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Burnout and job engagement in UK cancer care  
staff: how do they relate to job stress and  
satisfaction and turnover intentions



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August 2012

Doctorate in Clinical Psychology  
The University of Edinburgh

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## **THESIS OVERVIEW**

This thesis follows the portfolio model of work completed in part-fulfilment of the Doctorate in Clinical Psychology at the University of Edinburgh.

An abstract provides an overview of the complete thesis and its findings and implications.

Chapter one presents a systematic review investigating the relationship between burnout and work engagement among nursing staff and physicians. The review is formatted for submission to the Journal of Positive Psychology.

Chapter two presents a bridging chapter which considers the discriminant validity of the concept of burnout, as well as individual level factors, such as proneness to depression and personality traits, which have been empirically linked to burnout. As the main body of this thesis is mainly concerned with occupational and organisational factors associated with burnout, this appears necessary to provide a more comprehensive account of the construct.

Chapter three presents the main project investigating levels of burnout and job engagement and their relationships with job stress and satisfaction and turnover intentions in oncology staff in the UK. The research study is written-up as a journal article formatted for submission to the Journal of European Cancer Care.

Chapter four contains the research hypothesis. Chapter five consists of the methods for the research study.

Chapter six entails a complete list of references and chapter seven presents the appendices.

**ABSTRACT**

Background: Health care professionals are at risk of developing burnout due to the inherently stressful nature of their work. Burnout has been found to compromise the wellbeing of health care professionals and their ability to provide optimal patient care. Job engagement is proposed to be the antipode of burnout and is concerned with occupational well-being. It is hoped that through a better understanding of factors related to job engagement and burnout, occupational well-being of health care professionals and their ability to care for patients can be improved.

Systematic review: A systematic review of the literature on burnout and job engagement in physicians and nurses since 2002 identified seven studies. Findings suggest that burnout and job engagement are independent constructs, albeit negatively related. These findings contribute to the current knowledge about the relationships between burnout and engagement dimensions and provide a framework for interventions aimed at increasing occupational well-being among front line medical professionals.

Aims: A study was conducted to assess levels of job engagement and burnout and their relationship with turnover intentions and job satisfaction and stress in the entire workforce of a Cancer Centre in the United Kingdom.

Participants and procedure: 150 cancer care workers completed a cross-sectional questionnaire entailing the Maslach Burnout Inventory, the Engagement Indicator, measures of job satisfaction, stress, turnover intentions and demographics.

Results: Mean scores of emotional exhaustion did not differ from normative data, while lower levels of depersonalisation and lack of accomplishment were found. Furthermore, engagement scores were significantly higher than in the normative sample and the majority reported high levels of job satisfaction and indicated no turnover intentions. Path analysis provided preliminary support for an exploratory model indicating that engagement mediates the relationship between job stress, burnout and job satisfaction and turnover intentions.

Implications: It is important that, despite increasing pressure to reduce costs, service planning is mindful of the continuous and long-term process required to maintain and facilitate engagement and job satisfaction, which appear important to the long term retention of staff.

Conclusions: Work overload and a perception of being poorly managed and resourced appear to be risk factors for burnout. However, engaged employees with high levels of personal accomplishment may experience job satisfaction and desire to stay in their jobs despite high levels of occupational stress. Further research is required to identify factors predictive of personal accomplishment and job engagement in oncology services.

# 1 Systematic Review

## **The relationship between burnout and work engagement among frontline medical professionals: a systematic review.**

Formatted for submission to the Journal of Positive Psychology (author guidelines are presented in Appendix 1).

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**Abstract****The relationship between burnout and work engagement among frontline medical professionals: a systematic review.**

The aim of this review was to systematically explore the relationship between burnout and work engagement among nursing staff and physicians. Additional focus was on investigating the proposed antipodal relationship between the subscales emotional exhaustion and vigour as well as depersonalisation and dedication.

Methods: A systematic review of organisational psychology and health sciences literature (from January 2002-February 2012) about work engagement and burnout among nursing staff and physicians was conducted.

Results: Seven papers were included in the review. The findings support the proposition that burnout and work engagement are related, but independent constructs. However, previous findings that emotional exhaustion is most strongly related to vigour could not be replicated. Moreover, the results suggest that engagement may be less of a protective factor against depersonalisation in this population.

Homogeneous measures of burnout and engagement and longitudinal and multi-informant methods are required to advance research further.

Keywords: burnout; health care professionals; job engagement; nursing; occupational stress; physicians

## 1.1 Introduction

Reliable and quality health care is very important and is largely dependent on the performance of health care professionals. However, health care professionals experience higher than average levels of occupational stress (e.g. Weinberg & Creed, 2000). It has been found that chronic occupational stress can lead to professional burnout (Freudenberger, 1974). There are many definitions of burnout, but the most prominent was proposed by Maslach, Jackson and Leiter (1996). According to this definition, burnout consists of three dimensions: 'Emotional Exhaustion' (hereafter Exhaustion), 'Depersonalisation' and 'Reduced Personal Accomplishment' (hereafter Accomplishment). It is suggested that burnout develops gradually in the order of its proposed dimensions, leading to a 'loss spiral' of resources (Taris, LeBlanc, Schaufeli, Schreurs, 2005). The individual first experiences a depletion of energy and feels emotionally and physically drained, which is characteristic of Exhaustion. The individual attempts to cope with this by distancing himself from work and from people at work and by adopting a cynical attitude towards the job. Therefore the dimension Depersonalisation is also termed 'Cynicism'. Exhaustion and Depersonalisation are seen as the core burnout dimensions (González-Romá, Schaufeli, Bakker & Lloret, 2006; Schaufeli et al., 2006). This is followed by Accomplishment, which describes the decrease in a person's feeling of professional efficacy.

Although a number of questionnaires have been developed to measure burnout, the Maslach Burnout Inventory (MBI; Maslach et al., 1996) is the most widely established tool in the burnout literature (Alarcon, 2011). The MBI consists of

22 items and provides individual scores for each of the three dimensions separately.

High scores on Exhaustion and Depersonalisation and low scores on Accomplishment are indicative of burnout.

Over the past decades the concept of burnout has been studied extensively in medical professional groups and its prevalence has been consistently reported. Particularly nurses (e.g. Laschinger, Shamian & Thompson, 2001; Leiter & Maslach, 1988) and physicians (Ghodse & Galea, 2006; Linzer et al., 2001) have been considered to be at risk of developing burnout. Furthermore, burnout has been related to a number of negative consequences including absenteeism, job turnover, and reduced job performance (e.g. Swider & Zimmerman, 2010). Additionally a recent review of burnout (Morse et al., 2012) demonstrated an association of burnout with mental and physical health difficulties, including depression, anxiety, back pain and sleep problems. In the medical context these consequences are serious as they have been frequently associated with reduced quality of patient care and increased medical error (e.g. Shanafelt, Bradley & Wipf, 2002; Laschinger & Leiter, 2006; Leiter, Harvie & Frizzell, 1998; Shanafelt et al., 2010).

### 1.1.1 *Job engagement*

Following the trend towards a ‘positive psychology’, which focuses on optimal functioning and human strengths as opposed to weaknesses and malfunctioning (Seligman & Csikszentmihalyi, 2000) research has recently shifted towards promoting well-being at work.

A concept that has attracted a lot of attention by scholars is job engagement, hereafter referred to as engagement. Maslach and Leiter (1997) defined engagement as the ‘antipode of burnout’ and proposed that burnout is the negative end of a bipolar dimension with engagement at the positive end of the spectrum. More specifically, the authors defined burnout as the ‘erosion of engagement with the job’ (p.416). Hence it is posited that an employee needs to first be engaged with his job in order to develop burnout. During the process of developing burnout, energy turns into exhaustion, involvement into depersonalisation or cynicism and efficacy becomes ineffectiveness. Furthermore, the authors suggest that the MBI can assess engagement as well as burnout, which is indicated by low scores on Exhaustion and Depersonalisation and high levels of Accomplishment. Importantly, according to this view, burnout and engagement are two endpoints of the same scale and cannot coexist simultaneously.

Recently Schaufeli and Bakker (2004) challenged this assumption and argued that, ‘feeling emotionally drained from one’s work ‘once a week’ does by no means exclude that in the same week one might feel bursting with energy’ (Schaufeli & Bakker, 2004; p.294). The authors propose that burnout and engagement are two distinct, yet negatively related constructs. Schaufeli, Salanova, González-Romá and Bakker (2002, p.74) define engagement as, ‘a positive, fulfilling, work-related state of mind that is characterised by vigor, dedication and absorption’. High levels of mental energy and personal investment at work define Vigour. Dedication is described by feelings of pride, enthusiasm and meaningfulness about one’s work. Vigour and Dedication are proposed to be the core dimensions of engagement

(González-Romá et al., 2006). Absorption refers to being fully concentrated and immersed in one's work so that time passes quickly.

Schaufeli and Bakker (2003a) developed the Utrecht Work Engagement Scales (UWES) to assess the three dimensions of engagement. The UWES includes 17 items in total. However, a shorter version consisting of nine items (UWES-9; Schaufeli, Bakker & Salanova, 2006) has been developed more recently. Both measures have been shown to have validity and reliability (González-Romá et al., 2006). Similarly to the MBI, the UWES has a three factor structure and provides scores for all three dimensions individually. In contrast, the UWES allows calculation of an aggregated engagement score in addition to separate scores for each dimension. Although other measures of engagement exist, the UWES is the most widely used tool to assess engagement in the literature (e.g. Halbesleben, 2010) and will therefore be the focus of this review.

### *1.1.2 Relationship between burnout and engagement*

The relationship between burnout and engagement is interesting, because of its antipodal conceptualisation of occupational well-being, which proposes that it is improbable that highly engaged individuals experience serious burnout and vice versa. Moreover, it has been suggested that the burnout and engagement relationship can be delineated as two independent bipolar constructs, where Exhaustion and Vigour are the opposite ends of a bipolar dimension termed 'energy' and Depersonalisation and Dedication represent the endpoints of a dimension termed 'identification' (Demerouti, Mostert & Bakker, 2010). Accomplishment and

Absorption are not seen as each being the complement of the other, but as independent dimensions (Demerouti et al., 2010; Schaufeli et al., 2002).

However, to date research has not been able to persistently demonstrate that burnout and engagement are opposite ends of an occupational well-being scale (Mäkikangas, Feldt, Kinnunen & Tolvanen, 2011). Different studies, investigating different populations varying in size, have found wide variations in negative correlations between burnout and engagement.

A study by Hakanen, Bakker and Schaufeli (2006) for instance, found a strong negative correlation between burnout and engagement of -0.60 amongst teachers, whereas another study investigating a mixed sample of Spanish and Dutch students and Spanish employees reported a low correlation between burnout and engagement of -0.20 (Schaufeli & Salanova, 2007). Furthermore, a meta-analysis of 54 studies (Crawford, Le Pine & Rich, 2010) reported an estimated population correlation between the two constructs of -0.48. Moreover, a recent meta-analysis by Halbesleben (2010), which included 30 studies, assessing the intercorrelations of the energy-pole and identification-pole continua, found an estimated population correlation for the energy pole of -0.37 and of -0.65 for the identification pole.

### 1.1.3 *The current study*

Recent meta-analyses (Crawford et al., 2010; Halbesleben, 2010) included samples from various occupational backgrounds and to our best knowledge to date no systematic evaluation of the literature has investigated the empirical relationship of the burnout and engagement constructs in the medical context. Considering the large differences in correlations between burnout and engagement reported among

different occupational populations, it is of interest to assess the relationship of the two constructs specifically amongst medical professionals, a group which is considered particularly at risk to develop burnout with potentially far reaching and serious consequences. Because of the exploratory nature of this study, no hypotheses were set, however based on previous studies we expect to see a moderately negative correlation between the core dimensions of the burnout and engagement constructs, with the strongest correlations between dimensions of the proposed ‘energy pole’ Exhaustion and Vigour and between the dimensions of the ‘identity pole’ Depersonalisation and Dedication. Moreover, a strong positive relationship between Accomplishment and all engagement dimensions is expected.

## 1.2 Method

### 1.2.1 Selection of studies for inclusion

The Cochrane Library was searched in February 2012 to identify similar existing systematic reviews. As none were identified, a number of databases were used to perform searches for relevant papers for inclusion in the review (see Table 1.1 for databases and search terms). Furthermore the contents page of key journals including, *Journal of Applied Psychology*, *Journal of Occupational Health Psychology* and *Work and Stress* were hand-searched for relevant articles.

Table 1.1: *Databases and search terms*

Database	Search Terms
PsycINFO	(job OR work OR employee) adj3 (engagement) AND burnout, professional
EMBASE	(job OR work OR employee) adj3 (engagement) AND burnout
CINAHL	(job OR work OR employee) adj3 (engagement) AND burnout
MEDLINE	(job OR work OR employee) adj3 (engagement) AND burnout

Database	Search Terms
Thesis Abstracts, Google Scholar	engagement AND burnout

### 1.2.2 Paper retrieval

A flowchart detailing the process of paper selection can be seen in Appendix 2. The search resulted in 218 papers. Abstracts were examined according to the following criteria:

#### *Inclusion Criteria*

- Populations: Studies including nurses or physicians.
- Outcome measures: Studies using separate burnout and engagement measures.
- Study designs: To be considered, studies needed to be primary research papers. Additionally, as there are no randomised controlled trials in this area of research known to the authors, observational studies and longitudinal were included in the review.
- Language: Only English, German and French language articles were included.

#### *Exclusion criteria*

- Articles that used the MBI to assess both levels of burnout and engagement were excluded.
- Studies that included dentists, allied health professionals or care support.

In case an abstract did not provide sufficient information enabling a decision with regard to the fulfilment of the above criteria, a full text of the study was

obtained for verification. In addition 199 abstracts were checked by both authors to minimise selection bias and discrepancies were resolved by obtaining full-text of the papers in question to clarify eligibility.

If studies investigated burnout and engagement in medical professionals but also included additional samples from different professional backgrounds in the analysis, authors were contacted and separate data for the relevant samples requested. For three studies these data could not be obtained (Barbier, Peters & Hansez, 2009; Hultell & Gustavson, 2010; Poulsen, Poulsen, Khan, Poulsen & Khan, 2011) and the studies are therefore not discussed in this review. Overall seven studies were included in this review.

### *1.2.3 Quality appraisal*

A quality rating scale was devised for the purpose of this review, adapted from the Scottish Intercollegiate Guidelines Network (SIGN) 50 Guidelines for assessing the quality of cohort studies (2004), as this was the most appropriate guideline for detecting potential threats to validity and reliability in the set of papers reviewed.

The scale included the following categories: study objectives, sample selection, sample description, design/measures, statistical analysis and results/discussion (see Appendix 3). Depending on the degree to which a study fulfilled the criteria for each of the items, scores of 0, 1 and, for some items, 2 were allocated. The highest score a study could be allocated was 32. The quality of a paper was considered 'high' if it obtained 75% of this score, a rating of 'moderate' was given to studies that achieved between 50 and 75% of the overall score and studies were

considered as 'low' in quality when they attained less than 50%. To assess the reliability of the rating scale, three papers were rated by a second rater using the same tool. There was 100% agreement between the two raters which quality category should be allocated to each paper (i.e. 'high', 'moderate' or 'low'). The percentage of overall agreement on individual criteria was 85% (inter-rater coefficient Cronbach's  $\alpha=0.989$ ) and none of the discrepancies was higher than one point. Discrepancies in rating were reviewed by the authors and resolved through discussion.

