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## **Burnout in therapy radiographers in the United Kingdom**

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### **Published version**

PROBST, Heidi (2012). Burnout in therapy radiographers in the United Kingdom. *British Journal of Radiology*, 85 (1017), e760-e765.

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Title: Burnout in Therapy Radiographers in the United Kingdom

## **Abstract Objectives**

The 2007 UK National Radiotherapy Advisory Group (NRAG) report indicated the number and type of staff available is one of the 'rate limiting' steps in improving productivity in radiotherapy departments. Retaining well trained, satisfied staff, is key to meeting the objectives of the report; burnout is an important factor linked to satisfaction and attrition. Results of a survey measuring burnout in a sample of Radiation Therapists (Therapy Radiographers) are presented and considered against norms for the health sector and burnout in therapists from Canada and the US.

## **Method and Materials**

Case study methodology was used studying six radiotherapy Departments selected because of close geographical proximity and differing vacancy rates for Radiation Therapists (RT). An anonymous survey of RT utilised The Maslach Burnout Inventory (MBI), and other workforce related measures (e.g job satisfaction scales, measures of professional plateau, intentions to leave, job characteristics and demographic data). The results of the Burnout questionnaire alone are presented.

## **Results**

A total of 97 completed questionnaires were returned (representing a 28% response rate). The average score for Emotional Exhaustion (EE) was higher than the MBI norms, with 38% reporting emotional exhaustion (an element of burnout).

## **Conclusion**

The data presented supports and validates a previous qualitative study and highlights key areas of concern requiring further study. A correlation between burnout and job dissatisfaction and intentions to leave was identified; managers may want to consider encouraging role extension and good leadership qualities in treatment unit leaders to minimise potential for burnout.

## **Introduction**

In the UK there has been concern about a shortage of therapy radiographers to adequately run specialist (and expanding) radiotherapy services. The National Radiotherapy Advisory Group report (2007) [1] identified that a lack of well-trained staff is a rate limiting factor in the plan to improve productivity, requiring retention of a motivated workforce.

In an effort to meet demand for services, managers have introduced some measures including attempts to increase linear accelerator capacity through extended hours working. A UK survey in 2005 identified that over 50% of centres were working extended hours [2]. Over 70% of these extended hours were by utilising flexible working and shift working without any increase in therapy radiographer staffing. The potential pressure this puts on staff delivering the service is unknown and the impact on retention of staff is also unknown.

Department of Health (DH) data (2006) highlighted a 4.8% vacancy rate for RT in England (compared with 1.6% for Allied Health professionals overall). Analysis over time shows a consistent disparity in vacancies across health authorities. The authors initiated an interpretive case study to investigate potential causal factors of these variations [3]. The key concepts identified in the Phase I study as potentially influencing job satisfaction and subsequently intentions to leave were:

- Job characteristics
- Leadership and Organisational governance
- Stress and burnout[3].

The identification of potential burnout within RT was an incidental finding identified from a centre with a historically high vacancy rate compared with geographically close departments of similar size. A quantitative Phase II study was designed to test these key concepts and validate data across a wider sample of therapists, covering a range of concepts related to job satisfaction

[3]. Burnout within the UK RT workforce has not been studied previously hence this aspect of the study warrants detailed discussion, and is presented here as a short communication.

## **Burnout**

Burnout is considered “a syndrome of (i) emotional exhaustion, (ii) depersonalisation, and (iii) reduced personal accomplishment that can occur among individuals who work with people in some capacity” Maslach, Jackson and Leiter (p4)[4]. Research in service sectors has utilised the well validated and reliable Maslach Burnout Inventory(MBI)[4], which measures the three dimensions.

