Addis Ababa University College of Health Science

Department of Anesthesia



Prevalence and Associated Factors of Burnout Syndrome Among Anesthesia Professionals at Addis Ababa Public Hospitals:

A Cross-sectional Study

A research submitted to the Addis Ababa University College of Health Science Department of Anesthesia in partial fulfillment of the requirements for the MSc in Anesthesia.

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Title	**Prevalence and Associated Factors of Burnout Syndrome Among Anesthesia Professionals at Addis Ababa Public Hospitals: A Cross-sectional Study**
Study period	**From January-April 2025**
Study area	**At public hospitals found in Addis Ababa, Ethiopia.**
Total cost of the project	**24,857.25 ETB**

DECLARATION OF THE PRINCIPAL INVESTIGATOR

I certify that the research entitled, Prevalence and associated factors of burnout syndrome among anesthesia professionals at Addis Ababa public hospitals: A cross-sectional study, is my original work. Any literature and/or data cited in this article are listed in the reference section, and those who assisted me during this study have been given an acknowledgement.

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Approval of the board of examiners

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Internal Examiner

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External Examiner

Name _____Signature _____ Date _____

Acknowledgment

I want to convey may heartfelt thanks and recognition for my advisers Lemlem Getachew (Msc, PhD Fellow) and Senait Aweke (Msc, Assistant Prof) for your unreserved, continuous support, generous assistance, constructive criticism, guidance, and valuable comments in each & every step of this research thesisI would also like to extend my appreciation to Addis Ababa University for allowing me to conduct this study.

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List of Abbreviations

AaBETH	Addis Ababa Burn, Emergency and Trauma Hospital
AFCSH	Armed Forces Comprehensive Specialized Hospital
ALERT	All African Leprosy, Tuberculosis Rehabilitation & Training centre
AOR	Adjusted odds ratio
CHS	College of health science
COR	Crude odds ratio
EAA	Ethiopian Anesthetist Association
EE	Emotional exhaustion
EKGH	Eka Kotebe General Hospital
GMH	Gandhi Memorial Hospital
IRB	Institutional Review Board
MBI-HSS	Maslach Burnout Inventory-Human Services Survey
MoH	Ministry of Health
MRH	Menelik II Referal Hospital
PI	Principal Investigator
RDDMGH	Ras Desta Damtew Memorial General Hospital
SPHMMC	Sait Paul's Millennium Medical College
SPSH	St. Peter Specialized Hospital
SPSS	Statistical Package for Social Science

SU	Supervisor
TBH	Tirunesh Beijing Hospital
TASH	Tikur Anbessa Specialized Hospital
YHMC	Yekatit 12 Hospital Medical College
ZMH	Zewditu Memorial Hospital

Abstract

Background: Burnout syndrome is characterized by emotional exhaustion, depersonalization, and loss of sense of achievement that results from prolonged exposure to job stressors. Anesthesia professionals are one of the most stress-prone occupational groups. Identifying potential factors that trigger stress and understanding the dynamic nature of burnout is essential.

Objective: This study aims to determine the prevalence and associated factors of burnout syndrome among anesthesia professionals working in public hospitals in Addis Ababa, Ethiopia, in 2025.

Method: A multi-center cross-sectional study was carried out among 201 anesthesia professionals employed in public hospitals in Addis Ababa from January to April 2025. Participants in the study were selected using a convenience non-probability sampling technique. A standard self-administered questionnaire based on the Maslach Burnout Inventory(MBI-HSS) was utilized to gather data. The data were entered and analyzed with SPSS version 26. To identify factors related to burnout syndrome, multivariate logistic regression was employed, and adjusted odds ratios(AOR) with a 95% confidence interval were used to express significantly associated factors. Variables with a p-value of less than 0.05 were considered statistically significant.

Results: Out of 228 eligible anesthesia providers, 201 responded, resulting in a response rate of 88.15%. The study identified a high level of burnout among 15.4% of anesthesia professionals working in public hospitals in Addis Ababa. The multivariate logistic regression showed that significant burnout scores were observed among female anesthesia professionals (AOR=2.556, 95% CI=1.099-5.943;p=0.029), working > 80 hours weekly(AOR=4.292, 95% CI=1.393- 13.227;p=0.011), and those who reported having no support from their supervisors (AOR=7.313, 95% CI=1.486-35.980;p=0.014).

Conclusion: This research showed that a significant number of anesthesia professionals employed in public hospitals in Addis Ababa experience burnout syndrome. Lack of support in their professional environment, working more than 80 hours each week, and being female were all significantly linked predictor variables to burnout syndrome.

Keywords: Burnout syndrome, Anesthesia professionals, Maslach inventory tool

Chapter One: Introduction

1.1 Background

The health workforce crisis is a significant problem affecting healthcare systems globally. Challenges such as shortages of healthcare workers, insufficient training methods, uneven distribution of human resources, and poor management of staff turnover create major obstacles for hospitals(1).

Burnout syndrome was initially identified by Freudenberger in 1974 as employee burnout. Maslach and Jackson's 1986 definition, which describes burnout syndrome as a disorder consisting of three elements: emotional exhaustion, depersonalization, and a decrease in sense of personal achievement in the workplace, is currently the most widely recognized term(2,3).

Emotional exhaustion (EE) refers to the mental, emotional, and physical fatigue that workers experience due to job pressures. This fatigue often leads to a distancing from their responsibilities. Depersonalization is a coping mechanism developed in response to burnout; it involves withdrawing from work and detaching from the people they care for, such as patients, and from their own emotions. This detachment often results in cynicism. Moreover, feelings of frustration at work may reflect a perceived lack of personal accomplishment and achievement(3,4).

Healthcare worker burnout is a significant global problem that impacts both the practice of medicine and the quality of patient care, reaching epidemic proportions. Often overlooked, burnout poses a serious issue within the medical field, leading to decreased job satisfaction, reduced productivity, and compromised patient care(1).

