

**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICINE
DEPARTMENT OF ANESTHESIOLOGY, CRITICAL CARE AND PAIN
MEDICINE**



THE PREVALENCE AND ASSOCIATED FACTOR OF BURN OUT AMONG ANESTHESIA PROVIDERS IN TASH

**A RESEARCH SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF
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CRITICAL CARE AND PAIN.**

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- 1.
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Abstract

Background: Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job. It has three components: emotional exhaustion which is sense of physical and emotional exhaustion, depersonalization which is revealed through attitudes of emotional detachment from people to whom the professional should care for and co-workers and low personal accomplishment where work loses its meaning and became burden.

Objectives: the aim of this study is to determine the prevalence of burnout among the anesthesia providers and to know the risk factors associated to it.

Methodology: we are going to assess the prevalence and associated risk factor of burnout with standard questionnaire that was administered to the participant of the research. The questionnaire has two components the socio-demographic variables and standard MBI-HSS which has 22 question which has 9 EE, 5 DP, 8PA subcomponents.

Results: of 128 eligible anesthesia providers 119 responded making the response rate 92.9%. The overall burnout is 16% among anesthesia providers and gender, level of education and professional work experience is significantly associated to burnout. Multiple regression was done for those significant at the level of p value < 0.05 revealed that being male is risky with odds ratio of 5.25 with 95% CI [1.06-26.1].

Conclusion and recommendation: This research has shown us the anesthesia providers are at high emotional exhaustion scale which unless further measure is taken to prevent and stop the level of burnout, it has great impact on the patient safety and hospital productivity in general.

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ACRONYMS

AIC.....Anesthesia Intensive Care

DP.....Depersonalization

EE.....Emotional exhaustion

PA.....Personal accomplishment

MSI.....Maslach burnout inventory

MSI-HSS... Maslach burnout inventory – human services survey

PBS.....Physician burnout syndrome

WFSA....World Federation of societies of Anesthesiologist

1. Introduction

1.1 Background

'... I'm under a lot of stress ... completely burned out ..., I'd like to pack it in ..., and my battery is flat...!' Who has not heard similar comments when people are talking about their work? Are such statements, which are as much part of a modern service society as the mobile phone and computer, just everyday phrases, excuses for a lack of performance, or are they symptoms of a disease which can be summarized by the term 'burnout syndrome'?

In 1974, Herbert Freudenberger defined Burnout as a pathological condition of physical and mental exhaustion caused by untreated stress in the workplace for a long period¹.

Currently, the most widely used definition is that proposed in 1986 by Maslach and Jackson, in that burnout syndrome is referred to as a syndrome consisting of three dimensions: emotional exhaustion, dehumanization, and low personal accomplishment at work. The emotional exhaustion dimension is characterized by the sense of emotional and physical exhaustion. It is the realization that there is no energy left to carry out work activities. The daily life at work becomes arduous and painful.^{2,3}

Depersonalization is revealed through attitudes of emotional detachment from people to whom the professional should care for and co-workers. The contacts become impersonal, devoid of affection, and inhuman. Sometimes, the individual begins to show harsh, cynical or ironic behaviors. This dimension is considered the defensive element of the syndrome.^{2,3}

Personal achievement in occupational tasks decreases and the individual loses the satisfaction and efficiency at work. There is a feeling of personal dissatisfaction, work loses meaning and becomes a burden.^{2,3}

The early symptoms of PBS are diminished desire to get engaged in the active work, becoming suspicious of others particularly the senior officials in general, and colleagues and administrators in particular. This is followed by clear expression of "I don't care" associated with frequent complaints for trivial reasons that reflect signs of disinterest.⁴

Its occurrence becomes the way found by the individual to cope, although inappropriately, with the occupational stress chronicity. This chronic stress psychologically deranges the professional forcing him to use extra energy resources and inhibiting the actions necessary to deal with this setting.^{2,3} The syndrome arises when other strategies fail to deal with stress.⁵ Depending on the intensity and duration of this status, the individual may suffer serious consequences, both physical and psychological, if he cannot restore the previous setting or develop adaptive mechanisms to restore the lost balance.

