

Addis Ababa University
College of Health Science School of Medicine Department
of Emergency and Critical Care Medicine



**The Prevalence of Burnout and Associated Factors among Medical Interns at Tikur
Anbessa Specialized Hospital : A Cross-sectional Study**

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**This research thesis will be submitted to the Department of Emergency and critical care
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requirement for a post-graduation certificate of Emergency and Critical Care Medicine.**

January, 2024

Addis Ababa, Ethiopia

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Declaration

I, Tarekegn, declare that this is my independent assessment and that all materials used in this work have been properly cited.

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Place: Addis Ababa, Ethiopia

The thesis here, entitled “The Prevalence of Burnout and Associated Factors among Medical Interns at Tikur Anbessa Specialized Hospital” was recognized by the board of examiners in its current form as partially meeting the requirements for a post-graduation certificate in the Department of Emergency Medicine and critical care School of Medicine, Addis Ababa University.

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Acronym:

AAU – Addis Ababa University

BS – Burnout Syndrome

DP – Depersonalization

EE – Emotional Exhaustion

ED – Emergency Department

ECCM - Emergency and Critical Care Medicine

ETB – Ethiopian Birr

HCW – Health Care Worker

MBI – Maslach Burnout Inventory

MD – Medical Doctor

MOH _ Ministry Of Health

PA – Personal Accomplishment

CHSSM _College of Health Sciences School of Medicine

SPSS – Statistical Package Social Services

SPHMMC – St. Paul’s Hospital Millennium Medical College

TASH – Tikur Anbessa Specialized Hospital

WHO – World Health Organization

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Abstract

Background: Those in the medical field who worked with patients frequently had suffered burnout syndrome. Burnout syndrome is a psychological disorder marked by low personal accomplishment, depersonalization, and physical and emotional weariness.

Study's objective: was to determine the magnitude of burnout among medical interns working at TASH Specialized Hospital, as well as its contributing variables.

Methods: A cross-sectional survey was conducted between August 1 and September 30, 2023 among 222 medical interns working at TASH using the Maslach Burnout Inventory to measure the level of burnout. Data analysis was performed using SPSS version 26. Descriptive statistics were used to tabulate means, percentages, and frequencies. We also used ordinal logistic regression analysis to determine the relationship between dependent and independent variables. All variables with a p value < 0.05 and 95% CI were considered statistically significant.

Result: The study found that 82.1%, 79.5%, and 68.8% of participants had high score of emotional exhaustion, high levels of depersonalization, and significantly reduced sense of personal accomplishment, respectively. The overall burnout score for all three MBI components was 50%. Ordinal logistic regression analysis showed that emotional exhaustion was 15 times more independently associated with intention to leave the country after graduation and 4.93 times more likely to have no concrete future plans, whereas depersonalization was 4.11 times more significantly associated with male individuals.

Conclusion: the overall assessment of burnout syndrome among medical interns at TASH increased with significant proportion compared to the previous study done on similar population in this country.

1. Introduction

1.1. Background

The internship is an extremely significant experience in a doctor's life and a turning moment in a medical student's road toward becoming an independently practicing doctor. It is dealing with a number of issues at once, which can lead to stress and burnout. These resulted in a great deal of stress and unhappiness, with 29 to 95% of interns and other medical professionals citing stress as a serious problem (1).

First, Freuden Berger and Maslach (1974, 1976) coined the word "burnout," which describes chronic occupational stress brought on by people's tense relationships with their jobs. Burnout is a symptom of emotional exhaustion, depersonalization, and decreased personal accomplishment, according to Maslach and Jackson (1981). The main feature of the syndrome and what is thought to be its main symptom is emotional exhaustion. It alludes to the exhaustion of emotional reserves and pressure feelings. Depersonalization is the act of responding in an impersonal, indifferent, or negatively to someone who is receiving your service, care, treatment, or instruction. A low degree of personal accomplishment is linked to a tendency to have poor self-perceptions, a loss of competence, and low self-efficacy (2).

Compared to the general population, burnout is more frequently recognized as a prevalent phenomenon among medical students, residents, and doctors with fewer than five years of experience. In general, burnout syndrome comes from continuous exposure to persistent stressors at work, although a variety of organizational variables, such as an excessive workload, insufficient rewards, and bad interpersonal relationships, may contribute to burnout (3).

The eleventh revision of the International Classification of Diseases (ICD-11) now includes a code for burnout; which now recognizes it as a syndrome conceptualized as the result of ongoing workplace stress and shares several characteristics with both depression and disregard for one's physical health. This will further emphasize how unique burnout is from other psychiatric diagnoses like depression, adjustment disorder, or chronic fatigue syndrome, which have had a difficult to distinguish from one another (4).