Emotional exhaustion is the feeling that workers are no longer able to give of themselves at a psychological level; they feel stretched physically and emotionally beyond their capacity. The depersonalisation aspect refers to pessimistic feelings about the client group; with a dehumanising of those cared for. Attitudes of cynicism are a protective measure by individuals against exhaustion and disappointment, such negative attitudes apparent with depersonalisation can lead to reduced quality of life for the individual concerned and ineffectiveness in their work[4;5]. Reduced personal accomplishment relates to a tendency to evaluate oneself negatively, perhaps seeing oneself as under accomplished [4;5]. The impact of burnout can be serious with data to support depleted quality of care for the client group as well as effects on the work environment including increases in job turnover, absenteeism and low worker morale[4].

Reports of Burnout in the US Radiation Therapists (RT) workforce [6]; identify 53% of the respondents with high levels of burnout in the domain of Emotional Exhaustion (EE). Similarly, a study of Canadian therapists (n=58) showed [7] that between 43-55% of RT reported high levels of EE across the two years of the study.

In summary, research across non UK work environments show that RT (Therapy Radiographers) may be susceptible to Burnout. Given the very different role specifications for RT in these countries compared with the UK it is possible that these results do not translate or reflect UK scenarios. The results presented here give an insight into Burnout in a proportion of the UK RT population.

The aim of this survey was to investigate the key concepts identified in the qualitative phase I study using quantitative assessment and to validate the Grounded Theory model proposed from the interpretative phase I; including an assessment of whether burnout was a key issue that needed further investigation. The research questions for this phase of the study were focussed on identifying correlations between relevant variables and concepts identified in the qualitative interviews. The research questions of specific interest to this short communication are:

1. What is the prevalence of burnout in the case study departments?
2. What are the factors that may influence levels of burnout?

## **Method**

The study was given both Institutional and UK NHS ethical approval through appropriate ethical committees and adhered to the Research and Governance approval process for England.

A questionnaire design was used for gathering data across radiotherapy departments to quantitatively assess the concepts identified as important in the Phase I study. Six radiotherapy departments were included in the sample; chosen for their geographical proximity and historically different vacancy rates in order to assess potential disparities across. The survey consisted of a number of tools as identified in Table 1.

This short communication relates specifically to reported levels of Burnout and the results from the MBI.

## Questionnaire validity and Reliability

The topics for the survey were taken from the main concepts that arose from the Phase I study and hence reflect what the majority of those interviewed believed to be important in terms of their job satisfaction (face validity). All but one section of the questionnaire were taken from validated tools [8] [5] [9;10] [11] where the operational definitions have been tested through empirical study (see Table 1). Task load was the only measure not taken from a validated source and focussed on the importance of work exhaustion (as opposed to emotional exhaustion measured through the Maslach Burnout Inventory- MBI). Work exhaustion has been defined as “the depletion of emotional and mental energy required to meet job demands” (Moore in Blau [12]). We developed an 11 item scale to measure task load (see Table 1 for the internal consistency of the scale).

## Recruitment and Selection

A case study design was used to investigate differences in job satisfaction and intentions to leave and any potential contributing factors.

Access to participants was through negotiation with the departmental manager. Short presentations to the staff at each department were used to advertise the study and encourage participation (not all of the staff were able to attend). Survey packs (including information sheets, questionnaires and return envelope) were distributed at the end of each presentation and sufficient were left for all RT. Participation was voluntary and questionnaires completed and returned anonymously; questionnaires were coded to allow identification of the centre. The exclusion criteria for participation in the survey was:

- staff employed by a private agency rather than the NHS ( as these individuals are likely to experience different levels of stress and job satisfaction compared with traditional employees),
- students or radiography assistant practitioners.

### Pilot Testing

The survey was pilot tested on a sample of eleven clinical and educational staff to test the layout and understanding of the questions used and to assess the internal consistency of the task load scale. Returned questionnaires identified minor issues with question layout.

### Data Analysis

To identify the prevalence of burnout in the sample studied the mean scores for each dimension of the MBI were calculated and differences across responding centres were tested using ANOVA ( research question 1). Relationships between demographic data, and other variables and the MBI scores were assessed using correlation analysis (research question 2). Pearson Product Moment correlation was used as the MBI data satisfied the criteria for normality (tested using Q-Q plots and histograms). Data was analysed using SPSS<sup>®</sup> (version 13).