## **1.3 Results**

### **1.3.1 *Synthesis of studies***

Seven studies were identified for inclusion in the review. Table 1.2 provides an overview of the study design, samples characteristics, measurements and key findings. Appendix 4 provides an overview of the scores allocated to each study. Five of the papers included in the review achieved a high rating of quality (Prins et al., 2010; Ringrose et al., 2009, van Beek, Qiao, Schaufeli, Taris & Schreurs, 2012, van der Colff & Rothmann, 2009) and two papers achieved a rating of moderate quality (McManus, Jonvik, Richards & Paice, 2011; Opie et al., 2010). Two of the studies investigated levels of burnout and engagement amongst resident doctors (Prins et al., 2010; Ringrose et al., 2009), three studies investigated nursing samples (Garossa et al., 2011; Opie et al., 2010; van der Colff & Rothmann, 2009) and one study included a mixed sample of doctors and nurses (van Beek et al., 2012), only one study focused on qualified doctors (McManus et al., 2011). The studies most suitable to answer the research question were by Prins et al. (2010) and Garossa et al. (2011), while the papers published by Opie et al. (2010) and Ringrose (2009) did not present Pearson's correlations which were required to answer the the review questions.

### 1.3.2 *Design*

All of the seven papers that were considered appropriate for inclusion in the review were cross-sectional, self-report questionnaire studies. Only one study (Prins et al., 2010) explicitly indicated the identification of the relationship between burnout and engagement as primary research aim, while all remaining studies stated the assessment of other occupational variables associated with burnout and engagement as primary research aims. Additionally, the study by Ringrose et al. (2009) provides qualitative data from in-depth interviews with resident doctors, exploring relevant factors in the development of burnout, as well as quantitative data from questionnaires.

### 1.3.3 *Power and sample size*

None of the studies provided *a priori* power calculations to determine target sample size. Nevertheless, *post-hoc* considerations with regard to the representativeness of sample and validity were reported in two studies (Opie et al., 2010; Ringrose et al., 2009). The nursing samples consisted mainly of female participants, whereas there was a more balanced gender ratio among the physicians. The studies included sample sizes ranging from 47-2845 participants.

Table 1.2: Overview of key studies

Authors (Year) Country	Sample Characteristics	Aim of study	Relevant Measures	Statistics used to describe relationship between burnout and engagement	Relevant Findings
1 Garossa et al. (2011) Spain	508 nurses (455 female and 53 male), no details of personality and emotional competence) on burnout and engagement dimensions. age provided.	Examine the influence of role stress and personal resources (optimism, hardy personality and emotional competence) on burnout and engagement dimensions.	Nursing Burnout Scale (NBS; Moreno et al., 2000), Spanish engagement dimensions translation of UWES provided. (Schaufeli et al., 2002).	Pearson's correlations of all burnout and engagement dimensions of UWES provided.	Mainly moderate negative correlations between subscales of NBS and UWES-17 subscales.
2 McManus et al. (2011) Great Britain	2845 doctors (1451 female and 1394 male), mean age 40.6 (SD 2.3)	Assess a variety of factors related to leisure activities of doctors and their relationship to burnout and job engagement.	Abbreviated versions of burnout and engagement measures developed by the author aMBI, aUWES-3 (McManus, 2011).	Pearson's correlations of burnout dimensions and aggregated engagement score provided.	Weak negative correlation between burnout and job engagement.
3 Opie et al. (2010) Australia	349 nurses (309 female and 40 male), mean age 44 (SD 11).	Investigate job demands and resources and identify levels of occupational stress.	UWES-9 (Schaufeli et al., 2006), EE dimension of MBI-HSS (Maslach et al., 1996).	No correlations of EE and UWES subscales provided.	Remote area nurses experience higher psychological distress and emotional exhaustion than other professional groups and paradoxically higher than average levels of engagement.
4 Prins et al. (2010) Netherlands	2115 resident doctors (1290 female and 820 male, 5 missing data), mean age 31.5 (SD 3.5)	Assess prevalence and levels of burnout and engagement of Dutch resident doctors and to compare with representative Dutch norms.	Dutch versions of the MBI-HSS (Schaufeli & Dierendonk, 2000) and UWES (Schaufeli & Bakker, 2003b)	Pearson's correlations of all burnout and engagement dimensions. Partial correlations to account for influences of gender, clinical setting and speciality provided.	Weak to moderate inverse relationship between burnout and engagement subscales. A group of 0.7% was simultaneously engaged and burned-out.

Table 1.2: Overview of key studies continued

Authors (Year) Country	Sample Characteristics Aim of study	Relevant Measures	Statistics used to describe relationship between burnout and engagement	Relevant Findings
5 Ringrose et al. (2009) <i>Netherlands</i>	47 resident doctors (24 female and 23 male), mean age 30.3 (SD 3.03) Investigate levels of burnout and job engagement, as well as their antecedents. Interviews gain insight into participants' view on which factors cause burnout and how to improve working conditions.	Dutch version of the MBI-HSS (Schaufeli & van Dierendonk, 2000) and UWES-9 (Schaufeli et al., 2006)	Odds Ratios of engagement in a univariate regression analysis with burnout (yes or no) as dependent variable.	Burnout was negatively associated with engagement. Participants self-report of burnout not congruent with MBI scores. Authors caution not to rely on assessment based solely on MBI results.
6 van Beek et al. (2012) <i>China</i>	544 nurses (132 female, 6 male; mean age 29.23 (SD 7.48) and 216 physicians (132 female, 84 male), mean age 34.78 (SD 9.93) To assess the motivational correlates of workaholism, work engagement and burnout.	Chinese translations of UWES,-9 (Schaufeli et al., 2006) and the burnout dimensions EE and CY of the MBI-General Survey (MBI-GS; Schaufeli et al., 1996).	Pearson's correlations of EE and CY with all UWES subscales and aggregated UWES score provided.	Weak to moderate negative correlation between EE and CY and three subscales of UWES.
7 van der Colff & Rothmann (2009) <i>South Africa</i>	818 nurses (791 female and 21 male), mean age 40 years, no SD for age provided. To investigate the relationship between occupational stress, sense of coherence, coping, burnout and work engagement of nurses.	MBI-HSS (Maslach & Jackson, 1986) and UWES (Schaufeli et al., 2002).	Pearson's correlations of burnout and aggregated engagement score provided.	Weak to moderate relationships between burnout subscales and an aggregated engagement score.

Note: EE= Emotional Exhaustion, DE= Depersonalisation (CY= Cynicism), PA= Personal Accomplishment. VI= Vigour, DED= Dedication, AB= Absorption

#### 1.3.4 Measures

*Burnout measures:* One study (van der Colff & Rothmann, 2009) used the original English version of the MBI-Human Services Survey (MBI-HSS; Maslach, Jackson & Leiter, 1996). Two studies (Prins et al., 2010; Ringrose et al., 2009) used the Dutch version of the MBI-HSS (Utrechtse Burnout Schaal-UBOS; Schaufeli & Dierendonck, 2000). One paper included only the subscale Exhaustion of the original English version of the MBI-HSS to assess burnout (Opie et al., 2010). Another paper (van Beek et al., 2012) measured burnout with Chinese translations of the subscales Exhaustion and Cynicism of the MBI-General Survey (MBI-GS; Schaufeli, Leiter, Maslach & Jackson, 1996). The MBI-GS is a version of the MBI that can be used across different occupations, as opposed to the MBI-HSS, which is tailored to professionals working in human services.

Furthermore, one study adapted the MBI-HSS and reduced the items to three items per subscale (a-MBI; McManus et al., 2011) and one study used the NBS, an instrument that is structurally similar to the MBI-HSS and includes the same three subscales, but also includes items specifically to the nursing profession (Garossa et al., 2011).

*Engagement measures:* The UWES was used to measure engagement in three languages (Spanish, Dutch and English) in three different studies (Garossa et al., 2011; Prins et al., 2010; van der Colff & Rothmann, 2009). The shorter version, the UWES-9, was also used in three languages (English, Dutch and Chinese) in three different studies (Opie et al. 2010, Ringrose et al., 2009; van Beek et al., 2012).

McManus et al. (2011) developed an abbreviated three item version, termed a-UWES, to assess levels of engagement.

### 1.3.5 *Procedure and reporting of results*

All studies were adequately designed in the context of criteria used to assess quality. The majority of studies provided sufficient detail on the recruitment and data collection, except for van Beek et al. (2012), who did not elaborate the process of data collection. All papers appropriately reported their findings and outlined potential implications of the results.

### 1.3.6. *Statistical analysis*

The majority of studies included multiple statistical analyses, depending on study aim. With regard to determining the relationship between burnout and engagement, most provided Pearson's product-moment correlations, except for two studies (Opie et al., 2010; Ringrose et al., 2009). In addition Prins et al. (2010) reported partial correlations which controlled for the impact of gender differences, clinical specialty type and clinical setting. This study also included statistical calculations to account for non-responders. Furthermore, Opie et al. (2010) compare Exhaustion and engagement scores of their sample with those obtained in previous studies. Although the authors provide p values to test whether differences are significant, they do not report effect sizes.

### 1.3.7 *Relationship between burnout and engagement*

For an overview of all correlations reported in the papers reviews see Table 1.3. The most relevant findings will be discussed in the light of best quality studies to answer the review question.

Two studies provided correlations between the three proposed burnout dimensions and the three engagement dimensions (Garossa et al., 2011; Prins et al., 2010). Two studies reported the relationship between burnout dimensions Exhaustion and Depersonalisation and an aggregated engagement score (McManus et al., 2011; van der Colff & Rothmann, 2009).

Furthermore, one study provided correlations between the two MBI-GS subscales Exhaustion and Cynicism and an aggregated engagement score (van Beek et al., 2012). Although Ringrose et al. (2009) reported to have found a significant negative relationship between burnout and engagement, they only provided the Odds Ratio for whether a person was burned-out or not and overall engagement in their paper and no details of the interrelationship between the subscales. The authors of this study as well as those of the study by Opie et al (2010) were contacted and Pearson's correlations of burnout and engagement dimensions were requested. As the data were not made available, no correlations for these studies could be included in this review.

The strengths of correlations between burnout and engagement dimensions were assessed based on Cohen and Holliday's (1982) rule of thumb ( $r = 0.19$  or below = very low;  $0.20-0.39$  = low;  $0.40-0.69$  = modest;  $0.70-0.89$  = high;  $0.9-1$  = very high).

Table 1.3: Pearson's correlations between burnout and engagement dimensions

	EE-VI	DE-DED	EE-AB	DE (CY)- AB	EE-DED	DE-VI	PA-VI	PA-DED	PA-AB	EE-total UWES	DE-total UWES	PA-total UWES
Garossa et al. (2011), NBS-UWES	-0.46** CI [-52, -.39]	-0.47** CI [-55, -.377]	-0.47** CI [-55, -.38]	-0.36** CI [-45, -.26]	-0.54** CI [-62, -.45]	-0.4** CI [-49, -.30]	-0.31** CI [-23, -.20]	-0.41** CI [-50, -.31]	-0.4** CI [-49, -.30]	◆	◆	◆
McManus et al. (2011), aMBI +aUWES	◆	◆	◆	◆	◆	◆	◆	◆	◆	-0.62** CI [-.648, -.59]	-0.006 CI [-.054, .042]	0.557** CI [.523-.589]
Prins (2010), MBI-15 + UWES	-0.42** CI [-47, -.38]	-0.32** CI [-37, -.27]	-0.20** CI [-25, -.15]	-0.17** CI [-22, -.12]	-0.42** CI [-47, -.37]	-0.25** CI [-30, -.20]	0.56** CI [.52, -.60]	0.58** CI [.54, .62]	0.44** CI [.39, .48]	◆	◆	◆
van Beek et al. (2012), MBI-GS and UWES	-0.27** CI [-36, -.19]	-0.49** CI [-55, -.41]	-0.27** CI [-35, -.19]	-0.35** CI [-42, -.27]	-0.36* CI [-45, -.30]	-0.37* CI [-45, -.30]	◆	◆	◆	-0.32** CI [-.41, -.24]	-0.44** CI [-.51, -.36]	◆
Van der Colff & Rothmann (2009). MB-HSS + UWES	◆	◆	◆	◆	◆	◆	◆	◆	◆	-0.41* CI [-.49, -.33]	-0.33* CI [-.41, -.25]	0.39* CI [.031-.45]

Note: EE= Emotional Exhaustion, DE= Depersonalisation, PA= Personal Accomplishment, VI= Vigour, DED= Dedication, AB= Absorption.  
 Note: \* = p<0.05; \*\* = p<0.01; ◆ = not reported; ◆ = not measured; ◆ = 99% confidence intervals for r

### 1.3.8 *Energy pole and identification pole*

Two studies report a modest negative correlation between the subscales Exhaustion and Vigour, which constitute the proposed energy pole (Garossa et al., 2011; Prins et al., 2010), while one study found a low negative correlation (van Beek et al., 2012). Concerning the relationship of Exhaustion with overall engagement, one study found a modest negative association (van der Colff & Rothmann, 2009), while two studies found low negative associations (McManus et al., 2011; van Beek et al., 2011).

In relation to the proposed identification pole, consisting of the subscales Depersonalisation and Dedication, two studies found modest negative correlations between the two subscales (Garossa et al., 2011; van Beek et al., 2012), while Prins et al. (2010) found a low negative correlation. Concerning the relationship between Depersonalisation and an aggregated engagement score three studies found low negative associations (van der Colff & Rothmann, 2009; Prins et al., 2010; McManus et al., 2011).

### 1.3.9 *The relationship between Accomplishment and engagement*

Regarding the relationship between Accomplishment and engagement dimensions, two studies found modest negative associations between Accomplishment and the engagement dimensions Dedication and Absorption (Garossa et al., 2011; Prins et al., 2010) and one study also found a modest positive association between Accomplishment and Vigour (Prins et al., 2010), while another found a low positive association (Garossa et al., 2011). Concerning the relationship between Accomplishment and aggregated engagement scores, McManus et al. (2011) found a

modest positive relationship while van der Colff and Rothmann (2009) found a low positive association.

#### **1.4. Discussion**

This review focused on investigating correlations between burnout and engagement in medical professionals to provide a report of the relationship within a more homogenous sample than the multi-professional samples investigated in the recent meta-analyses by Crawford et al. (2010) and Halbesleben (2010). It was hoped that this would illuminate further the inherent relationship between the two constructs in the medical context, which remains unclear to date.

In sum, the low to modest relationships found in all papers between burnout dimensions and engagement subscales and between burnout dimensions and total engagement scores support the theory that they are related, yet independent constructs (Schaufeli and Bakker, 2004). This review did not enable a comparison with the finding by Crawford et al. (2010) as none of the studies eligible for inclusion provided a correlation between overall burnout and engagement scores.

Furthermore, the proposition that the relationship between burnout and engagement could be depicted by two bipolar continua cannot be clearly supported by the results of this review. The notion of the 'energy pole' proposes that the burnout dimension Exhaustion will be most strongly associated with the engagement dimension Vigour. Although Prins et al. (2010) found a modest correlation of  $r = -0.42$  between Exhaustion and Vigour, they report a correlation of the same strength between Exhaustion and Dedication.

Moreover, Garossa et al. (2011) found that the association between Exhaustion and Dedication was stronger than that between Exhaustion and Vigour. This is not replicating the results by Halbesleben (2010) which found that the strongest association of Exhaustion was with Vigour. Similarly, evidence obtained in relation to the theory of an 'identification pole' (Demerouti et al., 2010), suggesting that Depersonalisation would be most strongly associated with Dedication, was conflicting. While two studies (Garossa et al., 2011; van Beek et al., 2012) found supporting evidence for the theory, the results by Prins et al. (2010) challenge it.

Moreover, several studies found low correlations between Depersonalisation and total engagement (McManus et al. 2011; Prins et al., 2010; van der Colff & Rothmann, 2009). All correlations between the dimensions constituting the 'identification pole' found in this review are weaker than the estimated population correlation reported in the meta-analysis by Halbesleben (2010). This suggests that engagement may be a less strong protective factor against depersonalisation amongst front-line medical professionals.

