunt at patricia.hunt@postgrad.wit.ie The first three questionnaires should be completed at the same time. It is anticipated that they should take 20 - 30 minutes to complete.

- Questionnaire 1 will measure Professional Quality of Life, that is, compassion satisfaction and compassion fatigue.
- Questionnaire 2 will measure empathy.
- Questionnaire 3 will measure emotional intelligence.

Consent to this study is implied on completion of the questionnaires.

What are the benefits of participating in this study?

The benefits of participating in this study are that the information you provide will enable us to understand the relationship between professional quality of life, empathy, and emotional intelligence in oncology health care professionals. This will benefit cancer health care professionals in the future. The findings of the study may enable us to provide specific support and education to cancer health care professionals to help them in their delivery of compassionate empathic care.

What are the risks of participating in this study?

The questions ask about your emotions and this may remind you of difficult clinical situations you have been in. If you find the questions difficult for you to answer and you feel distressed you will be able to contact your local Employee Assistance Programme. The details of the Employee Assistance Programme can be found at the end of this information leaflet.

Is the study confidential?

The first three questionnaires can be completed anonymously. If you provide your name Patricia Hunt will code all data you provide, and therefore your name will not be attached to any questionnaires. Your employer will not have access to any data or information you provide. Data will be stored on a computer that is password protected, in the Department of Nursing at Waterford Institute of Technology. Paper data will be stored in a locked cabinet in the Department of Nursing at Waterford Institute of Technology.

It is anticipated that the results of this study will be published in academic journals and at academic conferences. All data will be anonymised prior to publication and you cannot be identified. All data will be destroyed once data analysis is complete.

Where can I get further information?

If you have any questions relating to the study please contact a member of the research team.

Ms Patricia Hunt	Dr. Suzanne Denieffe	Dr. Martina Gooney
patricia.hunt@postgrad.wit.ie	SDENIEFFE@wit.ie	MGOONEY@wit.ie
087 933 3048		

If you would like to complete the three questionnaires online please type this link into your web-browser

https://www.surveymonkey.com/r/witcompassionstudy

Please complete the questionnaires within three weeks.

Employee Assistance Programme:	Local EAP details to be inserted here

Appendix VII

E-mail / letter of invitation: Phase I

Dear colleague

Letter of invitation

Study: Examining professional quality of life in cancer health care professionals: relationships to empathy and emotional intelligence

We really appreciate you giving your time to read about this study. You will find the background to the study, the proposed benefits of this study for health care professionals, and the clinical implications of this study detailed in the study information leaflet.

Please take time to read the information leaflet. If you have any questions relating to the study, please contact us on the telephone number or emails below. Your participation in this study is completely voluntary.

If you decide to participate in this study, please complete the questionnaires and demographic information and return them in the stamped addressed envelope provided (insert 3 week deadline). Alternatively, you can choose to do these questionnaires online through Survey Monkey. If you choose Survey Monkey, the link to the questionnaires is at the end of the information leaflet enclosed.

The questionnaires are designed so that you complete them with the first answer that comes to you relating to the question you are reading.

Thank you for taking the time to consider participation in this study.

Patricia Hunt	Dr. Suzanne Denieffe	Dr. Martina Gooney
20069012@mail.wit.ie	SDENIEFFE@wit.ie	MGOONEY@wit.ie

Telephone: 051 845 593

Appendix VIII

Participant Information Leaflet: Phase II

Study title: Examining Professional Quality of Life in cancer health professionals: relationships to empathy and emotional intelligence

Principal investigator's name: **Patricia Hunt**
Principal investigator's title: **Lecturer**
Telephone number of principal investigator: **051 834 220**
Email of principal investigator: **phunt@wit.ie**

Data Controller's/joint Controller's Identity: **Patricia Hunt**
Data Controller's/joint Controller's Contact Details: **Room 201, Department of Nursing and Health Care, Waterford Institute of Technology, Cork Road, Waterford. 051 834 220**
Data Protection Officer's Identity: **Corina Power, Waterford Institute of Technology Data Protection Officer**
Data Protection Officer's Contact Details: **051 302 608; dataprotection@wit.ie**

You are being invited to take part in a research study to be carried out at University Hospital Waterford by Patricia Hunt, Lecturer at Waterford Institute of Technology.

Before you decide whether or not you wish to take part, you should read the information provided below carefully and, if you wish, discuss it with your family, friends or GP (doctor). Take time to ask questions – don't feel rushed and don't feel under pressure to make a quick decision.

You should clearly understand the risks and benefits of taking part in this study so that you can make a decision that is right for you. This process is known as 'Informed Consent'.

You don't have to take part in this study. If you decide not to take part it won't affect your future employment.

You can change your mind about taking part in the study any time you like. Even if the study has started, you can still opt out. You don't have to give us a reason. If you do opt out, rest assured it won't affect your employment.

Why is this study being done?

This research study is taking place to examine the relationship between professional quality of life (compassion satisfaction and compassion fatigue), empathy, and emotional intelligence. The ability to manage one's own emotions and the emotions of others is described as emotional intelligence. The relationship between cancer health care professional's level of emotional intelligence, empathy, and compassion fatigue and compassion satisfaction is unknown, so this study aims to explore and provide some understanding of the relationships.

Who is organising and funding this study?

Patricia Hunt is undertaking this study as a PhD thesis at Waterford Institute of Technology. Dr. Suzanne Denieffe and Dr. Martina Gooney are supervising the PhD. Patricia Hunt has 22 years of experience in cancer nursing. The first 2 years of the PhD was funded by the CARE Collaboration at the Nursing and Midwifery Planning Development Unit, HSE South-South East, and Waterford Institute of Technology are currently funding the PhD.

Why am I being asked to take part?

This study is examining professional quality of life in cancer health care professionals. You are being asked to take part as you currently work with cancer patients.

How will the study be carried out?

Your participation in this study will involve you being interviewed on your own by the researcher. This interview will be recorded on a voice recorder. It is anticipated that approximately 15 people will take part in this study. It is anticipated that anonymised quotes from the interview could be used in academic publications and educational videos / podcasts.

What will happen to me if I agree to take part?

You are asked to contact Ms Patricia Hunt (phunt@wit.ie) if you agree to participate in this study. You will then be sent a copy of the interview schedule and consent form for you to consider. You will be provided with an opportunity to ask any questions prior to consenting for the study. An interview time and place that is convenient to you will be organised if you wish to proceed with the interview. It is anticipated that the interview will take approximately 45 minutes. You will be asked to sign a consent form prior to the interview once all your questions have been answered. This interview will be audio recorded. You will not be asked to provide an information that would personally identify you during the interview. You will be asked to identify your profession only. You will be asked not to identify any colleagues or patients during the interview. All interviews will be pseudonymised before being analysed.

Video/and or Audio recordings?

I understand that I will be given the opportunity to look at the transcript of my interview prior to the data being analysed by the researcher so I can edit any content.

What are the benefits?

The benefits of participating in this study are that the information you provide will enable us to understand the relationship between professional quality of life, empathy, and emotional intelligence in cancer health care professionals. This will benefit cancer health care professionals in the future. The findings of the study may enable us to provide specific support and education to cancer health care professionals to help them in their delivery of compassionate empathic care. This support and education may be in the form of the use of pseudonymised quotes in academic and educational material such as and not limited to PowerPoint slides, videos, and podcasts.

What are the risks?

The questions ask about your emotions. This may remind you of difficult clinical situations you have been in, and you may feel upset.

What if something goes wrong when I'm taking part in this study?

If you find the questions difficult for you to answer you do not need to continue with the interview and can ask for this to be stopped. If you feel distressed, you will be able to contact the health service Employee Assistance Programme. The details of the Employee Assistance Programme can be found at the end of this information leaflet. You can ask for additional information about support organisations from the researcher if you feel you need to access further resources.

Is the study confidential?

Patricia Hunt will pseudonymise the data you provide. A code will be applied to all personal data you provide. This personal data will consist of your name, e-mail address and profession. This code will only be known to Patricia Hunt and will be kept in a locked filing cabinet in a locked room at Waterford Institute of Technology. This information will be destroyed once the study is completed using the Waterford Institute of Technology secure process for the disposal of confidential material. Your name will not be attached to any study information or quotes used.
The interview data will only be accessed by the research team subject to the provision of the law. It is anticipated that the results of this study will be published in academic journals, at academic conferences, and in educational material such as videos and podcasts. All data will be anonymised prior to publication so you cannot be identified. A copy of the results can be provided by Patricia Hunt.

Data Protection

We will be using your personal information in our research to compare professional quality of life, empathy, and emotional intelligence between professional groups, age groups, and the amount of years worked in clinical practice.

The first legal basis for this research is that it is in the public interest to understand the professional quality of life of health care professionals working in cancer care (Article 6(1)(f)). The second legal basis for this research is that it is for scientific research purposes to build a body of research regarding cancer health care professionals professional quality of life (Article 9(2)(j)).

The research team of Ms Patricia Hunt, Dr Suzanne Denieffe, and Dr Martina Gooney will have access to the participant's information. Ms Patricia Hunt will be the only person who can convert the data to personal data.

The data will be stored for the duration of this PhD study. It is anticipated that the study will be completed in October 2020.

You can withdraw from this study during the interview or up to three months after the interview. You need to contact Ms Patricia Hunt if you wish to withdraw but you do not need to provide any reason for your withdrawal. All interview data will be deleted immediately if you chose to withdraw.

You have the right to lodge a complaint with the Data Protection Commissioner if you feel your personal data has not been protected.

You have the right to ask for a copy of your data at any time. You must contact Ms Patricia Hunt if you wish to request a copy.

You have the right to restrict or object to the processing of your data. If you wish to do this please contact Patricia Hunt.

The interview is entirely voluntary, and you can withdraw at any time during the interview and you can withdraw your data at any time up until publication of that data. Any published data will be anonymised.

You have a right to have your personal data deleted at any time. To do this you must contact Patricia Hunt.

You have the right to ask for your data to be moved from one researcher to another. To do this you must contact Patricia Hunt.

There will be no automated decision making or profiling in this study.

Where can I get further information?

If you wish to participate in this study please contact Patricia Hunt at phunt@wit.ie. If you have any further questions about the study or if you want to opt out of the study, you can rest assured it won't affect your employment in the future.
If you need any further information now or at any time in the future, please contact:

Patricia Hunt
Waterford Institute of Technology, Cork Road, Waterford
phunt@wit.ie
051 834 220

Dr. Suzanne Denieffe
Waterford Institute of Technology, Cork Road, Waterford
SDENIEFFE@wit.ie
051 302 473

Dr. Martina Gooney
Waterford Institute of Technology, Cork Road, Waterford
MGOONEY@wit.ie
051 302 194

Employee Assistance Programme: Insert information

Appendix IX

Semi-structured Interview Schedule: Phase II

Demographic questions	Prompts
Can you tell me your profession? Can you tell me how long you have worked in cancer care? Can you remember if you participated in the quantitative phase of this study. (Filled in the questionnaires ProQOL, IRI, TEIQue? If you did participate, why did you respond?	
Professional quality of life questions	
What does compassion satisfaction (CS) mean for you? What does compassion fatigue (CF) mean for you?	
Can you describe a time when you felt compassion satisfaction? Can you describe a time when you felt compassion fatigue?	Can you describe how this manifested itself? How does it impact on personal/professional life
Do you feel that you experience compassion satisfaction / compassion fatigue on a regular basis?	How often? Sleep changes? Not wanting to go to work?
Have you noticed any changes in your levels of CS / CF in the years you have been in clinical practice?	In what way has this changed?
Empathy questions	
Can you describe what you think the components of empathy are?	What does empathy mean to you in your personal life? / professional life? Describe what empathy means to you
Can you describe a time when you were empathic in clinical practice?	How do you cope or manage?
Do you think being empathic impacts on the care you deliver?	Why?
If you have ever felt distressed from the care you delivered to patients with cancer can you tell me how the distress you felt impacted on your personal life/ professional life?	How does it make you feel? Do you take it home? Do you get support? Who from?
Emotional intelligence questions	
What do you think the components of emotional intelligence are?	Explain if necessary
What does emotional intelligence mean to you in your professional life?	Would you check in with your emotions?
Do you think emotional intelligence impacts on clinical care? Why?	How?
Final questions relating to the relationships between the study constructs	
Do you think that health care professionals in cancer care who have high compassion satisfaction are more or less empathic?	Why?