### Results

A total of 344 questionnaires were distributed and 97 completed questionnaires were returned from the 6 participating departments. Of these 87 completed the MBI. Table 2 indicates average scores for each of the burnout scales compared with the MBI norms. Five of the 6 departments had average EE scores higher than the MBI norms; depersonalisation scores were all lower than the MBI norms and personal accomplishment scores were all higher (i.e better) than MBI norms.



Figures 1-3 show differences in reported levels of Emotional Exhaustion, Depersonalisation and Personal Accomplishment, though low responses for some centres make comparisons between centres difficult. However, average burnout within centre A (for these few respondents) was high compared with other centres studied. There is a noticeable variability in the scores reported but overall variability is comparable with MBI norms (see Table 2). Table 2 and Figures 1-3 indicate that EE was the most important risk for burnout in these therapists. Across all centres a total of 38% of respondents reported EE in the high category (i.e.  $\geq 27$ ). The differences in the incidence of burnout were not statistically significant, and may be a reflection of the small sample size for some centres studied.

In an effort to understand any contributing factors influencing the development of burnout correlations were examined across a range of variables. Table 4 shows those variables with statistically significant correlations with EE. EE was significantly negatively correlated with undertaking role extension activities. So those that undertook role extension most frequently scored lower for EE (ie less likely to report burnout in this domain  $r = -0.22$   $p = 0.045$ ). Similarly those that reported high scores for personal accomplishment (reflecting low or no burnout in this dimension) were less likely to report frequent one to one interaction with patients ( $r = -0.23$   $p = 0.04$ ). EE was significantly negatively correlated with two dimensions on the LPI specifically 'Enabling others to act' and 'encouraging the heart' ( $r = -0.3$   $p = 0.027$  and  $r = -0.3$   $p = 0.038$  respectively); indicating a possible relationship between burnout (in the domain of EE) and a perceived lack of leadership qualities in immediate managers in the domains outlined. EE was positively correlated with job dissatisfaction ( $r = 0.3$ ,  $p = 0.008$ ) and Intentions to leave ( $r = 0.4$ ,  $p = 0.001$ ).

