

Burnout among anaesthetists in South Africa

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Background: Studies have been done to determine the level of burnout in anaesthesiology internationally, but not in South Africa.

Method: The Maslach Burnout Inventory-Human Services Survey was used to assess the level of burnout. The primary objectives were to estimate the level of burnout among doctors working in the Department of Anaesthesiology at the University of the Witwatersrand (Wits doctors) and to estimate the level of burnout among private anaesthetist attending an anaesthetic symposium (Private doctors).

Results: High levels of burnout were identified in 21.0% of Wits doctors. Higher burnout scores were noted in female doctors ($p = 0.49$), less years of anaesthetic experience ($p = 0.37$), doctors of younger age ($p = 0.07$), registrars ($p = 0.22$) and writing examinations within three months of completing the survey ($p = 0.15$), but none were statistically significant. High levels of burnout were identified in 8.1% of Private doctors

Conclusion: High levels of burnout were identified, especially, among anaesthetists working in the academic hospitals affiliated to Wits.

Keywords: anaesthetist, burnout, depersonalisation, emotional exhaustion, personal accomplishment

Introduction

Burnout is an often overlooked but very real, and ever present problem in the medical profession. Burnout can lead to reduced job satisfaction, productivity and patient care.^{1,2} Shanafelt and colleagues¹ have shown that compared with other professions the highest level of stress and burnout are among medical professionals. Various studies³⁻⁸ have identified anaesthetists as being at high risk for burnout. The increased rate of suicide, twice as high as for the general public,⁹ and the elevated incidence of chemical dependence^{6,10} in anaesthetists are major causes for concern. Added to this, several studies have found burnout to affect younger and more inexperienced doctors.^{5,8,11-13} Studies have been done to determine the level of burnout in anaesthesiology internationally, but not in South Africa.

The Maslach Burnout Inventory-Human Services Survey (MBI-HSS) is the most validated instrument available to measure burnout. The MBI-HSS was developed by Maslach and Jackson in 1981 (updated in 1996), who conducted interviews and surveys among various health care professionals.^{2,14-16} The MBI-HSS is a 22-item survey designed to assess the three aspects of burnout: emotional exhaustion (EE) nine items, depersonalisation (DP) five items, and lack of personal accomplishment (PA) eight items. DP is defined as an 'attempt to put distance between oneself and service recipients by actively ignoring the qualities that make them unique and engaging people'.¹⁴ EE develops when 'emotional resources are depleted and workers feel they are no longer able to give of themselves at a psychological level'.¹⁴ Reduced PA refers to 'the tendency to evaluate oneself negatively, particularly with regard to one's work with clients'.²

The aim of this two-part study was to describe the level of burnout among doctors working in anaesthesiology. The primary objectives were to estimate the level of burnout among doctors

working in the Department of Anaesthesiology at the University of the Witwatersrand (Wits doctors) and to estimate the level of burnout among private anaesthetists attending an anaesthetic symposium (Private doctors). The secondary objectives of Part 1 were to compare the different demographic aspects of Wits doctors with each other. The secondary objective of Part 2 was to describe MBI-HSS scores between Wits doctors and Private doctors.

Methods

A cross-sectional, descriptive, prospective, contextual, study design was used. The MBI-HSS was used to assess the level of burnout in this study. Permission to use the copyrighted questionnaire was obtained from the authors.

This two-part study was conducted in the Department of Anaesthesiology at the University of the Witwatersrand (Wits) and at a two-day anaesthetic symposium (AS). This symposium is attended mainly by anaesthetists working in private practice. This study was approved by the Human Research Ethics Committee of Wits (M130103).

In consultation with a biostatistician a representative sample size for Part 1 of the study was determined. EE is the core aspect of burnout. Using the normative values (mean and standard deviation) of EE (based on the study by Maslach *et al.*³ with 1 104 medical professionals), a sample size of 125 was calculated to give a power of 90%, with a 0.05 level of significance. A comparison with the private sector was requested as it was felt that burnout levels might be even higher than in the public sector but this was not part of the original study design and thus a sample size was not calculated for Part 2 of the study. This meant comparative and inferential statistics were not done for Part 2 of the study.