Do you think that health care professionals in cancer care who are high in emotional intelligence experience more or less compassion satisfaction?	Why?
Do you think there is a relationship between a person’s emotional intelligence, empathy, and the compassion satisfaction / compassion fatigue?	If yes, what is the relationship and why? If not, why?
What do you think is the best way to teach health care professionals about empathy, emotional intelligence, compassion satisfaction / compassion fatigue?	

Appendix X

PARTICIPANT CONSENT FORM

Study title: Examining professional quality of life in cancer health care professionals: Relationships to empathy and emotional intelligence.

I have read and understood the Study **Information Leaflet** about this research project. The information has been fully explained to me and I have been able to ask questions, all of which have been answered to my satisfaction.	**Yes** ☐	**No** ☐
I understand that I don't have to take part in this study and that I can opt out at any time. I understand that I don't have to give a reason for opting out and I understand that opting out won't affect my future employment.	**Yes** ☐	**No** ☐
I give permission for researchers to look at my medical records to get information. I have been assured that information about me will be kept private and confidential.	**Yes** ☐	**No** ☐
I have been given a copy of the Information Leaflet and this completed consent form for my records.	**Yes** ☐	**No** ☐
I consent to take part in this research study having been fully informed of the risks, benefits and alternatives.	**Yes** ☐	**No** ☐
I give informed consent to have my data processed as part of this research study.	**Yes** ☐	**No** ☐
I understand that I will be given the opportunity to look at the transcript of my interview, and make any changes to this prior to the data being analysed by the researcher.	**Yes** ☐	**No** ☐
I understand that if I wish to look at a transcript of my interview that I will need to supply an e-mail address to the researcher, and I take full responsibility for the security of the e-mail address supplied.	**Yes** ☐	**No** ☐
I understand that the researcher will e-mail the transcript to me using a secure WIT staff e-mail address.	**Yes** ☐	**No** ☐
I understand that the anonymised data from my interview, in the form of direct quotes and general themes will be used by the researcher's PhD theses, research reports, academic publications, conference publications, educational videos and podcasts. (Please delete any areas you do not give permission for).	**Yes** ☐	**No** ☐

STORAGE AND FUTURE USE OF INFORMATION		
I give permission for material/data to be stored for *possible future research related* to the current study *only if consent is obtained* at the time of the future research but only if the research is approved by a Research Ethics Committee.	Yes ☐	No ☐
I give permission for material/data to be stored for *possible future research related* to the current study *without further consent being required* but only if the research is approved by a Research Ethics Committee.	Yes ☐	No ☐
I give permission for material/data to be stored for *possible future research unrelated* to the current study *only if consent is*	Yes ☐	No ☐

obtained at the time of the future research but only if the research is approved by a Research Ethics Committee.		
I give permission for material/data to be stored for *possible future research unrelated* to the current study *without further consent* being required but only if the research is approved by a Research Ethics Committee.	Yes □	No □
I agree that some future research projects may be carried out by researchers working for commercial/pharmaceutical companies.	Yes □	No □
I understand I will not be entitled to a share of any profits that may arise from the future use of my material/data or products derived from it.	Yes □	No □

Participant Name (Block Capitals)

Participant Signature

Date

To be completed by the Principal Investigator or nominee.

I, the undersigned, have taken the time to fully explain to the above participant the nature and purpose of this study in a way that they could understand. I have explained the risks involved as well as the possible benefits. I have invited them to ask questions on any aspect of the study that concerned them.

Name (Block Capitals)

Signature

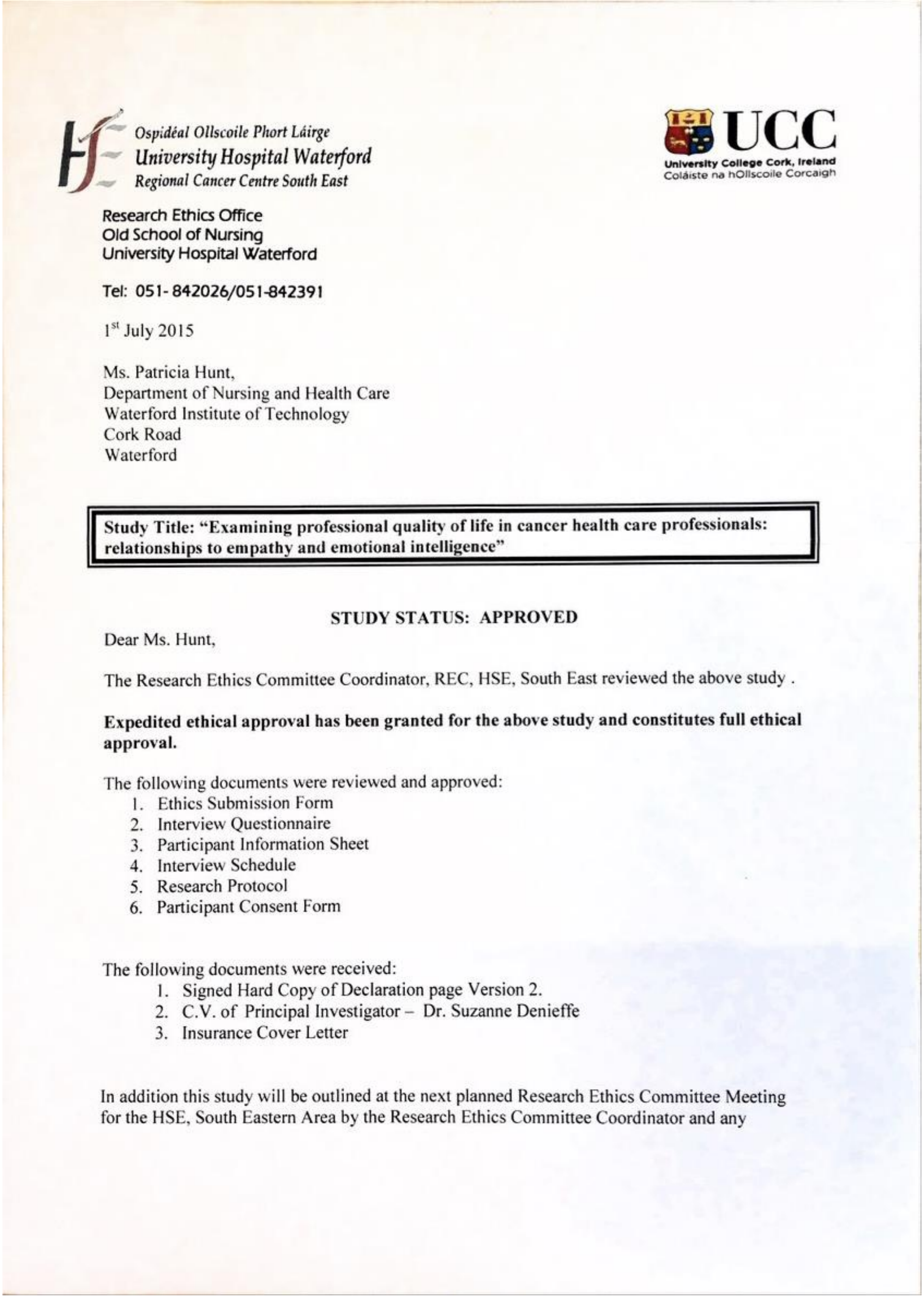
Qualifications

Date

2 copies to be made: 1 for participant, 1 for PI.

Appendix XI

Ethics approval: Phase I



Ospidéal Ollscoile Phort Láirge
University Hospital Waterford
Regional Cancer Centre South East

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Research Ethics Office
Old School of Nursing
University Hospital Waterford

Tel: 051- 842026/051-842391

1st July 2015

Ms. Patricia Hunt,
Department of Nursing and Health Care
Waterford Institute of Technology
Cork Road
Waterford

Study Title: "Examining professional quality of life in cancer health care professionals: relationships to empathy and emotional intelligence"

STUDY STATUS: APPROVED

Dear Ms. Hunt,

The Research Ethics Committee Coordinator, REC, HSE, South East reviewed the above study .

Expedited ethical approval has been granted for the above study and constitutes full ethical approval.

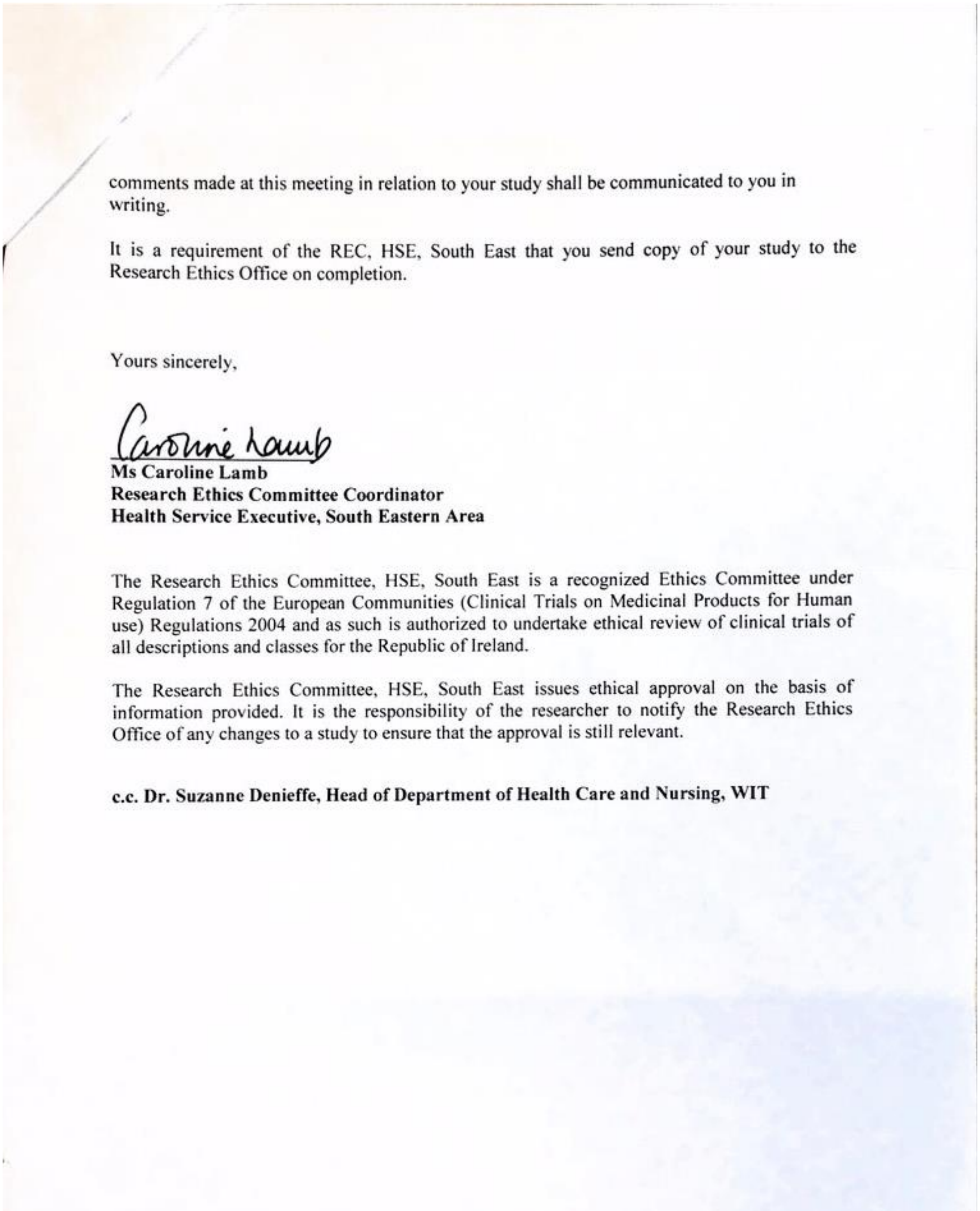
The following documents were reviewed and approved:

1. Ethics Submission Form
2. Interview Questionnaire
3. Participant Information Sheet
4. Interview Schedule
5. Research Protocol
6. Participant Consent Form

The following documents were received:

1. Signed Hard Copy of Declaration page Version 2.
2. C.V. of Principal Investigator – Dr. Suzanne Denieffe
3. Insurance Cover Letter

In addition this study will be outlined at the next planned Research Ethics Committee Meeting for the HSE, South Eastern Area by the Research Ethics Committee Coordinator and any



comments made at this meeting in relation to your study shall be communicated to you in writing.