It has been demonstrated that burnout syndrome has negative effects on workplace metrics like job performance, job satisfaction, and staff turnover. Additionally, BS symptoms had been connected to a variety of mental and physical conditions include depression, sleeplessness, and digestive issues (5). It impairs cognitive abilities and patient satisfaction, to causes brain drain, and strains the healthcare systems (6).

a stressful work environment, long hours, lack of sleep and were some characteristics that contribute to burnout (7). Substance abuse, such as smoking and binge drinking, would raise the danger(8). Income would be also the main contributing factor in studies among physicians outside internship years (9).

Researchers looked into burnout among Ethiopian doctors, nurses, and medical students. It was not aware of any previous studies that evaluated the degree of burnout experienced by TASH interns, despite a study was being conducted to gauge it among 72 interns at St. Paul's teaching hospital. The purpose of this study was to evaluate the degree of burnout and contributing factors among TASH's medical interns.

1.2. Statement of the problem

Students in universities in general and medical students in particular, experience high levels of stress that lead to more mental health issues and burnout. 'Widely dispersed' and 'increasing' frequency of mental diseases among students was revealed by the WHO, which was carried out in 19 colleges across eight nations. According to studies, medical students experienced higher and level of burnout exhibited more mental health issues than non-medical students, age-matched people in the general population (10). Therefore, it had given sense that during the previous few years, the prevalence of burnout symptoms among medical students had increased. Another study on the prevalence of burnout in interns found that the distribution of figures from 16.7% in Jeddah to as high as 75% in Australia (1).

The negative impacts of burnout on interns' general mental health included sadness sleep problems, substance addiction, and even a higher risk of suicide. Additionally, academic success, specialty and career choice, as well as patient care, might all be severely impacted by burnout (1).

Therefore, attempts to prevent and treat burnout in interns would receive more focus in research and consideration in educational contexts. The main target of this assessment would be to determine the level of burnout and contributing factors among medical interns working at TASH.

1. 3. Rational of the study

It was anticipated that this study would give a significant insight on the occurrence of burnout among interns undergoing training at TASH and assessed the significance of the associated factors. The study would also provide advice to the various department heads, colleges, and universities on how to improve the workload for interns, reducing stressful situations, and certain a harmonious learning environment. It would also provide crucial information for those creating curricula. The study's main goal would be identify the prevalence of burnout and its contributing factors on medical interns practicing at TASH.

2. Literature review

2.1. Worldwide

To examine the prevalence of burnout, a cross-sectional survey of 101 doctors who finished their internship in the Dublin North East hospital network in Ireland found that 37% of interns suffered from this condition ; at the same time, High degrees of depersonalization (51.5%), emotional weariness (55.4%), and a low sense of personal success (41.6%) were observed in the individuals(11).

A cross-sectional study done in December 2014 at Maulana Azad Medical College, New Delhi, India to identify the prevalence of burnout syndrome found that 22% of subjects suffered from this disease. So that 46% had high scores on the Emotional Exhaustion subscale, 46% had high scores on the Depersonalization subscale, and 77% had low scores on the Personal Achievement subscale(12).

To determine the presence of burnout, another survey was conducted among 176 medical students who completed internships in private and public hospitals in Mexico from December 5,

2018 to February 18, 2019. According to the findings, burnout syndrome affected 17.5% of males and 21.8% of women, with a frequency of 20%(13).

Additionally, a cross-sectional survey including 651 medical students was carried out between December 2018 and February 2019. and residents at Maharajganj Medical Campus (MMC) in Kathmandu, Nepal, and burnout Was assessed to have 31% of participant developed this condition (14).

At the Royal Salman Military Hospital in northwest, another survey with 230 trainee doctors was carried out between September 1, 2020, and January 30, 2021 Tabuk city, Saudi Arabia, to determine the extent of burnout; So that 89.1% of them exhibited burnout syndrome (15).

Among 270 interns in Riyadh, Saudi Arabia, A similar survey, to examine the magnitude of burnout and the association between burnout and unethical activities. The study found that 50% of interns experienced high levels of burnout, and overall only 5.9% of interns engaged in unethical activities(16).

A cross-sectional study was also conducted at King Abdul-Aziz University Hospital in Jeddah, Saudi Arabia, to examine the prevalence of burnout, anxiety and depression among 191 trainees in 2021.19.6% and 6.1% of them suffered from moderate anxiety and mild stress ,respectively; overall ;38% of them reported burnout(23).

Finally, from August 2019 to June 2020, among 91 dental interns at the School of Stomatology, Peking University, China, a survey done to assess burnout and explore its associations. The results showed that the mean scores for emotional exhaustion, depersonalization, and personal accomplishment were 22.22 ± 9.04 , 8.16 ± 5.21 , and 36.08 ± 7.76 , respectively(17).