Lastly, the proposition by Schaufeli and Bakker (2004) that Accomplishment is highly correlated with engagement dimensions and could be considered to be an extended engagement factor was not supported by this review. Although some correlations of Accomplishment with engagement subscales were among the strongest of all correlations found (e.g. Accomplishment and Vigour= 0.56 and Accomplishment-Dedication:  $r= 0.58$ , Prins et al., 2010), they were modestly correlated using the Cohen and Halliday (1982) rule of thumb.

Overall, the findings of this review suggest a modest inverse relationship between burnout and engagement. However, during the review process the areas for consideration that emerged were methodological issues, choice of measures and quality of papers.

#### 1.4.1 *Methodological issues*

A major weakness identified was that all studies used a cross-sectional design. While this method enables the detection of a relationship between burnout and engagement, it does not allow inference of causality. In addition, all seven papers relied on self-report questionnaire data, which potentially leads to common method error. However, most studies acknowledged these issues and cautioned against potential limitations based on study design.

#### 1.4.2 *Choice of measure*

The majority of studies identified for the review utilised the MBI or UWES to assess burnout and engagement, except for Garossa et al. (2011), who developed an instrument which is structurally similar to the MBI, but also includes additional items that are specific to nursing. Given that the possibility to use alternative instruments exists (e.g. The Oldenburg Burnout Inventory; Demerouti, Bakker, Vardakou & Kantas, 2002), the fact that all studies identified for the systematic review used the MBI and the UWES or abbreviated versions of those, indicates that these two instruments are well established. Nevertheless, it is noteworthy that four out of seven studies used abbreviated versions or only certain items of the MBI without acknowledging resulting issues of validity or reliability.

Similarly, three different versions of the UWES have been included in the papers; however, all versions preserved the three-factor structure of the UWES. The heterogeneous ways of measuring burnout and engagement means that results obtained in different studies can only be compared with considerable caution, until a more universally used instrument has been established.

Relating to this, the heterogeneous measurement may reflect a lack of consensus among scholars regarding the definition and measurement of burnout and engagement (e.g. Simpson, 2009) and represents a major limitation in the research of this field. This makes it very difficult to draw conclusions, not only about the relationship between the two constructs and associated factors, but also may hinder comparison of their prevalence-levels and antecedents and consequences across studies.

#### 1.4.3 *Quality of papers reviewed*

The majority of papers reviewed were adequately designed to answer their proposed research questions and were considered to be of high quality. However, some studies included lengthy questionnaires, which may have had an impact on the response rate (Edwards et al., 2002) and quality of responses (Herzog & Bachman, 1981).

Furthermore the majority of studies provided adequate descriptions of participant recruitment and data collection. Statistical analyses appeared generally appropriate for the study designs; nevertheless weaknesses, such as lack of *a priori* consideration of power and resulting validity issues reported in the papers were identified in all studies. Considerations with regard to non-response bias were particularly well addressed in the study by Prins et al. (2010).

#### 1.4.4 *Practical implications*

This review supports Schaufeli and Bakker (2004) proposition that burnout and engagement are independent constructs. This means that both constructs can coexist and may also have different antecedents and consequences. Interventions aiming at increasing engagement may therefore not simultaneously reduce burnout rates and *vice versa*. Interventions need to consider this and potentially have to address each element of burnout and engagement separately.

#### 1.4.5 *Recommendations for future research*

The fact that the majority of studies used abbreviated versions of the MBI suggests that the original instrument may be perceived as too long to be used in surveys. Moreover, the majority of studies included in the review were concerned with identifying potential antecedents or consequences associated with burnout and engagement and therefore included additional questionnaires. This means that survey space is further limited and shorter instruments would be useful.

Furthermore this review identified seven eligible studies, which were carried out in six different countries. Although cultural diversity in the studies can be seen as an asset, cultural differences may have contributed to the conflicting findings. Moreover, although many aspects of medical professions are similar across cultures (e.g. the suffering of patients, high workload pressures due to time constraints and service cuts), there may also be considerable differences between health care systems, accounting for differences found in this review. Likewise, translations of the instruments to measure burnout and engagement may result in slight differences in meaning which could influence the results. More studies, replicating results in

similar settings are needed to allow valid comparisons across studies and also to identify differences based on cultural differences. Most importantly, no longitudinal data for front-line medical professionals has been identified by this review. However, long-term studies are needed to investigate the development of burnout and engagement over time and to provide knowledge about the inherent nature of their relationship. In addition future research would benefit from including multi-informant methods to avoid common method bias.

#### *1.4.6 Strength and limitations of review*

A limitation of reviewing the quality of papers is the subjective element inherent in determining quality criteria ratings and presenting study findings. The selection of papers and the methodological quality ratings were conducted by two researchers independently, with high inter-rater reliability, to reduce this potential of subjective bias and is a strength of this review.

This review has several limitations. First, only a small number of studies was found that provided data on the relationship between burnout and engagement amongst nursing staff and physicians making it difficult to draw firm conclusions. Related to this, a meta-analysis of the results was not appropriate as Type 1 errors are likely to occur in meta-analyses based on less than 15 studies (Field, 2001). Moreover, all studies that were eligible for inclusion in the review were cross sectional. Hence causality between the two constructs cannot be inferred, as additional variables influencing the dynamics of burnout and engagement may not have been taken into account.

Furthermore the review does not include unpublished literature (i.e. not identified through CINAHL and Thesis Abstracts searches), which may have resulted in a publication-bias. Lastly, all studies identified for the review were published between 2009 and 2012. This may suggest that the interest of academics in this area is fairly recent and further studies meeting the inclusion criteria for this review will be published in future. A replication of this review at a later stage may alter or enhance the preliminary findings of this review.

### **1.5 Conclusion**

This review aimed to investigate the relationship of burnout and engagement among medical professionals. Although the comparison of the correlations reported in this review must be viewed with caution due to methodological issues described earlier, the findings of this review support Schaufeli and Bakker's (2004) proposition that burnout and engagement are independent, yet negatively related constructs.

This review also revealed that in the medical context engagement may constitute less of a protective factor against depersonalisation than it has been found in a previous meta-analysis that included multiple professional groups.

Finally, the heterogeneous methods of assessing levels of burnout and engagement across studies make it difficult to compare findings and the conclusions drawn from this review are only tentative. It is therefore recommended that new instruments are developed or existing ones altered, which can be utilised universally.

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## 2 Bridging Chapter

Occupational stress is a commonly encountered phenomenon in Western societies. It is estimated that 40% of absences from work due to illness are caused by work stress and cost the British economy billions of pounds every year, incurred by costs related to absenteeism and health insurance claims (Hoel et al., 2001). Since the 1970's a term used to describe occupational stress is 'burnout'. The term 'burnout,' which was originally used informally to label the consequences of chronic drug abuse, was used by Freudenberger, a psychiatrist, to describe his and other people's experience of emotional depletion and loss of emotion and commitment (1974) in the context of health care provision. However, before the psychological concept of burnout was systematically studied by academics, the term 'burnout' had been used in everyday language to describe people's experiences with work (Maslach et al., 2001). This 'bottom-up' development from people's language to becoming an academic term to describe a psychological construct lead to early derisions of burnout as 'pop psychology' (Maslach et al., 2001; p. 398). This was further reinforced by the fact that initially several different academic definitions of burnout coexisted.

To date most scholars agree that burnout consists of three components (Maslach et al., 2001). These include emotional exhaustion, which is characterised by physical and emotional exhaustion, depersonalisation or cynicism, which describes a distancing of the employee from people and a cynical attitude towards one's work and feelings of low personal accomplishment (i.e. feeling incompetent in one's job). However, particularly the discriminant validity of the concept of burnout has been contested and the question arose whether burnout was a redundant concept, identical

with depression. To date a number of studies using the Maslach Burnout Inventory (Maslach et al., 1996) and various depression scales accumulated growing evidence that, despite an overlap of symptoms (e.g. fatigue, lack of enthusiasm, distancing from other people), burnout is conceptually different from depression and describes symptoms confined to the work context, while symptoms of depression are pervading all areas of life ( e.g. Glass et al., 1993; Schaufeli & Enzman, 1998).

Relating to this, a Dutch study (Bakker et al., 2000) with a sample consisting of 154 teachers using confirmatory factor analysis showed that although burnout and depression are based on similar etiological processes (lack of perceived reciprocity in relationships), they occur in different life areas; burnout is a response to a perceived lack of reciprocity in relationships in the occupational context, while depression occurs when a lack of reciprocity is perceived in intimate relationships.

Nevertheless, it has been established that people who are prone to develop depression are more vulnerable to experience burnout and it has been proposed that burnout could precede the development of depression (Ahola et al., 2006; Iacovides, et al., 2003). Supporting evidence for this theory comes from a recent three-wave seven-year follow-up study conducted in Finland (Hakanen & Schaufeli, 2012), which investigated the relationship between burnout and depression. In the study 3255 dentists completed questionnaires screening for symptoms of burnout and depression at baseline. Of the initial sample 3035 dentists completed the same questionnaires a second time at the first follow-up study three years later and 1964 participated in the second follow-up study four years later. The results revealed that

while burnout predicted depressive symptoms over time periods of three and four years, depressive symptoms did not predict burnout.

Another important individual-level factor that has been linked to burnout is personality. It has been proposed that personality traits are highly predictive of burnout (Iacovides et al., 2003; Alarcon et al., 2009). Personality is thought to influence stress exposure (i.e. individuals with certain personality traits are selecting highly stressful occupations), the cognitive appraisal of stressors, as well as how an individual copes with stressors (Code & Langan-Fox, 2001). For example, it has been suggested that individuals, who have the personality trait Neuroticism are particularly vulnerable to develop burnout (Iacovides et al., 2003, Swider & Zimmerman, 2010). Neuroticism describes emotional instability and over-reactivity, as well as a tendency to negatively evaluate events and to experience anxiety and depression (Eysenck, 1959). Furthermore, in the face of stressors, individuals with neurotic personality traits have been found to be focusing on internal affective states instead of investing resources in effective coping strategies. It appears therefore plausible that individuals, who experience stressors more intensely and are less able to cope with stressful situations, may show symptoms of burnout earlier than individuals with more emotionally stable personality traits. Furthermore it is possible that individuals with this personality trait may express their negative emotions and anxiety at work, which may negatively affect their relationships with colleagues and supervisors.

On the contrary, personality traits such as Conscientiousness, Agreeableness and Extraversion may be protective factors against burnout. Individuals with

conscientious personality traits are believed to cope effectively with stressors, to be organised, proactive and dependable (McCrae & John, 1992). Their ability to use resources effectively to cope with stressors in the work context may prevent individuals from overextending their physical and emotional resources and developing burnout. Furthermore, Agreeableness describes emotionally warm and nurturing individuals, that seek close relationships with others. It is proposed that their compliant and adaptive behaviours enable them to hold positive views of their jobs (Zimmerman, 2008) and to form good relationships (Goldberg, 1992). Therefore these individuals are less likely to distance themselves from people at work and to use more effective coping strategies. Lastly, Extraversion is characteristic of optimistic and outwards orientated individuals, who enjoy the exchange with others and are confident in their own abilities and future (McCrae & John, 1992). Therefore these individuals are more likely to appraise their own competences at work positively and less likely to distance themselves from people at work. A meta-analysis (Swider & Zimmerman, 2010) of 115 studies, as well as a number of cross-sectional and longitudinal studies (Alarcon et al., 2009; Armon et al., 2012) support the proposed associations of personality traits and burnout.

In summary it has been found that while individuals with neurotic personality traits are vulnerable to the development of burnout, personality traits such as Conscientiousness, Agreeableness and Extraversion may act as protective factors against burnout. Hence personality traits and a predisposition to depression present individual factors that are important to gain a better understanding of the etiology of burnout. Alongside occupational and organizational factors, which are the main focus

throughout this thesis, these individual factors need to be considered, not only in the workforce planning (i.e. assessment of personality to identify vulnerable employees), but also in the development of burnout prevention and treatment interventions, specifically tailored to individual needs.

Wordcount: 1098

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### 3 Journal Article

**TITLE: *Burnout and job engagement in UK cancer care staff: how do they relate to job stress and satisfaction and turnover intentions.***

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### 3.1 Abstract

This study examined the levels of job engagement and burnout and their relationship with turnover intentions and job satisfaction in a cancer centre in the United Kingdom. 150 cancer care workers completed a cross-sectional questionnaire entailing the Maslach Burnout Inventory, the Engagement Indicator, measures of job satisfaction, stress, turnover intentions and demographics. Mean scores of burnout and job engagement did not differ from normative data, although lower levels of depersonalisation were found. Although 27% of staff reported high levels of emotional exhaustion and 50% low to moderate levels of personal accomplishment, the majority reported high levels of job satisfaction and engagement and indicated no turnover intentions. Path analysis provided preliminary support for an exploratory model indicating that engagement mediates the relationship between job stress, depersonalisation and job satisfaction and turnover intentions. The results suggest that work overload and a perception of being poorly managed and resourced are risk factors for burnout. However, engaged employees with high levels of personal accomplishment may experience job satisfaction and desire to stay in their jobs despite high levels of occupational stress. Further research is required to identify factors predictive of personal accomplishment and job engagement in oncology services.

Key words: cancer workers, cross-sectional questionnaire survey, Maslach Burnout Inventory, Engagement Indicator, turnover intention, job stress & satisfaction

### 3.2 INTRODUCTION

The number of people requiring cancer care treatment is steadily growing. In the past decade, the number of new cases in Scotland has increased from 26,169 cases in 2000 to 29,449 in 2010 (Information Services Division, National Health Services Scotland, 2011). A wide range of professionals are involved in the provision of treatment and includes doctors, nursing staff, radiographers, administration staff, pharmacists, medical physicists and allied health professionals. The delivery of safe and good quality treatment is largely dependent on the well-being of an experienced and well trained workforce. However, staff members working in oncology are experiencing multiple stressors. These include caring for serious ill and dying patients, increasingly complex treatment protocols, pressures to maintain quality of care and to reduce waiting times while at the same time patient numbers are growing and health care services are undergoing restructuring (e.g. Ramirez *et al.*, 1996; Sherman *et al.*, 2006).

#### *Burnout*

It has been well documented that prolonged occupational stress can lead to burnout, which is depicted as a three dimensional construct, characterised by physical and emotional exhaustion, depersonalisation, and a decline in personal accomplishment from the job (Maslach *et al.*, 1996). Emotional exhaustion refers to a state of depletion of physical energy and emotional resources, to which employees react by adapting a distant and cynical attitude towards the recipients of their care or service, which is termed depersonalisation. A decline in personal accomplishment describes

the tendency of the employee to negatively evaluate their work. The Maslach Burnout Inventory (MBI; Maslach *et al.*, 1996), a questionnaire including the proposed three dimensions of burnout, has become the most widely used tool to assess burnout (Schutte *et al.*, 2000).

### *Burnout in Oncology*

Burnout in the health care context has wide reaching implications for the individual suffering from it and his or her organisation, but perhaps most importantly for the quality of care of the patient. Burnout has, for example, been associated with an increase in absenteeism, job turnover and medical error, as well as poor job satisfaction and performance leading to poor quality of care and patient dissatisfaction, (e.g. Lee and Ashforth, 1996; Maslach *et al.*, 2001, Shanafelt *et al.*, 2002, Shimzu *et al.*, 2005).

The prevalence of burnout among professionals working in oncology has been reported in several studies. High scores on the MBI burnout dimensions in oncology staff between 30% to 50% have been reported (Grunfeld, *et al.*, 2000; Poulsen *et al.*, 2011; Sherman *et al.*, 2006; Taylor *et al.*, 2005; Whippen and Canelos, 1991). Of particular concern was the finding by Grunfeld *et al.* (2000) that in response to raised levels of job stress and burnout, high proportions of oncology employees indicated intentions to leave their work. Given the complexity of treatments and service coordination in oncology, the retention of experienced staff is crucial to provide and maintain high standards of care. It is therefore important to understand the relationship between occupational stress, burnout and turnover

intentions. Swider and Zimmerman (2010) note that although theoretically burnout dimensions should be positively linked to turnover intentions, empirical research has produced conflicting results, showing both positive and negative relationships between turnover intentions and burnout dimensions (Firth and Britton, 1989; Halbesleben, 2003; Riolli and Savicki, 2006).