Certain medical fields are considered to be at a high risk for psychological stress. Burnout occurs as a reaction to prolonged interpersonal stressors and is more likely to develop when there is insufficient support from healthcare organizations and management. Additionally, burnout can negatively impact patient care and professional conduct(5).

Burnout syndrome occurs specifically in the workplace and is reversible with changes in work conditions and proper recovery. Anesthesia is a particularly stressful specialty, and anesthetists often struggle with a mismatch between job demands and available support, leading to burnout. This can result in fatigue, decreased alertness, increased

medical errors, irritability, strained relationships, substance abuse, and even suicidal thoughts(3).

According to Gitto and Trimarchi (2016), prevention is the most effective strategy for addressing burnout, particularly when targeted at individual employees. Eliminating or reducing potential stressors is the goal of primary prevention. The early detection of symptoms of anxiety and depression is linked to secondary prevention. Finally, rehabilitation and recovery are the main goals of tertiary prevention(3).

This study aimed to determine the prevalence and contributing factors of burnout syndrome among anesthesia providers in public hospitals in Addis Ababa, Ethiopia. The findings will help develop an evidence-based approach to proactively manage burnout syndrome by addressing its causative factors.

1.2 Statement of the problem

Burnout syndrome poses a threat to the standard of treatment provided to patients in anesthesia and adversely impacts the well-being of anesthesia care providers(3).

Burnout is commonly understood as the negative outcome of an imbalance between work and personal life, high levels of stress, disengagement from one's job, and dissatisfaction with work. While burnout can affect anyone, the combination of personal traits and situational factors that lead to burnout in some individuals may not impact others in the same way(2).

Although working as a healthcare provider can be a rewarding career, problems such as a work-life imbalance, long workdays, feelings of an overwhelming workload, concerns about possible complaints against healthcare professionals, and a lack of support from peers and patients can all lower job satisfaction. These problems could thereby raise the chance of burnout\(6).

Anesthesiologists who experience a high level of depersonalization often engage in shorter preoperative conversations with their patients. They tend to discuss pain less frequently, provide less information about anesthesia procedures, and show lower levels of empathy. Additionally, high emotional exhaustion or a diminished sense of personal accomplishment can negatively impact both the duration of these preoperative conversations and the level of empathy shown by anesthesiologists(7).

Burnout has several detrimental effects on patients, healthcare systems, and healthcare providers. These effects include exhaustion, decreased alertness, mood disorders like

irritability, strained professional relationships, substance abuse, suicidal thoughts, difficulties hiring staff, staff mistakes, and a decline in the standard of patient care(8).

Burnout is very common among healthcare workers in Slovenia and Granada, with rates ranging from 43% to 50% across three dimensions, according to a cross-sectional study. Higher levels of burnout were shown to be strongly correlated with working night shifts, working in emergency rooms, and being older(6).

Anesthetists who are more likely to experience burnout also report more medication errors, blunders that can negatively impact patients, a decreased focus on patient care, a higher chance of leaving the field, substance misuse problems, and suicidal thoughts(1).

Ethiopia is facing a shortage of healthcare professionals, accompanied by significant levels of burnout among those in the field. Anesthetists in Ethiopia have reported low job satisfaction, with 42.5% in their roles. Furthermore, a significant turnover intention rate of 47.8% indicates that many anesthetists are unhappy with their work and are facing low morale and motivation(1).

Studies have reported significant associations between occupational stress and factors such as age, sex, marital status, parenting, addiction, educational level, profession, work shifts and hours, work experience, caseload, and salary among healthcare professionals(9).

This study aimed to address this gap by assessing the prevalence of burnout syndrome in Addis Ababa public hospitals.

1.3 Justification

Anesthetists in developing countries encounter major challenges such as equipment shortages, a lack of workforce, and insufficient education. The rising demand for anesthesia services and public expectations for quality care further complicate their situation, increasing the risk of burnout among professionals(3).

Identifying potential factors that trigger stress reactivity is crucial for preventing burnout(10).

Addressing burnout is essential for maintaining a healthy and motivated workforce. Providing healthcare professionals with the necessary support and resources can enhance job satisfaction, improve the quality of care, and create a more sustainable healthcare system. Ultimately, this approach ensures that patients receive the best possible care.

Understanding the dynamic nature of burnout is essential, as ongoing research is crucial for identifying its prevalence, recognizing risk factors, and developing effective prevention and intervention strategies. This research provides policymakers with valuable data and evidence to gain a deeper understanding of burnout syndrome and assess existing policies.

A comprehensive study was conducted at TASH five years ago. Building on the findings from that initial research and addressing existing gaps, which is a single-center, new, more extensive study was planned to determine the prevalence and associated factors of burnout syndrome in public hospitals in Addis Ababa, Ethiopia.

Chapter Two: Literature Review

2.1 Prevalence of burnout syndrome

A systematic review of burnout among healthcare providers in sub-Saharan Africa estimates that the prevalence of burnout ranges from 40% to 80%(11).

A cross-sectional study conducted in the United States revealed that burnout among anesthesiologists was 13. 8%. Of those surveyed, 53.3% expressed emotional tiredness, 37.2% claimed depersonalization, and 25.9% indicated diminished emotions of personal accomplishment(12).

A cross-sectional study conducted in Saudi Arabia found that 29% of participants experienced occupational burnout syndrome. Emotional exhaustion was critically high, affecting 41.2% of those surveyed. Furthermore, an extremely high level of depersonalization was observed in 58.8% of the participants, while 76.5% of anesthetic technicians reported a lack of personal accomplishments(4).