2.2. Africa

A cross-sectional study of 90 physicians in Kumasi, Ghana, on July 26, 2019, found that the majority of respondents reported moderate burnout, with a response rate of 66.67%, indicating that burnout and It showed the prevalence of relevant variables. 8.3% of respondents said they had done so had high levels of EE,19.87% had high levels of DP burnout, and 10% had high levels of PA experienced high levels of emotional exhaustion burnout, 20% had experienced

high levels of depersonalization burnout, and 10% had experienced high levels of personal success burnout (18).

In Tunisia, a second cross-sectional poll was carried out between March 1 and April 15, 2021 to determine the level of burnout among residents and interns. Among the participants, 94.6% rated their burnout positively, of which 19.6% had severe burnout (19).

In a single-center, survey of medical students in Uganda to evaluate the magnitude of burnout syndrome, 141 (97.19%) students exhibited high score of cynicism and 90 (62.11%)) were found to have a low score of career competence and 135 (92.9) had professional efficacy. Overall, 79 (54.5%) of the students who used the MBI-SS tool showed burnout (20).

2.3. Ethiopia

A cross-organizational study of 282 nurses in public hospitals in southwestern Ethiopia from February 1 to April 1, 2018 found that 96 (34.01%) of the participants suffered from burnout. The Strong contributors of the survey were education, occupation, fatigue level, and family support. (21).

From April 10 to 15, 2017, 151 Debire Birhan University medical students underwent a cross-sectional survey to identify the extent and degree of burnout's contribution. Consequently, 34.0% of individuals encountered burnout. In terms of burnout, the highest scores on EE were 61.8%, DP were 47.91%, and PA were 59.71%(8).

Another cross-sectional institutional study of 200 healthcare professions practicing from August to October 2020 at the Eka Kotebe COVID-19 Treatment Centre discovered that 85.0% of them were experienced burnout (high EE or DP score). The participants scored 52.5%, 84.0%, and 94.0% on subscales measuring EE, DP, and PA, respectively (22).

Between August 24, 2020, and September 20, 2020, a cross-sectional survey was carried out to investigate the degree of burnout and related factors among 72 interns employed at St. Paul's Hospital Millennium Medical School. The results revealed that high levels of emotional exhaustion, high levels of depersonalization, and significantly reduced sense of personal accomplishment were observed in 69.4%, 41.7%, and 44.4% of participants. 13.9% of interns were found to have high levels of burnout across all three MBI components. If they had

aspirations for their careers, they were five times and six times more likely, respectively, to develop EE and significant financial problems, respectively (1).

Overall, a wide range of literature showed that there were large differences in the magnitude of burnout among healthcare workers (professionals) though out the globe. These ranged from 13.9% in Ethiopia to 94.6% in Tunisia. Therefore, it became clear that the scope of BS required further investigation..

3. Objectives

3.1. General objective

To examine the magnitude of burnout and related variables among working interns at TASH from August 1 to September 30/2023.

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3.2. Specific objectives

To measure the magnitude of burnout among medical interns working at TASH from August 1 to September 30/2023.

To identify the related factors of burnout among medical interns working at TASH from August 1 to September 30/2023.

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4. Methods

4.1. Study design

The cross-sectional study was conducted from August 1st to September 30th, 2023 among TASH's medical interns. Using Google Forms, a self-administered, standardized questionnaire was used to gather data.

4.2. The Survey location

The study was carried out in Addis Abeba at TASH (College of Health Sciences School of Medicine Addis Ababa University) in Addis Ababa. The AAU was founded in 1950, and the School of Medicine was also opened in 1972. The university's official website states that it currently offers eight undergraduate programs and more than 70 graduate programs. TASH is the

university's an academic hospital and the largest hospital in Ethiopia (approximately 700 beds). Interns will rotate for 12 weeks in internal medicine, pediatrics, surgery, and obstetrics and gynecology, and six weeks each in psychiatry, emergency department, and anesthesiology.

4.3 population

4.3.1 Population -source

Medical Interns in Ethiopia

4.3.2 Study population

All medical interns working at TASH during the period of the survey,

4.3.3 Study unit

Medical interns included in the survey,

4.4 Eligibility

4.4.1 Inclusion criteria

Any medical intern who had a minimum attachment of 6 months and who practiced at TAH during course of the study,

4.4.2 Exclusion criteria

Any intern who was not voluntary to participate in self-administered questionnaire.