### *Engagement*

Recently there has been an increasing focus on job engagement in the literature, hereafter referred to as engagement, which is concerned with optimal functional and well-being at work (Hallberg and Schaufeli, 2006). It is hoped that through promoting engagement, occupational stress and burnout can be reduced or prevented (Luthans, 2002).

Several definitions of engagement as well as a number of engagement measures have been developed.

Maslach and Leiter (1997), for example, propose that engagement consists of energy, involvement and efficacy, which are believed to be the exact opposite dimensions of the core burnout dimensions. According to these authors, burnout occurs when an individual's engagement with their job erodes and thus burnout and engagement are depicted as the opposite ends of one pole. Schaufeli *et al.* (2002), define engagement as: 'a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption' (p.74). However, in contrast to Maslach and Leiter, these authors consider burnout and engagement as two independent psychological states.

Other conceptualisations of engagement focus on the mutual beneficial relationship between employer and employee.

Saks (2006), for instance criticises current models of engagement for failing to account for the individual differences in levels of engagement in which employees respond to work related conditions. The author suggests that engagement could be conceptualised within social exchange theory (SET; Cropanzano and Mitchell, 2005). According to SET, employer and employee form an interdependent relationship based on a reciprocal rule of exchange. The employer provides benefits and resources to the employee, who in turn feels obliged to repay the employer through greater levels of engagement. Hence the amount of cognitive, emotional and physical resources an employee chooses to dedicate to his job varies according to the economic and socioemotional resources received from the employer. The definition of engagement proposed by Robinson *et al.*, (2004) reflects this emphasis on a mutual relationship:

*'Engagement is a positive attitude held by the employee towards the organisation and its values [...]. The organisation must work to nurture, maintain and grow engagement which requires a two-way relationship between employer and employee.'* (Robinson *et al.*, 2004, p.9).

#### ***Outcomes of engagement***

Engagement has been associated with a number of positive outcomes on both organisational and individual levels. It has been found, for example, that engaged employees have low turnover intentions (Schaufeli and Bakker, 2004) and experience higher job satisfaction (Saks, 2006). Moreover, according to the

Department of Health (2010) high levels of engagement in NHS staff correlate strongly with positive outcomes including higher patient satisfaction, lower patient mortality, less absenteeism, better quality of service and of financial management.

### *The present study*

These issues of occupational well-being are of great relevance to the delivery of cancer care in the United Kingdom (UK) and throughout Europe and the management of stressors and engagement are crucial to maintain quality service. The present study aimed to assess the levels of burnout and engagement, job stress and job satisfaction in the entire workforce of a specialist cancer centre in the UK. To our knowledge, no previous study has measured burnout and engagement in the entire workforce of a cancer centre in Europe.

Secondly, the study aimed to gain a better understanding of the relationship between burnout, engagement, job stress and satisfaction as well as turnover intentions in the cancer centre. We put forward an exploratory model in which burnout dimensions and job stressors are proposed to have an indirect effect through engagement on job satisfaction and turnover intentions.

This is based on the following rationale: Research has repeatedly found that job stress leads to decreased job satisfaction (Ramirez *et al.*, 1996), while engagement has been found to be positively associated with job satisfaction (Saks, 2006).

Furthermore, burnout is negatively associated with job satisfaction and positively associated with turnover intentions (Lee and Ashforth, 1996; Alarcon, 2011).

Engagement, on the other hand, has been found to relate positively to job

satisfaction (Saks, 2006) and negatively to turnover intentions (Saks, 2006; Schaufeli and Bakker, 2004). Moreover, growing evidence is suggesting that burnout and engagement are related, yet independent constructs (Schaufeli and Bakker, 2004; Halbesleben, 2010; Ziemen and Newman, 2012<sup>1</sup>). Therefore, theoretically, levels of burnout and engagement can co-exist. In fact this seemingly paradoxical pattern has now been reported in several studies (Poulsen *et al.*, 2011; Prins *et al.*, 2010).

Thus it seems plausible that, given the proposition that burnout and engagement are both related to the outcome variables job satisfaction and turnover intentions (albeit in opposite directions), engagement may explain the relationship between stressors, burnout and their related outcomes. Moreover, it is possible that the inconsistent findings regarding the relationship between burnout and turnover intentions reported by Swider and Zimmerman (2010) may have occurred because the impact of engagement on turnover intentions was not considered in this relationship. This is supported by Alarcon and Edwards (2011), who demonstrated in a study using a sample of 227 US college students, that engagement predicted job satisfaction and turnover intentions, independently of burnout. Their study therefore contributes additional evidence that burnout and engagement are separate processes which may simultaneously influence organisational outcomes. Predictions of organisational outcomes, such as job satisfaction and turnover intentions solely based on burnout scores might therefore be inaccurate and explain the inconsistent results

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<sup>1</sup> This reference will not be included in the version of the article for submission to the European Journal of Cancer Care, as it does not allow the inclusion unpublished references.

found in studies attempting to predict job satisfaction and turnover intentions based on levels of burnout.

In sum, we put forward the hypothesis that burnout and occupational stress indirectly influence job satisfaction and turnover intentions through engagement. The exploratory model is depicted in Figure 1.

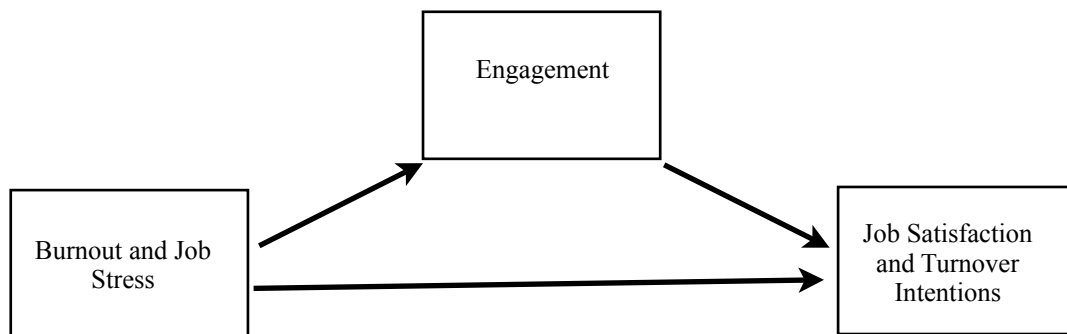


Figure 1: *Exploratory model*

### 3.3 METHOD

#### *Procedure and participants*

All permanent members of staff employed at a major cancer care centre in the UK were eligible to take part in the study except for staff members that were on extended leave or on secondment at the time of study. Envelopes addressed to individual employees were distributed through internal mail by a member of the research team who has no affiliation with the cancer centre. The envelopes contained a questionnaire consisting of a coded sheet and six A4 pages and a prepaid return envelope for participants to post the completed questionnaire to a member of the research team. Furthermore the envelope contained an invitation letter providing participants with information about the purpose of the study and issues related to

confidentiality and consent. Participants were informed that taking part in the study was voluntary and that all information would be handled with strict confidence. All members of staff were sent three reminders by email within a three month timeframe and were given the opportunity to request new questionnaire booklets if needed. Overall 461 questionnaires were distributed and 150 participants (32%) returned usable questionnaires by mail. One participant did not provide any demographic data.

There were more females than males in the sample (130 female compared to 19 male participants), which may be explained by the high proportion of participants from the nursing and administration professions, which traditionally are female dominated occupations.

#### *Demographic information*

Participants were asked to indicate their gender and age group (<35; <35-49; ≥50). Further information regarding the participant's work situation was requested and included professional stream, number of years in organisation, number of working hours per week and whether job entailed shift or on call work.

#### *Measures*

*Maslach Burnout Inventory Human Service Survey* (MBI-HSS; Maslach *et al.*, 1996) was used to measure burnout. The questionnaire consists of 22 items which construct the three core domains of burnout.

Each item is rated on a 7-point frequency scale ranging from 0 to 6. The scores rate the subjective frequency of an experience, where a higher score represents a higher frequency (0= 'never'; 1= 'couple of times a year'; 2= 'once a month or less'; 3= 'a couple of times a month or more'; 4= 'once a week'; 5 = 'a couple of times a week'; 6= 'daily').

The relevant items are summed for each of the dimensions of burnout and an individual score is derived for each scale. In addition for research purposes mean scores for each dimension are frequently used. High scores on emotional exhaustion and depersonalisation and low scores on personal accomplishment indicate burnout. The MBI-manual outlines that burnout should not be considered as a dichotomous variable, measuring whether a person has burnout or not, but that burnout should be viewed as a continuous variable. Hence, the MBI uses a continuous scale indicating the strengths of an experienced feeling on a continuum from low to moderate to high. Scores that fall in the upper third of the normative distribution are considered high, average if they fall in middle third and low if they fall in the lower third.

The internal consistency estimates of the MBI-HSS are provided in the 3rd MBI manual using Cronbach's  $\alpha$  (n=1316): emotional exhaustion= 0.90, DE= 0.79 and personal accomplishment= 0.71. The reliability coefficients for this study using Cronbach's  $\alpha$  (n=134) were: emotional exhaustion= 0.89, depersonalisation= 0.71 and personal accomplishment= 0.75.

*The Engagement Indicator* (EI; Robinson *et al.*, 2004) was used to measure engagement. This questionnaire was designed by the Institute for Employment Studies (IES) to assess levels of engagement, taking both the characteristics of the

employees and their perceptions of the organisation they work for into account. The EI consists of 12 attitude statements, scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Three represents the neutral midpoint. By calculating the average of scores, the questionnaire provides a score indicating overall levels of engagement, ranging from 1= highly disengaged to 5=highly engaged. Examples of items include: ‘*I am proud to tell others I am part of this organisation*’; ‘*This organisation inspires the very best in me in the way of job performance*’.

This measure has been chosen as it has been used in a previous survey in the NHS (Robinson et al., 2004) and therefore allows the comparison of scores obtained in this study with existing survey data. The reliability of the tool was established using a sample of NHS-employees with varying professional backgrounds (Cronbach’s  $\alpha = .86$ ;  $n= 10\ 024$ ). The reliability coefficients for the EI using Cronbach’s  $\alpha$  ( $n=134$ ) were: 0.84

*Turnover Intentions* were assessed by asking participants to choose one statement that best described their intentions to remain in their job. The statements were taken from a survey by Robinson *et al.* (2004) and included: *Leave as soon as possible, Leave within the next year, stay for at least another year, and Stay for the foreseeable future*. For the purpose of this study, one item (‘Likely to leave if another position was available’) was added to the existing section, reflecting the potentially limited choice of workplace for professionals specialising in oncology in the region, as well as the current job situation. The question describing turnover intentions was scored as continuous data (scores ranging from 1-5). A low score on the measure

indicated an employee's immediate intention to leave their job while a high score indicated no current turnover intentions. As the intention to quit is a 'tick box' single item and not an attitude survey, no Cronbach's  $\alpha$  is given for this measure. This section was followed by an open question where participants were asked to indicate the reasons for wanting to leave their job if applicable.

*The Job Stress Scale* comprising 36 items which were taken from the '2002 Hospital Consultants Job Stress and Satisfaction Questionnaire' (2002 HCJSSQ; Teasdale *et al.*, 2008) was used to assess stressors. The scale was designed to survey the levels and sources of job stress among hospital consultants. Participants are asked to indicate to what extent certain factors contribute to their experience of occupational stress over the past few months. The authors suggest summing the ratings given to each item of the questionnaire to obtain a total job stress score, which can be analysed as continuous data. The job stress scale has been shown to have good internal consistency (n= 1308, Cronbach's  $\alpha$ = 0.92) and content and construct validity (Teasdale *et al.*, 2008). The Cronbach's  $\alpha$  (n=134) in this study was  $\alpha$ = 0.90. Furthermore, it has been found that some questionnaire items load on seven different stress factors, which represent themes of occupational stressors (Teasdale *et al.*, 2008). These are: factor 1 (*Feeling overloaded and its impact on home life*), factor 2 (*Feeling poorly managed and resourced*), factor 3 (*Dealing with blame and anger from patients and relatives*), factor 4 (*Dealing with change in clinical practice*), factor 5 (*Encountering difficulties in relationships with NHS staff/colleagues*), factor 6 (*Dealing with patients' suffering*) and lastly factor 7 (*Having managerial responsibilities*).

*Global Job Stress* was measured with one item taken from the HCJSSQ.

Participants are asked to rate: 'Overall, how stressful do you find your work?' on a scale from 0 (not at all stressful) to 4 (extremely stressful).

*Global Job Satisfaction* was measured with one item taken from the HCJSSQ. Participants are asked to rate: 'Overall, how satisfying do you find your work?' on a scale from 0 (not at all satisfying) to 4 (extremely satisfying).

#### *Ethical approval*

The study was granted ethical approval by the Ethics Committee in the Clinical and Health Psychology Section at the University of Edinburgh.

### 3.4 STATISTICAL ANALYSES

The data were coded and analysed using SPSS Version 20 (IBM, SPSS Inc, Chicago, IL, USA). Missing values were replaced, if appropriate, with the mean score from the entire sample for the item.

Descriptive analyses were carried out to identify participants' demographic and occupational characteristics and to assess their levels of burnout and engagement, job stress and job satisfaction, as well as their turnover intentions.

Independent t-tests were performed to compare mean scores of the three burnout dimensions for participants of this study with those of a reference group from the United States (Maslach *et al.*, 1996) and for the engagement measure with a reference group consisting of NHS employees (Robinson *et al.*, 2004). Cohen's *d* effect sizes (standardised difference in means) were computed to demonstrate the

clinical relevance of differences. A Cohen's  $d$  effect size of  $<0.20$  is considered small, between  $0.20-0.50$  medium and  $>0.80$  large (Cohen, 1988).

Analyses of Variance (ANOVAs) were computed with *post hoc* Scheffé tests to assess differences between professional groups in burnout, engagement and turnover intentions.

Furthermore, Pearson's product moment correlation coefficients were calculated to assess relationships between all study variables. Additionally, a series of multiple regression analyses was carried out to analyse whether demographical variables predict burnout, engagement and turnover intentions.

The open ended responses given by participants to explain their turnover intentions were analysed qualitatively by assigning them inductively derived codes to describe emerging themes.

To assess the relationships between the three core burnout dimensions, stressors and engagement and their influence on job satisfaction and turnover intention, an exploratory model was proposed. The model hypothesis was that burnout and occupational stress influence turnover intentions and job satisfaction indirectly through engagement. A path analysis was conducted using SPSS Amos 20 (Ardbuckle, 2007) and a *chi-square* test to assess the amount of difference between expected and observed covariance matrices. A non significant difference would indicate that the proposed model fits the data and supports the hypothesis, whereas a significant difference would mean that the model does not fit the data.

*Post hoc* power calculations were performed to determine the required sample size to test this model. With a sample size of 122, the multiple linear

regression test of  $R^2$  ( $\alpha= 0.05$ ) for 5 normally distributed covariates will have 80% power to detect an  $R^2$  of 0.10.

### 3.5 RESULTS

As the professional group ‘administrational and clerical staff’ obtained scores considerably different from the remaining professional streams, it was decided to remove this group from the main statistical analyses to avoid a bias in the results. Descriptive data of the professional group administrative and clerical staff will be presented at the end of the results section. However, this staff group is included in ANOVA analyses comparing professional groups.

#### *Descriptive data*

As can be seen in Table 3.1 the most frequent age band was 35-49 years old and respondents had worked an average of 12.69 (SD= 8.69) years in the cancer centre.