It is a requirement of the REC, HSE, South East that you send copy of your study to the Research Ethics Office on completion.

Yours sincerely,

Caroline Lamb

Ms Caroline Lamb
Research Ethics Committee Coordinator
Health Service Executive, South Eastern Area

The Research Ethics Committee, HSE, South East is a recognized Ethics Committee under Regulation 7 of the European Communities (Clinical Trials on Medicinal Products for Human use) Regulations 2004 and as such is authorized to undertake ethical review of clinical trials of all descriptions and classes for the Republic of Ireland.

The Research Ethics Committee, HSE, South East issues ethical approval on the basis of information provided. It is the responsibility of the researcher to notify the Research Ethics Office of any changes to a study to ensure that the approval is still relevant.

c.c. Dr. Suzanne Denieffe, Head of Department of Health Care and Nursing, WIT

Appendix XII

Ethics approval: Phase II

E-mail confirmation as unable to access letter in office file due to COVID-19 restrictions

From: Lamb, Caroline <Caroline.Lamb2@hse.ie>
Sent: Wednesday, October 10, 2018 11:55:53 AM
To: Patricia Hunt
Cc: [redacted]
Subject: RE: Ethics submission for 8th October meeting

Dear Trish,

I have reviewed your ethics amendment and am happy to grant you **expedited ethical approval**. You will not need to present this amendment to the Research Ethics Committee as this constitutes full ethical approval we will send a letter confirming this.

You may commence your study on receipt of this email.

I would appreciate it if you would send a copy of your study to the Research Ethics Office on completion.

Good luck with your study.

Kind Regards

Caroline

Please be advised that I work in the office two days a week:
Working Hours: Weds 07.30-14.06, Thurs 07.30-17.30
Caroline Lamb
Research Ethics Committee Coordinator
HSE South-Eastern Area
051 842026
E-Mail: Caroline.Lamb2@hse.ie

Appendix XIII

Epigeum training confirmation

Social and Behavioural Sciences

Course quiz

! Text/print version " Help and support

#5mins

Course quiz

Please note that your Certification quiz results (whether you passed or failed and your percentage score) will be reported to your institutional administrator.

Conducting your research with integrity is a process without end. This quiz is not the end, but the beginning of that process. It is designed to give you feedback on how well you have absorbed the lessons of this course.

There is one correct answer for each question; once you have selected the response you feel is appropriate for each question, click the 'Check answers' button to receive your score. Reflect on your performance and revisit any sections that need further work.

Congratulations
Your score was 91%, meaning you have passed this course.
The questions you answered incorrectly (or incompletely) are listed below.

When should a publication's author list be decided? **Your Answer:** When the project is proposed

Appendix XIV

Study research outputs

Peer reviewed journal articles

Hunt P, Denieffe S and Gooney M (2019) Running on empathy: relationship of empathy to compassion satisfaction and compassion fatigue in cancer healthcare professionals. *European Journal of Cancer Care* 28(5) e13124

Hunt P, Denieffe S and Gooney M (2017) Burnout in nursing: relationship to empathy. *Journal of Research in Nursing* 22(1-2) 7-22.

Conference poster presentations

Hunt P, Denieffe S and Gooney M Compassion satisfaction and compassion fatigue in cancer nurses: relationships to empathy. *European Oncology Nursing Society Conference, Dublin, 17-18 October 2016*

Hunt P, Denieffe S, Hennessy A, Keenleyside M and Gooney M Nurses and radiation therapists' professional quality of life: comparisons of levels of compassion satisfaction and compassion fatigue. *International Psycho-oncology Society Conference, Dublin, 19 – 21 October 2016*

Hunt P, Denieffe S and Gooney M Examining compassion fatigue in cancer health care professionals: relationships to empathy and emotional intelligence. *Waterford Institute of Technology Research Day, Waterford, Ireland. April 28, 2015.*

Conference oral presentation:

Hunt P Nurses and radiation therapists' professional quality of life: comparisons of levels of compassion satisfaction and compassion fatigue *at University Hospital Waterford and Royal College of Surgeons Ireland Research Meeting 2016*

Awards

Successful Bursary Award for the first European Oncology Nursing Society research workshop for Doctoral students 2016 at Sterling University, Scotland.

WIT winner of best poster Arts, Humanities and Social Sciences at WIT Research Day (2015)

Journal of Research in Nursing
2017, Vol. 22(1–2) 7–22

DOI: 10.1177/1744987116678902
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SAGE

Burnout and its relationship to empathy in nursing: a review of the literature

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Martina Gooney
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Abstract

Compassion and empathy are viewed as important by both nurses and patients. The positive emotions that nurses feel as a result of compassionate and empathic practice are known as compassion satisfaction, whilst the negative consequences are known as burnout and compassion fatigue. Empathy has two distinct components: emotional empathy, which involves feeling the emotions of another, and cognitive empathy, which relates to self-regulation of the emotion felt. The purpose of this literature review is to examine the relationship between burnout and empathy in the nursing literature. The results suggest that the relationship between these constructs is complex, and an ability to self-regulate emotions during empathic engagement may reduce the risk of burnout. The implications for nurses, health care organisations, educators and health care policy makers are discussed. This review provides insight into how adaptive empathic engagement may reduce the risk of burnout.

Keywords

burnout, compassion, compassion satisfaction, empathy, nursing

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Email: phunt@wit.ie

Introduction

The need for compassion is high on the nursing agenda both in the United Kingdom (Department of Health, 2012) and Ireland (Health Service Executive, 2016). Delivering compassionate care requires nurses to engage in empathic interactions with patients, highlighting the emotional nature of nursing work. For some nurses, emotional work can result in compassion satisfaction (Hooper et al., 2010; Slocum-Gori et al., 2011; Smart et al., 2014), but for others it increases the risk of burnout, emotional exhaustion and compassion fatigue (Abendroth and Flannery, 2006; Barnard et al., 2006; Galsema et al., 2006; Joinson, 1992; Slocum-Gori et al., 2011; Trufelli et al., 2008). Experiencing burnout could challenge nurses' ability to provide compassionate care as it is reported that experiencing the negative consequences of caring directly impacts on the provision of quality patient care (Dominguez-Gomez and Rutledge, 2009; Mealer and Jones, 2013; Poghosyan et al., 2010).

The purpose of this paper is to examine the relationship between burnout and empathy in the nursing literature. This review provides insight into how adaptive empathic engagement may reduce the risk of burnout. Implications for clinical practice and research are discussed in view of the findings.

Burnout

Burnout, which is defined as an erosion of engagement with ones' job (Schaufeli et al., 2009), happens gradually over time (Bakker and Costa, 2014; Boyle, 2011). This has both personal and interpersonal implications. The personal implications include overwhelming exhaustion and feelings of incompetence, whereas the interpersonal implications include cynicism and depersonalisation (Maslach et al., 2001). Two issues contribute to burnout and are brought together through a common factor, namely imbalance. First, a persistent imbalance between work demands, and work and personal resources, and second, an imbalance between personal and organisational values (Schaufeli et al., 2009). More recently burnout has been reconceptualised in that it sits on a continuum with burnout at one end and work engagement at the other (Schaufeli et al., 2009), but Maslach (2011) suggests that this may oversimplify the complexity and individual nuances of the constructs. Maslach (2011) proposes that prevention of burnout is key, suggesting a focus on building engagement in the workplace, coupled with interventions at an organisational level rather than at the individual level. This reconceptualisation reframes burnout in a preventative lens rather than a retrospective lens, with the preventative intervention focus being on developing worker engagement, and perhaps putting more emphasis on organisations to take some responsibility in the detection and prevention of burnout.

The Maslach Burnout Inventory (MBI) is the most commonly used and cited measure of burnout. The MBI is firmly grounded in the theory of burnout from which a model was developed comprising three dimensions: emotional exhaustion, depersonalisation and a low sense of personal accomplishment (Maslach, 2003; Maslach et al., 2001; Schaufeli et al., 2009; Trufelli et al., 2008).

Maslach et al. (2001) report that it is difficult to draw conclusions about the levels of burnout across countries as the majority of studies are cross sectional. The concept of burnout has been viewed by some as a component of compassion fatigue (Stamm, 2010), but is viewed independently by others (Maslach et al., 2001; Schaufeli et al., 2009).

The negative consequences of caring, such as burnout and compassion fatigue, are affected by many variables such as age, role speciality, workload, job satisfaction, hospital type, geographical location, personal coping strategies and resilience of the individual (Coetzee and Klopper, 2010; Slocum-Gori et al., 2011; Van Mol et al., 2015; Williams, 1989; Zeidner et al., 2013).

Reports of increased anxiety (Abendroth and Flannery, 2006), headaches (Abendroth and Flannery, 2006; Joinson, 1992), depression (Ostacoli et al., 2010), sleep disturbance, health-risk behaviour (Abendroth and Flannery, 2006) and reduced commitment to both the nursing profession (Coetzee and Klopper, 2010) and current role (Melvin, 2012) have been documented as high in nurses at high risk of burnout and compassion fatigue. For patients, the negative consequences of caring impacts on the quality of care received (Poghosyan et al., 2010), and for health care organisations the consequences include a loss of experienced nurses in practice (Perry et al., 2011; Sheppard, 2015; Sheward et al., 2005).

Burnout is slow and progressive, resulting from exposure to work-related stress with negative consequences for the individual and organisation. The hidden long-term costs for healthcare organisations suggest a percentage of a workforce that is suffering, and may have an intention to leave nursing as a direct result of emotion work, a lack of rewards, or as a consequence of the imbalance between organisational and personal values (Leiter and Maslach, 2009).

Empathy

Empathy is a prosocial behaviour that is beneficial to others (Penner et al., 2005), and is fundamental to ethical nursing practice (Austin et al., 2009). Empathy has both affective and cognitive components, and includes a recognition that the source of the emotion felt is not one's own (Cuff et al., 2016: p.150). The affective component relates to sharing the emotions of the other person (Decety and Hodges, 2006). This sharing of emotions, or emotional contagion, is an automatic response (Decety and Lamm, 2006) and necessary for empathic encounters. Sharing emotions for the empathiser either leads to feelings of empathic concern (Decety and Yoder, 2015) or, if emotions are over aroused, there may be feelings of personal distress (Rushton et al., 2013). Both empathic concern and personal distress activate empathic action (Batson and Shaw, 1991). When experiencing personal distress, the aim of empathic action will be to relieve one's own distress, and may include taking no action to relieve the others' distress (Batson and Shaw, 1991; Rushton et al., 2013). Considering compassion requires motivation to relieve patients' distress (Ledoux, 2015; McCaffrey and McConnell, 2015; Schantz, 2007); a lack of action to relieve others' distress may indicate an inability to provide compassionate care. In contrast, experiencing empathic concern will motivate altruistic action (Batson and Shaw, 1991). This motivation will engage cognitive empathy or perspective taking (Decety and Yoder, 2015).

