



ORIGINAL ARTICLE

A cross-sectional survey of burnout amongst doctors in a cohort of public sector emergency centres in Gauteng, South Africa

Suma Rajan^{*}, Andreas Engelbrecht

Division of Emergency Medicine, School of Medicine, Faculty of Health Sciences, University of Pretoria, P/Bag x323, Arcadia 0007, South Africa

A B S T R A C T

Introduction: Working in emergency care is commonly regarded as highly stressful. This is also true in the African setting characterised by high patient loads and limited resources. As in other similarly demanding occupations, burnout can be anticipated. The aim of this study was to examine the level of burnout amongst doctors in a cohort of public sector emergency centres in Gauteng, South Africa.

Methods: An observational, cross-sectional design was employed, using the Maslach Burnout Inventory-Human Services Survey (which has been tested and validated in similar settings elsewhere). The study included a cohort of doctors working in the emergency centres of public sector hospitals in Gauteng, South Africa.

Results: One hundred participants completed the questionnaire out of a possible 124 doctors working at the five centres. Ninety-three met the inclusion criteria and was further analysed. Seven respondents were specialist emergency physicians (7.5%), 36 were emergency medicine registrars (38.7%) and 50 were medical officers (53.8%). Fifty one respondents were female (55.0%). Analysis of burnout component scores showed a mean emotional exhaustion score of 31.69 (standard deviation, SD = 10.32), with 62 respondents (66.7%) in the high-risk group – from 86 (92.5%) at moderate to high risk. The mean de-personalisation score was 13.39 (SD = 6.21), with 50 respondents (53.8%) in the high-risk group – from 75 (80.7%) at moderate to high risk of burnout. The mean personal accomplishment score was 34.87 (SD = 6.54), with 21 respondents (22.6%) in the high-risk group – from 65 (69.9%) at moderate to high risk of burnout.

Discussion: The results indicate that a large proportion of the doctors who work in these emergency centres are at moderate to high risk of burnout. Based on our findings we recommend that interventions be introduced at the work place to reduce burnout in doctors and improve their mental well-being. This will ensure better service delivery to patients with emergencies. Further research into the causes of occupational burnout should be explored.

African Relevance

- Sub-Saharan Africa has 3% of the world's health work force and 25% of the world's disease burden.
- Local emergency centres are often understaffed, poorly equipped and overcrowded.
- Awareness of burnout will help emergency centres to better manage staff who presents with burnout.
- This may have a positive impact on staff retention and service delivery.

Introduction

Sub-Saharan Africa has 3% of the world's health work force and

25% of the world's disease burden. Emergency centres (ECs) are often understaffed, poorly equipped and overcrowded in these countries. Moreover, emergency care is still an emerging specialty in this low- to middle-income region, and doctors working in emergency care here do not yet have the same recognition as their peers in high-income countries elsewhere [1].

This is the first study of its kind looking at burnout in doctors working solely in emergency care in South Africa. Burnout is defined by Maslach et al. as a “syndrome of a reduced sense of personal accomplishment, emotional exhaustion and de-personalisation, amongst individuals who work with other people” [2]. Emotional exhaustion can present as fatigue, loss of energy and weariness, whereas de-personalisation can present with irritability and negative attitudes toward patients and may lead doctors to view patients as deserving of their

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^{*} Corresponding author.

E-mail address: sumathankachan@yahoo.com (S. Rajan).

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troubles. The development of de-personalisation seems to be related to the experience of emotional exhaustion and hence both should be correlated. A reduced level of personal accomplishment may imply dissatisfaction with accomplishments at work and present with reduced productivity, low morale and difficulty coping with work. Maslach found that burnout may lead to a reduction in the quality of care provided and appears to be a factor in job turnover, low morale and absenteeism [2].

Working in emergency care is commonly regarded as highly stressful. This is especially true in the African setting with high patient loads and limited resources. Under these challenging circumstances it is imperative for health care workers to function at their cognitive best as they cater for large numbers of patients with acute emergencies and critical illness. The risk of burnout is thus a potential factor to consider in staff performance, as in similarly demanding occupations elsewhere.