Herein the stressors are divided into two categories: those related with work and those related with administrative and domestic fronts.¹³ The major sources of stress at work were identified as lack of control, professional relationships, work overload, chronic sleep deprivation and increasing pressure of managerial responsibility. In administrative and domestic fronts, the major stressors are: administrative responsibility and the conflict between the demands of work and home/family.^{13,14}

As indicated by Mark and Smith (2008), the working life is changing and become more stressful across the world, and these changes have led to new challenges and problems for organizations and employees. The majority of these changes mean that workers are under growing pressure to compete, adapt, and learn new skills in order to meet the demands of their work (Cox & Griffiths, 1995).

Prolonged exhaustion from these chronic stress and trying to adapt to these dynamic working environment over prolonged time can manifest clinically as fatigue, emotional instability, sleep and eating disorders, headaches, cardiovascular disorders and drug abuse. From the professional point of view, absenteeism, poor performance and willingness to quit the job may occur.^{7,8}

According to Roy and Kathleen (2007), the presence of a support network has been found to reduce the negative effects of stress. The support of one's social network can act as a buffer to stress in many ways. A positive social support network can increase an individual's self-esteem and self-efficacy. In addition, the support network may suggest solutions to stressors being faced. Having a support group can also alter perceptions of the stressor and associated with adaptive coping to stressful events.

|
Several authors recognize the importance of the role played by labor, as well as the implications of social and relational dimension in the syndrome development. In general, any activity can trigger a process of emotional exhaustion. However, some occupations are more likely to have the peculiar characteristics of the syndrome. Occupations whose activities have emotional involvement are considered at higher risk for burnout syndrome, especially those who work directly with other people, assisting them or as responsible for their development and wellbeing. Therefore, people who are dedicated to teaching, nursing, medicine, psychology, and policing are considered more predisposed to the syndrome.^{5,6}

Several research findings including local studies indicate that the job of medical professionals is stressful. For instance, on a study done by Selamawit (2012) to assess prevalence and associated factors of work related stress among nurses working in public hospitals of Addis Ababa concluded that the prevalence of work related stress was high and about one in four nurses were stressed in their work places.

Being part of health discipline, Anesthesia profession deal with assessment of, consultation for and preparation of patients for anesthesia; relief and prevention of pain during and following surgical, obstetric ,therapeutic and diagnostic procedures; monitoring and maintenance of normal physiology during the intra operative period and management of critically ill patients. The anesthesia professionals are responsible for management and recovery from anesthesia (Miller & Parado, 2011).

Anesthesia profession appears among stressful occupations. Specific stressors reported by the professionals include the unpredictability of the work, the need for sustained vigilance during long intervals, production pressure, and fear of litigation, difficult interpersonal relations and economic uncertainties, daily exposing physicians to high responsibilities and stressful situations such as the management of life-threatening scenarios. Moreover, the work pattern may be perceived as more stressful than other medical disciplines since duties include overnight shifts as well as weekends and festivities. Anesthesia is extremely stressful, with the potential to severely damage or even kill the patient if anything goes wrong. In this way, it seems to be important to identify general sources of stress and to state, categorically, individuals suffering from excessive stress that would finally lead to burnout. (Barash et al, 2013)

According to Barash et al (2013), there is significant development in the conduct of anesthesia in the last decade, that reduced both the morbidity and mortality due to significant innovations in pharmacology, monitoring and clinical approaches, which can be attributable to one of the most important contributions made towards the perfection of surgery. At the same time that anesthesia is increasingly safer for patients, however it is becoming potentially more hazardous for its practitioners. As patient harm secondary to errors made by anesthesia practitioners continues to exist in spite of the many other advances. One key cause for practitioner error that is well documented in the medical literature is the practitioner's level of fatigue. Because they should adapt to the changes in the field that are so dynamic to cope up in addition to other stressors in life^{9,10}

Anesthesia providers share many occupational stressors with other service professionals, but they also experience unique work environment factors that set them apart: proximity to suffering and death; the emotional and physical needs of patients; pressures to perform consistently and optimally under changing conditions and difficulties to satisfy incompatible job demands and unclear expectations since each anesthetic procedure can result in unexpected morbidity or mortality, and a malpractice claim can arise from a bad outcome despite optimal care (Meeusen, 2010). Malpractice refers to any professional misconduct, but its use in legal terms typically refers to professional negligence. All these demands and working conditions are responsible for anesthetists work context which can result in stress and less job satisfaction (Barash et al, 2013).