#### *Levels of burnout and engagement*

The prevalence rates of burnout, engagement, job satisfaction and job stress reported are presented in Table 3.2. Almost a third of participants had high levels of emotional exhaustion and global job stress. Over fifty percent reported low or moderate levels of personal accomplishment (as the subscale personal accomplishment is inversely scored this means high to moderate burnout). However, the majority of participants reported high levels of engagement and job satisfaction.

Table 3.1: *Demographic characteristics of participants*  
*N= 133; SD= standard deviation*

Characteristics	N	Percentage
Age (years)		
<35	40	30.0
35-49	68	51.0
>49	25	19.0
Gender		
Male	19	14.3
Female	114	85.7
On call (n=132)		
Yes	47	35.6
No	85	64.4
Shiftwork		
Yes	31	23.3
No	102	67.7
Years in organisation		
Mean/ <i>SD</i>	12.69	8.69
Range	0.5-38	
Hours per week		
Mean/ <i>SD</i>	37.12	11.7
Range	15.5-55.0	

**Table 3.2: Distribution of scores on MBI and EI of all cancer centre staff excluding administrative and clerical professionals**

Scale	n(%)
<b>MBI (HSS) Emotional exhaustion (n=133)</b>	
Low score	54 (40.6%)
Moderate score	43 (32.4%)
High score	36 (27%)
<b>MBI-HSS Depersonalisation (n=134)</b>	
Low score	103 (76.9%)
Moderate score	22 (16.9%)
High score	9 (6.2%)
<b>MBI (HSS) Personal accomplishment (n=133)</b>	
Low score (high burnout)	21 (15.6%)
Moderate score	50 (37.3%)
High score (low burnout)	63 (47.1%)
<b>Engagement Indicator (n=134)</b>	
Very high levels	29 (21.6%)
High levels	93 (69.4%)
Low levels	12 (9%)
<b>2002 HCJSSQ (n=134)</b>	
Global job stress †	48 (35.8%)
Global job satisfaction †	104 (77.6%)

Range of burnout subscales: emotional exhaustion 0–54 (9 items, cut-off  $\geq 27$ ); depersonalisation 0–30 (5 items, cut-off  $\geq 13$ ), and personal accomplishment 48–0 (8 items, cut-off  $\leq 31$ ). Range of total engagement 0–5 ( $\geq 4.1$ =very high, 4–3.1= high,  $\leq 3$ = low). Range of 2002 HCJSSQ (Global job stress and satisfaction 0–4 († percentage of people that scored  $\geq 3$ ))

### *Turnover Intentions*

Of the 134 participants the majority (71.6%) indicated that they intended to stay in the organisation for the foreseeable future, while 11.9% would consider leaving if

another position was available. A further 8.2% of participants intended to stay for at least another year and 6.7% would like to leave within a year. The remaining 1.5% indicated their desire to leave their position as soon as possible.

Forty-four participants answered the open ended question giving reasons for wanting to leave their jobs. The most frequent response was 'feeling poorly managed and not valued by management' (indicated by 22% of respondents). This was followed by 'personal reasons (20%) and 'looking for new challenges' (15%). 'Changes in the organisation and job' that had a negative impact on job satisfaction and 'lack of career progression' were reported by 13% of participants. Another frequently mentioned reason was 'too high workload' (11%). Multiple answers were allowed and the total percentage is therefore not equivalent to 100.

T-tests ( see Table 3.3) comparing the mean values of the three burnout dimensions with a normative sample from the United States, consisting of the following occupational subgroups: teaching, postsecondary education, social services, medicine, mental health, other (Maslach *et al.*, 1996). The analysis showed that the present sample scored significantly lower on depersonalisation and lack of personal accomplishment. Furthermore, the mean levels of engagement found in this study differed significantly from those of the reference group. There was no significant difference in levels of emotional exhaustion between the means of the reference group and this sample.

Table 3.3: Burnout (mean of sum of items) and engagement descriptives and comparisons of subscales between sample and reference group. Cohen's d for the comparison between the mean scores of the burnout and engagement scales and the reference group

	Mean ( <i>SD</i> )	Reference Group, mean ( <i>SD</i> )	t	Cohen's d
Emotional exhaustion (n=133; n=11067)	20.62 (10.17)	20.99 (10.75)	-0.41	-0.03
Depersonalisation (n=134; n=11067)	4.18 (4.41)	8.74 (5.89)	-11.84**	-0.88
Personal accomplishment (n=134; n=11067)	37.51 (6.76)	34.58 (7.11)	4.98**	0.15
Engagement (n=134; n= 1777)	3.69 (0.47)	3.57 (0.51)	2.83*	0.16

\* significant at  $p < .05$ ; \*\*significant at  $p < 0.0001$ , SD = standard deviation. Note: The 2002 HCJSSQ manual does not provide normative data.

#### *Multiple comparisons between professional groups*

Differences were tested using  $\alpha$  level= 0.05. A one-way ANOVA showed that the group effects for professional group and engagement ( $F(6, 142, p= 0.031)$ ) and the burnout dimension personal accomplishment ( $F(6, 141, p= 0.000)$ ) were significant while the group effects between professional group and burnout dimensions emotional exhaustion ( $F(6, 141, p= 0.514)$ ) and depersonalisation ( $F(6, 142, p= 0.89)$ ) were not significant. Analyses using the Scheffé *post hoc* criterion for significance indicated that the average score for personal accomplishment was significantly lower in the professional group that includes administration and clerical staff ( $M= 2.7, SD= 1.25$ ) than for the professional groups *nursing* ( $M= 4.8, SD= 0.74$ ), *doctors* ( $M= 4.83, SD= 0.63$ ) and *other* ( $M= 5.02, SD= 1.04$ ). No significant differences in mean scores of the engagement measure were found.

*Bivariate relationships between study variables*

Table 3.4 presents the relationships between all study variables (n=134).

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	13	15
1 Exhaustion	2.29	1.13	1														
2 Depersonalisation	.83	.88	.490**	1													
3 Accomplishment	4.68	.85	-.272**	-.264**	1												
4 Engagement	3.69	.47	-.381**	-.386**	.206*	1											
5 Global job satisfaction	3.00	.81	-.379**	-.427**	.465**	.443**	1										
6 Global job stress	2.24	.93	.713**	.263**	-.222*	-.250**	-.239**	1									
7 Total stressors	1.25	.46	.533**	.346**	.007	-.325**	-.162	.571**	1								
8 Turnover intentions	4.37	1.13	-.184*	-.156	.213*	.147	.279**	-.156	-.116	1							
9 Work overload	1.52	.69	.536**	.284**	-.068	-.227**	-.118	.551**	.800**	-.09	1						
10 Feeling poorly managed & resourced	1.39	.59	.475**	.353**	-.034	-.360**	-.249**	.471**	.826**	-.184*	.569**	1					
11 Dealing with distressed patients	2.44	1.64	.241**	.191*	.033	-.230*	-.131	.338**	.596**	-.124	.324**	.411**	1				
12 Change in clinical practice	1.19	.65	.222*	.159	-.056	-.231**	-.138	.247**	.580**	-.063	.337**	.345**	.370**	1			
12 Difficulties with colleagues	1.11	.72	.221*	.284**	.018	-.338**	-.147	.238**	.512**	-.073	.295**	.365**	.471**	.258**	1		
14 Dealing with patient suffering	1.54	.94	.156	.003	.161	-.059	.123	.253**	.381**	.36	.144	.14	.573**	.362**	.241**	1	
15 Managerial responsibilities	1.12	.71	.236*	.173*	.054	.032	.013	.324**	.706**	.5	.568**	.503**	.288**	.350**	.279**	.144	1

## Multivariate analysis

### *Burnout and engagement*

As previous studies have shown that age, gender and working conditions are associated with burnout or engagement (e.g. Ramirez, *et al.*, 1996; Maslach *et al.*, 1996; Poulsen *et al.* 2011), multiple regression analyses were conducted entering data describing demographic and work conditions as predictors and with the three burnout scales and the work engagement scale as the outcome variable. The regression analyses indicated that the demographics did not explain a significant amount of variance in any of the dependent measures. Regarding work situation the variable *on call* made a significant contribution to explaining depersonalisation ( $\beta = -.251$ ;  $p < .05$ ; CI 95% [-.834- -.094]).

### *Stress and stress factors*

Several multiple regression analyses were carried out entering the seven individual stress factors identified (see methods section) as predictors and the three burnout dimensions as outcome variables. The analysis showed that the stress factors *Feeling overloaded and its impact on home life* ( $\beta = .464$ ,  $p < .0001$ , CI 95% [.448-1.065]) and *Feeling poorly managed and resourced* ( $\beta = .300$ ,  $p < .01$ , CI [.209-.931]) significantly predicted an increase in emotional exhaustion. On the contrary, *Having managerial responsibilities* was significantly associated with a decrease in emotional exhaustion ( $\beta = -.186$ ,  $p < .05$ , CI 95% [-.580--.008]). *Feeling poorly managed and resourced* was positively associated with a decrease in depersonalisation ( $\beta =$

.239,  $p < .05$ , CI 95% [.036- .675]). *Dealing with patients suffering* significantly predicted an increase in lack of personal accomplishment ( $\beta = .237$ ,  $p < .05$ , CI 95% [.018- .410]).

### *Structural model*

An exploratory model was tested in which engagement influences the relationship between burnout, job stress and their associated outcomes job satisfaction and turnover intentions. Pathways were defined from burnout dimensions and job stress to engagement and from engagement to job satisfaction and turnover intentions. The errors of burnout dimensions and job stress were allowed to correlate. The pathways from emotional exhaustion and lack of personal accomplishment to engagement did not reach significance and a direct pathways from emotional exhaustion and lack of personal accomplishment to job satisfaction were allowed.

The proposed indirect effects from burnout dimensions and stressors to the outcomes job satisfaction and turnover intentions through engagement were partially supported by the results for depersonalisation and job stressors. In addition the path analysis indicates one additional pathway from personal accomplishment to job satisfaction ( $r = 0.36$ ). The proposed model had a non significant *chi square* ( $X^2 = 13.56$  (df 9)  $p = 0.1386$ ) indicating a good fit of the model. Model parameter estimates are shown in Table 3.5 while Figure 2 presents the pathdiagram. All the coefficients are standardised and significant at the 5% level or less. To avoid clutter pathways that did not reach significance and standardised error variances are omitted in this model. To summarise, the model testing suggests that engagement may act as a

mediator in the relationship between job stress, depersonalisation and job satisfaction and turnover intentions. Furthermore it emerged that personal accomplishment has a direct positive influence on job satisfaction, while emotional exhaustion has a direct negative influence on job satisfaction, which in turn is negatively associated with turnover intentions.

**Table 3.5: Model parameter estimates for default model**

Variables	Unstandardised Estimates	Standard Error	Standardised Estimate	Critical Ratio	p
Engagement←Depersonalisation	-0.167	0.45	-0.31	-3.71	0.0001
Engagement←Stressors	-0.223	0.09	-0.22	-2.59	0.0059
Job Satisfaction←Engagement	0.530	0.05	0.32	4.28	0.0001
Job Satisfaction←Personal Accomplishment	0.343	0.07	0.37	4.95	0.0001
Job Satisfaction←Emotional Exhaustion	-0.12	0.05	-0.16	-2.39	0.017
Turnover Intentions←Job Satisfaction	0.387	0.12	0.29	3.27	0.0001

←= directions

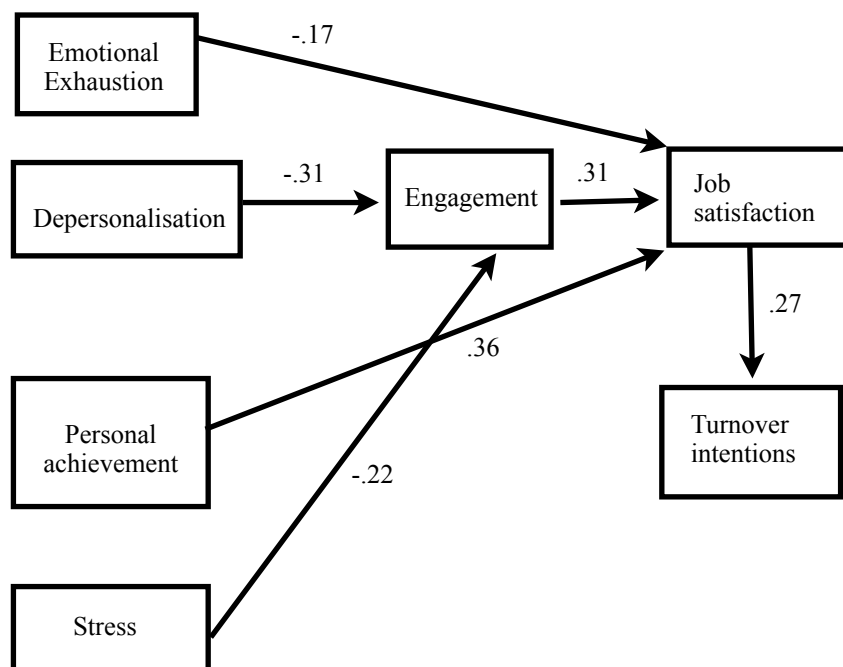


Figure 2: Pathdiagram showing standardised estimates for variance between variables

#### *Administrational and clerical staff*

16 female members of the staff group administrative and clerical staff returned the questionnaire. The most frequent age band was 35-49 years old (37.5%), while there were equal numbers of the remaining two age bands (31.25%). The average person was employed in the organisation for 5.3 years (SD= 3.5) and worked 34.3 hours per week (SD= 7.1). Two participants indicated that their work included being on call, while one participant reported to work in shifts. With regards to the burnout subscale emotional exhaustion 43.8% participants obtained low, 18.8% moderate and 37.4% high scores. Furthermore, 75% indicated low levels and 25% moderate levels of depersonalisation. Additionally 87.5% of the administrative and clerical staff group surveyed reported to experience low levels of personal accomplishment, the remaining 12.5% indicated high levels of personal accomplishment. The average level of engagement in this group of 3.65 (SD= .38) was similar to the NHS

reference group. Moreover, 37.5% reported high levels of job satisfaction while 43.8% indicated high levels of occupational stress. With regards to turnover intentions, over 62% reported that they would leave their job if another position was available and 12.6% of participants indicated that they would like to stay for the foreseeable future. 10 participants gave reasons for their wish to leave, which were mainly changes in job and organisation (40%) and not feeling valued by management (40%). Other reasons included workload and lack of career progression.

### 3.6 DISCUSSION

This study aimed to assess levels of burnout and engagement in a UK cancer centre and to test a model, based on previous research findings and theory, in which engagement mediates the relationship between stress and burnout and their associated outcomes job satisfaction and turnover intentions.

#### *Burnout*

The mean score for emotional exhaustion was similar to those stipulated by the MBI manual (Maslach *et al.* 1996). Furthermore, levels of emotional exhaustion were similar to those reported in oncology settings in Australia and in Japan (Girgis *et al.*, 2009; Asai *et al.*, 2007), but appeared lower than in previous studies conducted in Canada and the UK (Grunfeld *et al.*, 2000; Taylor *et al.*, 2005). Emotional exhaustion is considered to be a core element and the first stage of burnout and has in this study been associated with high workload and feeling poorly managed and under resourced. The fact that 27% of the study participants reported high levels of emotional exhaustion is of concern, as emotional exhaustion, through its association

with workload and poor management and resources, may be an indicator of overload within the cancer care centre.

Interestingly, in this study, stress associated with having managerial responsibilities predicted a decrease in emotional exhaustion. This may be explained by a theory proposed by Crawford and colleagues (2010) which differentiates hindering work demands from challenging work demands, which have a positive impact on an individual's relationship with work. Managerial responsibility may be considered as challenging rather than hindering.

