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ORIGINAL ARTICLE

BURNOUT AND STRESS AMONG INTERNS IN AN ETHIOPIAN TEACHING HOSPITAL: PREVALENCE AND ASSOCIATED FACTORS

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ABSTRACT

Introduction: *Burnout is a psychological condition characterized by emotional and physical exhaustion, depersonalization, and low personal accomplishment. Workplace stress is a significant problem among physicians and is considered as a predecessor to burnout. Burnout negatively affects patient care and causes poor physician mental health. The objective of this study was to determine the level of burnout and stress among medical interns working at St. Paul's Hospital Millennium Medical College and associated factors.*

Methods: *A cross-sectional survey was conducted among 72 interns using a structured online survey. Burnout was assessed using Maslach Burnout Inventory. Burnout was considered when there is a high score on emotional exhaustion (> 26 points), depersonalization (> 9 points) or low score on personal accomplishment (< 34 points) subscale. Stress was evaluated using Perceived Stress Scale-10 questionnaire. Statistical package for social sciences version 23 was used for data analysis. Univariate and multivariate logistic regression analysis were used to determine association between variables. All variables with a p-value of < 0.05 in the multivariate regression model were considered to be statistically significant.*

Results: *High emotional exhaustion, high depersonalization, and highly reduced sense of personal accomplishment were seen in 69.4%, 41.7%, and 44.4% of participants respectively. High level of stress was seen in 37% of the participants. Logistic regression analysis showed that emotional exhaustion and depersonalization were independently associated with having plans to change profession, having financial worries, and high perceived stress, while depersonalization was associated with fear of medical errors. Reduced personal accomplishment was associated with high perceived stress. High level of perceived stress was associated with having plans to change profession.*

Conclusions: *The levels of burnout and stress among interns were found to be high. All concerned bodies must be aware of the findings of this study so they can help improve the mental wellbeing of interns. Support services for interns need to be enhanced.*

Key words: *Professional burnout, psychological stress, internship, teaching hospital*

INTRODUCTION

Internship is a critical point in medical students' journey reflecting transition to independently functioning physician and is an important experience in a physician's life (1,2). It is however faced with several challenges bringing a certain level of distress (1). These challenges include but not limited to long working hours, disturbances in sleep-wake cycles, excessive workload and having multiple responsibilities (1, 3, 4), which occur with significant lack of social support and uncertain future (1,5). These lead to high level of stress and dissatisfaction with 29 to 95% of interns and other physicians considering stress a significant problem (1, 4, 6).

High levels of workplace stress is considered precursor to burnout (1, 3, 4, 6).

The term 'burnout' was first described by the American psychologist Herbert Freudenberger in 1974 (7) and seen mainly in professions having significant contact with other individuals, specifically those that help people such as medicine (1, 7, 8).

Burnout syndrome is a psychological condition characterized by emotional and physical exhaustion, depersonalization, and low personal accomplishment (1, 3). The International Classification of Diseases 11th revision (ICD-11) now has coding for burnout and recognizes it as a syndrome conceptualized as resulting from chronic workplace stress and includes several elements in common with depression and neglect of physical health giving burnout a global recognition (9, 10).

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This will help further highlight the distinct nature of burnout, which traditionally had unclear distinction with other psychiatric diagnosis such as depression, adjustment disorder or chronic fatigue syndrome (11).

Burnout negatively affects patient care, desire to help, willingness to work and increases medical errors (1, 12, 13, 14). It reduces cognitive skills and affects patient and physician satisfaction contributing to brain drain and strains healthcare systems (1, 3, 13, 15, 16). It causes poor physician mental health contributing to depression, anxiety, and poor quality of life (1, 14, 15). It also affects physical wellbeing resulting in inadequate sleep, and adverse health outcomes (1, 9, 15).

The prevalence of burnout among physicians and medical students is reported to be high (15). Data from low and middle-income countries is scarce, but few studies in sub-Saharan Africa reported burnout as a major challenge (13, 16, 17). Prevalence of burnout in interns has also been studied showing levels from 16.7% in Jeddah to as high as 75% in Australia (1, 3, 5, 18).

Several factors affect occurrence of burnout including lack of support, dissatisfaction with education, undefined work roles, sleep deprivation and high work burden (1, 3, 15). Substance use such as smoking and excessive alcohol consumptions seems to increase the risk (15). Salary was also a major contributor in studies among physicians outside internship years (13).

Knowing the magnitude of stress and burnout and contributing factors will help recommend possible solutions. Burnout was studied among Ethiopian physicians and medical students. However, we are not aware of any previous studies that evaluated the level of stress and burnout among interns working in Ethiopia.