## **Discussion**

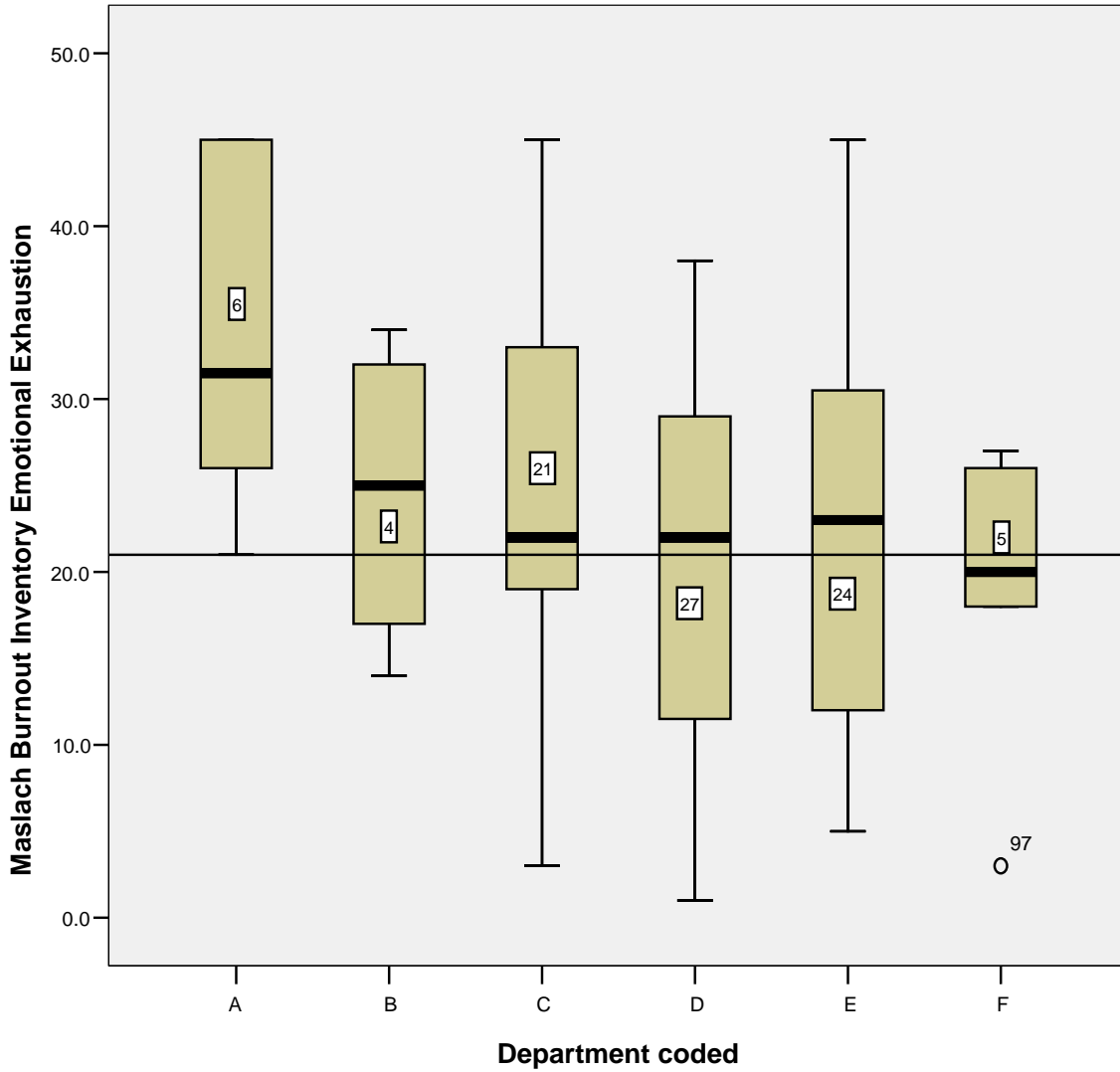
Burnout is known to be a phenomenon that exists where individuals have high levels of contact with members of the public and is often reported in the caring professions[5]. Occupational stress and burnout are separate constructs. Theoretically, when individuals experience increased occupational stress over a period of time, they may develop symptoms of burnout; accordingly, stress can lead to burnout. Emotional responses to burnout include job distancing, depression, paranoia, a negative self image, a sense of powerlessness, and detachment from work [13;14]. Behavioural responses include alcohol and drug abuse, physical withdrawal from co-workers, increased absenteeism, altered work patterns such as arriving for work late and leaving early, and employee turnover. The literature in the health sciences demonstrates that the majority of occupational stress and burnout research has focused on physicians and nurses. However, minimal research has examined other medically oriented departments or attempted to determine the predictive value of stressors on burnout.

This small study identified a potential risk of burnout in UK therapists particularly in the domain of emotional exhaustion. Those that reported high levels of EE in this sample were more likely to be those individuals who were not involved in role extension activities, and who perceived their immediate managers to be lacking some leadership qualities (specifically a failure to foster collaboration, or strengthening individuals by sharing power and recognising the contributions of others, or celebrating and valuing good performance). The data also supports evidence from other fields that burnout is correlated with job dissatisfaction and intentions to leave; thus has consequences for staff retention and morale.

Maslach and Jackson postulate that burnout occurs in a specific linear order of emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment. These phases occur sequentially, with the worker becoming more of a victim of burnout as time progresses [15]. In this small cross sectional study we were unable to identify any correlation between reports of emotional exhaustion and time since qualification (or years of experience), work (or task load) or grade of the therapist. However, a larger study may identify potential stressors or characteristics that may influence burnout in this professional group.