1.2 Statement of the problem

Although it would not be surprising to find a high incidence of burnout among healthcare professionals working as anaesthesiologists and other anesthesia care providers, there is no previous research done that assess the prevalence of burnout in Ethiopia where the anesthesiologists and residents are exposed to very demanding situation with environment harsh to work. This can be attributed to limited number of anesthesia providers in the country as well as in the hospital. This reduced number of practitioners put a lot of stress causing demand-supply imbalance of anesthesia providers that is greatly increasing causing overworking of the academician also the clinician so that they should work extra hours, put under a lot of stress. In addition to the stress on the practitioners by work absence of adequate support from other stuffs and administrators as well as lack recognition of their work make them easily fatigued and if the balance is not restored to previous their chance of burnout would be higher.

This research will enlighten us the magnitude of the problem in the department and the risk factor associated such as the demographic difference among the anesthesia providers. So that the gap of the awareness of the magnitude of the problem would be filled laying down base for the other research to be done so that the prevention and treatment of the problem would be applied at policy level.

The aim of this study was to evaluate the prevalence of burnout syndrome among anesthesia provider at Tikur Anbessa specialized hospital and characterize the intensity of its components. As a secondary objective, we describe the specific characteristics, such as weekly working hours, age group, gender, and time of practice of the study sample.

2. Literature Review

Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization and reduced personal accomplishment as a result of a chronic exposition to stress at work. It is work specific, occurs in individuals who did not have any pre-existing psychopathology and commonly found in care giving professions. The term burnout in psychology was coined by Herbert Freudenberger in his 1974 article “Staff burnout”, presumably based on the 1960 novel “A Burnt-Out Case” by Graham Greene, which describes a protagonist suffering from burnout quits his job and withdraws into the African jungle.²

Several definitions and theories abound to describe Burnout and its associated symptoms that are collectively called “The Burnout Syndrome”. It has been hard to describe Burnout Syndrome, since it is more of a subjective feeling and rather difficult to objectify. Simply put, Burnout Syndrome is a state of being, in which the individual is unable to cope up with the demands of his work environment, feels de-energised and loses interest in his work outcome. How close one can get to burnout depends on the individual’s capacity to handle stress.

The most widely accepted work for quantitative assessment of Burnout is the Maslach Burnout Inventory (MBI) developed by Maslach and Jackson in 1981¹⁵. They have defined burnout syndrome as having three dimensions of emotional exhaustion, depersonalisation and a feeling of lack of personal accomplishment⁴. Emotional Exhaustion (EE) is the central component of the syndrome, and for most practical purposes, the term Burnout is synonymous with the experience of exhaustion. Depersonalization (DP) is an attempt to put distance between oneself and service recipients by actively ignoring the qualities that make them unique and engaging people. It is characterised by a negative and unaffected attitude towards their patients. Feeling of lack of Personal Accomplishment (PA) arises when one’s efficiency is compromised by lack of adequate resources to cope. A high level of burnout is defined by a high level of EE, high level of DP and low level of PA.

In the 10th revision of the International Classification of Diseases (ICD 10) the term ‘burnout’ has been described under Z.73.0 as ‘Burnout-state of vital exhaustion’¹⁶. Occurrence of burnout syndrome in diverse occupations, e.g. in social workers, advisors, teachers, nurses, laboratory workers, speech therapists, doctors and dentists, police and prison officers, stewardesses, managers, and even in housewives, students and unemployed people has also been described¹. In most of these occupations the combination of caring, advising, healing or protecting, coupled with the demands of showing that one cares is of central importance.