The aim of this study was to determine the level of burnout and stress and associated factors among medical interns working at St. Paul's Hospital Millennium Medical College (SPHMMC).

MATERIALS AND METHODS

Study setting and design

The study was conducted at SPHMMC in Addis Ababa, Ethiopia; a tertiary teaching hospital established in 2007 after a medical college was opened in a hospital built in 1968 (19). Interns have rotations of 12 weeks each in of the departments of internal medicine, pediatrics, surgery and obstetrics and gynecology and 6 week rotation in psychiatry and emergency medicine. A cross-sectional survey was conducted from August 24 to September 20, 2020 on interns that worked in the hospital for a minimum of 6 months.

Sample size was calculated using single population proportion formula. The value of P was taken as 22%, according to a study done in similar population in India (5). A desired confidence level of 95% and margin of error of 5% was used resulting in a sample size of 264. There were 106 interns actively working in the hospital. Since this number exceeded the total number of interns, it was planned to include all interns in the data collection.

Survey instrument

Data collection was made using structured electronic online questionnaire. All interns were invited to participate in the survey via social media platform used for a group communication. Filling out the survey proceeded after electronic consent was given.

The questionnaire had four parts. First part included sociodemographic data (age, gender, marital status, residence in college compound, and living with family or not). Second part included a group of structured questionnaires for assessing burnout using Maslach Burnout Inventory (MBI), and stress using Perceived Stress scale-10 (PSS-10) (8, 20). MBI was validated in South Africa for assessment of burnout and has been used in previous studies in Ethiopia (13, 21).

MBI is a 22-item questionnaire instrument assessing burnout (8). It has three components, each assessing emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA). EE includes 9 items with a maximum score of 54 and is classified high for score > 26, moderate for scores 19-26 and low for scores below 19. DP has 5 items scored out of 30 and is classified as high if > 9 points, moderate for 6-9 points and low below 6 points. Finally, PA containing 8 items scored out of 48 is scored low for scores < 34, moderate for scores 34-39 and high for above 39.

Since PSS-10 is recommended as a tool to assess the level of stress over the last one month and not a diagnostic instrument, there is no cut off for classification of stress. Dividing the PSS-10 values in to tertiles was done (22, 23). The highest tertile (PSS≥18) was considered to be associated with a higher degree of perceived stress while intermediate score (PSS=18-22) and low score (≤17) was considered lower degree. PSS-10 is validated in Ethiopia (24).

The final parts assessed factors affecting burnout, including individual and work related factors.

Data analysis

Data were generated from the electronic questionnaire in Excel format and checked for completeness. It was then entered into Statistical Package for Social Sciences version 23 and analyzed. Data were summarized using percentages, mean, standard deviation (SD) and presented in tables and figures. Reliability of burnout and stress assessment tools were done. Logistic regression model was used to examine the independent association between burnout, stress and associated factors. Variables with P-value <0.2 in the univariate analysis were included in the multivariate logistic regression model. All variables with a p-value of < 0.05 in the multivariate model were considered statistically significant. Associations between variables were presented in odds ratios (OR) with 95% confidence interval (CI).

Ethical approval

The study was approved by the Institutional Review Board of SPHMMC (IRB code: PM 28/103). Written informed consent was obtained from all participants.

Each participant's information was collected using anonymous electronic questionnaire.

RESULTS

Socio-demographic characteristics

Out of the 106 interns actively working in the hospital, there were 72 responses giving a response rate of 68%. Out of the respondents, 59.7% were males and except for one married individual, all were single. The mean age (SD) was 24.57 (1.46) years and ranged from 23 to 34 years. Most of the participants (70.8 %) live inside the college compound in the dormitories. Over half (54.2%) said their families reside in the capital Addis Ababa and among them 61.5 % do not live with their families during work and reside in the dormitories (Table 1).

Table 1: Sociodemographic characteristics of interns, SPHMMC, Addis Ababa, 2020

Characteristic	Number	Percent
Age Group		
Up to 24 years	44	61.1
25 years and above	28	38.9
Gender		
Female	29	40.3
Male	43	59.7
Place of residence		
Inside college compound	51	70.8
Outside college compound	21	29.2
Family residence		
Addis Ababa	39	54.2
Outside of Addis Ababa	33	45.8
Current rotation		
Emergency medicine	10	13.9
Internal Medicine	17	23.6
Obstetrics/Gynecology	15	20.8
Pediatrics	13	18.1
Psychiatry	5	6.9
Surgery	12	16.7

Other co-morbid conditions

Several individual-related factors were assessed. Six participants reported as having been diagnosed with psychiatric conditions in a healthcare setting which included three individuals with major depressive disorder and two with generalized anxiety disorder. The average number of night duties per week ranged from 0 to 4 with 68% having 2 duty shifts while, 26% having 3 duties.