This study aimed to highlight the burden of burnout in a South African setting where emergency care is a relatively new specialty, and available literature limited. This study specifically described the prevalence of burnout and its components amongst emergency care doctors working in a cohort of public sector ECs in Gauteng, South Africa. It also explored the demographical factors associated with burnout, as well as the intention to leave the EC in the next five years; and compared responses between different doctor grades about their experience of feeling emotionally drained from work.

Methods

A cross-sectional, observational study design was employed, utilising a structured, validated questionnaire: the “Maslach Burnout Inventory-Human Services Survey” (MBI-HSS) to collect study data. This study was conducted in the ECs of five large, academic, public sector hospitals in Gauteng over a two-month period from October to November 2016. Each of these ECs sees more than 4000 patients per month. As such these serve a large proportion of the Gauteng population, a province which comprises 14.3 million people (or 25% of the South African population) [4]. There are approximately 160 other public and private ECs in the province. For this study we surveyed only the major public sector centres in the region. Although these ECs have a common employer (the Gauteng Department of Health) each is managed locally, by its own hospital management.

Doctors who worked in any of the study ECs in the six months preceding the onset of the study were eligible to be enrolled. Further eligibility included working in the EC on a full-time basis, irrespective of a doctor's age or whether they held any postgraduate qualification in emergency medicine. Specialists were defined as doctors who held specialist registration with the Health Professions Council of South Africa. Registrars were defined as specialist trainees in emergency medicine. Medical officers were defined as non-specialist doctors who held independent medical practice registration with the Health Professions Council of South Africa. Community service medical officers were defined as doctors who held dependent medical practice registration with the Health Professions Council of South Africa. Community service is specific to medical training in South Africa and is typically completed in the year that follows internship. We expected at least 40% of participants to be burnt out. A sample of at least 48 participants was required to describe the sample with 95% confidence and an accuracy within 10%.

The MBI-HSS was previously validated in South Africa in 2004 for a study involving the emergency medical service (prehospital service) [3]. Validation for this study included doctors working in the emergency medical services. The MBI-HSS consists of 22 questions that are self-scored by participants using a seven-point frequency scale ranging from zero (never) to six (every day). It is structured to assess the three subscales of burnout syndrome which include emotional exhaustion (nine items), de-personalisation (five items) and personal accomplishment (eight items). Each participant had a score assigned to each of the

Table 1
Scoring for the components of burnout.

Sub-scale of burnout	High	Moderate	Low
Emotional exhaustion	≥ 27	17–26	≤ 16
De-personalisation	≥ 13	7–12	≤ 6
Personal accomplishment	≤ 31	32–38	≥ 39

subscales of the MBI-HSS. The subscale scores and how these relate to risk of burnout are defined in Table 1. High scores in the emotional exhaustion and de-personalisation section, whilst a low score in the personal accomplishment section suggested burnout.

Data was captured on an Excel spreadsheet before being imported to Strata Release 14 for analysis. Continuous data was described using the mean, and standard deviation (SD), whilst frequencies and proportions were used for discrete data. Descriptive data included basic demographics, mean estimated number of shifts worked in the EC per month and the estimated length of shifts worked. Participants had to indicate whether they anticipated leaving the EC in the next five years. The proportion of doctors with emotional exhaustion, de-personalisation and personal accomplishment were reported as a proportion with a 95% confidence interval. Cronbach's alpha was used to check the internal consistency estimate of reliability of test scores. The factors associated with burnout were assessed using logistic regression. Fisher's Exact Test was employed to describe discrete data. All testing was done using a 0.05 level of significance.

The study design was approved by the Faculty of Health Science Research Ethics Committee of the University of Pretoria, HREC number: 339/2016. Informed consent was collected from doctors working in the respective ECs who participated in the study.

Results

Of the 124 EM doctors working in the different units, 100 volunteered to complete the questionnaires. Out of these, 93 doctors were eligible for inclusion in the study. The seven doctors that were excluded had less than six months experience in the EC. The baseline demographics of participants are shown in Table 2.

For shift duration, the minimum hours on shift was eight and the maximum was 24. The mean was 10.24 h (SD = 3.15). Descriptive statistics of burnout components are described in Table 3.