Compared to the scores stipulated by the MBI-HSS manual, this study found low levels of depersonalisation. Depersonalisation is associated with adopting a distant attitude towards patients and a resulting reduction in quality of patient care (Shanafelt *et al.*, 2002). This may indicate levels of depersonalisation are low in oncology, as previous studies in oncology settings also reported low levels of depersonalisation (Asai *et al.*, 2007; Girgis *et al.*, 2009, Grunfeld *et al.*, 2000). The reasons for this are unclear and warrant further investigation.

Although more than 50% of participants reported experiencing low or moderate levels of personal accomplishment from their work, the overall scores for lack of personal accomplishment obtained in this study were significantly lower than those of the normative sample and lower than levels previous studies in other oncology settings have reported (Asai *et al.*, 2007; Girgis *et al.*, 2009, Grunfeld *et al.*, 2000). Hence it seems that the relatively high sense of personal accomplishment experienced by a considerable number of staff members might not be related to the

nature of work in oncology settings, but may be linked to specific factors. However, further research is needed to investigate this further.

### *Engagement*

The average engagement score obtained in this study of an oncology service was significantly higher than that of other NHS employees that constituted the normative data. Overall the majority of participants were highly engaged (69.4%), while 21.6% of participants reported very high, and 9% of participants reported low levels of engagement.

### *Global job stress and satisfaction*

The proportion of participants reporting high levels of job stress was similar to those reported in the Canadian sample (35.8% vs 34.1%; Grunfeld *et al.*, 2000), which also included the entire workforce of an oncology service . In contrast, it appeared that a considerably larger proportion of participants in the present study reported high levels of job satisfaction (77.6% vs 52.8%).

### *Turnover intentions*

A smaller number of oncology staff in this study reported turnover intentions than in the Canadian sample (Grunfeld *et al.*, 2000). In fact 71.6% of study participants planned to stay in the organisation. Nevertheless, 11.9% of participants indicated that they would leave their job if a different position was available. This response was especially frequent among administration and clerical staff (62%).

The responses to the open ended question revealed that the same factors (i.e. 'feeling poorly managed' and 'high workload') that have been found to predict burnout were frequently indicated as reasons for turnover intentions. This supports the proposed link between burnout and turnover intentions. Furthermore, it emerged that 'not feeling valued by management' was most commonly named as reason for turnover intentions. Engagement theory emphasising the importance of the employee's perception of his or her relationship with the employer (Saks, 2006; Robinson et al., 2004) may explain this finding. If the employee does not perceive the relationship as positive or mutual (i.e. does not feel valued in return for his or her work), he or she disengages, which ultimately leads to turnover intentions.

#### *Group differences*

The findings suggest that there are no significant differences between most professional groups. However, due to the small number of professionals representing certain professional groups, the analyses have to be viewed with caution.

In contrast to the Canadian study (Grunfeld *et al.* 2000), in which administration staff reported the lowest turnover intentions and low levels of burnout, the present findings indicate that administration and clerical staff members report higher turnover intention scores and the lowest levels of personal achievement than all other professional groups. This relates to results found by Poulsen *et al.* (2011), which revealed that administration staff had the highest levels of burnout and the lowest levels of engagement among the entire Australian oncology workforce.

Poulsen *et al.* (2011) hypothesise that lack of direct patient contact and support structure may be the underlying reason for the results. We add to this the possibility that the rapid increase of cancer clinicians over the past decade of up to 140% (Taylor *et al.*, 2005) may not have been met with an adequate increase in administrative posts. The resulting change in working conditions may explain the decline in occupational well-being in this professional group. Moreover, in contrast to clinicians, with specialist skills limiting employment opportunities to oncology settings, the skills of administration and clerical staff are more widely deployable (e.g. outside oncology settings or the NHS). It is possible that an awareness of the opportunities for (or lack of) alternative employment influences turnover intentions. However, more research is needed to investigate this issue further.

#### *Exploratory model*

One of the aims of this study was to examine the relationship between burnout dimensions, job stress and engagement and their influence on job satisfaction and intention to leave.

It is important to point out the limitations of this model before discussing the results further. First the sample size used to test the model was insufficient to test a mediation model of engagement and the conclusion drawn from the relationships between the variables depicted in the model are only tentative. The model denotes one possibility of how the variables relate to each other and there are other potential models that could be tested. However, the literature on the outcomes of burnout and

engagement presented in this paper seemed to specify the relationships as reflected in this model.

The model tested in this study partially supports the theoretical assumption that engagement mediates the relationship between burnout and job satisfaction and turnover intentions. It seems that engagement presents an important factor in the management of occupational well-being in the cancer centre, as it may mediate the effect of job stress and depersonalisation on job satisfaction and turnover intentions. Moreover, there was a strong association between the ability to derive a sense of personal accomplishment and job satisfaction, which in turn was negatively associated with turnover intentions. This highlights that personal accomplishment, through its direct effect on job satisfaction, may be a key predictor of positive occupational outcomes.

In contrast to previous research proposing that emotional exhaustion is negatively associated with engagement (e.g. Halbesleben, 2010), our findings suggest that emotional exhaustion does not have a direct influence on engagement. This could potentially be explained through SET. Despite being depleted of emotional and physical energy, employees may feel obliged to engage in their jobs because they perceive that the organisation cares about their well-being. Moreover, this would also explain the paradoxical finding that around a third of participants reported high levels of occupational stress and burnout, while simultaneously experiencing high levels of job satisfaction and relatively low turnover intentions. This model shows that engagement with the job, which can exist despite high levels of occupational stress, may influence the impact of job stress and depersonalisation

on their associated outcomes, namely job satisfaction and turnover intention.

Furthermore this model suggests that deriving a sense of personal accomplishment is a highly important factor in the management of occupational well-being.

#### *Limitations of the study*

This study has several limitations. First when comparing the results of different studies it is important to be mindful of differences in culture, both across countries and organisations. One also has to be aware of issues associated with the timing of studies when comparing results. Changes in health and more specifically oncology services, as well as changes in the economic situation of a country may have an impact on the results (e.g. at the time of this survey the UK was in recession and major changes to the NHS were implemented). Moreover, this study was a cross-sectional self-report questionnaire study. Therefore no causality can be inferred from the relationships found between variables and it is possible that common method variance contaminates the results. Longitudinal and multi-informant methods are needed to improve and validate findings.

Additionally a relatively low response rate, in comparison with similar studies, and the resulting small sample size mean that data may not be representative of the entire cancer centre staff. Furthermore, research by Prins *et al.* (2010) found that a common reason for not-returning questionnaires was lack of energy. Moreover, the views of staff members that were on long term sick leave at the time of study were also not included in the survey. It is therefore possible that employees with burnout are underrepresented in this study.

Moreover, the model tested in this study was exploratory and replication studies are needed to validate the results further. In addition the model only explains a proportion of variance. Other variables need to be identified to fully account for the relationship between burnout, stress and job satisfaction and turnover intentions.

### *Practical implications*

This study confirmed previous findings that stress originating from work overload and poor management and resources present risk factors in the development of burnout (e.g. Taylor *et al.*, 2005). However, the findings of this study also propose that engaged employees with high levels of personal accomplishment may retain the ability to experience job satisfaction despite high levels of occupational stress and desire to stay in their jobs. Engagement with the job and personal accomplishment may explain the relationship between burnout and occupational stress and their associated outcomes.

However, given the augmentation of cancer care patients and the budget constraints many health services are currently facing, workloads are rising while at the same time, organisations may find it challenging to maintain or increase resources and benefits to engage their employees. Nevertheless, the beneficial outcomes associated with high levels of engagement such as low turnover and absenteeism, increased quality of care and financial management, suggest that an organisation's investment in mutual relationships with the employees will reduce human, as well as financial costs long term. It appears important that, despite increasing pressure to reduce costs, service planning is aware of the continuous and

long-term processes required to maintain and facilitate engagement. In order to ‘nurture, grow and maintain engagement’ (Robinson *et al.*, 2004) organisations need to be aware of their employees’ needs and wishes for support (e.g. encouraging suggestions and carrying out surveys) and remain flexible and open to demonstrate support (e.g. acting on suggestions and surveys, facilitating professional development and flexible work arrangements taking individual differences into account).

At present little is known about what drives personal accomplishment in oncology settings. Future research is needed to identify which factors predict personal accomplishment and engagement in the idiosyncratic work environment of oncology services.

### 3.7 CONCLUSION

Compared to other studies involving oncology staff or NHS employees from various occupational backgrounds, this study found similar levels of the burnout dimensions emotional exhaustion and job stress. However, at the same time, participants reported lower levels of depersonalisation, turnover intentions and lack of personal accomplishment, and higher levels of job satisfaction and engagement. Hence, based on the results of this study, it appears that staff at the oncology centre experiences comparably high levels of occupational well-being.

An exploratory model suggested that engagement and the ability to derive a sense of achievement from work may explain the effects of occupational stress and burnout on job satisfaction and turnover intentions. Interventions to increase

engagement and personal achievement may be important to retain oncology staff  
longterm.

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#### **4 Research Hypothesis**

Hypothesis 1: Engagement mediates the influence of burnout and occupational stress on job satisfaction and turnover intentions.

## 5 Methods

### 5.1 Design

A cross-sectional questionnaire survey was conducted. The questionnaires were distributed via internal hospital mail.

### 5.2 Participants

Participants were permanent members of staff working in the Edinburgh Cancer Centre (ECC). The principal inclusion criteria were as follows:

Inclusion criteria: Participants were required to be permanent members of staff who work in the ECC.

Exclusion criteria: Participants were excluded if they had joined the ECC within the previous three months at point of letter of invitation to participate, were on extended leave, on sabbatical or secondment, as they would not be sufficiently familiar with the organisation at the time of the study.

Overall 461 questionnaires were distributed and 150 participants (32.6%) returned usable questionnaires by mail. One participant did not provide any demographical data. As questionnaires were sent via hospital internal mail, there was no option to '*return to sender*', and it is therefore unclear whether all questionnaires reached their intended recipients. 95 questionnaires were sent to doctors, 220 to nursing staff, 50 to Radiographers, 34 to Medical Physicists, 19 to pharmacists and 33 to clerical and administrative staff. Ten additional questionnaire packs were distributed to other professionals (e.g. physiotherapists, psychologists, etc.). Response rates according to specialty were as follows: nursing: 29%, medical

doctors: 30%, radiography: 30%, medical physicists: 29%, administration and clerical staff: 51%, pharmacy: 41% and 'other': 60%.

### *5.3 Procedure*

Envelopes addressed to individual employees were distributed through internal mail by the author, who was not an employee at the ECC. The envelopes contained a questionnaire consisting of a coded sheet and six A4 pages and a pre-paid return envelope for participants to post the completed questionnaire to a member of the research team, who was working outside the ECC. Furthermore, the envelope contained an invitation letter providing participants with information about the purpose of the study and issues related to confidentiality and consent (Appendix 6). Participants were informed that taking part in the study was voluntary and that all information would be handled with strict confidence. Participants had the option to leave their name and work contact details on the coded sheet and could request feedback with their scores on the burnout and engagement measures. In case participants wished to remain anonymous they had the option to leave two preferred modes of contact (e.g. a mobile number or personal email address) on the coded sheet. Participants were informed that the coded sheet with preferred modes of contact and their names and work contact details, if they indicated these, would be removed at receipt of the questionnaire and would be stored separately from the questionnaires. The questionnaire booklet and the coded sheet could be linked to each other as they had the same number code printed on them. This was necessary as individuals rated as 'burned-out' were contacted with this information and were

strongly recommended to contact either Occupational Health (OH) or an independent occupational psychology service, if the person was employed in a senior position (i.e. heads of services, clinical leads or senior doctors). Contact details for OH and the independent psychology service were provided in an email or text message, depending on the mode of contact participants provided. The rationale for offering senior staff specialist treatment is based on previous research concluding that doctors are particularly reluctant to seek treatment for mental health related difficulties (Brooks et al, 2011, Harvey et al., 2009). Moreover, it has been suggested that alternative ways of accessing mental health treatment need to be identified to offer doctors treatment, as they may fear that the stigma attached to conventional mental health interventions may negatively impact on their careers (Taylor and Ramirez, 2010). Non-medical senior staff members were also signposted to contact an independent psychology service as employees in managerial positions may have contact with OH in their managerial capacity and that this would potentially inhibit them from seeking support as needed. The researchers do not know whether individuals made use of that service.

Three reminders were sent by email to maximise response rate at 3 weeks, 9 weeks and 12 weeks following the initial distribution of questionnaires. At these points, participants were given the opportunity to request a new questionnaire if they had mislaid their copy, but still planned to participate in the study. Emails were sent individually to all participants, regardless of whether they had completed the questionnaire or not. This was done in order to enhance the sense of anonymity of

participants. The first reminder yielded an additional 27 responses, the second 10 and the final reminder 2 responses.

#### 5.4 Measures

##### *Burnout*

The Maslach Burnout Inventory Human Service Survey (MBI-HSS; Maslach et al., 1996) was used to assess burnout. This questionnaire was specifically designed to measure burnout in people working within the human services and health care settings. The questionnaire consists of 22 items which construct the three core domains of burnout: emotional exhaustion (EE), which describes the extent an individual feels emotionally drained by work, depersonalisation (DE), which describes a feeling of detachment from people at work, and personal accomplishment (PA), which describes a lack of feeling of accomplishment gained from work. Each item was rated on a 7-point frequency scale ranging from 0 to 6. The scores rate the subjective frequency of an experience and the higher the score, the higher the subjective rating of frequency of an experience (0= 'never'; 1= 'a couple of times a year'; 2= 'once a month or less'; 3= 'a couple of times a month or more'; 4= 'once a week'; 5 = 'a couple of times a week'; 6= 'daily').

The relevant items are summed for each of the dimensions of burnout and an individual score is derived for each scale. EE contains nine items (e.g. 'I feel used up at the end of the work day') and possible scores range from 0 to 54. DE contains 5 items (e.g. 'I don't really care what happens to some recipients') and possible scores range from 0 to 30; PA contains eight items (e.g. 'I have accomplished many worthwhile things in this job') and has a possible score ranging from 0 to 48. High scores on EE and DE and low scores on PA indicate burnout. The MBI-manual

outlines that burnout should not be considered as a dichotomous variable, measuring whether a person has burnout or not, but that burnout should be viewed as a continuous variable. Hence, the MBI uses a continuous scale indicating the strengths of an experienced feeling on a continuum from low to moderate to high.

Moreover, the MBI manual provides a table with norms for each subscale of burnout and proposes cut-off points enabling the categorisation of scores as low, average or high. Scores that fall in the upper third of the normative distribution are considered high, average if they fall in middle third and low if they fall in the lower third.

The MBI-HSS takes approximately 10 minutes to complete and internal consistency estimates are provided in the 3rd MBI manual using Cronbach's  $\alpha$  (n=1316): EE= 0.90, DE= 0.79 and PA= 0.71. The reliability coefficients for this study using Cronbach's  $\alpha$  were: EE= 0.89, DE= 0.67 and PA= 0.81.

### *Engagement*

The 'Engagement Indicator' (EI; Robinson et al., 2004) was used to measure engagement. This questionnaire was designed by the Institute for Employment Studies (IES) to assess levels of engagement, taking both the characteristics of the employees and their perceptions of the organisation they work for into account. The EI consists of 12 attitude statements (see Appendix 7) which are scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Three represents the neutral midpoint. By calculating the average of all 12 scores, the questionnaire provides a score indicating overall levels of engagement, ranging from 1= highly

disengaged to 5=highly engaged. Hence, engagement is viewed as a continuous variable and it is proposed that employees that scored 4 or higher are considered 'highly engaged' and employees with scores below 3 are considered 'disengaged'. The EI manual provides average engagement scores obtained in different organisations, including the National Health Service (NHS), as well as norms obtained from a large NHS sample differentiating between several professional groups and lengths of service. The reliability of the tool was established using a sample of NHS-employees with varying professional backgrounds (Cronbach's  $\alpha = .86$ ;  $n = 10\,024$ ). The Cronbach's  $\alpha$  for this measure was 0.83 in the present study.