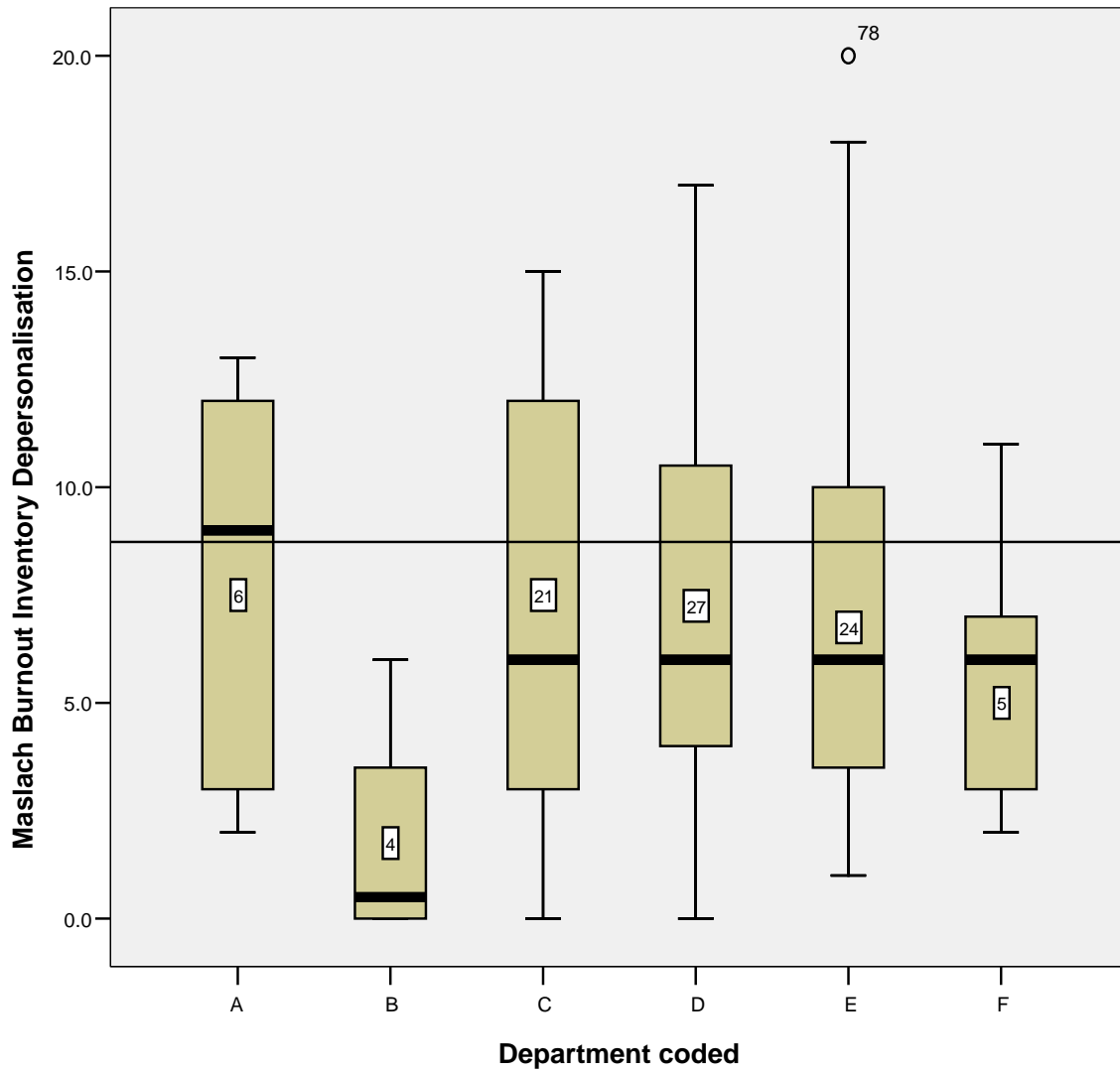
This study has a number of limitations that are noteworthy. The sample size is small (n=97) and constitutes approximately 4% of the total therapist workforce in the UK, which is comparable with the results from the US studies (6% of the workforce responded[6]). However, overall response rate to the survey was poor and probably related to the timing of the survey (over the summer months when the holiday period limited access to all staff). It could be argued that a larger more representative sample might produce different results. It could also be argued that those that responded were those that were suffering from burnout and this could inflate the incidence of burnout reported. It is also important to remember that the survey provides only an indication of the experience of therapists at one time period. Changes in management, workload, and staffing levels may result in a very different picture for the same sample; it is possible that current economic challenges resulting in departmental job freezing may exacerbate levels of burnout. Furthermore, the task load measure was developed to assess individual productivity and the internal consistency of this measure requires further testing and validation on a wider sample. These results show that there is the potential for burnout within radiation therapists in the UK and some of the factors that may influence burnout levels. Irrespective of the small sample size