In 2023, a cross-sectional study of 212 anesthesiologists, anesthesia technicians, and intensive care unit nurses working in Palestinian hospitals looked at the prevalence of emotional exhaustion, depersonalization, and feelings of decreased personal accomplishment. The MBI-HSS-MP criteria for burnout showed that 151 (71.2%) of the healthcare practitioners polled felt emotional weariness, 125 (59%) reported feelings of depersonalization, and 145 (68.4%) reported a lack of personal success(13). Notably, ICU nurses had a considerably lower rate of emotional tiredness ($p=0.002$) than anesthesiologists and anesthesia technicians(13).

A cross-sectional study conducted among 2873 anesthesiologists in 2015 in China found that 69% of participants (95% confidence interval [CI], 67%–71%) met the criteria for burnout. The prevalence rates for the components of burnout were as follows: high emotional exhaustion was reported by 57% of participants (95% CI, 55%–59%), high depersonalization by 49% (95% CI, 47%–51%), and low personal accomplishment by 57% (95% CI, 55%–58%)(7).

A multicenter cross-sectional survey conducted in 2019 among 423 anesthesiologists and nurse anesthetists in Morocco revealed that 21% of participants reported low personal accomplishment (PA), 48% experienced high emotional exhaustion (EE), and 43.2% exhibited high depersonalization (DP)(14).

A Cross-Sectional Study done among 99 anesthesia providers in 2018 in Rwanda Burnout was present in 26% (26.3%; 95% CI, 17.9–36.1) of participants(8).

A cross-sectional study conducted in 2019 in Ethiopia among anesthesia providers at Tikur Anbessa Specialized Hospital (TASH) with a total sample of 119 found a burnout prevalence of 16%; 70.6%, 36.1%, and 44.5% for high emotional exhaustion, high depersonalization, and low personal accomplishment, respectively (15).

2.2 Associated factors for burnout syndrome

Job features, workplace culture, workload, demographic factors (such as age and sex), and personality traits are some of the factors that contribute to burnout(3).

Having children, being a younger consultant, and having rigorous work habits have all been linked to high levels of burnout. However, there is no solid evidence linking burnout to variables like marital status, gender, or hospital features(1).

A study conducted among anesthesia care providers in Switzerland, which included nurse anesthetists and physicians, found that the odds of experiencing burnout syndrome are higher in males than in females, with odds ratios (OR) of 4.1 (95% CI: 1.6–11.2, p = 0.004) for males and 2.3 (95% CI: 1.2–4.5, p = 0.011) for females.

The findings also suggest that feeling supported at work has a protective effect. Those who reported feeling supported had an odds ratio of 2.66 (95% CI: 1.40 to 5.24; p = 0.004). Additionally, there is an association between age and burnout syndrome: for each additional year of age, the odds of experiencing burnout decrease by a factor of 0.95 (OR 0.95; 95% CI: 0.91 to 0.98; p = 0.003)(16).

In contrast, a study conducted in the USA found that there is a high risk of burnout in 41% of anesthesiology trainees who work more than 70 hours per week, consume more than five drinks per week, are female, and smoke(17).

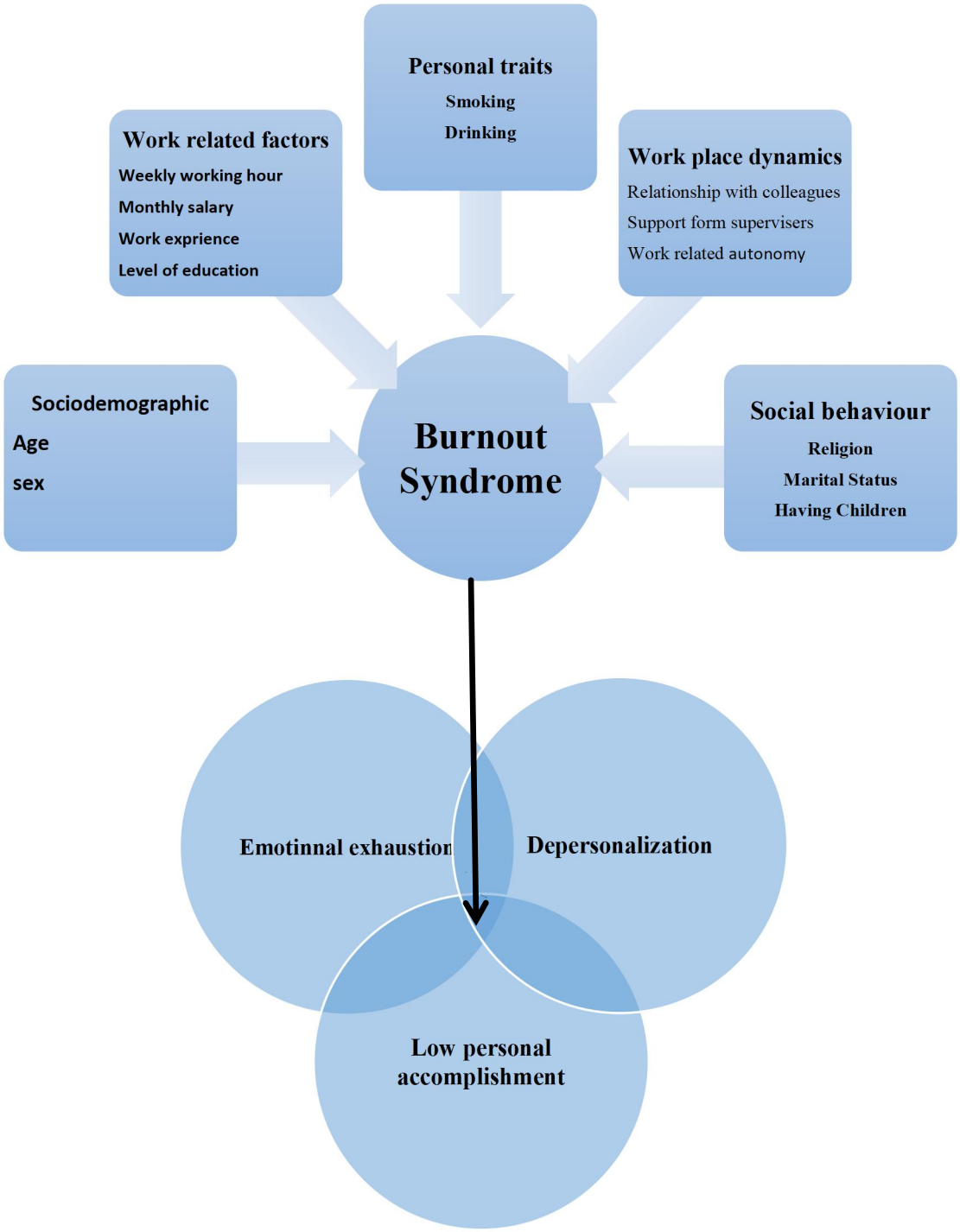
The burnout (BO) rate among anesthesia technicians at Farhat Hached University Hospital was 39.1%. The results indicated a statistically significant association with several factors: working in the gynecology-obstetrics department (p = 0.001), having a tenure of 20 years or more in the department (p = 0.006), and the absence of break time during work (p = 0.003)(18).