### *Stressors*

The 'Job Stress Scale' comprising 36 items (see Appendix 8) which were taken from the '2002 Hospital Consultants Job Stress and Satisfaction Questionnaire' (2002 HCJSSQ; Teasdale et al., 2008) was used to assess occupational stressors. The scale was designed to survey the levels and sources of job stress among hospital consultants. Each item is scored on a 4-point scale of 0 (not at all), 1 (a little), 2 (quite a bit), 3 (a lot). The authors suggest summing the ratings given to each item of the questionnaire to obtain a total job stress score, which can be analysed as continuous data. The job stress scale has been shown to have good internal consistency ( $n = 1308$ , Cronbach's  $\alpha = 0.92$ ) and content and construct validity (Teasdale, et al., 2008). The Cronbach's  $\alpha$  in this study was  $\alpha = 0.90$ .

### *Stress factors*

It has been found that the questionnaire items of the HCJSSQ load on seven stress factors (Teasdale et al., 2008). Factor 1 (*Feeling overloaded and its impact on home life; 7 items, e.g. 'Disruption to home life through spending long hours at work'*), Factor 2 (*Feeling poorly managed and resourced; 7 items, e.g. 'Having inadequate facilities (e.g. equipment, space) to do your job properly'*), Factor 3 (*Dealing with blame and anger from patients and relatives; 3 items, e.g. 'Having to deal with distressed, angry or blaming relatives'*), Factor 4 (*Dealing with change in clinical practice; 3 items e.g. 'Providing patient care within multi-disciplinary teams'*). Factor 5 (*Encountering difficulties in relationships with NHS staff/colleagues; 3 items, e.g. 'Encountering difficulties in relationship with administration staff'*). Factor 6 (*Dealing with patients' suffering; 2 items, e.g. 'Being involved with the physical suffering of patients'*) and lastly Factor 7 (*Having managerial responsibilities; 3 items, e.g. 'Having to take on more managerial responsibilities'*).

The manual suggests that the factors can be analysed as continuous data or as the percentage of participants indicating that a factor contributed 'quite a bit' 'or a lot' to their job stress. Eight items remain which do not aggregate to any factors and are analysed individually.

### *Global stress ratings*

The 2002 HCJSSQ also entails one item on global job stress rating, asking participants to rate how stressful they find their work overall on a scale from 0 (not at all stressful) to 4 (extremely stressful). This question was analysed as continuous data.

*Global job satisfaction*

The HCJSSQ comprises one question on global job satisfaction which was added to the questionnaire booklet. Participants were asked to rate how satisfying they find their work overall on a scale from 0 (not at all satisfying) to 4 (extremely satisfying). This question was analysed as continuous data.

*Turnover intentions*

The questionnaire booklet also included four items from a survey conducted in the NHS by the IES (Robinson et al., 2004) asking participants about their intention to leave their job (see Appendix 9). For the purpose of this study, one item ('Likely to leave if another position was available') was added to the existing section, reflecting the potentially limited choice of workplace for professionals specialising in oncology in the region, as well as the current job situation. The question was scored as continuous data (scores ranging from 1-5). A low score on the measure indicated an employee's immediate intention to leave their job while a high score indicated no current turnover intentions. As the intention to quit is a 'tick box' single item and not an attitude survey, no Cronbach's  $\alpha$  is given for this measure. This section was followed by an open question where participants were asked to indicate the reasons for wanting to leave their job if applicable. The open ended responses were analysed qualitatively by assigning them inductively derived codes, describing emerging themes. For the author to familiarise with the data, the comments were carefully read several times before coding them.

### *5.5 Demographic Data*

Information about age group (<35; <35-49; ≥50) and gender was gathered at the beginning of the questionnaire, as well as information regarding the individual professional situation. These included:

- Professional stream
- Years in organisation
- Number of working hours per week
- Whether job included on call work
- Whether the participant's job entailed working shifts

### *Feedback*

All participants who requested feedback and whose scores on the burnout measure did not indicate high levels of occupational stress received individual feedback per text message or electronic mail (email), depending on their preferred mode of contact indicated on the questionnaire (see Appendix 10 for a template of a feedback email).

The feedback included information about the participant's levels of burnout and engagement. As the MBI-HSS manual emphasises that the MBI should not be used as diagnostic tool for burnout (Maslach et al., 1996), the term 'burnout' was not used. Instead feedback informed participants about their current levels of occupational stress. To provide feedback on the burnout measure (i.e levels of occupational stress) the scores of all participants, except for those individuals who were considered to be highly burned-out, as they received different feedback along with contact details for support (see Appendix 11), were divided into quartiles

ranging from ‘high levels of occupational stress’ to ‘low levels of occupational stress’.

The feedback categories for burnout were determined as follows:

‘High’ levels of occupational stress:

- High scores on subscales EE and DP and a low or moderate score on PA

‘Moderate to high’ levels of occupational stress:

- High scores on 2 subscales other than EE and DP and a low or moderate score on the remaining subscale
- Moderate scores on 2 subscales and 1 high score on the remaining subscale

‘Moderate’ levels of occupational stress:

- Moderate scores on all 3 subscales
- Moderate scores on 2 subscales and a low or moderate score on the remaining subscale
- One high, 1 moderate and 1 low score on the 3 subscales

‘Low’ levels of occupational stress:

- Low scores on 2 subscales and a moderate score on the remaining subscale
- Low scores on all subscales

To feedback levels of engagement, scores of all participants were equally divided into quintiles ranging from ‘very high’ levels of engagement to ‘very low levels of engagement’. Participants were informed that they experienced ‘very high’ levels of engagement when they obtained a score between 5 and 4.1, ‘high’ levels with a score between 4 and 3.1, ‘moderate’ levels with a score between 3 and 2.1 and

'low' levels with a score between 2 and 1.1 and 'very low' levels of engagement when they obtained a score of 1.

### *Ethics*

Advice from the South East Scotland Research Ethics Service was sought with regards to obtaining ethical approval for this project. The South East Scotland Research Ethics Service responded that they considered the study to be an opinion survey seeking the views of NHS staff on a healthcare issue and would therefore not require ethical approval. A letter stating this is enclosed in Appendix 12. Following this advice, an application for ethical approval was submitted to the Ethics Committee in the Clinical and Health Psychology Section at the University of Edinburgh. Approval was granted by the committee (see Appendix 13).

### *Storage of data*

As the nature of the data gathered in the study was highly confidential the data were stored within a safe and locked data storage room at premises at the University of St Andrews, in a room with swipe card specialist entry system. Anonymised electronic data were stored on an encrypted memory stick (government approved standard). The cover sheets containing emails addresses and mobile phone numbers were destroyed after completion of the study. Questionnaire booklets will be stored for 1 year and electronic data for 5 years.

### *Statistical analyses*

The data were coded and analysed using SPSS Version 20 (IBM, SPSS Inc, Chicago, IL, USA).

Missing values were replaced, if appropriate, with the mean score from the entire sample for the item.

Descriptive analyses were carried out to identify participants' demographic and occupational characteristics and to identify their levels of burnout and engagement, occupational stress and job satisfaction, as well as their intentions to leave their position. Furthermore, Pearson's correlation coefficients were calculated to assess relationships between the variables burnout, engagement, stressor factors, global job satisfaction and global job stress. Adapted from Cohen and Holliday's (1982) rule of thumb, correlations  $<0.39$  were considered low, between 0.40-0.69 modest and those  $>0.70$  strong. Independent t -tests were performed to compare mean scores of the three burnout dimensions for participants of the study with those of an American reference group (Maslach et al., 1996) and the mean scores of engagement with a reference group consisting of NHS employees (Robinson et al., 2004). Cohen's d effect sizes (standardised difference in means) were computed to demonstrate the clinical relevance of differences. A Cohen's d effect size of  $<0.20$  is considered small, between 0.20-0.50 medium and  $>0.80$  large (Cohen, 1988).

Furthermore, Analyses of Variance (ANOVAs) were computed with *post hoc* Scheffé tests to assess differences between professional groups in burnout, engagement and turnover intentions. Additionally, regression analysis was carried out to analyse whether demographical variables predict burnout, engagement and quit intentions.

To assess the relationships relationship between the three core burnout dimensions, stressors and engagement and their influence on job satisfaction and turnover intention, an exploratory model was proposed. The model hypothesis was that burnout and occupational stress influence turnover intentions and job satisfaction indirectly through engagement. A path analysis was conducted using SPSS Amos 20 (Ardbuckle, 2007) and a *chi-square* test to assess the amount of difference between expected and observed covariance matrices. A non significant difference between the and the test statistic would indicate that the proposed model fits the data and confirm the hypothesis, whereas a significant difference would mean that the model does not fit the data. *Post hoc* power calculations were performed to determine the required sample size. With a sample size of 122, the multiple linear regression test of  $R^2=0$  ( $\alpha = 0.05$ ) for 5 normally distributed covariates will have 80% power to detect an  $R^2$  of 0.10.

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## 7 Appendices

### Appendix 1: Author guidelines Journal of Positive Psychology

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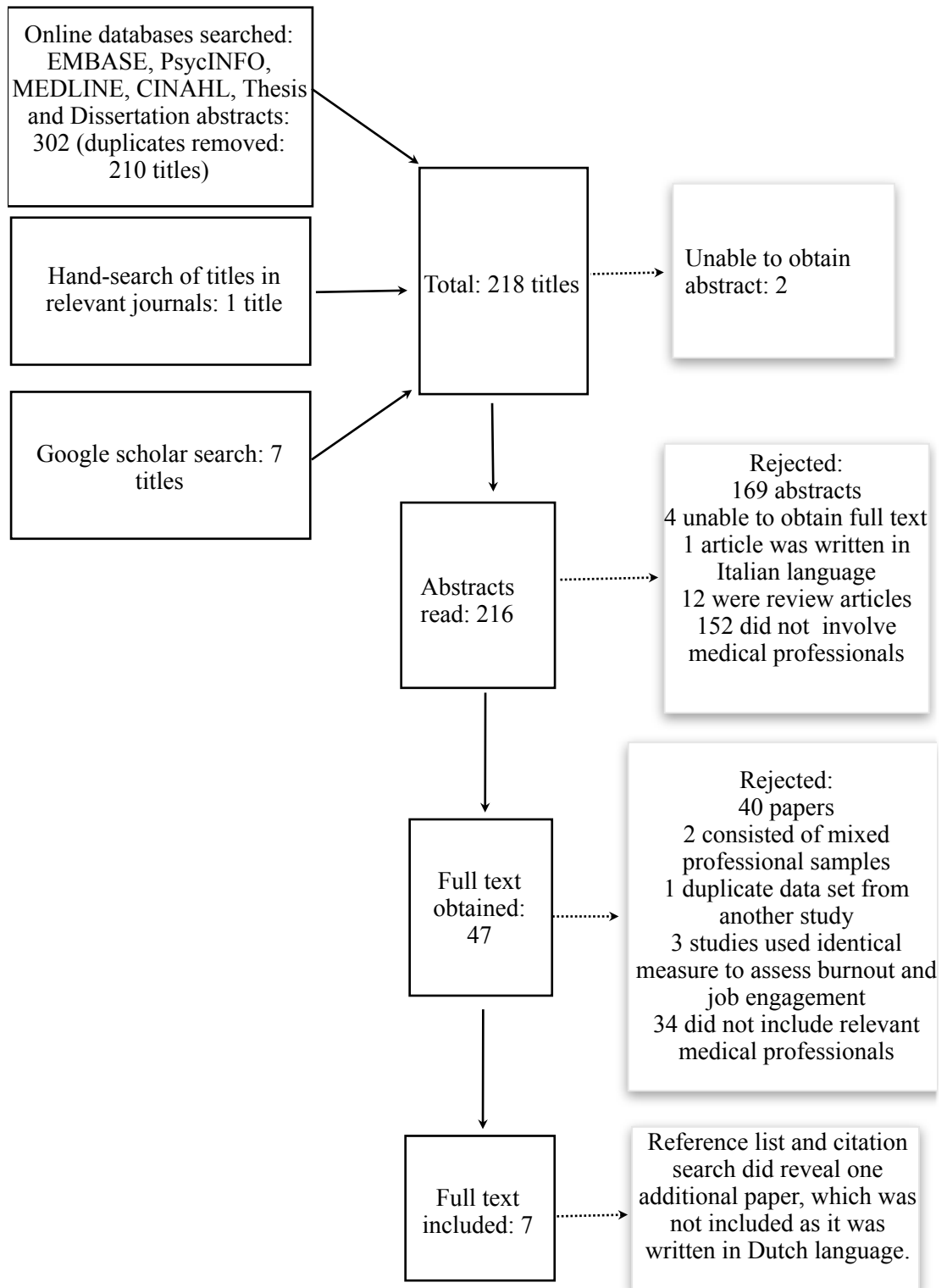
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Appendix 2: Flowchart of paper selection



*Appendix 3: Template of rating sheet*

	0 Points	1 Point	2 Points
<ul style="list-style-type: none"> <li>• Are the study objectives clearly outlined?                             <ul style="list-style-type: none"> <li>○ Neither aims or hypotheses stated = 0</li> <li>○ Aims but not hypotheses stated = 1</li> <li>○ Aims and hypotheses stated = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Recruitment method described (country and setting recruited from, how invited to take part, reminder used?)                             <ul style="list-style-type: none"> <li>○ Not reported = 0</li> <li>○ Partially reported = 1</li> <li>○ Clearly reported = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are appropriate inclusion / exclusion criteria reported?                             <ul style="list-style-type: none"> <li>○ Not reported = 0</li> <li>○ Referred to but not defined = 1</li> <li>○ Clearly defined = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Is the response rate stated?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Yes = 1</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are participant characteristics clearly reported sufficient to allow appropriate comparisons? (age, gender, profession)                             <ul style="list-style-type: none"> <li>○ None of the characteristics reported = 0</li> <li>○ Some characteristics reported = 1</li> <li>○ All characteristics reported = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Were reliability and validity of measures reported?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Partially = 1</li> <li>○ Yes = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Were choices of measures adequately justified?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Partially = 1</li> <li>○ Yes = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Were dimensions of the burnout construct omitted without justification?                             <ul style="list-style-type: none"> <li>○ Yes = 0</li> <li>○ No = 1</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• How was burnout measured?                             <ul style="list-style-type: none"> <li>○ Non standardised version of measure and no psychometrics provided = 0</li> <li>○ Standardised self-report populations designed for general population = 1</li> <li>○ Standardised self-report measure designed for specific population = 2</li> </ul> </li> </ul>			

	0 Points	1 Point	2 Points
<ul style="list-style-type: none"> <li>• How was engagement measured?                             <ul style="list-style-type: none"> <li>○ Non standardised version of measure and no psychometrics provided = 0</li> <li>○ Standardised self-report measure = 1</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are the main potential confounders identified and taken into account in the design and analysis?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Yes = 1</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Was a power calculation used or a justification of sample size provided?                             <ul style="list-style-type: none"> <li>○ Not provided = 0</li> <li>○ Issues regarding power or sample size acknowledged and/or post hoc power calculation completed = 1</li> <li>○ Prior sample size calculation provided = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Were the statistical analyses stated and appropriate to test the hypotheses?                             <ul style="list-style-type: none"> <li>○ Not stated = 0</li> <li>○ Stated but not appropriate to design = 1</li> <li>○ Stated and appropriate to design = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Were results clearly reported, with confidence intervals, effect sizes, p-values etc provided where appropriate?                             <ul style="list-style-type: none"> <li>○ Not reported = 0</li> <li>○ Partially reported = 1</li> <li>○ Fully reported = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Do the findings link to the stated aims/questions/hypotheses?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Partially = 1</li> <li>○ Yes = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are findings discussed in reference to theory and literature?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Partially = 1</li> <li>○ Yes = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Do conclusions follow from data?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Yes = 1</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are limitations of the study clearly expressed?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Partially = 1</li> <li>○ Yes = 2</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>• Are related recommendations for clinical practice/ future research discussed?                             <ul style="list-style-type: none"> <li>○ No = 0</li> <li>○ Yes = 1</li> </ul> </li> </ul>			

	0 Points	1 Point	2 Points
· Total out of 32			
· Percentage out of 100			

*Appendix 4: Summary of quality ratings*

Study	Points/32	%
Garossa et al., 2011	27	84
McManus et al., 2011	22	69
Opie et al., 2010	23	71
Prins et al., 2010	27	84
Ringrose et al., 2009	31	96
van der Corff & Rothmann, 2009	25	78
van Beek et al., 2012	26	81

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## European Journal of Cancer Care

**Edited by:**

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Robb, K., Murtagh, N., Cooper, J. and Lewis, S. (2008) Rehabilitation in Cancer Care. Wiley-Blackwell, Oxford. Wilkinson, S., Farrelly, S., Low, J.,

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*Illustrations* Should be referred to in the text as figures using Arabic numbers, e.g., Fig. 1, Fig. 2 etc., in order of appearance. Each figure should have a legend clearly describing its contents. Legends should be grouped on a separate page at the end of the manuscript. Full details of submission of figures in electronic format are available at <http://authorservices.wiley.com/bauthor/>

*Tables* Should include only essential data. Each table must be typewritten on a separate sheet and should include a clear title. Tables should be numbered in the same way as figures and listed on a separate page at the back of the manuscript.