Cognitive empathy is 'the capacity to understand others' internal states' (Eisenberg et al., 1997: p.73). This perspective-taking ability requires an intentional process to occur, and engages executive resources such as self-regulation and cognitive flexibility (Decety and Lamm, 2006). This means that the empathiser is able to manage and control their own emotions in relation to the other person's distress. Empathy as a prosocial behaviour is only possible when a person has the ability to regulate their own emotions, and is able to identify whose emotions belong to whom during empathic engagement (Batson and Shaw, 1991; Davis, 1983; Decety and Hodges, 2006; Decety and Lamm, 2006; Wiseman, 2007). These findings suggest empathy that engages altruistic action will be compassionate in nature.

Empathy that is adaptive in nature is clearly an important part of nursing, and how empathy might affect the risk of burnout is an area that should be better understood. This paper reviews the current literature to examine the relationship between burnout and empathy in adult nursing. The implications of the results of this review for practice, education and policy are discussed.

Review objectives

The objectives of this review are to:

- identify and summarise published papers on burnout and its relationship to empathy in adult general nursing;
- identify associated issues for clinical practice in nursing, nurse education and policy.

Methodology

Searches were conducted on The Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE and PsycINFO databases. Search terms of abstracts included burnout, empath* and nurs*. Date parameters were set at January 1983–January 2016. Inclusion and exclusion criteria (Table 1) were used to identify key literature. A flow chart of the process of literature selection is provided (Figure 1). Two areas of nursing excluded from the review were paediatric nursing and mental health nursing. These specialties were considered sufficiently different in clinical specialism to be excluded. Two papers included in the review, Omdahl and O'Donnell (1999) and Ferri et al. (2015), included paediatric nurses and student nurse participants, respectively. The rationale for including these studies is that there was sufficient analysis within the study by Ferri et al. (2015) to extrapolate results for registered nurses, and only four paediatric nurses ($n = 163$) were included in the analysis by Omdahl and O'Donnell.

Results of the literature review

Five studies met the inclusion criteria (Table 2). The studies gathered demographic variables including age, gender and years in nursing. Job stress variables were examined by Lee et al. (2003) and Ferri et al. (2015); shift type and hospital type were examined by Lee et al. (2003). Omdahl and O'Donnell (1999) gathered information on nurses' role specialisation. Pålsson

Table 1. Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Published academic literature	Unpublished theses
English language papers	Non-English language papers
Registered nurse participants	Health professions other than nurses
Primary research	Paediatric and neonatal specialities
	Mental health
	Midwives
	Student nurses

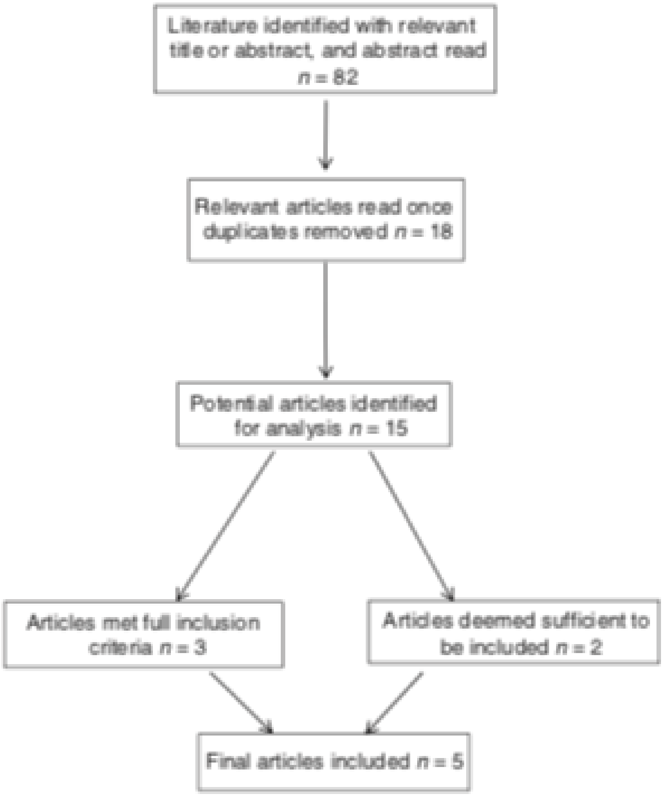

Figure 1. Flow chart of literature selection process.

et al. (1996) described demographic information but did not report on any differences. The findings suggest that burnout may decrease with age (Lee et al., 2003) and that empathic tendency decreases with age (Ferri et al., 2015). Years of experience did not correlate with burnout (Omdahl and O'Donnell, 1999).

Participant numbers varied from 25 to 164 (total participants in the five studies, $n = 562$). Participant gender was predominantly female ($n = 521$). Lee et al. (2003) and Pålsson et al. (1996) recruited only females, and the remaining three studies recruited a small percentage of male participants. Only Ferri et al. (2015) were able to report on gender differences where females demonstrated a superior empathic predisposition in comparison to males.

Four of the studies (Ferri et al., 2015; Lee et al., 2003; Omdahl and O'Donnell, 1999; Tei et al., 2014) used the MBI, and Pålsson et al. (1996) used The Burnout Measure. Two studies did not use the MBI in full. Tei et al. (2014) measured only the negative aspects of burnout, namely emotional exhaustion and depersonalisation. Omdahl and O'Donnell (1999) used 21 out of a possible 22 items on the MBI, and altered the scale from 7 to 5 Likert responses, and they reported such changes had previously been tested for validity and reliability.

Five different measures of empathy were used. Tei et al. (2014) and Lee et al. (2003) used a measure of both cognitive and emotional empathy. Pålsson et al. (1996) did not identify whether the empathy tool measured emotional or cognitive or both dimensions of empathy. Omdahl and O'Donnell (1999) and Ferri et al. (2015) used measures of emotional empathy.

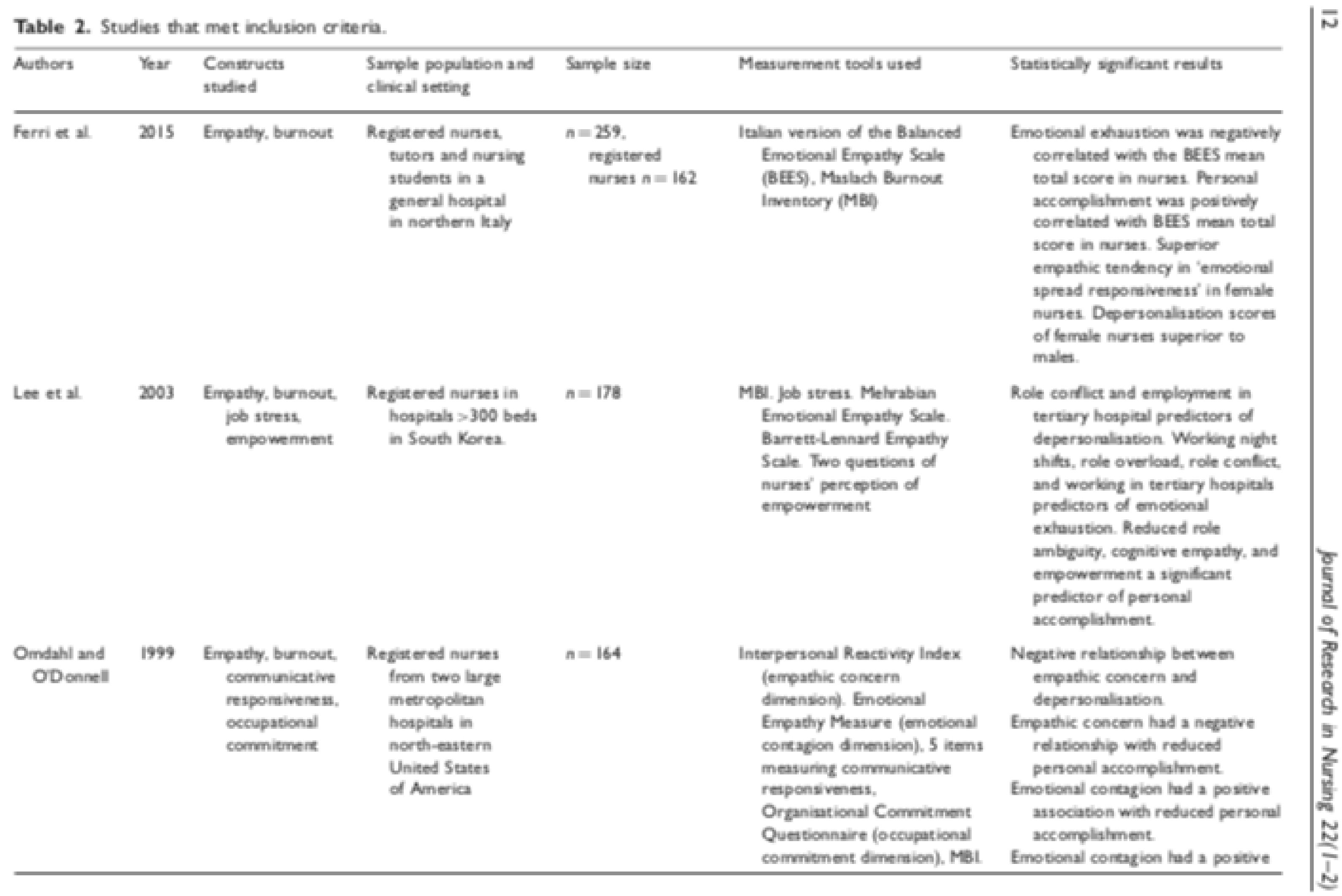

Table 2. Studies that met inclusion criteria.

Authors	Year	Constructs studied	Sample population and clinical setting	Sample size	Measurement tools used	Statistically significant results
Ferri et al.	2015	Empathy, burnout	Registered nurses, tutors and nursing students in a general hospital in northern Italy	$n = 259$, registered nurses $n = 162$	Italian version of the Balanced Emotional Empathy Scale (BEES), Maslach Burnout Inventory (MBI)	Emotional exhaustion was negatively correlated with the BEES mean total score in nurses. Personal accomplishment was positively correlated with BEES mean total score in nurses. Superior empathic tendency in 'emotional spread responsiveness' in female nurses. Depersonalisation scores of female nurses superior to males.
Lee et al.	2003	Empathy, burnout, job stress, empowerment	Registered nurses in hospitals >300 beds in South Korea.	$n = 178$	MBI. Job stress. Mehrabian Emotional Empathy Scale. Barrett-Lennard Empathy Scale. Two questions of nurses' perception of empowerment	Role conflict and employment in tertiary hospital predictors of depersonalisation. Working night shifts, role overload, role conflict, and working in tertiary hospitals predictors of emotional exhaustion. Reduced role ambiguity, cognitive empathy, and empowerment a significant predictor of personal accomplishment.
Omdahl and O'Donnell	1999	Empathy, burnout, communicative responsiveness, occupational commitment	Registered nurses from two large metropolitan hospitals in north-eastern United States of America	$n = 164$	Interpersonal Reactivity Index (empathic concern dimension). Emotional Empathy Measure (emotional contagion dimension), 5 items measuring communicative responsiveness, Organisational Commitment Questionnaire (occupational commitment dimension), MBI.	Negative relationship between empathic concern and depersonalisation. Empathic concern had a negative relationship with reduced personal accomplishment. Emotional contagion had a positive association with reduced personal accomplishment. Emotional contagion had a positive

