

**BURNOUT AMONGST UNIVERSITY PARAMEDIC STUDENTS IN
JOHANNESBURG, SOUTH AFRICA**

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Key words: emergency medical services, burnout, paramedic, student

Word count: 2,110

Abstract

Objectives: To determine the prevalence of burnout amongst students in a four year paramedic University degree programme and to assess whether there was any significant difference in the prevalence of burnout between students in the programme's four academic years of study.

Design: Cross-sectional survey.

Method: All students enrolled in a four-year University paramedic degree programme were invited to participate . The questionnaire consisted of 19 questions from the Copenhagen Burnout Inventory (CBI), combined with distractor questions. Responses were analysed descriptively and One-way Analysis of Variance was used to compare CBI scores across the four academic years of study.

Results: An 85% (n = 93) response rate was obtained. The overall prevalence of burnout was 31%. Mean CBI scores across all academic years of study were highest for personal burnout, followed by work-related burnout and patient care-related burnout. The highest prevalence of students with burnout was in fourth year, as was the highest prevalence of work-related and personal burnout. The second highest prevalence of students with burnout was in first year as was the highest prevalence of patient-care related burnout. No significant difference was found in CBI total burnout scores across the four academic years of study.

Conclusion: Although there are no directly comparable data, the prevalence of burnout in this group of students appears high, particularly in the first and final years of study. Steps should be taken to ensure access to social and psychological support in order to avoid a negative impact on academic success and student well-being.

Introduction

Burnout, characterised by the well-described triad of emotional exhaustion, depersonalisation and a decreased sense of personal accomplishment,¹ has been studied in a number Emergency Medical Services (EMS) contexts.²⁻⁵ The prevalence of burnout amongst paramedics varies, but is generally quite high compared to that found in other health professions and in many cases stress from work environment-related factors appears to contribute to the development of burnout more than patient care-related factors.²⁻⁵

While qualified paramedics may draw on coping strategies developed over years of experience to mitigate the effects of work stress and subsequent development of burnout, students typically are not able to do this. Students also tend to face a more complex and multi-factorial set of stressors including stress related to the educational environment, the inherently stressful nature of clinical emergency care, and stress related to academic workload and success.

By considering Maslach's model of burnout and the typical academic life of medical students, Jennings argues that the relationship between academic success and burnout is actually bidirectional.⁶ The stress of academic workload and performance not only influences the development of burnout, but the development of burnout may in turn negatively affect academic performance.⁶⁻⁹ Students thus appear to have a more complex set of risk factors for the development of burnout and perhaps also have the most to lose when burnout does occur.

This study aimed to determine the prevalence of burnout amongst students in a four year paramedic University degree programme and to assess whether there was any significant difference in the prevalence of burnout between students in the programme's four academic years of study.

Methods

We used a cross-sectional survey to assess the prevalence of burnout in this student population. The survey was conducted by using a directly administered questionnaire based on the Copenhagen Burnout Inventory (CBI).¹⁰ The CBI consists of 19 questions in three burnout categories; personal burnout (a state of prolonged physical and psychological exhaustion), work-related burnout (a state of prolonged physical and psychological exhaustion, which is perceived as related to the participant's work or in this case, academic activities) and patient-related burnout (a state of prolonged physical and psychological exhaustion, which is perceived as related to the participant's work with patients).¹⁰ The term "burnout" was purposefully avoided anywhere in the questionnaire, which was called the "Student Wellness Questionnaire" (SWQ). CBI questions were interspersed with a number of distractor questions.

The CBI questions use a Likert-type response scale and a scoring system assigning a score of between 0 and 100 depending on the response chosen. Once the inventory's scoring system had been applied to all responses, an average burnout score was calculated for each of the individual sections and for all three sections combined, giving a total burnout score of which 50 or more suggests a diagnosis of burnout.¹⁰

The validity, reliability and internal consistency of the CBI has been previously demonstrated.^{10,11}

All students registered for the Emergency Medical Care (EMC) degree programme in the Department of Emergency Medical Care at the University of Johannesburg were invited to participate in the survey. The EMC degree programme spans four years of full-time study and is structured with a focus on basic sciences and diagnostic skills in the first two years progressing to more advanced and specialised clinical practice in the last two years (see Table 1 for a summary).