In South Africa, the prevalence of burnout among 124 physician anesthetists was 21%. Of those affected, more females than males experienced burnout, and less experienced anesthetists were affected more than their senior colleagues (3).

According to a case-control research carried out in Ethiopia, burnout is more common among Ethiopian anesthesia providers (17.3%). Academic anesthetists had notable burnout scores ($p = 0.01$), which were associated with fewer years of anesthesia experience ($p < 0.001$), weekly alcohol use of more than five drinks ($p = 0.02$), and parenthood ($p = 0.01$)(1).

Five categories of organizational pressures were identified by Maslach et al. (2001) as potentially contributing to burnout in healthcare workers. Work overload, a lack of control that can result from conflict situations or role ambiguity, inadequate recognition or gratification, the breakdown of a sense of community and belonging, especially when teamwork is lacking, and unequal treatment within the same organization are some of these stressors. These elements may greatly increase the likelihood of burnout in medical environments(3).

Conceptual Framework



Chapter Three: Objective of the Study

3.1 General Objective

- To determine the prevalence and associated factors of burnout syndrome among anesthesia professionals who work at Addis Ababa public hospitals. Addis Ababa, Ethiopia,2025.

3.2 Specific Objective

- To determine the prevalence of burnout syndrome among anesthesia professionals working in public hospitals in Addis Ababa, Ethiopia,2025.
- To assess associated factors of burnout syndrome among anesthesia professionals working in public hospitals in Addis Ababa, Ethiopia,2025.

Chapter Four: Methodology

4.1 Study Area

Ethiopia's capital, Addis Ababa, which is 2,355 meters above sea level on average, was the study's location. Approximately 5 million people live in the city, which occupies 527 square kilometers. Thirteen public hospitals and 91 government-owned medical institutions are located in the city. This study will be done in these 13 public hospitals which are Black Lion Hospital, also known as Tikur Anbessa Hospital (TASH), St. Paul's Hospital Millenium Medical College (SPHMM), Menelik II Referral Hospital (MRH), Ras Desta Memorial General Hospital (RDMGH), All African Leprosy, Tuberculosis Rehabilitation & Training Hospital (ALERT), Tirunesh Beijing Hospital (TBH), Yekatit 12 Hospital Medical College (YHMC), St. Peter's Specialized Hospital (SPSH), Gandhi Memorial Hospital (GMH), Zewditu Memorial Hospital (ZMH), Addis Ababa Burn, Emergency & Trauma Hospital (AaBET Hospital), Armed Force Comprehensive and Specialized Hospital (AFCSH), Eka Kotebe General Hospital (EKGH). These hospitals give different levels of service, have different specialties, and staffs of anesthesia professionals with different educational backgrounds, which significantly plays a role in burnout syndrome.

4.2 Study Design and Study Period

A multi-center cross-sectional study design was conducted from January 20, 2025 to April 1 2025.

4.3 population

4.3.1. Source of population

All anesthesia professionals working at Addis Ababa public hospitals, in Addis Ababa, Ethiopia.

4.3.2 Study Populations

All BSc in Anesthesia professionals, MSc in Anesthesia specialists & Anesthesiology consultants working at all Addis Ababa public hospitals who fulfill the inclusion criteria during the study period.

4.4 Inclusion and exclusion criteria

4.4.1 Inclusion criteria

- All qualified anesthesia professionals working at Addis Ababa public hospitals & registered with the MoH, BSc in Anesthesia professionals, Master of Anesthesia consultants, and Anesthesiology consultants.

4.4.2 Exclusion criteria

- Anesthesia care providers who took annual leave.