Cronbach's alpha coefficient was 0.89, 0.69 and 0.75, respectively for emotional exhaustion, de-personalisation and personal accomplishment. There were no significant differences between sex and relationship status with regard to burnout. There were significantly higher levels of de-personalisation in doctors in the moderate to high risk group who were less than 40 years of age, compared to those who were 40 years old and above (87% vs 61%, $p < 0.05$). Furthermore, medical officers (including Community service medical officers) had a significantly higher probability of leaving the EC in the next five years than registrars (68% vs. 19%, $p < 0.01$) (see Fig. 1). Doctors with two or less years of experience had a significantly higher probability of leaving the EC in the next five years compared to those with more experience (62% vs. 39%, $p < 0.05$).

Of the specialists, 57%, had a high risk of burnout for emotional exhaustion (100% were at moderate to high risk for emotional exhaustion) and 43% had high risk for the de-personalisation component (57% were at moderate to high risk). And 71% were at moderate risk for personal accomplishment component. Only one specialist wanted to leave the EC in the next five years (14%). Results revealed significantly higher burnout levels in registrars than medical officers and Community service medical officers (100% vs. 86%, $p < 0.05$) for the emotional exhaustion component. From the sample, 57% of specialists, 22% of medical officers and 44% of registrars felt emotionally drained from their work at least a few times a week (Fig. 2).

Table 2
Demographic characteristics of respondents.

Variable	n = 93	%
<i>Gender</i>		
Male	42	45.2
Female	51	54.8
Total	93	
<i>Age</i>		
20–29	17	18.28
30–39	53	56.99
40–49	19	20.43
50–59	4	4.3
Total	93	
<i>Relationship status</i>		
Single	13	14
In a relationship	80	86
Total	93	
<i>Experience in the emergency centre</i>		
6 months–1 year	14	15.1
1–2 years	15	16.1
2–5 years	35	37.6
6–10 years	16	17.2
> 10 years	13	14
Total	93	
<i>Grade</i>		
Community service medical officer	4	4.3
Medical officer	46	49.5
Registrar	36	38.7
Specialist	7	7.5
Total	93	
<i>Estimated number of shifts per month</i>		
< / = 17	24	25.8
18–19	27	29.03
> / = 20	42	45.16
Total	93	
<i>Plan to leave the emergency centre in the next five years</i>		
Yes	43	46.2
No	50	53.8
Total	93	

Table 3
Descriptive statistics of burnout components.

Sub-scale	Mean (SD)	High risk of burnout n (%)	Moderate risk of burnout n (%)	Low risk of burnout n (%)
Emotional exhaustion	31.69 (10.32)	62 (66.7)	24 (25.8)	7 (7.5)
De-personalisation	13.39 (6.21)	50 (53.8)	25 (26.9)	18 (19.3)
Personal accomplishment	34.87 (6.54)	21 (22.6)	44 (47.3)	28 (30.1)

SD, standard deviation.

Discussion

This study demonstrated the high risk of burnout for doctors working in the study cohort of public sector emergency centres in Gauteng, South Africa. The respondents demonstrated significant levels of risk in all the components of burnout (Table 3). Cronbach's Alpha suggested internal consistency of the results. A number of large studies from around the world have similarly shown the significant risk of burnout amongst emergency physicians [5–11]. The Medscape Emergency Medicine Lifestyle Report 2016 reported that 55% of United States (US) emergency care physicians experienced burnout in 2016 and 52% experienced burnout in 2015 [5]. Shanafelt et al. in a 2012 nation-wide study with 7288 physicians in the US, found that physicians experience more burnout than other US workers and that those

physicians working in specialties at the front line of care seem to be at greatest risk. [6] For their study they also used the MBI-HSS and a Satisfaction with Work-Life Balance instrument. In this study, much higher levels of burnout were demonstrated locally when compared to the other studies referenced. A study done by Rossouw et al. in Cape Town in 2010 showed that emotional exhaustion of 53% and de-personalisation of 64% were experienced by doctors working in the Cape Town Metropolitan Municipality community healthcare clinics and district hospitals of the Western Cape. [12] Naude et al. conducted a study in Gauteng in 2006, which included medical specialists, emergency medical technicians and participants who held positions in support services and management. [13] However, burnout described in these studies is lower than the results from our study. This might be a consequence of increased patient numbers, inadequate recess, sleep pattern disturbances, resource shortages (including staff) and more frequent overtime shifts in the EC. However, further research is required to determine the causes of high degrees of burnout locally, as well as how to address it.