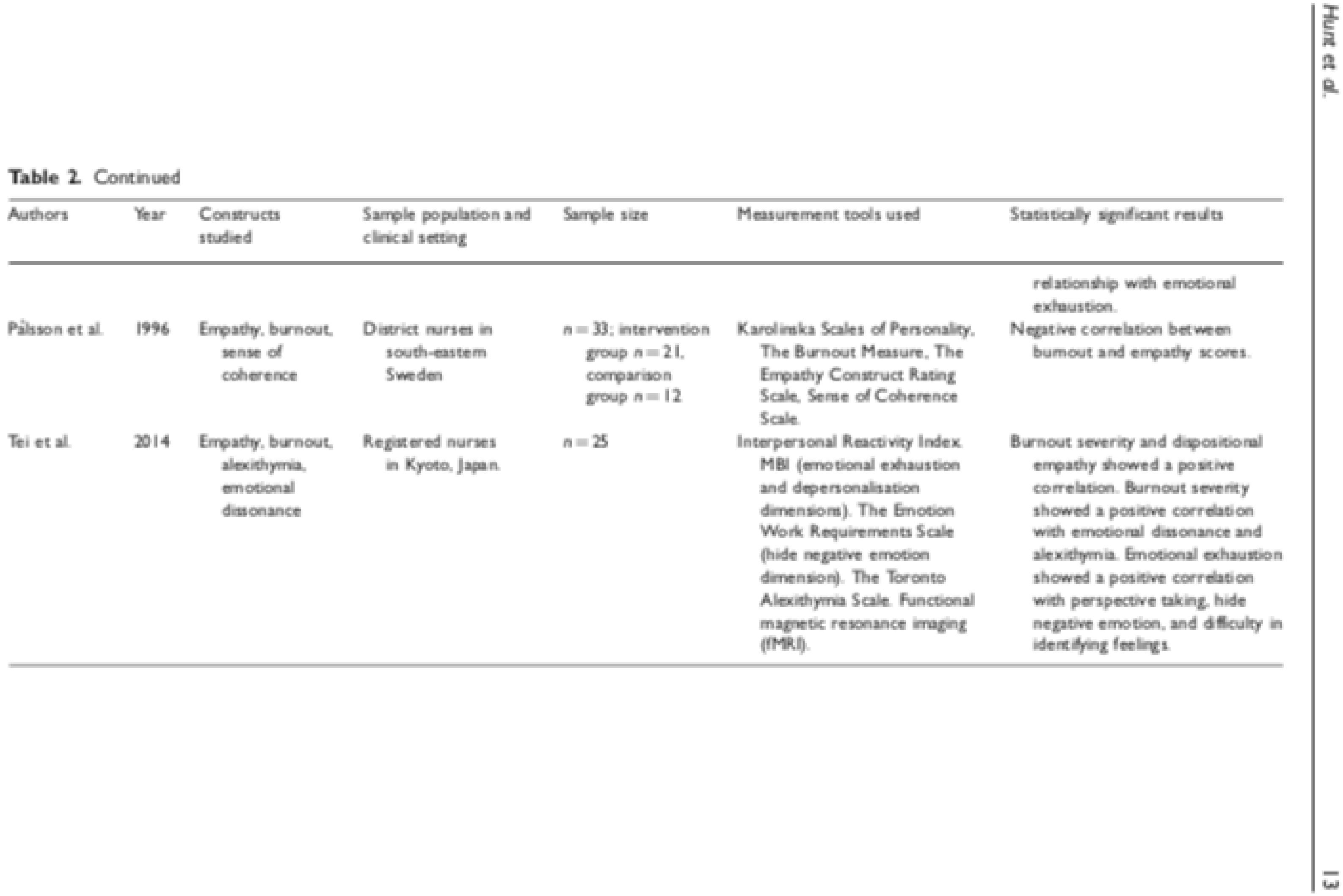

Table 2. Continued

Authors	Year	Constructs studied	Sample population and clinical setting	Sample size	Measurement tools used	Statistically significant results
						relationship with emotional exhaustion.
Pålsson et al.	1996	Empathy, burnout, sense of coherence	District nurses in south-eastern Sweden	$n = 33$; intervention group $n = 21$, comparison group $n = 12$	Karolinska Scales of Personality, The Burnout Measure, The Empathy Construct Rating Scale, Sense of Coherence Scale.	Negative correlation between burnout and empathy scores.
Tei et al.	2014	Empathy, burnout, alexithymia, emotional dissonance	Registered nurses in Kyoto, Japan.	$n = 25$	Interpersonal Reactivity Index. MBI (emotional exhaustion and depersonalisation dimensions). The Emotion Work Requirements Scale (hide negative emotion dimension). The Toronto Alexithymia Scale. Functional magnetic resonance imaging (fMRI).	Burnout severity and dispositional empathy showed a positive correlation. Burnout severity showed a positive correlation with emotional dissonance and alexithymia. Emotional exhaustion showed a positive correlation with perspective taking, hide negative emotion, and difficulty in identifying feelings.

Only one study (Ferri et al., 2015) used a measure of empathy and burnout exclusively. The remaining four studies gathered additional information on a variety of constructs, such as empowerment, alexithymia, sense of coherence, occupational commitment and communicative responsiveness. All studies used self-report instruments.

Three studies indicated that nurses with lower empathy scores reported higher burnout scores in either depersonalisation and emotional exhaustion or both (Ferri et al., 2015; Omdahl and O'Donnell, 1999; Pålsson et al., 1996). Pålsson et al. (1996) did not report any distinction between cognitive and emotional empathy, whilst Ferri et al. (2015) and Omdahl and O'Donnell (1999) measured emotional empathy only. The results differ somewhat from those of Lee et al. (2003).

Lee et al. (2003) reported that nurses with higher cognitive empathy revealed lower scores on burnout dimensions, but no association between emotional empathy and any burnout dimension was reported. Lee concludes that in this study nurses showing simultaneous inadequate levels of cognitive empathy and high levels of emotional empathy may have difficulty in detaching from patient problems.

Contradictory to the other studies, Tei et al. (2014) found that nurses with greater self-reported empathic disposition did have higher burnout scores. The addition of functional magnetic resonance imaging (fMRI) in this study enabled Tei et al. to conclude that these nurses also had reduced empathy-related brain activity, indicating that these nurses may have difficulty in identifying their own emotional reactions.

Personal accomplishment was measured in three studies (Ferri et al., 2015; Lee et al., 2003; Omdahl and O'Donnell, 1999). Nurses reporting higher levels of empathy reported higher scores in personal accomplishment (Ferri et al., 2015) and Omdahl and O'Donnell (1999) indicate that nurses reported higher personal accomplishment if they had higher empathic concern and lower emotional contagion. However, Lee et al. (2003) reported that only nurses' cognitive empathy, and not emotional empathy, was positively related to personal accomplishment

Discussion

This review sought to examine the relationship between burnout and empathy in adult nursing. All of the studies included used quantitative research designs, namely measuring the concepts of burnout and empathy using self-report questionnaires. The use of different measurement tools across the five studies made comparisons difficult. No qualitative studies were identified exploring both concepts together, although these have been explored individually (Austin et al., 2009; Melvin, 2012; Stayt, 2009; Wiseman, 2007). The predominant use of quantitative methods in empathy research has been questioned (Burks and Kobus, 2012; Pedersen, 2009), particularly as it is argued that qualitative research makes an important contribution to theory development (Bergdahl and Berterö, 2015). Utilisation of both qualitative and quantitative research approaches could strengthen theory development of empathy and burnout.

Three demographic variables, age, experience and gender, are worthy of discussion. The findings suggest burnout decreases with age (Lee et al., 2003), which is consistent with other studies (Hunsaker et al., 2015; Williams, 1989). The review also indicated that burnout does not increase with experience (Omdahl and O'Donnell, 1999), which is supported in studies of nurses and other health care professionals (Gleichgerrcht and Decety, 2013; Hooper et al., 2010; Raižienė and Endriulaitienė, 2007). These findings can be interpreted on two levels.

First, increasing age and experience can lead to greater autonomy at work (Amini et al., 2015) and may allow for the development of high quality relationships with leaders and colleagues (Bishop, 2013), both of which have been suggested as possible job resource buffers in the development of burnout according to the Job Demands-Resources Model (JD-RM; Bakker and Demerouti, 2006; Bakker et al., 2005). The JD-RM proposes that high job demands relate to job strain leading to exhaustion, whereas job resources relate to job motivation, where a lack of job resources leads to disengagement at work (Bakker and Demerouti, 2006; Demerouti et al., 2001) and depersonalisation (Zapf et al., 2001). Second, findings relating to age and experience might indicate that nurses who have already experienced burnout have left the profession (Raižienė and Endriulaitienė, 2007) or choose not to participate in research of this nature. Only one study (Ferri et al., 2015) was able to examine gender differences, and this indicated that females demonstrated higher empathic predisposition than males. This is consistent with other studies in nursing (Williams, 1989) and in medicine (Gleichgerrcht and Decety, 2013; Hojat et al., 2002), but highlights the need to include male and female nurse participants in studies so that meaningful conclusions can be drawn.

The conclusions of this review indicate a complex but important relationship between empathy and burnout. There was a negative correlation between burnout and empathy in three of the studies (Ferri et al., 2015; Omdahl and O'Donnell, 1999; Pålsson et al., 1996), although a positive correlation was found between emotional contagion and burnout by Omdahl and O'Donnell (1999), indicating nurses who absorb the emotional distress of the patients may be at higher risk of burnout. Two of these studies used measures of emotional empathy, and Pålsson et al. (1996) used a global unidimensional empathy measure. It is with the addition of a measure of cognitive empathy that the results become interesting, indicating a crucial nuance in the relationship between emotional and cognitive empathy, and burnout. Lee et al. (2003) found that some nurses experienced low levels of cognitive empathy whilst also experiencing high levels of emotional empathy. They suggest that nurses with these empathy characteristics may not be able to deal effectively with the emotional burden of distressing clinical situations, thus increasing the risk of burnout. Although nurses identify empathy as an important part of ethical practice (Austin et al., 2009), there is a risk of over-arousal when engaging empathically with patients. Emotion work, such as nursing, has been identified as being demanding on personal resources, and if not supported by an increase in resources may have negative consequences (Zapf, 2002). Hospice nurses who overly identify emotionally with patients, that is, vicariously experiencing patients' distress, were at higher risk of compassion fatigue than those who do not (Abendroth and Flannery, 2006). Emotional over-arousal and an inability to regulate one's own emotions may contribute to moral distress in health care professionals (Rushton et al., 2013). Overall, these findings theoretically suggest that the emotional demands of being empathic need to be buffered by an increase in resources. These resources may be intrinsic, for example employing adaptive cognitive empathy, or extrinsic, for instance further support from the organisation in the form of managerial support or further education. These results also point to the importance of using a multi-dimensional empathy instrument in research that encompasses both cognitive and emotional components.

Advances in social neuroscience empathy research indicate that there is a close interaction between emotional and cognitive empathy (Goerlich-Dobre et al., 2015). The automatic 'bottom-up' emotional empathic process is where emotional contagion or emotional over-arousal may induce personal distress (Decety and Lamm, 2006). The cognitive process or intentional 'top–down' empathic process enables self-regulation of emotions to occur (Decety and Lamm, 2006). The evidence from Decety and Lamm (2006) points to a necessary ability to regulate one's own emotions in order to control emotional over-arousal when empathising with another individual. Regulation of one's own emotions is a part of emotion management, and this appears to be important in lowering the risk of compassion fatigue and burnout (Zeidner et al., 2013). Tentative conclusions between the advances in social neuroscience empathy research and the study by Lee et al. (2003) can be inferred. It may be that when some nurses were experiencing empathy, the automatic process of emotional empathy was causing over-arousal of negative emotions. At the same time the intentional cognitive process was not engaging self-regulation of these emotions, leading to higher burnout scores. This may indicate a reduced emotion regulation ability in these nurses.