4.5 Sample size and sampling technique

4.5.1 Sample size

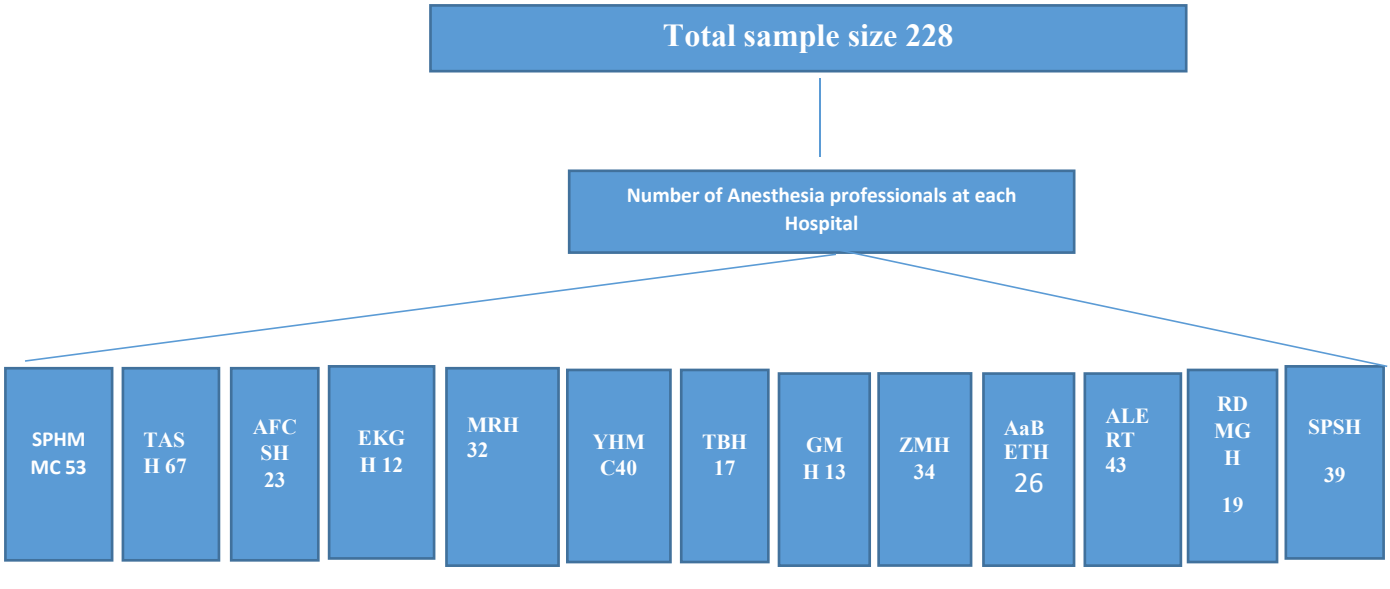
Sample size was determined using a single population proportion formula, a margin of error (E) of 5%, and a confidence interval (CI) of 95%. According to a previously done study at TASH in 2019, the actual prevalence of burnout syndrome among anesthesia providers was 16%(15).

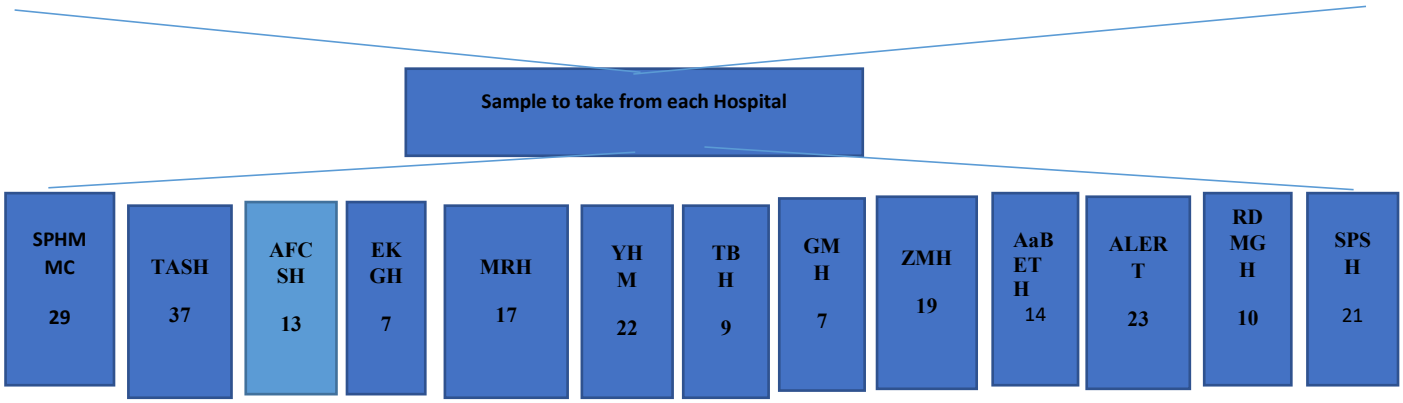
$$n = \frac{Z^2\alpha/_2 \; P(1-P)}{E^2} = \frac{(1.96)^2 \times 0.16(1-0.16)}{(0.05)^2} = 207$$

10% of non-response rate (i.e., 207+ 21 =228). Therefore, a total sample size of 228 anesthesia professionals was planned to participate in this study.

4.5.2 Sampling technique

We calculated the sample proportion required from each public hospital based on its total sample, and then conveniently collected those samples from each hospital during the data collection period.





No to take	SPHMMC	TASH	AFCSH	YHM	TBH	GMH	ZMH	AaBET	ALERT	EKGH	MRH	RDMGH	SPSH
Ane. Spe	8	6	1	3	1	1	2	3	5	1	3	1	4
MSc Anes.	2	16	1	-	-	-	-	-	-	-	-	1	1
BSc Anes.	19	15	11	19	8	6	17	11	18	6	14	8	16

Ane.S= Anesthesia specialist, MSc Anes. = MSc Anesthetist, BSc Anes. = BSc Anesthetist

4.6 Data Collection Tool and Procedure

Section 1&2: The initial two parts of the questionnaire comprised 13 questions aimed at gathering information on the socio-demographic, personal traits, and work characteristics of the respondents: age, gender, and marital status, religion, parenthood status, alcohol intake, smoking, years of training, years of experience, availability of resources and support, workload, and salary.

Section 3: The third section of the questionnaire will include 22 questions from the Maslach Burnout Inventory Human Services Survey (MBI-HSS). The full MBI-HSS involves 22 questions: 9 for emotional exhaustion, 5 assessing depersonalization, and 8 for personal accomplishment. A score is given to each part of the MBI-HSS, based on a frequency scale of 0 “never” to 6 “every day.”

The risk ranges of the subgroup scoring for burnout are as follows: emotional exhaustion, 0 to 16 (low), 17 to 26 (moderate), and >26 (high); depersonalization, 0 to

5 (low), 6 to 9 (moderate), and >=10 (high); and reduced personal accomplishment, 0 to 31 (high), 32 to 39 (moderate), and >39 (low).