*Acknowledgements* Should be brief and must include references to sources of financial and logistical support. The author(s) should clear the copyright of material they wish to reproduce from other sources and this should be acknowledged.

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Appendix 6: *Participant information sheet***Participant Information Sheet, Version 2, October 2011**

You are invited to take part in the research study: The consequences of stress and burnout amongst staff in oncology services. Does job engagement protect employees?

Before you decide to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. This project is part of Laura Ziemen's doctoral thesis in the School of Health and Science, University of Edinburgh.

**What is the purpose of the study?**

Long-term excessive stress can lead to burnout, which is a state of emotional, mental, and physical exhaustion. People that suffer from burnout often feel hopeless, cynical and lack motivation and interest. The consequences of burnout are complex and can include reduced physical and mental health. Burnout can have many causes, but it is often associated with work related stressors. People suffering from burnout often experience poor job satisfaction and may intend leaving their jobs. Research suggests that employees working in oncology services are particularly at risk to develop burnout due to stressors specific to the nature of their work. Recently it has been found that job engagement, which is a two-way relationship between the organisation and the employee, may help protect employees from the potentially harmful

consequences of work related stress. Job engagement means that an employee feels valued by and involved with their organisation, and that their work is driven by job satisfaction. Engagement appears to be linked to attributes of the employee, job related factors and how well the employee feels supported by their organisation. At present, little is known about the relationship between job engagement and burnout in oncology services. We therefore believe that it is important to investigate this further.

This study aims to:

- assess levels of burnout and job engagement amongst employees of the Edinburgh Cancer Centre.
- explore stressors associated with this type of work and the organisational factors related to it
- gain a better understanding of the relationship between burnout and job engagement
- identify consequences of burnout and job engagement
- establish solutions to reduce work related stress and burnout
- discover ways to improve and maintain levels of engagement amongst oncology staff

### **Why have I been invited?**

All permanent members of staff that are employed by the ECC for more than 3 months are invited to participate in the study. It is estimated that 300 people will take part in this study.

### **Do I have to take part?**

No. The participation in the study is entirely voluntary.

### **What will I have to do?**

As part of the study you will be asked to complete the enclosed questionnaire booklet. This will take about 20 minutes. A pre-paid envelope is provided for you to return the questionnaire to a member of the research team at St Andrews University within three weeks.

### *Feedback*

It is up to you to decide whether you would like to receive feedback of your results. However, under the circumstances that the scores you obtained on the questionnaires suggest the possibility of

burnout we will contact you with this information. It is therefore important that we have a way of communicating with you. You can either provide us with your name and work contact details or, in case you prefer to remain anonymous, you can leave two preferred ways of contacting you on the coded sheet attached to the questionnaire (e.g. your mobile number and personal email address). The coded sheet will be removed at receipt of the questionnaire and will be stored separately from the questionnaire. In any case your contact details will be treated with strict confidentiality (see below).

*What if I'm burned out?*

Should concerns emerge that you possibly suffer from burnout we will provide you with contact details Occupational Health. Occupational Health will offer you support in managing occupational stress more effectively. The use of the service is optional and entirely confidential.

**Will my taking part in the study be kept confidential?**

Yes. We will follow ethical and legal practice (according to the Data Protection Act 1998) and all information about you will be handled in strict confidence. Any information that has your name and work contact details will be accessible to Laura Ziemer only, who will anonymise it. Your details will not be shared with anyone else. All data will be secured in a safe data storage room within the Medical School of the University of St Andrews. The data will be held in encrypted form on a non-networked computer. All information containing contact details will be destroyed after the data analysis has been completed and feedback has been given. The anonymised data will be stored safely (encrypted drive) at the University of St Andrews for 5 years, which is standard procedure for research.

**What will happen if I don't want to carry on with the study?**

You may decide to stop being a part of the research study at any time without explanation. You have the right to ask that any data you have supplied to that point be withdrawn and destroyed.

**What will happen to the results of the research study?**

The results of the study will be used in Laura Ziemer's doctoral thesis and it is anticipated that the findings of the study will be written up for publication in a peer-reviewed journal. In the event of any publication or presentation resulting from the research, no personally identifiable information will be presented or shared.

**What are the risks and benefits of the study?**

There are no known risks associated with taking part in this study.

*Potential benefits*

Receiving feedback of your scores may be beneficial as it can enable you to detect signs of burnout and gives you the opportunity to access professional support. Furthermore your views can inform positive changes at your workplace and potentially other oncology services.

**Consent**

As this study offers you the possibility to remain anonymous, we cannot obtain signed consent forms from participants. By completing and returning the questionnaire booklet you are voluntarily agreeing to participate in this study and you are indicating that:

- you have read and understood this information sheet Version 2, dated October 2011 for the above study
- you have had the opportunity to consider the information, ask questions and have had these answered satisfactorily
- you understand that your participation is voluntary and that you are free to withdraw at any time, without giving any reason
- you agree to being contacted by Laura Ziemen should the scores you obtained on the burnout measure suggest you may suffer from burnout.

**Further information and contact details**

Laura Ziemen will be glad to answer any questions at any stage of the study. You may contact her on 07587191960 or at [laura.ziemen@nhs.net](mailto:laura.ziemen@nhs.net).

**Thank you for reading this information sheet, and if it is possible, participating in the study.**

Appendix 7: *Engagement Indicator*

Please rate how strongly you agree or disagree with each of the following statements by ticking the appropriate box:

	strongly disagree	disagree	Neither agree nor disagree	Agree	Strongly agree
I speak highly of this organisation to my friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be happy for my friends and family to be treated here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation is known as a good employer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has a good reputation generally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am proud to tell others I am part of this organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation really inspires the very best in me in the way of job performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I find that my values and the organisation's are very similar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I always do more than is actually required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I try to help others in this organisation whenever I can	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I try to keep abreast of current developments in my area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I volunteer to do things outside my job that contribute to the organisation's objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I frequently make suggestions to improve the work of my team/ department/service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix 8: *Stress HCJSSQ***Stressful aspects of your work:**

We would be grateful if you could respond to **all** the following items. We recognise that many of the questions have a clinical focus, if a question does not seem relevant to your experience of work, please rate the question '0'.

To what extent have the following factors contributed to any stress you have experienced in your job **in the past few months**? Please rate each factor by circling the relevant number on the 0 to 3 scale.

	<b>Extent contributes to stress</b>			
	Not at all	A little	Quite a bit	A lot
1 Being involved with the physical suffering of patients	0	1	2	3
2 Encountering difficulties in relationships with junior medical staff	0	1	2	3
3 Feeling you have insufficient input into the management of your unit or institution	0	1	2	3
4 Disruption of your home life through spending long hours at work	0	1	2	3
5 Having inadequate facilities (e.g. equipment, space) to do your job properly	0	1	2	3
6 Having to deal with distressed, angry or blaming relatives	0	1	2	3
7 Keeping up to date with current clinical and research practices	0	1	2	3
8 Having to take on more managerial responsibilities	0	1	2	3
9 Encountering difficulties in relationships with consultant colleagues	0	1	2	3
10 Feeling under pressure to meet deadlines	0	1	2	3
11 Being responsible for the quality of the work of other staff	0	1	2	3
12 Being involved with the emotional distress of patients	0	1	2	3
13 Encountering difficulties in relationships with administrative staff, e.g. secretaries	0	1	2	3
14 Having too great an overall volume of work	0	1	2	3
15 Feeling you are poorly paid for the job you do	0	1	2	3

16	Encountering difficulties in relationships with managers	0	1	2	3
17	Having conflicting demands on your time (e.g. patient care/management/research/College)	0	1	2	3
18	Having inadequate staff to do your job properly	0	1	2	3
19	Dealing with the threat of being sued for professional misconduct	0	1	2	3
20	Disruption of your home life as a result of taking paperwork home	0	1	2	3
21	Feeling that your accumulated skills and expertise are not being put to their best use	0	1	2	3
22	Disruption of your home life as a result of being on call	0	1	2	3
23	Having a conflict of responsibilities (e.g. clinical vs. managerial; clinical vs. research)	0	1	2	3
24	Uncertainty over the future funding of your unit/institution	0	1	2	3
25	Being responsible for the welfare of other staff	0	1	2	3
26	Having performance targets which are unrealistic or unattainable (e.g. due to lack of resources)	0	1	2	3
27	Dealing with patients or relatives having expectations of care that cannot be met	0	1	2	3
28	Having to comply with increasing bureaucratic and regulatory procedures	0	1	2	3
29	Feeling concerned about keeping your skills up to date due to your Trust not investing in new technologies	0	1	2	3
30	Providing patient care within multi-disciplinary teams	0	1	2	3
31	Feeling that you are losing generalist skills as your job becomes more specialised	0	1	2	3
32	Having difficulties recruiting high calibre staff	0	1	2	3
33	Having insufficient formalised time for teaching, training and research	0	1	2	3
34	Having inadequate administration systems (e.g. IT, filing procedures for notes)	0	1	2	3
35	Having to submit a job plan and undergo performance appraisal	0	1	2	3

36	Being required to provide routine NHS clinical services (e.g. outpatient clinics) outside normal working hours	0	1	2	3
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### Appendix 9: *Turnover intentions*

Please select one of the following:

I plan to leave as soon as possible

Likely to leave within the next year

Likely to leave my job if another position was available

Likely to stay for at least another year

Likely to stay for the foreseeable future

If you are thinking of leaving your job, what are the reasons for that?

Appendix 10: *Feedback email 1*

Dear Participant of the 'Job Engagement Study'

You have indicated on the questionnaire, which you kindly completed and returned to us recently, that you would like to receive feedback with your scores.

We have now analysed the data and your score on the burnout measure indicates that you are currently experiencing (to be inserted accordingly: high, moderate, low, etc.) levels of occupational stress. The engagement measure shows that you are currently experiencing (to be inserted accordingly: very high, high, moderate, low, etc.) levels of job engagement. Please do not hesitate to contact me (see contact details below) should you have questions regarding your scores.

Yours sincerely,

Laura Ziemen

Tel: 07587191960

[laura.ziemen@nhs.net](mailto:laura.ziemen@nhs.net)

Appendix 11: *Feedback email 2 burnout*

Dear Participant of the 'Job-Engagement Study',

thank you very much for completing and returning the questionnaire booklet.

One of the questionnaires in the booklet was designed to measure burnout levels of individuals. People often develop burnout in response to prolonged stressors on the job, such as for example work-overload or conflicting demands. This can lead to gradual feelings of physical and mental exhaustion and over time can decrease people's physical and mental health as well as reduce the sense of achievement they derive from their work.

It is therefore important to identify early signs of burnout and to offer timely and effective interventions to prevent the development into full-blown burnout.

We have now evaluated the burnout measures that staff have returned to us and are contacting members of staff if concerns emerged that they possibly suffer from burnout.

Your scores on the burnout measure suggest that you are currently experiencing high levels of stress at work. We therefore advice you to contact an independent occupational psychology service that is specialised in supporting senior staff in managing occupational stress more effectively (the contact details for the service are attached to this email).

The use of the service is optional and **entirely confidential!**

The intervention will be free of charge for you, as the costs for the service will be carried by the Endowment Fund.

Please do not hesitate to contact me should you have any questions regarding this letter, (my details are at the end of this letter). All communication will be handled in strict confidence!

Yours sincerely,

Laura Ziemer  
[laura.ziemer@nhs.net](mailto:laura.ziemer@nhs.net)  
Tel.: 07587191960

## Appendix 12: Letter not requiring ethics

## South East Scotland Research Ethics Service

Waverley Gate  
2-4 Waterloo Place  
Edinburgh  
EH1 3EG



Name: Laura Ziemann  
Address: 296 Hardgate  
Aberdeen  
AB10 6AD

Date: 03/06/2011  
Your Ref:  
Our Ref: 11-AL-0360  
Enquiries to: Alex Bailey  
Direct Line: 0131 465 5679  
Email: alex.bailey@nhslothian.scot.nhs.uk

Dear Laura,

**Full title of project: An investigation into the job engagement, stressors and burnout in staff belonging to a dedicated cancer treatment centre**

You have sought advice from the South East Scotland Research Ethics Service on the above project. This has been considered by the Scientific Officer and you are advised that, based on the submitted documentation (Burnout study 1-RecForm 28.05.2011.pdf, Burnout Study Protocol 28 May 2011.doc, Burnout Study-Job satisfaction Intention to Quit Questionnaire, 28.05.2011.doc, Burnout Study-Organisational Engagement, 28.05.2011.doc, Burnout Study-Perceived Organisational Support; 28.05.2011.doc Burnout Study-PIS Version 1; 28.05.2011.doc Burnout Study-PIS Version 2, 28.05.2011.doc, Burnout Study-Stressors & Job satisfaction Questionnaire 28.05.2011.doc), it does not need NHS ethical review under the terms of the Governance Arrangements for Research Ethics Committees in the UK. The advice is based on the following:

- *The project is an opinion survey seeking the views of NHS staff on a healthcare issue.*

If this project is being conducted within NHS Lothian you should inform the relevant local Quality Improvement Team(s).

This letter should not be interpreted as giving a form of ethical approval or any endorsement of the project, but it may be provided to a journal or other body as evidence that ethical approval is not required under NHS research governance arrangements. However, if you, your sponsor/funder or any NHS organisation feels that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further. Where NHS organisations have clarified that a project is not to be managed as research, the Research Governance Framework states that it should not be presented as research within the NHS.

You should retain a copy of this letter with your project file as evidence that you have sought advice from the South East Scotland Research Ethics Service.

Yours sincerely,

Alex Bailey  
Scientific Officer  
South East Scotland Research Ethics Service

Appendix 13: *Ethics approval /University of Edinburgh (Email)*

From: Suzanne O'Rourke [suzanne.o'[rourke@ed.ac.uk](mailto:suzanne.o'rourke@ed.ac.uk)]

Sent: 04 August 2011 10:49

To: Ziemen Laura (NHS GRAMPIAN); KELLY Evelyn;  
[emily.newman@ed.ac.uk](mailto:emily.newman@ed.ac.uk)

Subject: RE: Laura Ziemen, Ethics application, 14th  
June 2011

Hi Laura,

Apologies, I was off sick on Monday so unable to  
review your form then.

I'm happy to say that everything seems in order and  
that I'm happy for you  
to proceed. All the best with your project.

Kind regards  
Suzanne

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