The addition of fMRI imaging to the study by Tei et al. (2014) enabled the researchers to conclude that some nurses with greater self-reported empathy and higher burnout scores also showed reduced empathy-related brain activity. This indicated that these nurses may have difficulty in identifying their own emotional reactions (Tei et al., 2014), which is an important factor in self-regulation. Self-regulation has been described as self-awareness during empathic engagement with patients, present in nurses with well-developed empathy skills (Wiseman, 2007), protective against burnout (Visintini et al., 1996), and is an important component of compassionate care (Van Der Cingel, 2009).

The implications of these findings suggest that whether nurses have high or low empathy there still seems to be a risk of burnout for some; but emotion regulation appears crucial. Without the ability to regulate one's own emotions, excessive emotional empathy may be detrimental to the wellbeing of the nurse. It is postulated that emotional empathy is only useful to the patient if it results in action by the nurse (Morse et al., 2006). However, it appears from this review that emotional empathy may only be useful to the nurse and the patient if the nurse employs cognitive empathy in an adaptive way, that is, with an ability to emotionally self-regulate. The concept of regulating one's own emotions is a part of emotional intelligence (Mayer et al., 2004). A study of physicians, social workers and psychologists found that those higher in emotional intelligence reported lower burnout and secondary traumatic stress (Zeidner et al., 2013). It could be theorised that nurses who are more emotionally intelligent may be at lower risk of the negative consequences of caring when they engage empathically with patients, as they will be better able to engage in the intentional cognitive empathic process.

It is important to acknowledge that studies have shown that individual nurses experience compassion satisfaction and personal accomplishment (Morrison and Korol, 2014; Williams, 1989). Three of the studies in this review measured personal accomplishment. High levels of empathy were reported in nurses who reported higher scores of the personal accomplishment factor in the MBI (Ferri et al., 2015; Omdahl and O'Donnell, 1999), although Lee et al. (2003) reported this finding with cognitive and not emotional empathy. Utrianinen et al. (2015) suggest that it is timely that the positive aspects of nursing work are researched. Therefore there is an argument for investigating both the positive and negative aspects of nursing work concurrently, particularly in light of the reconceptualisation of burnout on a continuum with work engagement (Schaufeli et al., 2009).

This review points to a possibility that nurses who are less able to self-regulate their emotions during empathic engagement may be at higher risk of burnout. Unfortunately, the cultural spread of studies in this review makes it difficult to draw general conclusions.

Indeed, it is not known whether the nurses in these studies were aware of their emotions or had an ability to identify the emotions they were feeling. It may be important that nurses are taught, and continue to develop, emotion regulation strategies through pre- and post-registration education. Neumann et al. (2009) argue that empathy can be learned and improved. Nurses who have undertaken empathy-related training have been identified as showing higher empathy scores than those who have not had training (Kuo et al., 2012). A workforce that is able to develop healthy empathic engagement is particularly important, as empathy in health care practice has been shown to improve patient outcomes and patient decision making (Lelorain et al., 2012; Parkin et al., 2014), and may be beneficial in avoiding burnout (Raižienė and Endriulaitienė, 2007). Researchers argue that measures should be implemented by organisations and educators to maintain empathy levels (Burks et al., 2012). In order for nurses to develop empathic skills and resilience to the negative consequences of caring, policy makers, health care organisations and educators have to work together to develop a strategic direction in developing empathy and compassion.

Limitations of the studies

All studies except that of Omdahl and O'Donnell (1999) reported on limitations of the research. The limitations fall into four categories. The first relates to study design and methods. One study used clinical supervision as an intervention (Pålsson et al., 1996), four of the studies used a descriptive cross-sectional design, and none reported on a sampling frame (Ferri et al., 2015; Lee et al., 2003; Omdahl and O'Donnell, 1999; Tei et al., 2014). A cross-sectional study design is useful as it is inexpensive, data is collected at a single point in time, and relationships between constructs can be described (Bowling, 2002). However, studies using a cross-sectional design limit the applicability of findings beyond the study population, particularly if a sampling frame has not been reported, and causal relationships between variables cannot be determined. The use of more robust methods such as structural equation modelling (Leiter and Maslach, 2009) would determine variable relationships in a proposed model.

The second limitation relates to conceptual clarity. Defining a concept is important to provide the theoretical underpinning for testing relationships between variables (Carter and Henderson, 2005). Only two studies provided a definition of each of the concepts being measured (Ferri et al., 2015; Omdahl and O'Donnell, 1999), but neither of these studies made the distinction between the emotional and cognitive dimensions of empathy. Lee et al. (2003) made the distinction between cognitive and emotional empathy, which was important to the framework of the study. It is incumbent on researchers to clearly describe the concepts to be measured. This enables study variables to be tested and results to be interpreted in the context of current theory. In doing this, the study findings build on current theory and provide meaning to clinical practice. Additionally, concepts direct the choice of appropriate research design and measurement tools in a study.

The third limitation relates to the validation of measures and the use of self-report questionnaires. Measurement tools should be tested for validity and reliability to ensure they are measuring what they purport to measure in the population of interest (Bowling, 2005). All but one of the studies in this review used the MBI to measure burnout. The MBI is a robust measurement tool that has been tested for validity and reliability in many languages, and is being used increasingly in health care research (Trufelli et al., 2008).

However, comparisons between studies were complicated as five different measures of empathy were used.

Although self-report questionnaires are inexpensive and easy to administer, one limitation is that people may be poor judges of their own abilities (Cherniss, 2010), and although this notion has been challenged (Ackerman et al., 2002), there is a reported potential to 'fake' responses (Tett et al., 2012); and a second is that self-report questionnaires may produce different responses to those elicited in face-to-face interviewing (Bowling, 2002). A solution may be to combine qualitative and quantitative methods within studies.

The fourth limitation relates to the geographical spread of the studies. The studies crossed three continents, Asia, Europe and the United States of America. Clearly, this makes comparisons across studies difficult. For example, Lee et al. (2003) reported much higher levels of burnout in Korean nurses than in previous studies across other continents. Cross-cultural validation of instruments is time consuming and requires a rigorous approach to ensuring validity and reliability are established in different cultures (Sousa and Rojjanasrirat, 2011). These findings support the importance of cultural context in research and the need for rigorous psychometric testing of translated instruments, as well as highlight the differences in individuals and health care organisations across the globe.

Implications

The results of this review have implications for nursing practice, nurse education, nursing research and health care policy, although these have to be viewed with caution as none of the studies were conducted in Ireland or the UK. The cultural differences in nursing in Ireland and the UK may reveal different results from the studies included in this review. Evidence suggests that burnout is higher in the Japanese, US and Canadian workforce, but the majority of studies do not use random sampling so it is difficult to draw firm conclusions (Maslach et al., 2001). However, saying that, compassion is high on the nursing agenda in the UK and Ireland (Department of Health, 2012; Health Service Executive, 2016), and it is known that burnout is present in the nursing profession in the UK (Sheward et al., 2005; Trufelli et al., 2008), therefore it would be pertinent to address the risk of burnout as part of the nursing agenda. The complex relationship identified between empathy and burnout in this review indicates that neither should be addressed in isolation. Health care organisations can work to identify nurses at high risk of burnout before nurses leave the profession. Provision of a supportive environment where nurses feel able to discuss burnout without risk of stigma, and ongoing professional education in health care organisations regarding the risks of burnout and the importance of healthy empathic engagement, could be implemented.

This review suggests that an ability to self-regulate emotions during empathic engagement may be an important factor in reducing the risk of burnout in nurses, but there are too few studies with a wide geographical spread to draw firm conclusions. This points to a need to undertake studies examining the relationship between burnout and empathy, particularly in the UK and Ireland. Academic institutions are well placed to undertake such research, and could work closely with health care organisations to recruit to such studies. Finally, researchers should use instruments that measure cognitive and emotional empathy, both the positive and negative consequences of clinical practice, and identify the reasons why some nurses do not participate in research of this nature. Nurses who do not participate in this type of research may be a particularly vulnerable group as the reasons for non-participation are currently unknown.

Conclusion

This paper has attempted to summarise published papers on burnout and its relationship to empathy in adult general nursing. The studies reviewed measured burnout and empathy. The results of this review demonstrate that there is a complex relationship between the two constructs of empathy and burnout. Tentative findings suggest that to reduce the risks of burnout over-arousal during the engagement of emotional empathy requires a well-developed ability to self-regulate emotions during the process of cognitive empathy. The results imply a need to evaluate both cognitive and emotional aspects of empathy, and to include measures of work engagement along with burnout.

If burnout is to be addressed, policy developers, academic institutions and health care organisations have a responsibility to undertake robust research in this area, and provide support and interventions for those nurses at high risk. This research and support could be undertaken in the context of the JD-RM, where the emotional nature of empathising with patients in distress could be seen as a high job demand, and cognitive empathy could be viewed as a job resource. This model could provide a framework for supportive interventions, such as the provision of educational initiatives to improve cognitive empathy and emotion self-regulation, and improving organisational commitment in providing a better balance between work demands and nurses' and organisations' values.

Key points for policy, practice and/or research

- For some nurses, burnout is a consequence of empathic and compassionate practice.
- Nurses need to manage the emotional aspects of empathy and possess well-developed cognitive empathy that includes self-regulation of emotions.
- The ability to self-regulate emotions during empathic engagement in clinical practice may reduce the risk of burnout.
- Health care organisations, policy makers and educators should address strategies that promote the development of adaptive empathy skills in nurses.

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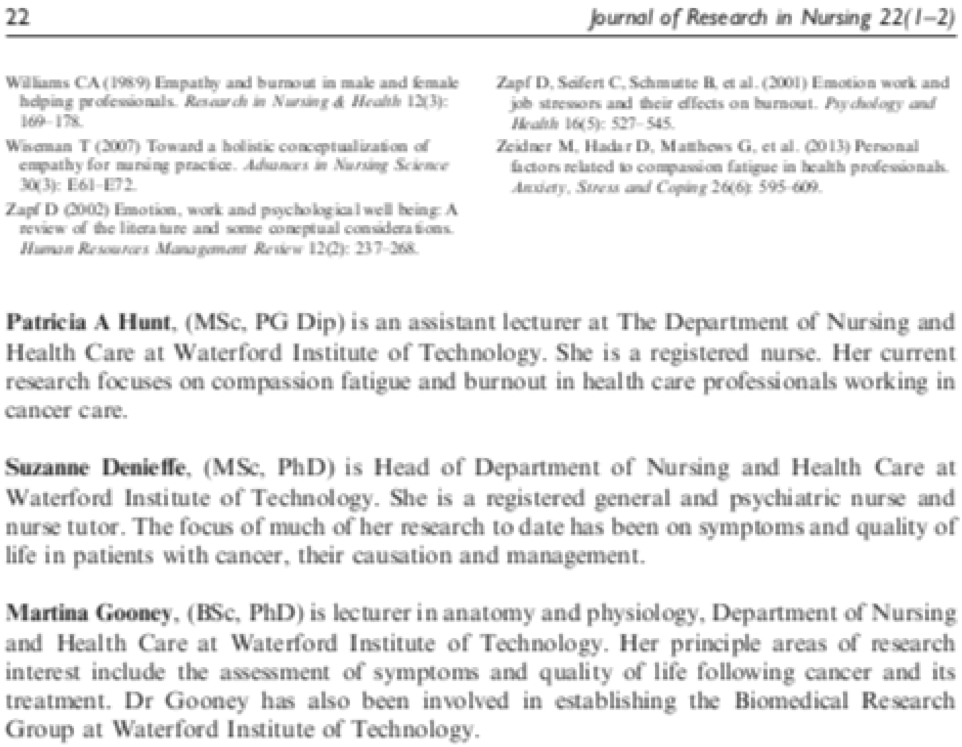

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ORIGINAL ARTICLE

Running on empathy: Relationship of empathy to compassion satisfaction and compassion fatigue in cancer healthcare professionals

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Abstract

Objective: The aim of this study is to examine the relationship of empathy and professional quality of life in cancer healthcare professionals.