and the limited response rate the incidence of burnout identified (38%) should not be ignored and could indicate that there is potential for burnout in this professional group which warrants further study. Given the data from other countries on burnout in this professional group we would recommend a larger national survey that would allow comparison with International data.



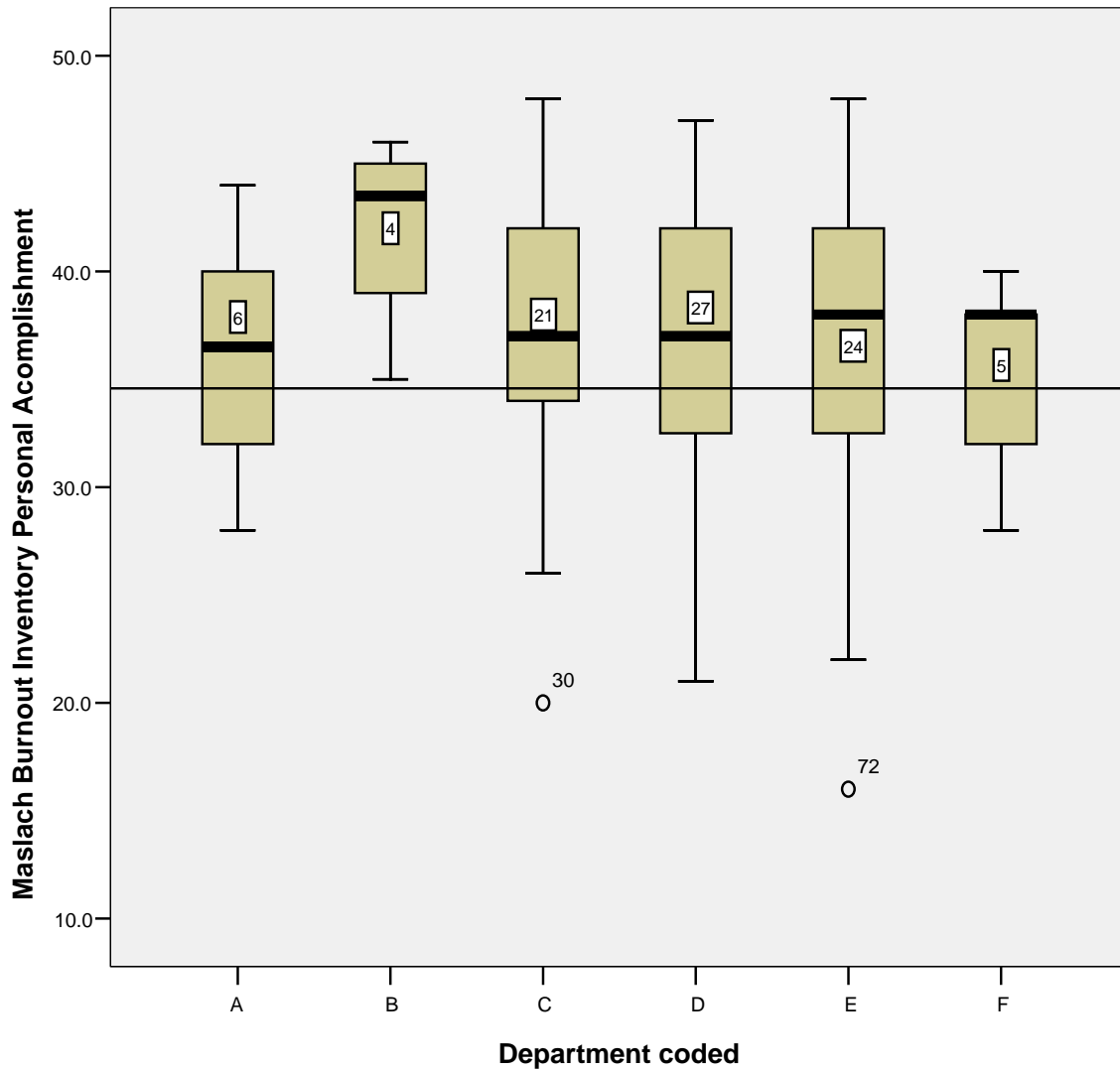
**Figure 1 Emotional Exhaustion average scores across departments**