Many studies report high levels of burnout in doctors, with psychological morbidity ranging from 19% to 47%, compared with a rate around 18% for the general employed population¹⁷. For primary care doctors or general practitioners, most studies report a moderate degree of burnout, especially for the emotional exhaustion dimension. Studies in several Western European countries, including Switzerland, Italy and France, report prevalence ranging from around 20% to more than 50%.

Anaesthesiologists also have moderate degrees of burnout, with high job satisfaction moderating the negative effects of stressors at work. However, the literature is not consistent in what medical speciality the highest percentage of burnout can be found.

In Romania, a survey¹⁸ on prevalence of Burnout Syndrome was carried out on Anesthesia Intensive Care (AIC) physicians. Their average working week was 70 hours. High levels of burnout by using MBI scale was found in 29.85% of respondents, while moderate levels in 53.03% and low levels in 17.12%. A high level of emotional exhaustion (EE) was found in 34.2%, depersonalization (DP) 38.4% and a low level of personal accomplishment (PA) in 37.7% of the doctors from the survey. They found a statistically significant ($p = 0.027$) higher prevalence of EE in female anaesthetists (mean 23.82) compared with male doctors (mean 19.53).

Workload, AIC specific work and daily hassles were found to be predictive factors for development of EE. In addition, managerial role among AIC personnel was found to be a strong predictor for DP. The burden of the difficult work meant working with critically ill patients (trauma patient; septic patient; exposure to contamination; burned and brain dead); working under pressure; being active and alert all the time; expecting high quality results in lives saving, keeping up with the new technology and the modern treatments; needing time for continuing medical education; and being always approachable to patients, relatives, colleagues.

Exhaustion is a result of physical, mental and emotional fatigue. They list several causes of exhaustion: job demands (severity of patient problems), poor communication with people on different levels of the professional scale (head physicians, subordinates, colleagues, and patients), unfair or unsatisfactory rewards, too much responsibility and too little support, or the need to quickly acquire new skills and knowledge.

A study of French medical intensivists found a much higher incidence of burnout¹⁹ as compared to the above mentioned study of Romanian anesthetic intensivists. Using the MBI, a high level of burnout was identified in 46.5% of the respondents, 23.3% reported a low level of burnout and 30.2% indicated a moderate level of burnout.

About 50% of the intensivists exhibiting a high level of burnout wished to leave their jobs. However, for people who stayed on the job, burnout led to lower productivity and effectiveness at work. Consequently, it was associated with decreased professional satisfaction and reduced commitment to the job or the organization. Conflicts with co-workers (with another intensivist or nurse) were associated with the higher level of burnout. In contrast, good quality of the relationships with nurses and chief nurses was associated with a lower degree of burnout.

Prevalence of stress and burnout in anesthetists in Belgium University Network has been studied by Nyssen et al ²⁰. The median score for burnout (MBI-Emotional Exhaustion subscale) was 27 (range 10±59), which corresponds to a moderate level according to the normative scores. 40.4% of the anaesthetists were in the high-level burnout group and 44.4% and 15.2%, respectively, in the medium- and low-level groups.

Surprisingly, anaesthetists under 30 years of age showed the highest burnout rates. The lack of empowerment and the lack of support/quality supervision, by decreasing the individual's ability to cope with stressful situations, could explain the high score for emotional exhaustion found in the young anaesthetist group.

A Turkish survey of 159 anaesthesiology trainees ²¹ was conducted to understand the reason behind increasing incidence of suicide and burnout among their trainees (14 anaesthesia trainees and residents had committed suicide in the previous 5 years). The survey was based on MBI and Perceived Stress Scale ²². It revealed that stress was very high in the early years of training.

As the number of anaesthesiologists was well below the need in Turkey, nurse anesthetists and anesthesia technicians were the main providers of anesthesia in their country. Regardless of their training, these skilled nurses and technicians were able to handle most of the critical situations without the help of the resident. Lack of control of trainees in their own field was causing feelings of inadequacy and low scores for sense of personal accomplishment.

Perceived stress was decreased in older ages. Ageing and female sex were associated with lower emotional exhaustion and depersonalization scores respectively, and both were associated with higher personal accomplishment. Interestingly, having two or more children was associated with significantly high personal accomplishment but low depersonalization and emotional exhaustion scores.