Table 1: Summary of Academic Structure for Emergency Medical Care Degree Programme

Academic Year of Study	Main Academic Focus
First	Basic sciences (anatomy, physiology, chemistry, physics), fundamental clinical content, limited clinical EMS exposure.
Second	Basic supporting sciences (diagnostics, pathology), clinical content, clinical exposure mostly in hospital (operating room, emergency department, obstetrics).
Third	Pharmacology, advanced adult clinical content, more intensive clinical EMS exposure.
Fourth	Specialised areas (paediatrics, thrombolysis, intensive care transfer), related clinical exposure (paediatrics, intensive care), ongoing clinical EMS exposure and a research project.

EMS = Emergency Medical Services

Students were informed of the survey before or after scheduled lectures at the University campus and those wishing to participate completed a consent form, followed by the SWQ. Data collection was completed between July and August 2012. All completed SWQs were collected and data were transcribed to an electronic spreadsheet application for further analysis. Transcribed data were checked for correctness.

CBI scores for each of the burnout subscales, and the total burnout score, were analysed descriptively. In order to establish whether a significant difference between CBI scores (subscale and total) existed across the four years of academic study, one-way Analysis of Variance (ANOVA) was used. IBM SPSS (version 20.0, IBM SPSS, Chicago, USA) was used and $p < 0.05$ was considered significant for all statistical tests.

Ethical approval for this study was granted by the Faculty of Health Sciences Research Ethics Committee at the University of Johannesburg.

Results

A total of 93 students (85%) consented to participate in the survey, out of a total 110 students registered on the EMC degree programme. All SWQs handed out were

completed and returned. Descriptive data for each of the burnout categories and for total burnout score across all academic years of study are given in Table 2.

Table 2: Descriptive Data for CBI Burnout Scores (n = 93)

Burnout Score Category	Mean	Standard Deviation
Work-related Burnout Score	49.1	12.9
Personal Burnout Score	53.4	15.0
Patient Care-related Burnout Score	34.0	19.5
Total Burnout Score	45.2	11.5

CBI = Copenhagen Burnout Inventory

On average, students scored highest in the personal burnout category with work-related burnout and patient care-related burnout categories yielding lower scores. The mean total burnout score was below the threshold value of 50 points. A total of 29 students across all academic years (31%) had a total CBI score of ≥ 50 , the CBI threshold for burnout.

Descriptive data on burnout scores by academic year of study (Table 3) show that the mean work-related burnout score peaked in the fourth year group, the mean personal burnout score was similar across all academic years of study, the mean patient care-related burnout score was highest in first year and the mean total burnout score was highest in fourth year, followed closely by first year

Results obtained by selecting only students with CBI scores ≥ 50 in each burnout category are shown in Table 4. First year students had the highest percentage of burnout scores ≥ 50 in the patient care-related burnout category, and slightly more than one third of this group had total burnout scores ≥ 50 . With the exception of the second year group in the work-related burnout category, approximately two-thirds of students in each academic year had work-related and personal burnout scores ≥ 50 .

Table 3: Descriptive Data for CBI Burnout Scores Across Four Academic Years of Study

Burnout Score Category	CBI Burnout Scores			
	First Year	Second Year	Third Year	Fourth Year
Work-related Burnout Score	50.10 (12.92)	44.86 (10.75)	48.76 (14.7)	53.40 (13.01)
Personal Burnout Score	52.53 (14.50)	52.81 (16.46)	55.06 (16.0)	55.80 (14.17)
Patient Care-related Burnout Score	38.63 (21.93)	25.0 (15.81)	33.82 (17.55)	34.33 (16.35)
Total Burnout Score	46.80 (11.62)	40.38 (10.94)	45.65 (11.72)	47.80 (10.98)

CBI = Copenhagen Burnout Inventory, SD = Standard Deviation

Roughly one-third of students in each academic year had patient care-related burnout scores ≥ 50 , with the exception of the second year group where the prevalence was approximately half this. The total burnout category showed the greatest variation, with the percentage of students having scores ≥ 50 ranging between 18% and almost three times this. The greatest percentage of students with total burnout scores ≥ 50 was in fourth year.