Two respondents said they smoke cigarettes or chew khat regularly and 6 individuals consumed alcohol regularly. A total of 8 (11.1%) individuals regularly used any of the mentioned substances. Eighty-three percent were not aware of any support service in the hospital. Finally, 69.4% of respondents had planned to leave the country and 43.1% had planned to change their profession (Table 2).

Table 2: Other co-morbid conditions of interns, SPHMMC, Addis Ababa, 2020

Factor assessed	Number	Percent
Regular physical activity		
No	61	84.7
Yes	11	15.3
Average number of duty per week		
<3	51	70.8
≥3	21	29.1
Excessively worried about COVID-19 pandemic		
No	43	59.7
Yes	29	40.3
Awareness of support services		
No	60	83.3
Yes	12	16.7
Plans to leave the country		
No	22	30.6
Yes	50	69.4
Plans to change profession		
No	41	56.9
Yes	31	43.1

COVID-19: Coronavirus Disease 2019

Reliability of survey questionnaire

Evaluation of the internal consistency (cronbach's alpha) of the instrument was done and α-values of 0.908, 0.801, and 0.694 were obtained for EE, PA, DP subscale respectively. All α-values were above 0.6 and were acceptable. Similarly, a good internal consistency of α = 0.879 was seen for PSS-10 questionnaire.

Burnout assessment

The burnout assessment of interns showed that 69.4%, 41.7%, and 44.4% of them reported high EE, high DP, and highly reduced sense of PA respectively. The mean scores of MBI components for EE was 33.4 (range: 4 to 54) reflecting a high level. In contrast, the mean scores for DP and PA respectively, were 9.4 (range: 0 to 25) and 34.1 (range: 16 to 48) reflecting moderate levels of DP and reduced PA (Figure 1).

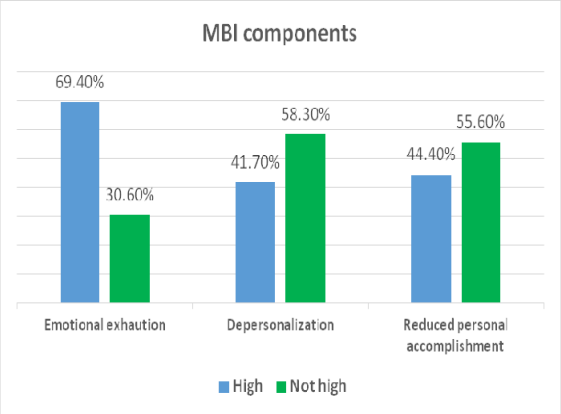

Figure 1: Burnout status of study participants, SPHMMC, Addis Ababa, 2020

Ten (13.9%) interns had high level of burnout in all three MBI components and 13 (18%) in two components.

Stress

The mean PSS-10 score was 21.03, which lied in the high tertile range and 37% of responses were in this range reflecting a high level of perceived stress. The rest 36.1% and 26.4% were in the moderate and low group respectively (Table 3).

Work related challenges faced during internship

The interns were asked to rate the challenges they faced on a 5-point likert scale. The biggest challenge identified from the responses was 'Poorly defined role as an intern' whereby 97.2% said that they 'agree' or 'strongly agree'. Ninety percent agree with having excessive work load and 92.7% complained of fatigue and sleep deprivation (Table 4).

Factors associated with burnout

The odds of having EE was five times higher in individuals having plans to change profession (AOR, 5.13; 95% CI, 1.31-21.11) and had excessive financial worries (AOR, 5.57; 95% CI, 1.23-25.15) and six times higher in individuals who reported high level of perceived stress (AOR, 6.17; 95% CI, 1.29- 29.59) after controlling for the other variables. Similarly, all the three factors were independently associated with high DP. Fear of medical errors increased the odds of DP (AOR, 4.56; 95% CI, 1.14-18.23). Participants who reported high level of perceived stress had three times increased odds of reporting low levels of PA (AOR, 3.09; 95% CI, 1.03-9.29). Having plans to change profession increased the odds of reporting high stress by five-fold (AOR, 5.16; 95% CI, 1.411-18.924) (Table 5).