In the United States of America ²³, a nationwide cross sectional survey of 117 anaesthesiology chairs was conducted to identify potential stressors for their departments and the incidence of Burnout. Almost 59% of the chairs were at a risk of developing Burnout Syndrome. The foremost stress provoking issues for these academic chairs were faculty retention and department finances.

In survey done in South Africa done in the department of anesthesiology at the University of the Witwatersrand that was conducted to describe the level of burnout among doctors working in anaesthesiology showed high level of burnout was identified in 21.0% of Wits doctors. The high level of burnout is shown by high levels of EE in 45.2%, high levels of DP in 50.0% and low levels of PA in 46.0% of doctors. Higher burnout scores were noted in female doctors ($p = 0.49$), fewer years of anaesthetic experience ($p = 0.37$), doctors of younger age ($p = 0.07$), registrars ($p = 0.22$) and writing examinations within three months of completing the survey ($p = 0.15$), but none were statistically significant (South African).

3. Objective

3.1 General objectives

- To determine the prevalence of burnout among anesthesia care providers working in Tikur Anbessa hospital

3.2 Specific objectives

- To determine the prevalence of burnout
- To describe demographic distribution of anesthesia provider
- To assess the risk factor of burnout

4. Method

4.1 Study area

The study was conducted in Ethiopia, Addis Ababa, Tikur Anbessa Hospital. Tikur Anbessa Specialized Hospital is the largest tertiary hospital in the Ethiopia, and serves as a training center for undergraduate and post graduate programs. The hospital started in 1964 and has been teaching since then.

4.2 Study population

All anesthesia care provider in Tikur Anbessa hospital including anesthesiologist consultant, anesthesiology residents, master of anesthesia and staff nurses.

4.3 Study design

A quantitative descriptive cross-sectional study was done with a questionnaire that included the demography of the population and Maslach burnout inventory, MBI-HSS is used.

4.4 Sampling

A total population sampling which is a type of purposive sampling techniques was used because the entire population is included in the study.

4.5 variables

4.5.1 Independent variable

Gender

Age

Religion

Marital status

Number of children

Personal income

level of education

Experience

Work load

4.5.2 Dependent variable

Burnout

Emotional exhaustion

depersonalization and

Personal accomplishment

4.6 Eligibility criteria

4.6.1 Inclusion criteria

All anesthesia providers in Tikur Anbessa Hospital including:

- Staff anesthetists,
- Master of anesthesia consultants and senior masters of anesthesia students
- Anesthesiology consultants and
- Anesthesiology residents

4.6.2 Exclusion criteria

- 1st year master of anesthesia students
- Nurse anesthetist students

4.7 Data collection

The standard questionnaire of Maslach burnout inventory is used to collect the data. The questionnaire included the demography of respondents, standard MBI-HSS is distributed by an investigator after written informed consent was taken.

4.8 Data quality Assurance

Completeness of Data collection was checked by the principal investigator. The principal investigator monitored overall data collection process. All completed questionnaires were checked for completeness and consistency during data management, storage and analysis.

4.9 Data analysis and Interpretation

After data entry and cleaning, analysis was done using the Statistical Package for Social Sciences (SPSS) version 21 descriptive and analytical statistics used as applicable. Statistically significant association was taken for p values of <0.05 .

4.10 Ethical consideration

Ethical clearance was obtained from the research and ethics committee of department of Anesthesiology, Research and publications committee and the Institutional Review Board (IRB) of the CHS. Data collection instrument didn't include names, or any other identifying information about the study population.

All data obtained in the study kept confidentially and used solely for the purpose of study.

4.11 Dissemination of the result

The study result is area presented to Addis Ababa University, School of Medicine, Department of Anesthesiology and documents will be disseminated to all responsible bodies in the study area, for the hospital where the study is conducted, FMOH and Addis Ababa university school of Medicine.