Any intern who was not in the activity at the time the of survey,

4.5 variables

4.5.1 Independent variables

Age, sex, marital status, working hours, living in campus, weekly duty, service area, sleep cycle disturbance, habit of smoking, habit of alcohol use, history of acute or chronic medical conditions, definite plan in the future, plan to leave the country after graduation, and change of profession after graduation.

4.5.2. Dependent variable

Burnout syndrome, which is explained by three subscales of MBI components (EE, DP &PA)

4.6. Sample size and sample selection technique

4.6.1. Number of samples calculation:

The leveled individual population proportion formula provided the sample size for the cross-sectional study design.

$$n = (Z_{\alpha/2})^2 * \frac{p(1-p)}{d*d}$$
$$= (1.96)^2 * (0.139 (1 - 0.139)) / (0.05)^2 = 184$$

Where:

- n is the least required sample size
- d is marginal error = 0.05
- For a certain confidence interval (1.96 for 95% CI), $Z_{\alpha/2}$ is the value under the standard normal table.
- p is the prevalence which was done in the similar population at SPHMMC in Addis Ababa, Ethiopia = 13.9 % = 0.139,

The adjustment formula would be used because there were fewer than 10,000 people in the entire population.

The number of samples (n) = 184

The total population (N) = 222

Corrected sample size = $n / (1 + n/N) = 184 / (1 + 184/222) \approx 101$,

The least sample size = 101 participants, the ultimate necessary adjusted sample size, after accounting for potential non-respondents by 10%, was 111 = (101+10).

4.6.2. Sampling Procedure

Subsequently, a stratified sampling procedure that was randomized was employed.

Regarding to distribution on respective departments:

Surgery = 44,

Internal medicine =45,

Gynecology =44,

Pediatrics = 44,

Psychiatry, anesthesiology & emergency medicine =45.

Then, the final sample will be selected from each department using proportional to the size allocation formula, $= \frac{nf \cdot ni}{N}$

Where:

ni = interns in each department,

nf = final sample of the study =111,

From Surgery Department = $(44 * 111) / 222 = 22$,

From Internal Medicine Department = $(45 * 111) / 222 = 22.5 \sim 23$,

From Gynecology Department = $(44 * 111) / 222 = 22$,

From Pediatrics Department = $(44 * 111) / 222 = 22$,

From Psychiatry, Emergency Medicine Department and Anesthesiology (equal distribution in each department) = $(45 * 111) / 222 = 22.5 \sim 23$, during stratification, one extra participant was added for the purpose of calculation.

Finally, the sample size became 112.

7. Operational definition:

-Burnout: it is a psychological syndrome characterized by emotional exhaustion (EE), depersonalization (DP), and a sense of reduced personal accomplishment (PA).

-MBI: Maslach burnout inventory is a psychological assessment comprising 22 items about occupational burnout.

EE: The dimension describes feelings of exhaustion due to overwhelming work.

- Low -if the HCW scores 18 points or less on the EE-related factors.

- Medium: In the event that the HCW receives 19–26 EE-related points.

–High- If the HCW score is 27 points or above, the things are associated to high-EE.

-DP: dimension is defined as a response of detachment, indifference, and unconcern toward the work being performed and/or the people who receive it.

- Low; if an HCW receives a score on DP-related items of less than or equal to five points,

-Moderate; if an HCW places between 6 and 9 on DP-related items and

-High; If the HCW completes the DP-related item questions with a minimum score of 10 points

-PA: This dimension is reflected in a lack of personal accomplishment and negative professional self-evaluation

-Low; HCW's PA related if the item score is 31 or PA less related items.

-Moderate HCW has a high score of 32–38 on PA-related issues.

- High; If the HCW completes PA-related items with a score of 39 or above and

- High. If the HCW scores 39 points or higher PA related items

- **Intern:** a doctor who has completed medical school and is engaged in a year of additional training with supervised practical experience at a hospital before residency.

4.8. Data collection procedure:

After searching various types of literature on the extent of intern's burnout and its contributing factors, a self-administered closed-ended questionnaire was created. The questionnaires were

asking about socio-demographic work-related and individual aspects. The questionnaires were distributed to the respondents through Google form and the response were collected by Excel form.

4.9. Data Collection Tools:

The Maslach Burnout Inventory (MBI), which has 22 items. Each question has a seven-point scale with the options never (0) to daily (6); which is applied to measures emotional exhaustion, depersonalization, and personal accomplishment.

4.10. Questionnaire validity:

The MBI has been demonstrated to be a reliable, accurate, and gold-standard burnout indicator. It has been expanded to include various occupational groups such as police officers, social workers, teachers, managers, and students. It is used in many studies to assess burnout among professionals in the human services sector. The MBI is the most widely recognized standard for assessing burnout in healthcare professionals.