The survey was distributed over a two-month period at four consecutive combined departmental academic meetings and at the AS over a two-day period. The sample size was realised by the response rate. The data were analysed using STATA 11 statistical software (STATA Corporation, College Station, TX, USA).

Exploratory data analysis of categorical and continuous variables included frequency tables, and histograms of continuous variables to determine distribution. Descriptive statistics were used to characterise the study population; non-normally distributed continuous data were summarised by medians and interquartile ranges (IQRs). Categorical data were summarised as numbers and percentages. Statistical tests included chi-square test (adjusted if number less than 5) and Kruskal–Wallis comparison of medians. Statistical tests were two-sided at $\alpha = 0.05$.

The inclusion criterion for Part 1 of this study was doctors working in the Department of Anaesthesiology at Wits. Wits doctors are all doctors practising anaesthesiology in the Department of Anaesthesiology at Wits. The exclusion criteria were: doctors doing their internship, doctors who declined to participate and part-time consultants. The inclusion criterion for Part 2 was doctors attending the AS. Private doctors are doctors attending the AS practising anaesthesiology in private, including doctors working in the public sector on a part-time basis. The exclusion criteria were: doctors sampled in Part 1, doctors who declined to participate, doctors working exclusively in public hospitals and doctors practising outside South Africa. There were three possible professional designations available for anaesthetic doctors to select:

- (1) Medical officer/General practitioner: This doctor may have a diploma in anaesthesiology or no formal postgraduate training. This doctor is registered by the HPCSA for independent practice.
- (2) Registrar: A doctor who is in the process of acquiring a specialist qualification in anaesthesiology endorsed by the Health Professions Council of South Africa (HPCSA).
- (3) Consultant: A doctor who has a specialist qualification endorsed by the HPCSA for specialist anaesthesiology practice.

Results

Over a period of two months (May to June 2013) 137 surveys were returned out of a possible 205 with a response rate of 66.8% by Wits doctors. Of the returned surveys, 124 qualified to be used in the study and 13 were discarded due to insufficient data.

During a two-day period from 3 to 4 August 2013 at the AS, 98 (41.7%) surveys were returned out of a possible 235, with 86 eligible for use and 12 being discarded due to insufficient data.

Burnout is categorised by the MBI-HSS as high, moderate and low, as shown in Table 1. The categories for EE and DP increase in

Table 1. MBI-HSS burnout categories

	High	Moderate	Low
Emotional exhaustion	≥ 27	26–19	≤ 18
Depersonalisation	≥ 10	9–6	≤ 5
Personal accomplishment	≤ 33	34–39	≥ 40

severity as the scores increase compared with PA where the category increases in severity as the score decreases.

In Part 1 of this study a high level of burnout was identified in 21.0% of Wits doctors. The three aspects of burnout were evaluated separately, as illustrated in Table 2, showing high levels of EE in 45.2%, high levels of DP in 50.0% and low levels of PA in 46.0% of doctors. Higher burnout scores were noted in female doctors ($p = 0.49$), fewer years of anaesthetic experience ($p = 0.37$), doctors of younger age ($p = 0.07$), registrars ($p = 0.22$) and writing examinations within three months of completing

Table 2. Burnout scores of Wits doctors

	High n	Moderate n	Low n
Emotional exhaustion	56 (45.2%)	34 (27.4%)	34 (27.4%)
Depersonalisation	62 (50.0%)	35 (28.2%)	27 (21.8%)
Personal accomplishment	57 (46.0%)	44 (35.5%)	23 (18.5%)
Median (IQR)	24 (17–31)	9.5 (6–15)	34.5 (29–38)

Note: Total $n = 124$.