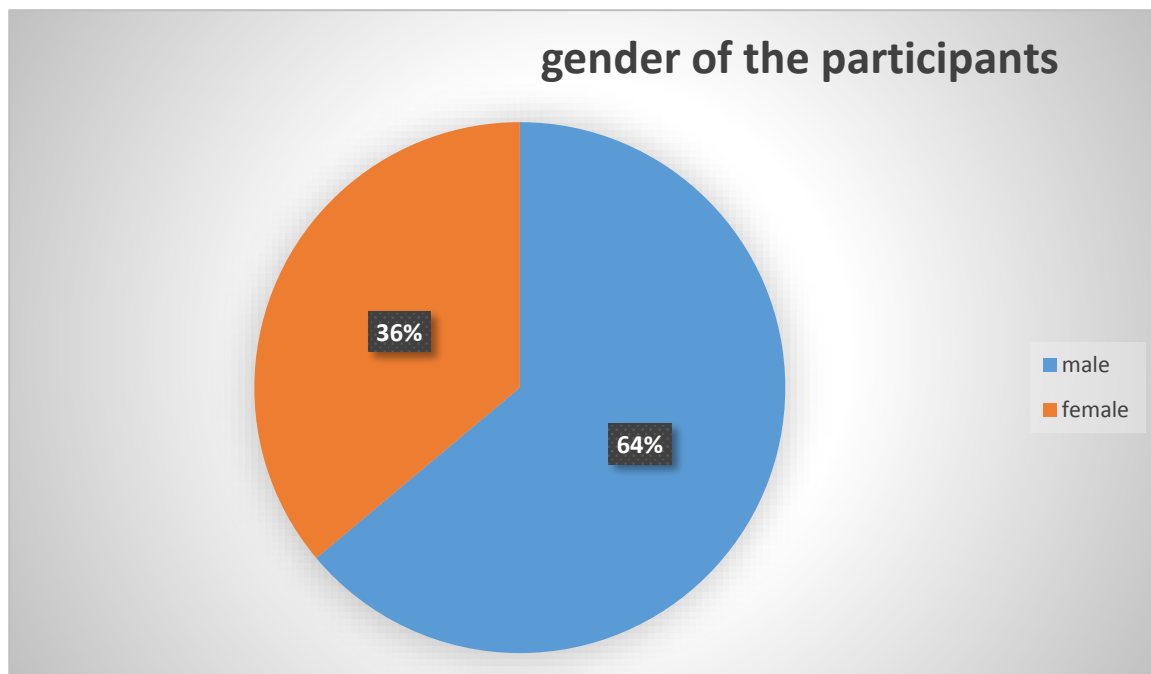
5. Result

This results section presents the major findings beginning with the socio-demographic variables that were used for comparative purposes latter on. In this chapter of the thesis research results from data collected in quantitative techniques are presented. This section has two parts. In the first part of the section socio-demographic characteristics of the respondents are presented. In the second part, quantitative results from close-ended survey items of participants are presented using descriptive and inferential statistics techniques. Presentation of findings in each section is according to the order of basic research questions of the research.