(The horizontal line depicts the MBI norms, figures in the boxes represent number of questionnaires returned for each department)



**Figure 2. Depersonalisation median scores by Department**

(The horizontal line depicts the MBI norms, figures in the boxes represent number of questionnaires returned for each department)



**Figure 3. Personal Accomplishment median scores across departments (high scores relate to low Burnout in this dimension)**

(The horizontal line depicts the MBI norms, figures in the boxes represent number of questionnaires returned for each department)

Table 1 Tools Used in the survey to measure key concepts identified from the Phase I interviews

<b>Tool</b>	<b>Key Concept</b>	<b>Concept</b>	<b>Reliability</b>
<b>Professional Plateau</b>	Job Characteristics	Opportunities for continuing professional development	Internal consistency (alpha) = 0.86[9]
<b>Intrinsic Job Characteristics</b>	Job Characteristics	Job satisfaction	Internal consistency (alpha)>0.7[16]
<b>Job Satisfaction</b>	Job Characteristics	Job satisfaction	Internal consistency (alpha)= 0.88 Test-retest r= 0.63[10]
<b>Leadership Practices Inventory</b>	Leadership and Organisational Governance	Perceptions of immediate managers leadership style and strengths	Internal consistency (alpha): Model the way=0.85 Inspire a shared vision= 0.92 Challenge the process= 0.86 Enable others to act= 0.86 Encourage the heart= 0.92[17]
<b>Maslach Burnout Inventory</b>	Stress and Burnout	Burnout	Internal consistency (alpha) EE=0.9 DP=0.79 PA=0.71 Test-re-test EE=0.75 DP=0.64 PA=0.62[4]
<b>Task load</b>	Stress and Burnout	Work overload	Internal consistency (alpha) = 0.72



Table 2 MBI Average scores for the sample compared with the MBI norms (n=87)

MBI Dimensions	UK Therapists	MBI Norms[4]
EE <sup>1</sup>	22.9 (10.6)	20.9 (10.7)
DP <sup>2</sup>	7.1 (4.8)	8.7 (5.9)
PA <sup>3</sup>	37.0 (6.5)	34.6 (7.1)

Mean score quoted, SD in parentheses, <sup>1</sup>EE= Emotional Exhaustion, <sup>2</sup>DP= Depersonalisation, <sup>3</sup>PA= Personal Accomplishment

Table 3 Factors that were significantly correlated with Emotional Exhaustion

Variable	Pearson Correlation Significance
Job dissatisfaction	R=0.292, p=0.008 (n=81)
Intention to leave	R= 0.378, p=0.001 (n=79)
Leadership Practices Inventory- sub scale Enable others to Act	R= -0.282, p=0.027 (n=62)
Leadership Practices Inventory- sub scale Encourage the Heart	R= - 0.266, p=0.038 (n=61)
Task load item Role Extension	R= - 0.224, p=0.045 (n=81)

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