Table 3. Burnout scores of Wits doctors compared with demographics

	High n	Moderate–Low n	p-value
Gender			
Males	10 (18.2%)	45 (81.8%)	$p = 0.49$
Females	16 (23.2%)	53 (76.8%)	
Experience (years)			
< 4	11 (25.6%)	32 (74.4%)	$p = 0.37$
4–8	12 (25.0%)	36 (75.0%)	
9–12	2 (18.2%)	9 (81.8%)	
13–16	0 (0%)	5 (100%)	
> 16	1 (5.9%)	16 (94.1%)	
Age group			
21–30	9 (22.5%)	31 (77.5%)	$p = 0.07$
31–40	16 (26.2%)	45 (72.8%)	
≥ 41	1 (4.4%)	22 (95.7%)	
Designation			
Medical officer	1 (7.1%)	13 (92.9%)	$p = 0.22$
Registrar	16 (27.1%)	43 (72.9%)	
Consultant	9 (17.7%)	42 (82.4%)	
Exams			
Yes	10 (29.4%)	24 (70.6%)	$p = 0.15$
No	16 (17.8%)	74 (82.2%)	

Note: Total $n = 124$.

Table 4. Burnout scores of Private doctors

	High n	Moderate n	Low n
Emotional exhaustion	18 (20.9%)	13 (15.1%)	55 (64.0%)
Depersonalisation	23 (26.7%)	20 (23.3%)	43 (50.0%)
Personal accomplishment	32 (37.2%)	29 (33.7%)	25 (29.1%)
Median (IQR)	14.5 (10–22)	5.5 (3–10)	36 (31–41)

Note: Total $n = 86$.

Table 5. Comparison of the three aspects of burnout between different studies using percentages

	Wits South Africa <i>n</i> = 124	AS South Africa <i>n</i> = 86	Morais and colleagues ⁸ 2006 Portugal <i>n</i> = 263	Kluger and colleagues ¹⁹ 2003 Australia <i>n</i> = 422	Downey and colleagues ¹¹ 2012 USA <i>n</i> = 57	Hagau and Pop ¹⁷ 2012 Romania <i>n</i> = 146	Chiron and colleagues ¹³ 2010 France <i>n</i> = 74
EE % High	45.2	20.9	57.9	20.0	29.8	34.0	16.2
DP % High	50.0	26.7	90.9	20.0	10.5	38.0	17.6
PA % Low	46.0	37.2	44.8	36.0	7.0	38.0	13.5

Note: EE = emotional exhaustion; DP = depersonalisation; PA = personal accomplishment.

the survey ($p = 0.15$), but none were statistically significant (see Table 3).

In Part 2 of this study a high level of burnout was identified in 8.1% of Private doctors. The three aspects of burnout evaluated separately (Table 4) showed high levels of EE in 20.9%, high levels of DP in 26.7% and low levels of PA in 37.2%. Private doctors showed lower burnout scores compared with Wits doctors.

Discussion

In our study it was found that 21.0% of Wits doctors had high levels of burnout. Burnout was classified as high when the subscales EE and DP were high and PA was low. This compares similarly to results obtained in other studies. Hagau and Pop¹⁷ found high burnout levels in 29.8% of anaesthesia and intensive care physicians, and De Oliveira and colleagues⁴ found 21.0% in anaesthesiology residency programme directors.

Most studies, however, compare the three aspects of burnout separately. In our study it was found that high levels of EE were present in 45.2%, high levels of DP in 50.0% and low levels of PA in 46.0% of Wits doctors. Only one other study has shown higher burnout scores than these. Morais and co-workers⁸ conducted a study with 263 Portuguese anaesthesiology residents and found high EE in 57.9%, high DP in 90.9% and low PA in 44.8% of respondents (Table 5). Several other studies show lower levels of burnout, as indicated in Table 5.