Table 3: Characteristics of high perceived stress, SPHMMC, Addis Ababa, 2020

Variable	PSS-10 high	
	Number	Percent
Age group in years		
<25	16	36.4
≥25	11	39.3
Gender		
Female	15	51.7
Male	12	27.9
Place of residence		
Inside college compound	18	35.3
Outside college compound	9	42.9
Family residence		
Addis Ababa	18	46.2
Outside of Addis Ababa	9	27.3
Department		
Internal Medicine	10	58.8
Pediatrics	3	23.1
Obstetrics and gynecology	7	46.7
Emergency medicine	2	20
Psychiatry	0	0
Average number of duties in the last week		
<3	17	33.3
≥3	10	47.6
Regular physical activity		
No	22	36.1
Yes	5	45.5
Drink alcohol regularly		
No	23	34.8
Yes	4	66.7
Excessively stressed/ worried about COVID-19 pandemic		
No	17	39.5
Yes	10	52.6
Awareness of support services		
No	25	41.7
Yes	2	16.7
Plans to leave the country		
No	5	22.7
Yes	22	44
Plans to change profession		
No	10	24.4
Yes	17	54.8

Table 4: Work-related factors, SPHMMC, Addis Ababa, 2020

Challenges faced during work	Strongly agree or agree	Percent
Lack of support	44	61.1
Excess work overload	65	90.2
Difficulty integrating well with the team	5	6.9
Inadequacy of clinical skills	7	9.7
Inadequacy of clinical knowledge	5	6.9
Feeling inadequately prepared to work as a doctor	11	15.2
Difficulty balancing work with personal life	24	33.3
Difficulty interacting with senior staff	28	38.8
Having poorly defined role as an intern	70	97.2
Having financial worries	24	33.3
Having future and career uncertainty	64	88.8
Conflict with allied health professionals	49	68
Difficulty attaining education and practical skills needs	49	68
Fear of error leading to patient suffering	36	50
Fear of medico-legal consequences	30	41.6
Excess fatigue and sleep deprivation	66	91.7
Lack of recognition	64	88.9
Finding a comfortable place to sleep/rest while on duty	53	73.7

Table 5: Multivariate logistic regression analysis of factors associated with burnout and stress, SPHMMC, Addis Ababa, 2020

	Crude OR	95% CI	P-value	Adjusted OR	95% CI	P-value
Emotional exhaustion						
Plans to change profession	5.28	1.56 – 17.85	0.005	5.13	1.31 – 21.11	**0.019**
Financial worries	3.0	0.88 – 10.18	0.07	5.568	1.23 – 25.15	**0.026**
High perceived stress	5.85	1.53 – 22.2	0.006	6.17	1.29 – 29.6	**0.023**
Plans to leave country	2.64	0.91 – 7.62	0.069	0.7	0.16 – 3.11	0.639
Lack of support	2.55	0.91 – 7.13	0.071	2.3	0.63 – 8.67	0.206
Fear of medical error	2.23	0.79 – 6.26	0.125	2.4	0.65 – 8.9	0.189
Finding a place to sleep	2.77	0.93 – 8.29	0.064	2	0.47 – 8.4	0.346
Difficulty with staff interactions	2.87	0.93 – 9.07	0.062	2.5	0.562 – 10.96	0.23
Depersonalization						
Plans to change profession	5.64	2.02 – 15.7	0.001	5.09	1.79-14.45	**0.002**
Financial worries	2.8	1.02 – 7.68	0.043	3.98	1.19 – 13.33	**0.025**
High perceived stress	3.22	1.19 – 8.7	0.019	4.27	1.31-13.93	**0.016**
Number of duties per week	2.44	0.87 – 6.9	0.091	1.57	0.36 – 6.77	0.547
Difficulty with staff interactions	2.86	1.07 – 7.62	0.034	2.57	0.63 – 10.6	0.19
Fear of medical error	0.41	0.15 – 1.13	0.056	4.56	1.14 – 18.23	**0.032**
Difficulty attaining education	0.41	0.15 – 1.13	0.08	0.247	0.06 – 1.04	0.057
Personal accomplishment						
High perceived stress	3.4	1.25 – 9.22	0.014	3.09	1.03 – 9.29	**0.044**
Difficulty attaining education	0.37	0.14 – 1.03	0.055	0.378	0.13 – 1.14	0.084
Difficulty with staff interactions	3	1.12 – 7.98	0.027	0.75	0.96 – 7.83	0.059
Perceived stress						
Plans to change profession	3.76	1.38 – 10.28	0.01	5.16	1.41-18.92	**0.015**
Gender	2.77	1.03 – 7.43	0.043	3.43	0.94 – 12.52	0.62
Plans to leave country	2.61	0.85 – 8.38	0.092	1.75	0.46 – 6.61	0.409
Awareness of support service	0.28	0.56 – 1.39	0.12	0.263	0.04 – 1.71	0.163

OR - odds ratio

DISCUSSION

A high level of burnout was reported by the participants. High EE was reported in 69.4% of the participants in our study. This figure is much higher than previous reports from studies done in Ireland, Mexico, Saudi Arabia, India and Australia which showed high EE from 34% to the highest of 55% in an Irish study (1, 3, 5, 9, 18).