4.11 data entry and analysis

Following the data's collection through an online Google form survey, the computerized questionnaire produced data in Excel format, which were then verified for accuracy before being imported into the SPSS software version 26 and analyzed. Data were summarized with Mean, percentage and frequency and percentage in the tables. Reliability of burnout assessment tools were done with cronbachs-alpha. An ordinal logistic regression model was used to examine the link between burnout and related factors. Through the course of the investigation, statistical significance was determined by a P-value less than 0.05 and Associations between variables were presented in odds ratios (OR) with 95% confidence interval (CI).

4.12 Reliability:

Of the questionnaire for the survey after the instrument's internal consistency (Cranach's alpha) was assessed, the EE, PA, and DP subscales yielded α -values of 85.4%, 71.9%, and 72.1%, respectively. Every α -value was deemed acceptable since it was greater than 0.7. Overall, good internal consistency was discovered for both EE and PA (80.7%) and EE and DP (88.5%).

4.13 Ethical Issue

The Department of Emergency and Critical Care Medicine and the Department Research Ethics Review Committee gave their approval to the study. Information about each participant was gathered using a computerized, anonymous questionnaire.

5. Results

5.1 Features of the socio demographic group

Out of the 222 interns actively participating at TASH, 112 participated in the study, with all respondents responding for a 100% response rate.

Of the respondents, 64.3% (72) were male, 97.3% (109) were single, and 53.6% (60) of the participants were single and 51.8% (58) of the participant were living inside the college compound in the dormitories.

Table -1, Medical Interns' Socio demographic Profile at TASH, Addis Ababa University College of Health Science School of Medicine, 2024

Characteristic	Frequency	percentage
Age of medical interns:		
<25	60	53.60%
25-30	51	45.50%
>30	1	0.90%
Sex of medical interns:		
Male	72	64.30%
Female	40	35.70%
Marital status of medical interns:		
Single	109	97.30%
Married	2	1.80%
Divorced	1	0.90%
Living area:		
In the campus	58	51.80%
Out of the campus	54	48.20%

5.2 Other co-morbid conditions

Additionally, several individual factors were assessed. Approximately 13 (11.6%) participants reported that they had been diagnosed with a chronic disease. With the exception of one participant (with major depressive disorder), all others were diagnosed with non-psychiatric illnesses. The average number of duty per week ranged from 0 to 3, with 92.9% having three shifts. Eight (7.1%) respondents reported smoking in the past and 12 (10.7%) participants reported drinking alcohol. 105 (93.8%) participants had a sleep cycle disorder and 79 (70.5%) participants had no definite plans for the future. About 94 (83.9%) participants revealed that they planned to leave the country after graduation, and 61 (54.5%) participants planned to change their profession.

Table 2, Addis Ababa University College of Health Science School of Medicine, Other Comorbid Condition of Medical Interns, TASH, 2024

Characteristic	Frequency	Percentage
Diagnosed with chronic disease:		
Yes	13	11.50%
No	99	88.55%
Average count of duty per week:		
<3	8	7.10%
3	104	92.90%
Sleep cycle disturbance:		
Yes	105	93.80%
No	7	6.20%
No definite pan in the future:		
Yes	79	70.50%
No	33	29.50%
Having plan to leave the country after graduation:		
Yes	94	83.90%
No	18	16.10%
Having plan to change their profession:		
Yes	61	54.50%
No	51	45.50%

5.3 Burnout assessment

In this study, an assessment of burnout among medical interns revealed that 82.1%, 79.5%, and 68.8% of them reported high emotional exhaustion (EE), high depersonalization (DP), and extremely low personal Performance (PA). However, the mean MBI component value for EE was 37.19 (high). On the other hand, the average values for DP and PA were 14.53 (moderate) and 30.26 (low) for DP and reduced PA, respectively. For three subscales (EE, DP, and PA) of the burnout assessment component, the total burnout syndrome score was 50%, showing a significant proportion of burnout syndrome severity in medical interns.

Tabl-3, A comprehensive overview of the MBI components for medical interns at TASH, the Addis Ababa University College of Health Science School of Medicine, 2024

	category	frequency	Percentage
sum of Emotional Exhaustion, Depersonalization & Personal Accomplishment dimensions	low	29	25.90%
	moderate	27	24.10%
	high	56	50.00%
Emotional Exhaustion - Dimension	low	7	6.30%
	moderate	13	11.60%
	high	92	82.10%
Depersonalization - Dimension	low	10	8.90%
	moderate	13	11.60%
	high	89	79.50%
Personal Accomplishment -Dimension	low	14	12.50%
	moderate	21	18.80%
	high	77	68.80%
Total		112	