There were no significant differences between sex, relationship status, experience in the EC, number of shifts per month or duration of shifts with regards to the different components of burnout in this study. However, de-personalisation (moderate to high risk group) was much higher in respondents less than 40 years of age. We found no international studies in EC doctors in which a similar relationship between age and burnout has been identified.

Nearly half of EC doctors in the sample indicated that they planned to leave the EC within the next five years. Specifically, doctors with two or less years of experience had a higher probability of leaving their EC in the next five years compared to those with more experience. Although registrars had higher burnout levels (moderate-high risk group) than medical officers, medical officers indicated a higher probability of leaving the EC in the next five years than registrars. This disparity may be attributed to the difference in their responsibilities and demands at work. There are many reasons for doctors leaving the EC that have not been studied in this survey which should be explored in future research. The Longitudinal Study of Emergency Physicians has shown that in the next five years, 11% of emergency physicians were “likely” and 8% “very likely” to leave the field of emergency medicine versus 2% to 3% per year for other physician groups [14,15]. A French study showed that 21.4% of emergency care physicians had plans to leave the profession. The lack of quality teamwork was a cited as a major factor for intent to leave the profession, alongside work-family conflict [9]. It appears that a high proportion of the doctors from the sample intend to leave the EC but not necessarily the field of emergency medicine and research should be done to identify the risk factors.

Retention of doctors is crucial for emergency care provision and adequate turnover of patients in the EC. It is concerning that a large proportion of doctors surveyed felt emotionally drained from their work. It is notable that specialists felt more drained from their work than the registrars and medical officers. This sample was too small to draw any conclusions regarding subgroups, but one could speculate that specialists felt more drained than others groups due to the increased responsibilities and demands at work.

In order to mitigate the different components of burnout, it is important to focus on rest, recovery and support. Recovery experience and social support are measurable and negatively associated with burnout and this should be the focus of further research in this domain [16,17]. Shift work and disruption of the circadian rhythm has also been found to impact on burnout and research to explore rotating monthly shift work, like the Thomas schedule advocated for by the American College of Emergency Physicians, should be explored to lessen the impact of burnout [18].

On the basis of the data collected, it was found that registrars experienced more burnout than the other grades, possibly due to different demands and responsibilities. The reasons for wanting to leave the EC, or emergency care altogether and the high levels of burnout were not

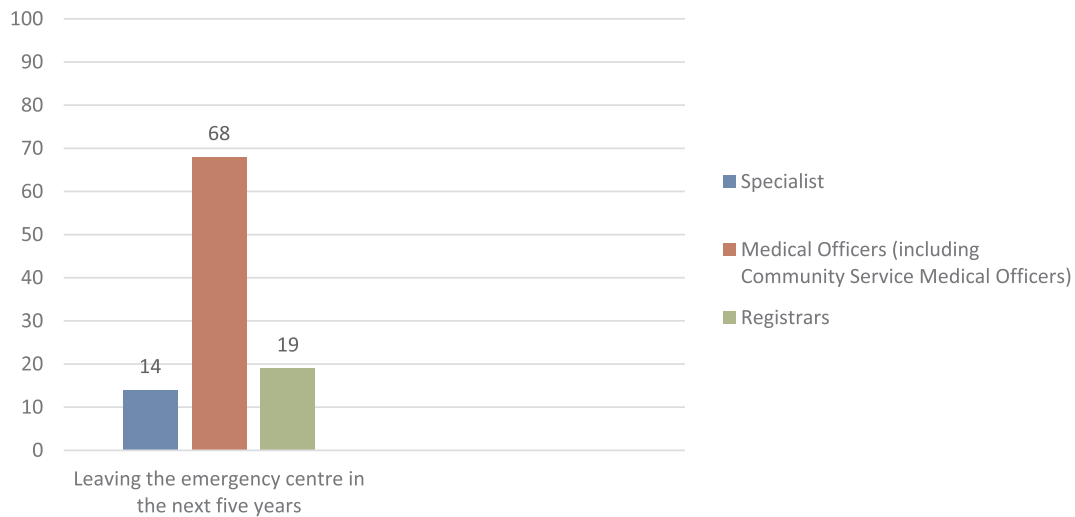


Fig. 1. Different staff grades planning to leave the emergency centre in the next five years (%).