4.7 Variables

4.7.1 Dependent variable

- Burnout Syndrome

4.7.2 Independent variables

Socio-demographic factors

- Age
- Sex
- Marital status
- Religion
- Number of children

Health-related factors

- Alcohol intake
- Smoking

Work-related factors

- Level of education
- Work experience
- Monthly salary
- Weekly working hours
- Support from supervisors
- Adequacy of equipment

4.8 Operational definition

Emotional Exhaustion (EE) refers to the mental, emotional, and physical fatigue workers experience due to their jobs.

Depersonalization: is a coping mechanism used by burnt-out workers, which is typified by disengagement from their profession and a disconnection from both their own emotions and the people entrusted to their care (such as patients), which frequently leads to cynicism.

Low sense of personal accomplishment: feeling of inadequacy, unworthiness, inefficiency, and decreased productivity at work; negative attitude toward the job;

difficulty solving problems and a sense of incompetence, lack of motivation to keep working to succeed.

BSc Anesthetist: A person who has earned a four-year bachelor's degree in anesthesia and been accepted into an accredited anesthesia education program is considered an anesthesia professional. The regulating body has granted this individual a license to provide professional anesthetist-level anesthetic services.

MSc Anesthetist: is a qualified professional having a Bachelor of Science (BSc) degree in anesthesia. They have to finish two years of study after being admitted into a Master of Science (MSc) program. After completing this, the regulatory body grants them a license to work as an anesthesia professional specialist.

Consultant Anesthesiologist/Anesthesia Specialist: A physician with a Bachelor of Science degree in medicine who has specialized in anesthesiology. This professional has undergone rigorous training in the field and is licensed by the appropriate regulatory body to practice as an expert in anesthesiology, ensuring safe and effective anesthesia care for patients undergoing various procedures.

4.9 Data processing and analysis

Version 26.0 of the Statistical Package for Social Sciences (SPSS) software was used to code, enter, clean, and edit the data. Basic descriptive statistics, such as frequency for sociodemographic factors and the prevalence of burnout syndrome, were conducted using SPSS. Multivariable logistic regression was employed to examine the relationship between Burnout Syndrome (BOS) as a dependent variable and various socio-demographic and work-related factors as independent variables. Variables that demonstrated an association with Burnout Syndrome in the bivariate analysis (p-value < 0.2) were included in the multivariable logistic regression model to identify the independent factors contributing to Burnout Syndrome. Adjusted Odds Ratios (AOR) with a 95% confidence interval were calculated to determine the factors associated with Burnout Syndrome in the multivariable logistic regression analysis, with statistical significance set at a p-value of less than 0.05.

4.10 Data Quality Assurance

To ensure data accuracy and reliability, all data collectors were trained on the tools prior to the study as part of quality assurance. A pretest was done on 10% of the sample size at selected hospitals. Data collection completeness was verified by the principal investigator. All completed questionnaires were checked for completeness and consistency on a daily basis.

4.11 Ethical consideration

The study was conducted after approval by the Institutional Review Board (IRB) of the College of Health Science (CHS) to conduct the study. A legal letter was also submitted to hospitals, where the study took place. Written informed consent was obtained from all participants. After obtaining permission from the hospital and study participants, the data collection process was conducted. Confidentiality and anonymity were ensured.

4.12 Result dissemination

The results of the study will be submitted to the College of Medicine and Health Sciences at Addis Ababa University, along with the hospitals involved in the study, the Ethiopian Anesthetists Association, and other pertinent organizations. The findings will be presented at the College of Medicine and Health Sciences during various seminars, meetings, conferences, and workshops. Additionally, efforts will be made to publish the study's findings in a journal and a scientific publication for broader dissemination.

Chapter Five: Result

5.1 Socio-demographic characteristics of participants

A total of 228 eligible anesthesia providers 201 responded, resulting in a response rate of 88.15%, all of whom were employed at public hospitals in Addis Ababa during the research period. Out of the respondents, one hundred twenty-four (61.7%) were male. One hundred ten respondents (54.7%) were aged between 21 and 30 years. Additionally, one hundred ten respondents (54.7%) identified as single. In terms of parenthood status, one hundred thirty-one respondents (66.2%) reported that they do not have children.(Table 1).

Table 1: Socio-demographic and behavioral characteristics of anesthesia professionals in Addis Ababa public Hospitals, Ethiopia 2025 (n = 201)

Variables n-201	**Category**	**Frequency**	**Percent(%)**
Age	21-30	110	54.7
	31-40	81	40.3
	40-50	9	4.5
	>50	1	0.5
Gender	Male	124	61.7
	Female	77	38.3
Marital status	Single	110	54.7
	Married	53	45.3
Number of children	0	131	66.2
	1-2	61	30.3
	3-4	9	4.5
Religion	Orthodox	128	63.7
	Protestant	40	19.9
	Muslim	27	13.4
	Other	6	3
Alcohol intake	Never	135	67.2
	Once a week	42	20.9

	1-4 times a week	7	3.5
	>5 times a week	5	2.5
	Prefer not to say	12	6.0
Cigarette smoking	Yes	6	3.0
	No	196	97

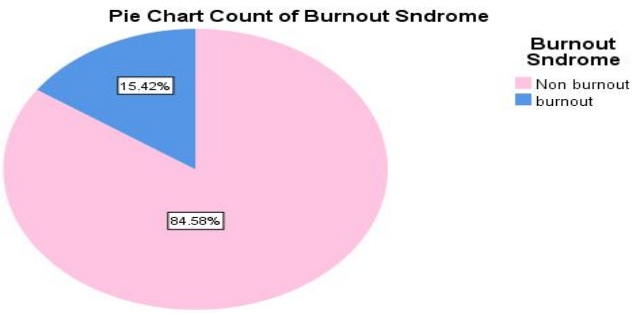
Table 2: Work-related factors of burnout among anesthesia professionals in Addis Ababa public Hospitals, Ethiopia, 2025 (n = 201)