Table 4 The Addis Ababa University College of Health Science School of Medicine's TASH medical interns' descriptive summary sum of EE, DP&PA with independent variables, 2024

	Participants	Low	Moderate	High	Statistics	df	P -value
Age							
<25	60	16(55.2%)	17(63.0%)	27(48%)	4.63	4	0.32
25-30	51	12(41.4%)	10(37.0%)	29(52%)			
>30	1	1(3.4%)	0(0.0%)	0(0.0%)			
Gender							
Male	72	72(65.5%)	17(63.0%)	36(64%)	0.40	2	.99
Female	40	40(34.5%)	10(37.0%)	20(36%)			
Marital status							
Single	109	28(96.6%)	25(92.6%)	56(100%)	5.25	4	0.26
Married	2	1(3.4%)	1(3.7%)	0(0.0%)			
Divorced	1	0(0.0%)	1(3.7%)	0(0.0%)			
Service area (departments)							
Internal medicine	20	3(10.3%)	3(11.1%)	14(25%)	15.97	12	0.19
Pediatrics	23	5(17.2%)	7(25.9%)	11(19%)			
Surgery	29	12(41.4%)	6(22.2%)	11(19%)			
Gynecology	15	5(17.2%)	4(14.8%)	6(10.7%)			
Psychiatrics	6	2(6.9%)	1(3.7%)	3(5%)			
Emergency medicine	15	0(0.0%)	6(22.2%)	9(16%)			
Anesthesiology	4	2(6.9%)	0(0.0%)	2(3%)			
Current living area							
In the campus	58	15(51.7%)	16(59.3%)	27(44.8%)	0.89	2	0.64
Out of the campus	54	14(48.3%)	11(40.7%)	29(52%)			
Number of duty per week							
<3	8	4(13.8%)	1(3.7%)	3(5%)	2.68	2	0.26
3	104	25(86%)	26(96%)	53(95%)			
Experience of sleep disturbance							
No	7	4(13.8%)	2(7.4%)	1(2%)	4.78	2	0.09

Yes	105	25(86.2%)	25(92.6%)	55(98%)			
Habit of smoking							
No	104	29(100.0%)	24(88.9%)	51(91%)	3.14	2	0.20
Yes	8	0(0.0%)	3(11.1%)	5(9%)			
Habit of drinking alcohol							
No	100	27(93.1%)	24(88.9%)	49(87%)	0.68	2	0.71
Yes	12	2(6.9%)	3(11.1%)	7(13%)			
Having a definite plan for the future							
No	79	21(72.4%)	20(74.1%)	38(68%)	0.40	2	0.82
Yes	33	8(27.6%)	7(25.9%)	18(32%)			
Having plan to leave the country							
No	18	2(6.9%)	5(18.5%)	11(20%)	2.45	2	0.029
Yes	94	27(93.1%)	22(81.5%)	45(80%)			
Having Plans To Change The Profession							
No	51	14(48.3%)	14(51.9%)	23(41%)	0.97	2	0.62
Yes	61	15(51.7%)	13(48.1%)	33(59%)			
Experience Of Any Acute Disease							
No	79	21(72.4%)	18(6.7%)	40(71%)	0.26	2	0.87
Yes	33	8(27.6%)	9(33.3%)	16(29%)			
Experience Of any chronic disease							
No	99	25(89.7%)	25(92.6%)	48(86%)	0.90	2	0.63
Yes	13	3(10.3%)	2(7.4%)	8(14%)			
Having chronic disease made difficulty in academic performance							
No	77	23(79.3%)	17(63.0%)	37(66%)	2.11	2	0.35
Yes	35	6(20.7%)	10(37.0%)	19(34%)			

5.4 Factors associated with burnout

Individuals who planned to leave the country after graduation were 15 times more likely to develop EE (OR: 15.05; 95% CI: 0.77– 29; P: 0.03); and 4.93 times higher in those who do not have a concrete plan for the future (OR: 4.93; 95% CI: 1.12–21.56; P; 0.03).

While the odds of DP were 4.11 times higher in males (OR; 4.11; 95% CI: 2.38–8.42; P; 0.00), this was in those without sleep cycle disturbance and without shift work (duty per week); the likelihood of DP was significantly reduced (OR; 0.01; 95% CI: 0.00–0.19; P; 0.00) and (OR: 0.00; 95% CI: 0.00–0.04; P; 0.00), respectively.

Whereas Individuals with age less than 25 years 1.21 were times higher to show EE (OR; 1.21, 95% of CI 1.11-14.00, P; 0.00)

Table 5 The factors linked to medical interns' burnout at TASH, Addis Ababa University College of Health Science School of Medicine, were analyzed using ordinal logistic regression in 2024.