However, a study from United States of America exceeds this figure with 84% reporting high EE (12). The level of high DP (41.7%) was in the range of reports from the mentioned studies which ranged from 39% to 84.9 % (1, 3, 5, 9, 12, 18).

Highly reduced PA (44.4%) was comparable to most studies reporting figures from 41.6% to 75.5% (1, 3, 9, 12) but markedly different from an Indian study report of 77% (5) and an Australian one of 15% (18). These differences might be a reflection of the differences of settings the studies were done including the types of hospitals (public or private), the difference in workload, culture, socioeconomic status, type of patients seen and availability of treatments.

All of these studies reflect the significance of burnout and the importance of addressing it not only in medical students and higher level physicians but also in interns.

Financial issues have been found to be significant contributors to burnout in all physicians (1, 25). A Saudi Arabian study reasoned that living in a self-owned house provides financial security and subsequently leads to less burnout (9). Burnout has also been found to be more common in individuals contemplating changing their careers as it reflects the level of frustration with their life and career (9). An association between intern stress and medical errors has been reported (18). In addition, medical errors can be a source of burnout while burnout by itself can increase medical errors showing that it can also affect patients and potentially lead to litigation (11).

Not only were components of burnout high, but so was the level of perceived stress. Previous studies have shown that high level of stress poses a threat to increasing burnout (26, 27). This has also been reflected in interns whereby 43% in one study with high burnout reported mild to severe degrees of distress assessed by the 12-item general health questionnaire (1). Our study also supports this association by reflecting the significance of stress on all three components of burnout.

There was also significant difference with regards to gender and burnout. Previous studies show inconsistencies with which gender is more affected. Most studies in interns, however, reveal that gender might not be significant (1, 3, 5, 9). The same was true for dormitory residence and places of family residence. Similar to our findings, more than 80% of participants in a comparative study were not aware of support services which may hinder them from seeking help (1). A comparative percentage (around 70%) wish to leave their country in the future (1). This is an alarming number and contributes to the high physician attrition the country faces (28). The increasing saturation of many cities with physicians, particularly general practitioners, is leading to rising unemployment, which can further affect medical students and junior doctors (29). Contemplating to change profession can stem from lack of employment prospects, which was shown to be related to components of burnout on a study from Ethiopia (30).

It is critical to raise awareness about the significance of stress and burnout among interns. Interns are not provided with the concern given to other physicians, which is reflected by the paucity of previous studies on the subject on interns. Burnout is as common, if not more, compared to physicians who completed internships. Subsequently, the impact on mental and physical well-being can be mitigated (16). Healthy and satisfied physicians are essential for providing appropriate care for patients by minimizing medical errors, reducing physician fatigue, and improving patient satisfaction (3, 5, 18, 31).

Support services including psychological support that is designed to address their challenges must be made available and they should be aware of it as soon as they start internship. Mentorship by physicians that have passed their internship and have experience dealing with its challenges can help by addressing the issues they might have.

To our knowledge, this study is the first of its kind done to assess burnout among interns in Ethiopia. An internationally validated instrument was used to assess burnout and a locally validated one was used for evaluation of stress. It will serve as an important starting point for further research. However, it has some limitations. Response rate of 68% may not be representative of all interns, but is higher than 35% and 45% in other similar studies (1, 9). The number of participants is low and it is recommended that future large scale multi-center studies be done. This was a cross-sectional study and definitive conclusions about causality cannot be made. Initial baseline data collection and serial follow-up was not made.

Conclusions

In summary, levels of burnout and stress in was high among interns. The results underscore the need to raise awareness on the problem. Promoting mental well-being and optimizing preventative and psychosocial support services is essential. The college must make the mental wellbeing of its physicians a priority and act early.

Financial and job security must be safeguarded so that junior physicians can work in a more conducive work environment. Further studies on the subject with more detailed assessments on impacts of burnout on other components of mental health needs to be conducted.

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Conflict of interests

All authors declare that they have no conflict of interest regarding this manuscript.

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