Methods: A Professional Quality of Life instrument measuring compassion satisfaction and compassion fatigue, and the Interpersonal Reactivity Index measuring empathy were distributed to healthcare professionals working in cancer care in the Republic of Ireland. Final analysis was conducted on 117 participants.

Results: A quarter of participants experience high levels of compassion satisfaction, and a quarter are at risk of compassion fatigue. A positive correlation was found between personal distress and compassion fatigue, and a negative correlation was found between personal distress and compassion satisfaction. A positive correlation was found between empathic concern and secondary traumatic stress.

Conclusion: These findings suggest that healthcare professionals working in cancer care are at risk of compassion fatigue. Also, healthcare professionals working in cancer care experience personal distress that may impact negatively on professional quality of life. Implications for practice include a need to identify those HCPs who are at risk of compassion fatigue. The implication for further research suggests further exploration of the impact of personal distress felt by cancer healthcare professionals during empathic engagement.

KEYWORDS
cancer healthcare professional, compassion fatigue, compassion satisfaction, empathy, personal distress, secondary traumatic stress

1 | INTRODUCTION

A diagnosis of cancer has physical and psychological consequences for patients and requires specialist interventions and support from healthcare professionals (HCP). Evidence suggests that healthcare professionals working in the area of cancer practice are committed to relieving the distress and suffering of patients and their families (Mok et al., 2010), and aim to improve cancer patient outcomes (Zhou et al., 2015). However, working in cancer care has been identified as stressful and complex (Cohen, Ferrell, Vrabel, Visovsky, & Schaefer, 2010), impacting negatively on well-being (Giarelli, Denigris, Fisher, Maley, & Nolan, 2016), and has been likened to climbing Mount Everest, in that it is work that the world at large could not tolerate (Rohan & Bausch, 2009). Although this highlights the intense, difficult and emotional nature of this clinical speciality, HCPs also value the satisfaction felt from caring for patients with cancer (Halkett et al., 2016; Hooper, Craig, Janvrin, Wetsel, & a., & Reimels, E., 2010; Rohan & Bausch, 2009).

Job satisfaction contributes to the professional quality of life of the HCP and relates to the quality of life felt as a result of the

work in the caring professions (Stamm, 2010). Compassion satisfaction (CS) encompasses the quality of the positive aspects of caring, whereas compassion fatigue (CF) links to the negative consequences of caring. Compassion fatigue is a measure of both burnout (BO) and secondary traumatic stress (STS: Stamm, 2010). Burnout relates to the feelings of hopelessness (Stamm, 2010), feelings of emotional exhaustion and cynicism (Maslach, Schaufeli, & Leiter, 2001). Secondary traumatic stress occurs when a person is exposed to people who have experienced a trauma (Stamm, 2010) and relates to the emotional and stressful result of wanting to help another person because of a traumatising event that person experienced (Figley, 1995). The impact of STS can result in depression, anxiety, irritability, sleep disturbances and absenteeism (Ludick & Figley, 2017). A unidirectional causal pathway from burnout to STS has been found in longitudinal studies of human service professions, suggesting that burnout contributes to the development of STS (Shoji et al., 2015).

The consequences for cancer HCPs of engaging in emotional work can result in feelings of CS, such as the thought of doing something positive for patients, and working as a team for the benefit of the patient (Grafton, Gillespie, & Henderson, 2010; Halkett et al., 2016; Hooper et al., 2010; Rohan & Bausch, 2009; Slocum-Gori, Hemsworth, Chan, Carson, & Kazanjian, 2011), but for some HCPs it can result in CF, emotional exhaustion and BO (Abendroth & Flannery, 2006; Barnard, Street, & Love, 2006; Joinson, 1992; Slocum-Gori et al., 2011; Trufelli et al., 2008).

To undertake the difficult and complex work of caring for patients with cancer, HCPs will employ a range of emotions, including empathy. Empathy is a prosocial behaviour used for the benefit of others (Penner., Dovidio., Piliavin., & Schroeder., 2005) and has both emotional and cognitive components. Empathy includes the ability to recognise that the emotions felt are not all one's own (Cuff, Brown, Taylor, & Howat, 2016). It involves sharing the emotions of another person, which is an automatic process (Decety & Lamm, 2006). This sharing of emotions leads to feelings of empathic concern (EC) for the empathiser (Decety & Yoder, 2015) but, if there is a personal identification with the emotions of the distressed person (Decety & Lamm, 2009), the empathiser may experience personal distress (Rushton, Kasniak, & Halifax, 2013).

Both empathic concern and personal distress (PD) activate empathic action (Batson & Shaw, 1991). When experiencing personal distress, the aim of empathic action will be to relieve one's own distress and may include taking no action to relieve the others' distress (Batson & Shaw, 1991; Rushton et al., 2013). In contrast, experiencing EC will motivate altruistic action (Batson & Shaw, 1991). This motivation will engage cognitive empathy or perspective-taking (Decety & Yoder, 2015).

Cognitive empathy is "the capacity to understand others internal states" (Eisenberg, Murphy, & Shepard, 1997: p73). Understanding others' internal states refers to a perspective-taking ability that is intentional in nature and engages executive resources such as self-regulation and cognitive flexibility (Decety & Lamm, 2006), where the empathiser is able to identify whose emotions belong to whom during empathic engagement (Batson & Shaw, 1991; Davis, 1983; Decety & Hodges, 2006; Decety & Lamm, 2006; Wiseman, 2007). This means that the empathiser is aware of their own emotions and may be in a better position to manage and control their own emotions in relation to the other persons' distress.

Empathy is employed by cancer HCPs during patient encounters, which at times will involve sharing the distress of the patient. Such sharing of emotions may lead to HCPs becoming personally distressed during empathic interactions with patients with cancer. Furthermore, this personal distress may impact on the professional quality of life felt by the HCP. It is unknown whether there is a relationship between cognitive and emotional empathy and the professional quality of life of HCPs working in cancer care. This article seeks to establish levels of compassion satisfaction and compassion fatigue, and examine the relationships between the constructs of emotional empathy, cognitive empathy and professional quality of life in cancer HCPs.

1.1 | Purpose of the study

To determine cancer HCPs levels of compassion satisfaction and compassion fatigue, and to examine the relationships between professional quality of life and empathy among cancer healthcare professionals. Three hypotheses were tested in this study. First, that empathic concern will be positively correlated with CS and STS, and negatively correlated with BO. Second, that perspective-taking will be positively correlated with CS and negatively correlated with STS and BO. Third, that personal distress will be positively correlated with STS and BO and negatively correlated with CS.

2 | METHODS

This exploratory study used a quantitative, descriptive, cross-sectional design to test the hypotheses. Ethics approval was obtained from all required Research Ethics Committees in the Republic of Ireland.

2.1 | Recruitment and data collection

This study used a non-probability convenience sampling method. A power analysis was conducted using G*power 3.1 for two-tailed correlation studies, and an estimated medium effect size of 0.30, a significance level of 0.05, and a power of 0.80, with a minimal sample size of 85 projected to reduce the possibility of Type II error.

All nurses, doctors and radiation therapists who were working 100% of their clinical time with patients with cancer were invited to participate through a gatekeeper at each cancer centre. Additionally, the Irish Association of Nurses in Oncology and the National Radiation Therapists group e-mailed the questionnaire to all members. A reminder e-mail was sent to all members two weeks following the first mailing. Study questionnaires were available electronically through Survey Monkey and in paper format. Participants

TABLE 1 Cronbach's alpha for the ProQOL-V and IRI

	ProQOL-V Stamm, 2010	IRI Davis, 1983	Current study (males and females)
Compassion satisfaction	0.88		0.88
Burnout	0.75		0.79
Secondary traumatic stress	0.81		0.84
Empathic concern		0.73 (females)	
		0.68 (males)	0.78
Perspective-taking		0.75 (females)	
		0.71 (males)	0.78
Personal distress		0.75 (females)	
		0.77 (males)	0.71

had the option of completing the questionnaire anonymously, or they could provide an e-mail address for a future phase of the study.

2.2 | Measures

A demographic questionnaire was developed for the purposes of this study and included participant demographic characteristics, social interests and work characteristics. The Professional Quality of Life Scale (Stamm, 2010: ProQOL-V) is a measure of compassion satisfaction and compassion fatigue. Compassion fatigue is sub-divided into burnout and secondary traumatic stress. The ProQOL-V comprises of 30 statements divided equally between each of the 3 subscales. The first subscale measures the satisfaction one feels when engaging in the compassionate care of others. The second and third subscales measure secondary traumatic stress and burnout. The ProQOL-V uses a Likert scale of 1–5 (1 = never, to 5 = very often) asking participants how they would score each statement that reflects how frequently they experienced these things in the last thirty days. Participants chose a number in correspondence with each statement. The validity and reliability of the ProQOL-V have been tested in a variety of healthcare settings, including cancer care (Stamm, 2010). Cronbach's alphas for the subscales from the ProQOL-V manual (Stamm, 2010) and this study are reported in Table 1. Cut-off scores for the ProQOL-V provides a score for low, average and high risk for each subscale (Stamm, 2010).

The Interpersonal Reactivity Index (IRI) is a measure of empathy that examines four aspects of the global concept of empathy (Davis, 1983). There are three reasons why the IRI was chosen to measure empathy of healthcare professionals in this study. First, the IRI has been used in recent studies exploring empathy (Duarte, Pinto-Gouveia, & Cruz, 2016; Neumann et al., 2012; Tei et al., 2014). Second, it is one of two self-report scales of HCP empathy that has been identified as measuring both emotional and cognitive empathy (Pedersen, 2009). The second self-report scale, The Empathy Construct Rating Scale, is an eighty-four-item scale and was considered too onerous for the purposes of this study. Third, the IRI is a measure of empathy that is not discipline-specific. Empathy scales such as The Reynolds Empathy Scale has been developed specifically for nurses (Reynolds, 2000), and the Jefferson Scale of Physician Empathy has been developed specifically for physicians.

The IRI is a 28-item instrument that measures both cognitive and emotional empathy across four subscales; empathic concern, personal distress, fantasy and perspective-taking. Empathic concern, fantasy and personal distress measure emotional empathy, and perspective-taking is a measure of cognitive empathy. Each subscale consists of seven items. Participants chose a response to statements on a Likert scale of 1 to 5, where 1 = does not describe me well, to 5 = describes me very well. The IRI has demonstrated moderate validity and reliability (Yu & Kirk, 2009), and the IRI has been used in a variety of healthcare settings (Duarte et al., 2016; Neumann et al., 2012). The use of the fantasy subscale of the IRI has been questioned as a component of the construct of empathy (Baldner & McGinley, 2014). Therefore, considering the IRI is not designed to provide a global empathy score (Davis, 1983; Yu & Kirk, 2009), the IRI subscales can be used separately (Duarte et al., 2016), so the fantasy subscale has been omitted from this analysis. Indeed, Duarte et al., (2016) and Tei et al., (2014) excluded the fantasy subscale from the IRI in their studies of nurses empathy as it was not relevant to the study, and Gleichgerrcht and Decety (2013) excluded the fantasy subscale from their study of physicians. Cronbach's alpha for the IRI (Davis, 1983) and this study are reported in Table 1.

2.3 | Statistical analysis

All data were coded prior to being entered into SPSS® version 22.0. Extreme outliers were removed from the data set. Descriptive analysis including frequencies and percentages was conducted to provide an overview of participants' demographics. The ProQOL-V was scored according to The Concise ProQOL Manual (Stamm, 2010). Five items on the ProQOL-V were reversed, and the sum of each subscale was computed to provide a raw score. Raw scores were converted into *Z* scores, which were then converted into *t* scores using a raw score mean = 50, and a raw score standard deviation = 10. A new *t* score variable was added for each subscale. Nine items were reversed on the IRI, and then, the sum of each subscale was computed to provide a raw score (Davis, Personal communication). Correlations were tested using Spearman's rank order correlation (ρ).