5.1 Socio-demographic characteristics of the respondent's

5.1.1 Gender distribution

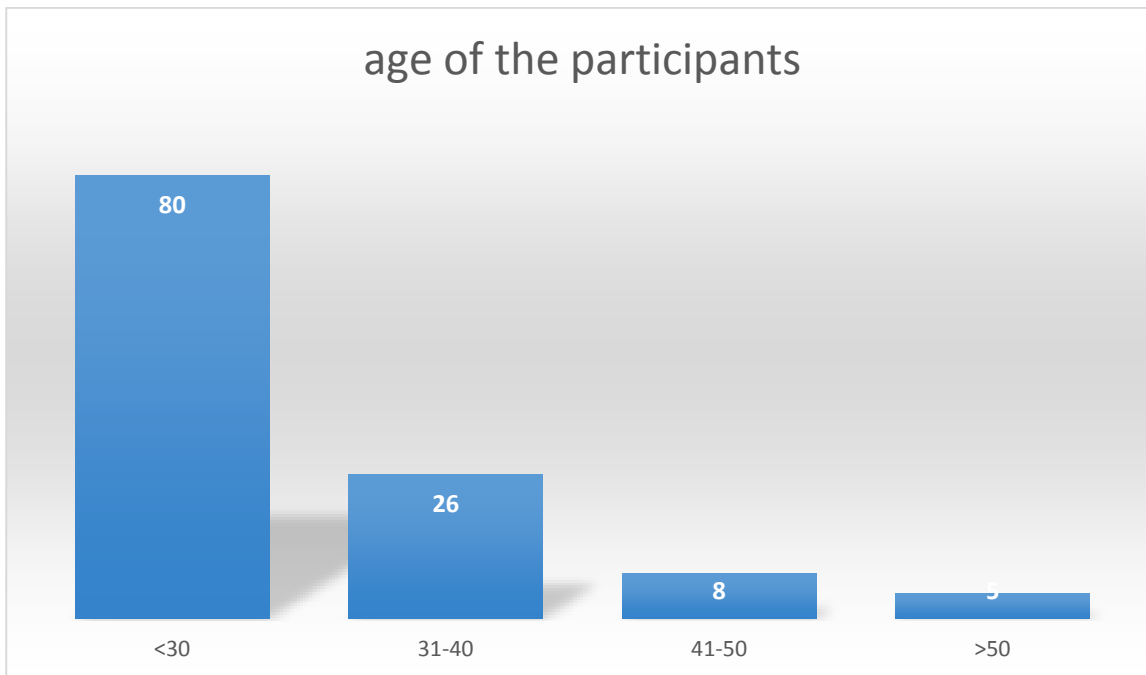
The anesthesia providers who responded were a total of 119 who were working at TASH at the time of research done. As shown in the graph 1 below out of total 119 practitioners were 43 are females and 76 are males.



Graph 1. Gender of participants

5.1.2 Age distribution of the respondents

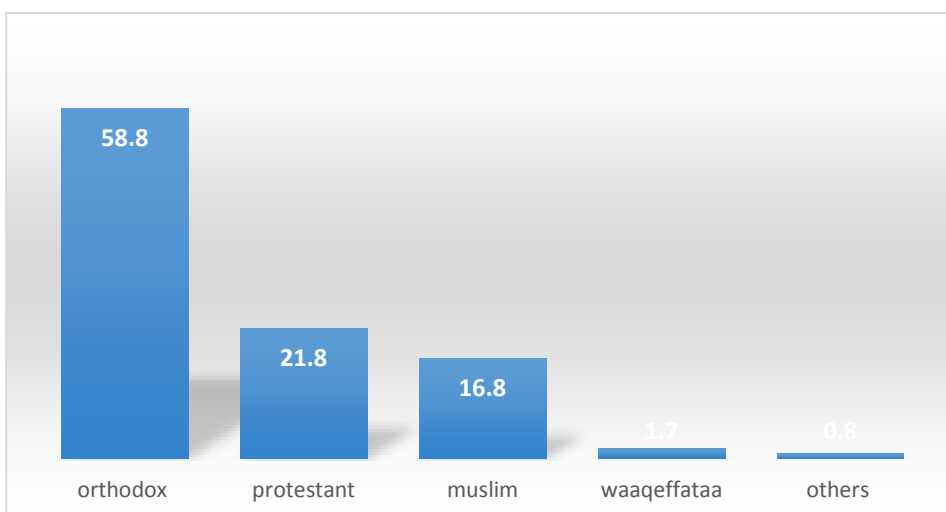
And by age of respondents most are in the range of ≤ 30 which is about 2/3 of respondents is while practitioners above the age of 50 are 5.



Graph 2. Age of participant

5.1.3 Religion of the participant

As we see the religion distribution of the respondents 58.8% are orthodox Christian while Muslim and Protestant Christians are 16.8% and 21.8% respectively.