ANOVA results indicated that there was no significant difference in mean burnout scores between the four academic years of study in the categories of personal burnout ($p = 0.866$), work-related burnout ($p = 0.245$), patient care-related burnout ($p = 0.079$) or for the total burnout score ($p = 0.456$).

Table 4: Number and Percentage of Participants With CBI Scores ≥ 50 ($n = 93$)

Burnout Score Category	CBI Burnout Scores ≥ 50			
	First Year	Second Year	Third Year	Fourth Year
Work-related Burnout Score	24 (60)	7 (33)	11 (65)	10 (67)
Personal Burnout Score	24 (60)	14 (67)	10 (59)	10 (67)
Patient Care-related Burnout Score	12 (30)	3 (14)	5 (29)	4 (27)
Total Burnout Score	14 (35)	5 (24)	3 (18)	7 (47)

CBI = Copenhagen Burnout Inventory

Discussion

No data currently exist on burnout prevalence amongst University paramedic students and therefore a direct comparison with a similar cohort is not possible. The 31% prevalence of total burnout as measured with the CBI is very similar to that found amongst a group of qualified Advanced Life Support paramedics in Johannesburg (30% prevalence), measured with the same instrument.⁵ It is higher than the prevalence of burnout identified in a number of other studies investigating this phenomenon amongst qualified paramedics.²⁻⁴

Burnout has been investigated and described in other health care student populations. The prevalence of burnout amongst medical students has been found to be comparatively high, with between 45% and 71% of students affected in different studies.¹²⁻¹⁵ Burnout amongst nursing students has been found to be widely prevalent in one study but at low to moderate levels,¹⁶ and has been shown to increase over the duration of educational contact in one population.¹⁷ The use of different scales to measure burnout makes direct comparison difficult, but it appears as if the prevalence of burnout in this study was lower than that found in medical students but probably higher than that reported for nursing students.

Our results suggest two main focal points of concern at extremes of the student academic experience; first year and fourth (final) year. Given the increased

complexity and volume of academic work (including a research project), and clinical responsibility in final year of the EMC programme, it is perhaps not surprising that the prevalence of work-related burnout, total burnout and personal burnout would be highest or among the highest in this group of students.

Results for first year students were less expected, with this group having the highest prevalence of patient care-related burnout and the second highest total burnout prevalence. Although the clinical EMS exposure in first year is not at an advanced level of care, as a first taste of the real world of EMS it may be more overwhelming to first year students without any prior experience. In a more general sense, first year students may also find the transition from school to University life quite demanding and thus experience greater stress in first year giving rise to burnout.

The aim of this study did not include any assessment of the effect of burnout on academic performance. Studies investigating this relationship in other fields of study and academic environments have provided some evidence that the existence of burnout negatively affects academic performance and success mainly through a decrease in efficiency and productivity of students.⁷⁻⁹ It is thus likely that a similar, albeit unquantified, effect may be present in this group of students.

The burnout prevalence data and evidence linking this to a negative effect on academic performance presented above highlight the need for available and effective social and psychological support referral pathways for EMC students, particularly those in first and fourth year. Even if such support is available and accessible, it could be argued that too much has already been lost, in a fast-paced academic environment, by the time a student or others recognise the need for referral.

Prevention of burnout can be attempted through various strategies including person- and organisation-directed interventions, and a combination of both. The vast majority of such interventions have been found to be effective to some degree, with combined interventions having the best results over the longest time period.¹⁸ Ultimately, outcomes of even the most effective burnout prevention interventions will lessen over time highlighting the importance of repeated preventive efforts. It is recommended that institutions offering EMC or similar academic programmes introduce ongoing burnout prevention interventions as one important way of contributing to the improved well-being of their students.

Limitations

The sample utilised in this study contained larger student numbers in the first and second year groups than in the third and fourth year groups (40 and 21 vs. 17 and 15). The smaller third and fourth year numbers may have increased the risk of a Type II error in the ANOVA comparison of mean burnout scores across all academic years of study. The educational environment and circumstances under which emergency care is experienced by students at the University of Johannesburg cannot necessarily be compared with that of other Universities or geographic areas and thus the results of this study cannot necessarily be generalised to other EMC students populations in South Africa or elsewhere.

Conflicts of Interest

The authors report no conflicts of interest.

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