A Bonferroni correction was performed to reduce the probability of a type I error (Field, 2018), and the adjusted significance level was determined at 0.008.

3 | RESULTS

The study recruited 144 participants. Four participants did not meet the inclusion criteria, 21 questionnaires were incomplete, and two extreme outliers were removed; therefore, a total of 117 participant questionnaires were included in the final analysis.

3.1 | Demographics

Demographic and work characteristics are shown in Table 2. There was a predominance of female respondents (n = 112, 96%). Most participants were nurses (n = 60, 51%) and radiation therapists (n = 47, 40%). Other notable demographics included participant ages which ranged from 21 to 63 (n = 114, m = 36.59, SD = 10.61). All participants were educated to at least undergraduate degree level, with almost two thirds holding a post-graduate qualification (n = 71, 61%).

Radiation therapists and oncologists by profession have a cancer qualification. The majority of nurses have a specialist cancer qualification (n = 51, 79%). Years worked in cancer care ranged from 1 to 40 (n = 117, m = 11.8, SD = 8.44). Almost all participants worked full time (n = 107, 92%).

TABLE 2 Participant demographics

Personal characteristics	Number	Percent
Gender		
Female	112	96
Male	5	4
Race/ethnicity		
White Irish	104	89
White other	5	4
Black other	1	1
Asian Irish	5	4
Asian other	2	2
Relationship status		
Married/living with partner	68	58
Divorced/separated	3	3
Single	45	39
Have children		
Yes	49	42
No	63	54
Not answered	5	4
Profession		
Nurse	60	51
Radiation therapist	47	40
Doctor	10	9
Percentage of time in clinical care		
Less than 50%	29	25
More than 50%	88	75

3.2 | Prevalence of compassion satisfaction and compassion fatigue

Using cut-off scores for the ProQOL (Stamm, 2010), high, average and low scores were computed for all three subscales (Figure 1). A quarter of HCPs experienced high levels of CS; however, almost 20 per cent of participants reported low levels of CS. Almost 30 per cent of participants scored as a high risk of STS, and almost a quarter scored as a high risk of burnout.

3.3 | Relationship of compassion satisfaction and empathy dimensions

Table 3 presents the correlations between the constructs of professional quality of life and the constructs of empathy. There was a significant negative correlation between CS and personal distress ($n = 106, r_s = -0.37, p < 0.001$). There was a trend towards a positive correlation between perspective-taking and CS but this did not reach statistical significance ($n = 106, r_s = 0.21, p < 0.03$).

3.4 | Relationship of burnout, secondary traumatic stress and empathy dimensions

There was a significant positive correlation between burnout and personal distress ($n = 106, r_s = 0.29, p < 0.003$). There was a significant positive correlation between STS and personal distress ($n = 106, r_s = 0.32, p < 0.001$), and STS and empathic concern ($n = 106, r_s = 0.27, p < 0.006$).

4 | DISCUSSION

This study reported on the incidence of compassion satisfaction and compassion fatigue, and the relationship between professional quality of life and empathy of HCPs working in cancer care in the

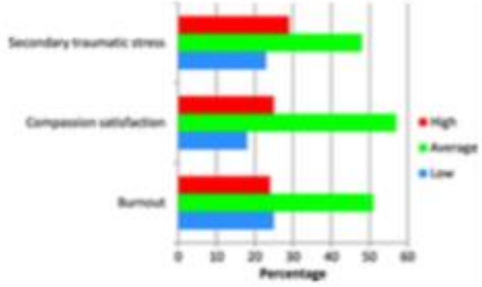

FIGURE 1 Percentage of subscales of professional quality of life

TABLE 3 Relationship of professional quality of life and empathy (Spearman's ρ)

	Compassion satisfaction		Burnout		Secondary traumatic stress	
Empathy dimension	Correlation coefficient	Sig. level	Correlation coefficient	Sig. level	Correlation coefficient	Sig. level
Personal distress	−0.37*	0.001	0.29*	0.003	0.32*	0.001
Perspective-taking	0.21	0.03	−0.15	0.13	0.128	0.19
Empathic concern	0.14	0.16	−0.05	0.59	0.27*	0.006

*Correlation is significant at the 0.008 level (2-tailed: Bonferroni correction).

Republic of Ireland. A quarter of participants reported high levels of CS. The incidence of CS among cancer nurses has been reported as 28%–58% (Hooper et al., 2010; Jang, Kim, & Kim, 2016; Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). Compassion satisfaction has been reported as high by physicians working in cancer care (Granek, Cohen, David, & Ariad, 2017) and by radiation therapists (Gillies et al., 2014) although the incidence was not reported in either group. This would indicate that the CS felt among cancer HCPs in the Republic of Ireland is similar to that of other reported norms.

The findings indicate that more than a quarter of HCPs working in cancer care are at high risk of compassion fatigue, but of particular note almost 30 per cent of participants reported high levels of STS. Other studies of cancer HCPs report similar findings. Cancer nurses are at high risk of STS, 26%–33% (Abendroth & Flannery, 2006; Hooper et al., 2010; Jang et al., 2016), and at high risk of burnout, 10%–25% (Abendroth & Flannery, 2006; Hooper et al., 2010; Jang et al., 2016). In fact, cancer nurses have been identified as being at higher risk of STS than other nursing specialties (Hooper et al., 2010). Additionally, high levels of burnout have also been identified in radiation therapists (Akroyd, Caison, & Adams, 2002; Jasperse, Herst, & Dungey, 2014), and oncologists have reported high levels of STS (Granek et al., 2017), although incidence was not reported in either case. This study's findings indicate that a high percentage of HCPs working in cancer care are at risk of STS, which may have negative consequences for the individuals. These include physical consequences, such as headaches and sleep disturbances, emotional responses manifesting as depression and poor concentration, and work-related consequences reported as decreased ability to feel empathy, and avoidance of clinical situations (Abendroth & Flannery, 2006; Gillies et al., 2014; Sorenson, Bolick, Wright, & Hamilton, 2016) and avoidant approaches to communication (Granek et al., 2017). Therefore, there is a need to identify those HCPs at high risk of STS and burnout early in the course of its development. Interventions such as resilience programmes assist in reducing the risk of CF in cancer nurses (Potter et al., 2013). These interventions could be combined with screening for CF to identify those who may benefit most from such programmes.

As expected, a positive relationship between personal distress and both burnout and STS, and a negative relationship between personal distress and CS was confirmed. These findings reflect the results of a study of registered nurses by Duarte et al., (2016) where personal distress correlated positively with CS and negatively with BO and STS. Personal distress occurs when there is over-arousal of emotions during empathic engagement (Rushton et al., 2013). This over-arousal of emotions may impact negatively on professional quality of life. The results of this study reveal that cancer HCPs with higher levels of PD also reported higher levels of BO and STS, whereas cancer HCPs with lower levels of PD reported higher levels of CS. However, PD may not always be detrimental to the empathiser. Interestingly, a certain amount of personal distress during empathic engagement was found to contribute to feelings of CS in physicians (Gleichgerrcht & Decety, 2014), which suggests that the experience of personal distress may not always be a negative one. However, it is not clear how much personal distress is healthy or at which point PD leads to a risk of BO and STS. An understanding of the complexity of personal distress and its interaction with other variables may provide insights into how this contributes to experiences of CS and CF.

Empathic concern showed a significant positive correlation with STS, but not with CS or burnout in this study. Duarte et al. (2016) also identified a positive correlation between STS and EC in nurses. Empathic concern is a natural response to eliciting helping behaviour when observing another's distress (Lamm, Batson, & Decety, 2007) but the response may differ in individuals. Indeed, Decety and Lamm, (2009) report on EC from neuroimaging studies. The findings suggest that during the process of EC where imagining one's self in the shoes of a patient in pain resulted in increased anxiety and personal distress, whereas imagining what the patient may be feeling when in pain resulted in decreased anxiety and personal distress, and higher empathic concern. It may be that there is a tipping point at which EC moves from having a positive purpose to having a personal traumatic effect. In the current study, it is unknown whether participants who experience STS are more likely to put themselves into the shoes of another rather than focus on the emotional responses of others in distress, but it may be that they are doing the former rather than the latter.

Interestingly, the current study did not identify a correlation between perspective-taking, the cognitive component of empathy and CF or CS. This finding is inconsistent with findings from previous studies of nurses (Duarte et al., 2016) and of physicians (Gleichgerrcht & Decety, 2013). Perspective-taking is a component of cognitive empathy and involves resources such as self-regulation and cognitive flexibility (Decety & Lamm, 2006). This component of cognitive empathy is essential in determining whose distressing emotions belong to whom during empathic encounters. In a study of medical students, the impact of perspective-taking during patient interactions was a key component in patient satisfaction (Blatt, LeLacheur, Galinsky, Simmens, & Greenberg, 2010). In nursing, perspective-taking was found to be the strongest predictor of CS (Yu, Jiang, & Shen, 2016), indicating that those nurses whose cognitive empathy or perspective-taking is high may be more likely to experience CS. This may indicate that an ability to distinguish between ones' own emotions and those of the patient, and an ability to regulate and manage one's own emotions is important during empathic engagement.

5 | LIMITATIONS

This study has several limitations. First, the study used a cross-sectional design where data are collected at one point in time and only allows for relationships between constructs to be examined so causal pathways cannot be determined. Second, the sample is limited to the Republic of Ireland so generalisability is limited. Third, it was not possible to determine a sampling frame; therefore, we were unable to determine the response rate. Fourth, there was low participation from doctors, limiting the ability to apply the results to that profession. Finally, it is not possible to determine whether the demographics of people who did not respond from the population of interest are different to those of the participants, or indeed the reasons why they did not participate in the study. Non-responders may introduce bias into data interpretation, particularly if the demographics and characteristics of the non-responders differ from those of the responders (Ford & Bammer, 2009; Martins et al., 2012).

5.1 | Implications for practice and future research

Cancer care requires HCPs to develop complex technical competence due to the fast pace of developments in cancer treatments and the increasing acuity of care in the cancer care setting. This places cancer HCPs under increasing pressure in a resource-limited healthcare system. It is important to understand both the positive and negative consequences of caring for this group of patients in the cancer care setting. Knowledge of the incidence of compassion satisfaction and compassion fatigue can assist in identifying those HCPs at most risk of the negative consequences of caring and target interventions to reduce this risk. Additionally, exploring relationships between constructs such as empathy and professional quality of life can provide a basis for future research, such as development and testing of empathy education interventions. Evidence points to the positive effect of PD (Gleichgerrcht & Decety, 2014) and EC (Decety & Lamm, 2009), but the point at which PD and EC begin to impact on warrants further exploration. Finally, it is not known if the demographics of cancer HCPs who did not participate are different to those who responded indicating a need to explore reasons why people choose not to participate in studies of this nature.

6 | CONCLUSION

Healthcare professionals working in cancer care are faced with distressed patients as part of everyday practice. The use of empathy is an important part of engaging with the distress felt by cancer patients. In this study, a quarter of HCPs working in cancer care expressed CS but a quarter are at risk of CF, in particular almost 30% are at risk of STS. The results suggest that the personal distress felt by cancer HCPs during empathic engagement may impact negatively on professional quality of life. Furthermore, higher levels of empathic concern may be related to higher risk of STS, indicating that empathic concern may have a point at which it changes from being a positive response to an unhelpful response to a patient's distress. There is a need to investigate the nature of both empathic concern and personal distress as components of empathy, in particular their relationship with secondary traumatic stress.

CONFLICT OF INTEREST

None for any of the authors.

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