Variables n-201	**Category**	**Frequency**	**Percent(%)**
Level of education	BSc	154	76.6
	MSc	29	14.4
	Anesthesiologist	18	9
Years of experience	1-2	16	0.5
	3-5	68	61.7
	>5	117	38.3
Weekly working hours	40-60	85	54.7
	60-80	78	45.3
	>80	38	66.2
Monthly income in Birr	5000-10000	60	30.3
	10000-15000	80	4.5
	15-20000	52	63.7
	>20000	9	13.4
Support from supervisors	Adequate	40	48.3
	Not adequate	97	31.8
	No support at all	64	
Availability of equipment to carry out work	Never	9	4.5
	Rarely	26	12.9

	Occasionally	46	22.9
	Sometimes	46	22.9
	Frequently	45	22.4
	Usually	21	10.4
	Every time	8	4.0

5.2 Prevalence of burnout

The occurrence of burnout syndrome, as determined by the MBI-HSS questionnaire comprising 22 questions, must meet the following criteria: high emotional exhaustion, high depersonalization, and low personal accomplishment. Based on these standards, the data presented in the graph below indicates that the rate of burnout syndrome among anesthesia professionals in public hospitals in Addis Ababa is 15.4%. Examining the prevalence of the burnout components reveals rates of 61.22%, 29.4%, and 62.2% for high emotional exhaustion, high depersonalization, and low personal accomplishment, respectively.



Graph 1: Prevalence of burnout syndrome among anesthesia professionals in Addis Ababa public Hospitals, Ethiopia, 2025.

5.3 Bivariate Logistic Regression

Being female was found to increase the odds of experiencing burnout, with a crude odds ratio (COR) of 1.906 (95% C.I.: 0.882-4.121) and a p-value of 0.101.

Working more than 80 hours per week was associated with an increased likelihood of burnout, indicated by a COR of 6.077 (95% C.I.: 2.073-17.815) and a p-value of 0.001.

A lack of perceived support from supervisors also contributed to higher odds of burnout, with a COR of 7.435 (95% C.I.: 1.622-34.087) and a p-value of 0.010.

5.4 Multivariable logistic regression

Being female, working over 80 hours per week, and lacking support from supervisors were significantly associated with higher levels of burnout in a multivariable analysis (Table 3). Anesthesia professionals who reported working more than 80 hours weekly experienced a significantly higher level of burnout than those who worked fewer than 80 hours per week (Adjusted Odds Ratio [AOR]: 4.292, 95% Confidence Interval [CI]: 1.393-13.227). Furthermore, those who received no support from supervisors also reported higher levels of burnout compared to those who did receive support (AOR: 7.313, 95% CI: 1.486-35.980). Additionally, female anesthesia professionals were more likely to suffer from high levels of burnout compared to their male counterparts (AOR: 2.556, 95% CI: 1.099-5.943).

Table 3: Bivariate and multiple logistic regression analysis of Maslach Burnout Inventory scores among anesthetists.

Variables N(201)	**Category**	**Burnout**	**Burnout**	**COR C.I 95%**	**p-value**	**AOR C.I 95%**	**p-value**
		Yes N(%)	**No N(%)**				
Gender	Male	15(12.096)	109(87.903)				
	Female	16(20.78)	61(79.22)	1.906 (0.882-4.121)	0.101	2.556 (1.099-5.943)	0.029
Weekly working hours	40-60	6 (7.059)	79(92.94)				
	60-80	13(16.67)	65(83.33)	2.633 (0.948-7.314)	0.063	2.308 (0.800-6.659	0.122
	>80	12(31.58)	26(68.42)	6.077 (2.073-17.815)	0.001	4.292 (1.393-13.227)	0.011
Support from	Adequate	2(5)	38(95)				

supervisors							
	Not adequate	11(11.34)	86(88.66)	2.430 (0.514-11.499	0.263	2.920 (0.590-14.448)	0.189
	No support at all	18(28.125)	46(71.875)	7.435 (1.622-34.087)	0.010	7.313 (1.486-35.980)	0.014

COR=Crude Odds Ratio, AOR = Adjusted Odds Ratio, C.I=Confidence Interval

Chapter Six: Discussion and Study Limitations

6.1 Discussion

The research indicated that the rate of burnout among anesthesia professionals employed in a public hospital in Addis Ababa was 15.4%. Burnout was characterized by a combination of high scores in the emotional exhaustion category, high scores in the depersonalization category, and low scores in the personal accomplishment category. This figure is relatively consistent with other findings in the literature, which report burnout prevalence among anesthesia professionals(1,15)

The individual dimensional scores indicated that 61.2% exhibited high levels of Emotional Exhaustion (EE), 29.4% received high scores in Depersonalization (DP), and 62.2% had low scores in Personal Accomplishment (PA).

These findings also aligned with those reported in previous studies involving anesthesiologists. Additionally, working more than 60 hours a week, demographic variables, and a lack of workplace support were all significantly associated with high levels of burnout.(12,13).

The dimension most impacted in the sample was personal accomplishment, with a low level reported by 62.2%, similar to a study conducted in Brazil, 47.7%.

This study found that being female, working more than 80 hours per week, and lacking supervisor support are associated with higher levels of burnout. Anesthesia professionals who worked over 80 hours a week had significantly higher burnout rates compared to those who worked fewer hours (AOR: 4.292, 95% C.I.: 1.393–13.227). Additionally, professionals without supervisor support were more likely to experience burnout (AOR: 7.313, 95% C.I.: 1.486–35.980). Furthermore, female anesthetists reported higher levels of burnout than their male counterparts (AOR: 2.556, 95% C.I.: 1.099–5.943).

A study involving anesthesia care providers in Switzerland, which included both nurse anesthetists and physicians, revealed that having a sense of support at work serves as a protective factor. Individuals who reported feeling supported showed an odds ratio of 2.66 (95% CI: 1.40 to 5.24; $p = 0.004$)(16).