	Odd ratio	P -value	95% (CI)
Emotional exhaustion			
Disease condition	0.14	0.06	0.19-1.07
Having Plans to leave the country	15.05	0.03	0.77-29
Age less than 25	1.121	0.00	1.11-14.00
A definite plan for the future (no)	4.93	0.03	1.12-21.56
Depersonalization			
Gender (male)	4.11	0.00	2.38 -8.42
Number of Duty per week(no)	0.00	0.00	0.00-0.04
Sleep cycle was disturbed (no)	0.01	0.00	0.00-0.19
A definite plans for the future	1.05	0.04	0.00-0.91
Disease condition	0.03	0.05	0.001-952
Sum of EE, DP and PA			
Number of Duty per week(no)	0.19	0.02	0.02-0.66
Sleep cycle is disturbed(0)	0.51	0.05	0.02-0.97
Disease condition	2.54	0.07	0.07-0.83

6. Discussion

In our study, we observed high levels of burnout among participants, with 82.1%, 79.5%, and 68.8% of participants having high emotional exhaustion (EE), high depersonalization (DP) and highly reduced personal achievement (PA), respectively. , whereas half of participants showed general burnout, suggesting that a significant proportion of participants developed burnout compared to previous studies.

This result was believed to be significantly higher than previous studies by Debire Birhan University and St. PHMMC. 34% and 13.9% respectively reported burnout. However, although this scale was still likely small, when compared to the Aka Hospital survey, 85.0% of them reported work-related burnout (high EE or DP scores).

Compared to cross-sectional studies from different countries (Ireland (37%), Mexico (20%), India (34%), Nepal (37.5%), According to our research, a greater percentage of individuals had EE, DP and PA. whereas half of the participants developed burnout syndrome. Whereas survey from Uganda and Tunisia exceeded this value by magnitudes of 79% and 94.6%, respectively.

The magnitude of burnout in this survey showed similar results to the degree of burnout (50%) in a study conducted in Saudi Arabia (medical interns).

This study showed that the impact of EE is 15 times increased for those who planned to leave the country after graduation and 4.93 times increased for those who had no concrete plans for the future. Additionally, men had a 4.11-fold increase in DP; as opposed to men who did not have sleep cycle disorders and did not work duty per shifts, Chance of DP had been significantly reduced. However, according to the SHMMC's survey, people who had plans to change their jobs had 5 times increased for EE and had excessive financial anxiety were 5.57 times increased, receptively.

However, according to a survey conducted at Debire Birhan University, individual dissatisfaction with burnout was about 3.8 times higher.

The results of this study indicate that interns' burnout was influenced by the number of hours worked, disrupted sleep cycles, age, gender, and lack of clear future plans.

Strengths of the study

- In the study, adequate respondent rate with respondent rate of 100% was obtained.
- An international index (MBI score), which has been uniform throughout the world for 36 years, was used for data collection.
- For this particular population and research area (TASH), this study provides remarkable insights and Will act as a crucial springboard for additional study.

Limitation of the research

- The study was limited to TASH due to constraints of time and funds.
- Although an adequate response rate was found, the sample size was relatively small.
- Because trainee doctors are obligated to perform medical activities beyond their assigned hours, they are required to visit the hospital multiple times to answer questionnaires
- Because this survey was a cross section survey no final conclusions regarding causality could be drawn.

Therefore, comparative studies and systematic review studies are recommended to minimize the influence of study design and reduce confounding factors.

6.1 Conclusion:

In conclusion, the overall score of burnout among TASH's interns increased significantly compared to previous studies conducted on similar populations in our country.

The implications of this finding suggest implementing measurements that reduce the influence of relevant factors.

6.2 Recommendations

-This is the first study on burnout among TASH's interns. Therefore, further research is recommended.

-Work load during duty time should be minimized by sharing the responsibility among the colleagues

-Make sure interns have enough time (at least 8 hours out of 24 hours) to correct any disruptions in their sleep cycle.

-Professional insurance should be secured by responsible body (CHSSM, AAU and MOH)

-Rearrange vocation time during the periods of clinical activity.

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8. Annexes

Annex 1; informed consent form

I am Dr. Tarekegn Abeje, a final-year resident in emergency and critical care medicine at the emergency and critical care medicine department of Addis Ababa University School of Medicine. I am researching "Prevalence and associated factors of burnout among TASH interns" is the topic of my research. The department of Emergency & Critical Care Medicine at Addis Ababa University School of Medicine granted me permission to carry out the study. Because you are presently employed by this facility as a medical intern and working as a healthcare practitioner, you have been chosen to participate in this study. Only your willingness to engage will determine whether or not you take part in this survey. The study will not directly help anyone by having them participate. However, it will assist researchers, programmers, and legislators in giving intern training issues the proper consideration.