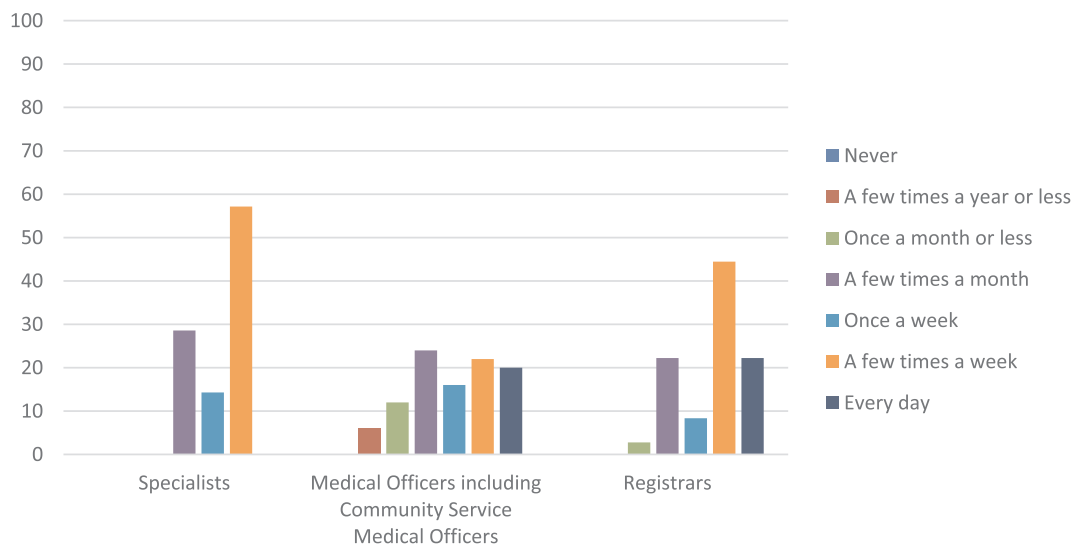


Fig. 2. Response to the question: “How often do you feel emotionally drained from your work?” (%).

explored. Future research may shed light on this. It is recommended that the participants’ perception of their employer and the different management styles in the different hospitals should be included in future surveys on burnout. This study was limited by a small sample size. This was due to the finite number of EC doctors and voluntary nature of the study. Part-time, sessional, family medicine doctors and doctors who have not worked in the EC in the preceding six months were excluded from the study as were those working in other public sector or private sector institutions. Further research may be needed to explore the levels of burnout in the above categories. Another limitation was the small number of specialists included in this study. This is likely not sufficiently adequate to generalise our findings to the overall population of emergency care specialists in Gauteng. Finally, doctors are expected to work night shifts but no data was collected for the number of night shifts done or remuneration. These may have had an impact on the level of burnout experienced.

Based on the results of this survey, it was found that a moderate to high risk of burnout is present for a large proportion of doctors working in the major academic ECs of Gauteng. Reported burnout was higher than compared to international peers. Registrars experienced the highest degrees of burnout amongst the grades compared. It is noteworthy that a high proportion of doctors also indicated their desire to

leave the EC within the next five years. It is likely that this study’s findings could be replicated in other staff groups as well as other local settings. For this reason, it is imperative to commit resources to better describe the causes of occupational burnout of staff working in African emergency centres, and then to identify solutions to mitigate burnout within these settings.

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Conflicts of interest

The authors declare no conflicts of interest.

Dissemination of results

The findings of this study have not been made public by other means.

Authors' contributions

SR and AE conceived the original idea. SR designed the experiments and collected the data. SR, PB and AE carried out analysis of data. SR drafted the manuscript and AE revised it. SR and AE approved the final version that was submitted.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.afjem.2018.04.001>.

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