A study conducted in the USA found that there is a high risk of burnout in 41% of anesthesiology trainees who work more than 70 hours per week, are female, consume more than five drinks per week, and smoke(17).

6.2 Study Limitations

Sensitive information, particularly the frequency of unfavorable outcomes, was excluded, as were the particular operational units, such as the intensive care unit (ICU) and, emergency room were not included.

Chapter Seven: Conclusion and Recommendation

7.1 Conclusion

This study found that burnout was mainly linked to demographic factors (eg, female) and factors in the workplace, especially the absence of support in professional life and working > 80 hours per week. These risk factors can help identify anesthesia professionals who are vulnerable to burnout and can aid in developing strategies to mitigate the risk of burnout and address existing burnout among anesthesia professionals.

7.2 Recommendation

The elevated levels of risk associated with Burnout Syndrome, as highlighted in this discussion, necessitate prompt and carefully designed interventions tailored specifically for this population. The study findings suggest implementing comprehensive strategies that address the underlying factors contributing to burnout, including:

- Policies that restrict weekly working hours must be put in place by healthcare organizations.
- Having access to resources for mental health and creating a positive work atmosphere. We can successfully lessen the effects of burnout and enhance the general well-being of those who are at risk by implementing these steps.
- It is advised that more research be done to evaluate additional possible independent factors and therapies.

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Annex

Annex I: Assurance of Principal Investigator

I, the undersigned, agree to accept responsibility for the scientific, ethical, and technical conduct of the research project. I also commit to providing the required progress reports by the terms and conditions set by the Research Publications Office at the time the grant resulting from this application is forwarded.

Name of the principal investigator: _____

Date. Dec 2024 Signature _____

Name of the advisor: _____

Date. Dec 2024 Signature _____

Annex II: Consent form

Dear study participant

My name is Senait Eshetu, and I am currently enrolled in a postgraduate program for MSc in Anesthesia at Addis Ababa University. I am conducting research on the "Prevalence and Associated Factors of Burnout Syndrome Among Anesthesia Professionals Working at Addis Ababa Public Hospitals."

Please be assured that the data collected will not include any identifying information and will not be disclosed to any third party. All responses will be kept confidential and will only be used for research purposes. Completing the questionnaire will take approximately 10 minutes. Your input is crucial for the findings of this study, so I encourage you to provide accurate information.

You have the right to decline participation in this study and to withdraw at any time. If you consent to participate, please sign below.

Thank you in advance for your assistance.

By signing below, you indicate that you have read and understood the participant information sheet, your questions about participation in this study have been answered satisfactorily, and you are agreeing to take part in this research voluntarily.

Signature of participant _____

Name: Senait Eshetu

Phone:+259122331821/+251923021836

E-mail:senaiteshetukebede@gmail.com

Annex III: Questionnaire

Section 1: Socio-demographic characteristics and personal traits

1. Age
   a. 21-30 b. 31-40 c. 41-50 d. >50
2. Gender
   a. Male **b.** Female
3. Marital Status
   a. Single **b.** Married **c**. Divorced **d**. Widowed
4. Number of children
   a. 0 b. 1-2 **b.** 3-4 **c.** >4
5. Religion
   a. Orthodox **b**. Muslim **c**. Protestant **d.** Catholic **e.** Other….
6. Alcohol intake
   a. Never
   b. Occasionally (once a week)
   c. Regularly (1-4 times a week)
   d. Frequently (>5 times a week)
   e. Prefer not to say
7. Do you smoke cigarette?
   a. Yes **b**. No

Section 2: Work-related factors

1. Level of education
   a. BSc Anesthetist
   b. MSc Anesthetist
   c. Anesthesiologist
2. Years of work experience
   a. < 2 **b**. 2-**5** **c.** >5
3. Weekly Working hours
   a. 40-60 Hours **b.** 60-80 Hours **c**. >80 Hours
4. Monthly income (ETB)
   a. 5000 **b.** 5-10000 **c.** 10-15000 **d.** 15-20000 **e.** 20000
5. Support from supervisors
   a. Adequate **b**. Not adequate **c**. No support at all
6. How often do you feel you don't have the equipment to carry out your work appropriately?
   a. never
   b. rarely – about 10% of the time
   c. Occasionally – about 30% of the time
   d. Sometimes – about 50% of the time
   e. frequently – about 70% of the time
   f. usually – about 90% of the time
   g. every time

Section 3: MBI-HSS (Maslach Burnout Inventory-Human Service Survey)

S. No	Scoring	0	1	2	3	4	5	6
	Implication	Never	A few times a year /less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
I.	"Emotional exhaustion"							
1	I feel emotionally drained from my work.							
2	I feel exhausted by the end of the workday.							
3	I feel fatigued when I wake up in the morning and have to face another day on the job.							
4	Working with people/patients all day is tiring for me.							
5	I feel that I am burned out by my job.							
6	I feel frustrated by my job.							
7	I feel I am working too hard on my job							
8	Working with people directly puts stress on me.							
9	I feel that I am nearing a point of significant stress.							
II.	"Personal accomplishment"							
10	I can easily understand how my patients feel about things.							
11	I deal very effectively with the problems of my patients.							
12	I feel I am positively influencing my patients lives through my work.							
13	I feel very energetic.							
14	I can easily create a relaxed atmosphere with my patients.							
15	I feel happy after working closely with my patients.							
16	I have achieved several valuable accomplishments in this job.							
17	In my work, I deal with emotional problems very calmly.							
III.	"Depersonalization"							
18	I feel I treat some patients as if they							

	were impersonal "objects".							
19	**Since starting this job, I have become more insensitive toward people/patients.**							
20	**I worry that this job is hardening me emotionally.**							
21	**I don't really care what happens to some patients.**							
22	**I feel patients blame me for some of their problems.**							