More females scored higher levels of burnout than males although this was not statistically significant ($p = 0.49$). It is difficult to compare the results from our study with other studies, as there was no standard method used when comparing males with females. Some studies used only one of the three aspects of burnout,¹⁷ others used mean and standard deviation to compare¹⁸ and yet others did not compare MBI-HSS scores but used stress levels.¹⁹ More homogeneous forms of comparison are needed to accurately compare the different studies with respect to gender. It is also apparent from the literature and our study that there is still no consensus on whether gender plays a role in burnout levels in doctors.^{5,18}

In our study, years of anaesthetic experience was not found to be a statistically significant factor ($p = 0.37$). It is apparent from the data collected and from other studies^{8,11} that fewer years of anaesthetic experience resulted in higher burnout scores.

Burnout by age was shown not to be statistically significant between the three groups 21–30 years, 31–40 years and ≥ 41 years ($p = 0.07$). Only 4.4% of the ≥ 41 age group scored high burnout values compared with 22.5% in the 21–30 age group and 26.2% in

the 31–40 age group. This compares favourably to results found in other studies that younger age results in higher burnout scores.^{5,11,12}

High burnout scores in our study were most notably seen in registrars, with 27.1% falling into the high burnout category, followed by consultants with 17.7% and medical officers with 7.1%. This difference was not statistically significant ($p = 0.22$). Two studies^{5,20} found anaesthetists in training to be at higher risk for burnout while another¹⁷ found no difference.

Doctors writing examinations within three months of completing the survey showed higher levels of burnout with 29.4% having high burnout scores compared with only 17.8% of those not writing examinations. Examinations are generally linked to increased workload and stress, but in our study this was found not to be statistically significant ($p = 0.15$).

Burnout levels evaluated at the AS were shown to be lower than the levels found at Wits. A high level of burnout was found in 8.1% of Private doctors compared with 21.0% of Wits doctors. When the three aspects of burnout are individually assessed as seen in Table 5, the results from the AS were comparable with scores obtained in other studies.^{11,13,17,19} As the sample size was not determined for Private doctors a true comparison cannot be made.

Limitations

Part 1 of this study was done contextually in the Department of Anaesthesiology at Wits, therefore the results may not be applicable to other anaesthesiology communities. Participants might not have completed the survey due to the sensitive nature of the material. True feelings might not have been reflected in the survey due to possible concerns of anonymity and repercussions from management. This was addressed by the information supplied to the participants by the researcher and the participants' information letter. At the time of data collection many consultants were leaving the Anaesthesiology Department, causing concern for junior doctors regarding future training and senior assistance in theatre and for senior doctors regarding increased workload and responsibility. This may have influenced burnout levels to be high. The association between age and burnout should be viewed with caution due to survival bias.

In Part 2 confounding factors to take note of are the small percentage of private anaesthesiologists sampled and that truly burnt out doctors would probably not attend academic meetings such as the AS.

Future research

It is recommended that further research be focused on enlarging the study population of both the private and public anaesthesiology

community. Should the above strategies be implemented on burnout reduction, a follow up study on its impact is recommended.

Conclusion

The high level of burnout found in our study at Wits is a concern. Higher burnout scores were noted in female doctors, those with fewer years of anaesthetic experience, doctors of younger age, registrars and those writing examinations within three months of completing the survey, but none were statistically significant. Burnout scores at the AS were also high and similar to studies done in other countries but were lower than those in Wits doctors. Burnout is a serious problem affecting the anaesthesiology speciality and necessitates strategies to identify, quantify and mitigate its presence. Anaesthesiologists are a scarce commodity and need to be protected to ensure the prosperity of the speciality.

Details of authors' contributions

Dr N van der Walt:

The corresponding author with conception and design of subject matter; acquisition, analysis and interpretation of data; drafting, revision and final approval of article; agreement to be accountable for all aspects of the work.

J. Scribante:

Substantial contributions to design of manuscript; critical appraisal of content and drafting of work; revision and final approval and agreement to be accountable for article.

H. Pierrie:

Substantial contributions to interpretation of data, critical appraisal of content, technical editing and drafting of work; revision and final approval and agreement to be accountable.

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