Your provided data will be kept private since only code numbers will be used, and the data will be locked. The study is the only use for which the data will be put. Your willingness to participate fully in this study is crucial to its success. You can get in touch with this address if you require any further details or clarification about the study.

Researcher: Dr. Tarekegn Abeje, Phone No, 0941695490, Gmail; tarekegnabeje09@gmail.com

Would you be open to taking part in this research? A. Yes, B. No

If you agree

Please put your signature.....

Date.....

Questionnaire- code.....

ADDIS ABABA UNIVERSITY
School of Medicine
Dept. Emergency Medicine



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Date: 22 - August - 2023

Ref No: EM/556 / 2015

To Whom It May Concern

Subject: Ethical Clearance

Dr. Tarekegn Abeje is Emergency and Critical Care Final Year Resident in our Department of Emergency Medicine. The student is conducting thesis research entitled "prevalence of burnout syndrome among medical interns at Tikur Anbessa Spatialized Hospital."

The proposal has been submitted to the Department Research Ethics Review Committee and got approval from the committee. Thus, the department requests your very kind cooperation in data collection.

With best regards,

A handwritten signature in black ink, appearing to be "T. Beyene".



Dr. Temesgen Beyene (MD, ECCM, MPH)
Associate Professor of Emergency Medicine
Chair, Department of Emergency Medicine
SOM, Tikur Anbessa Specialized Hospital (TASH)
College of Health Sciences, Addis Ababa University

Annexes 2, questionnaire

Section 1: Data on Sociodemography

1. Age: At what age are you?
2. Gender: Male Female
3. Status of marriage: Single Married Divorced Widow Married but not cohabiting
4. Service area(where are you working currently?)
Internal medicine, pediatrics, Surgery, gynecology, Psychiatry, Emergency medicine &Critical care, anesthesiology
5. Where do you now reside? A- in campus, B- off campus, and C-in the family
6. What is the monthly income (in Birr) for your household?
- 7 Do you possess children? Yes No
- 8, How many duties do you have per week? >3 <3 0
- 9, how many hours do you work on average? , per day.....
- 10, do you think that your sleep cycle is disturbed? Yes No
- 11, do you smoke on a regular basis? Yes No
- 12, do you regularly consume alcohol? Yes No
- 13, do you have a definite plan for the future? Yes No
- 14, do you have plans to leave the country after graduation? Yes No
- 15, Do you have plans to change your profession? Yes No

Section 2, interns' Health status:

1. Have you had any acute illnesses in the last six months?

Yes No

2, if the response to the first question is in the affirmative, please describe the ailment.....

3, Have you ever suffered from a chronic illness? Yes No

4, if you answered "yes" to question #3, could you please elaborate on the nature of the illness?
The user is not authorized to use this email address.....

5, Do you believe that your physical condition has made it harder for you to perform your professional duties? Yes No

Section 3: Maslach Burnout Inventory

Please carefully consider each statement and determine whether you have ever felt this way about your work. Mark the number that most accurately represents your response if you have never experienced this feeling. If you have experienced this feeling, write the number (from 1 to 6) that most accurately represents how often you feel that way

Question		Answer	
1	My work has left me emotionally exhausted.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
2	At the conclusion of the workday, I feel exhausted.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
3	When I get up in the morning and have to go to work for another day, I'm exhausted.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6

4	I can easily understand how recipients feel about things	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
5	I feel I treat some recipients as if they were impersonal objects	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
6	I get tired working with people all day.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
7	I handle my recipients' issues with great effectiveness.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
8	I'm exhausted from working.	Never	0
		A few times a year or less	1

		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
9	I feel I'm positively influencing other people's lives through my work	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
10	Since taking this work, my attitude towards others has gotten clearer.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
11	I'm concerned that working here is emotionally hardening me.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
12	I have a lot of energy.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3

		Once a week	4
		A few times a week	5
		Every day	6
13	. My job is frustrating to me.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
14	I think I'm putting in too much effort at work.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
15	What occurs to certain receivers doesn't concern me.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
16	Dealing directly with people stresses me out too much.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5

		Every day	6
17	I can easily create a relaxed atmosphere with my recipients	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
18	After spending so much time with my receivers, I'm ecstatic.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
19	I've done a lot of meaningful work at this position.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
20	I think I'm at my breaking point.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6

21	In my work, I deal with emotional problems very calmly.	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6
22	I feel recipients blame me for some of their problems	Never	0
		A few times a year or less	1
		Once a month or less	2
		A few times a month	3
		Once a week	4
		A few times a week	5
		Every day	6