Graph 3. Religion of the respondents

5.1.4 Marital status and number of children of participants

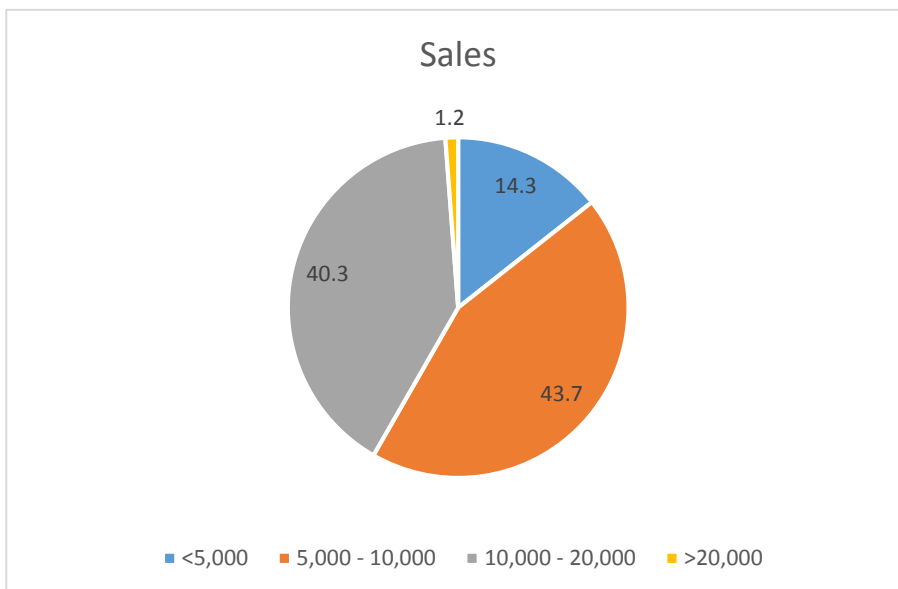
With the respect of marital status almost married and single are equal in number, 58 of them are married while 55 of them are single and none of them are divorced. Among the married respondents 16 of them don't have children while 35 of them has 1-2 children and 7 of them had 3-4 children. This means 26.7% has no child while 60.3% have 1-2 children.

		Number of participant children			Total
		None (%)	1-2 (%)	3-4 (%)	
Marital status of participant	Married	16(27.6)	35(60.3)	7(12.1)	58
	Single	55	0	0	55
	engaged	7	0	0	7
Total		77	35	7	119

Table 1. The cross tabulation of marital status and number of children of participants

5.1.5 Personal income of participants

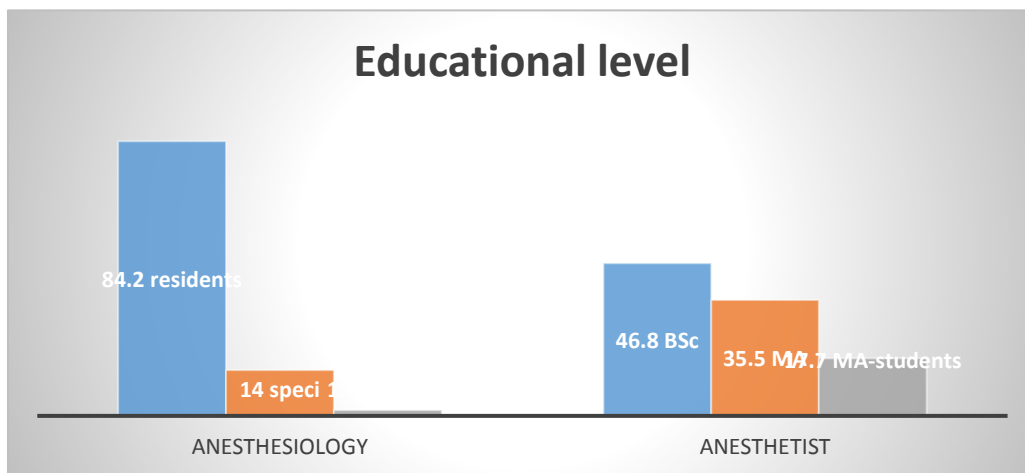
Regarding the monthly personal income 43.7 % get in the range of 5000 -10,000 while 40.3% get in the range of 10,000 - 20,000. Only 2 out of 119 get more than 20,000.



Graph 4 personal income of participants

5.1.6 Educational level of participant

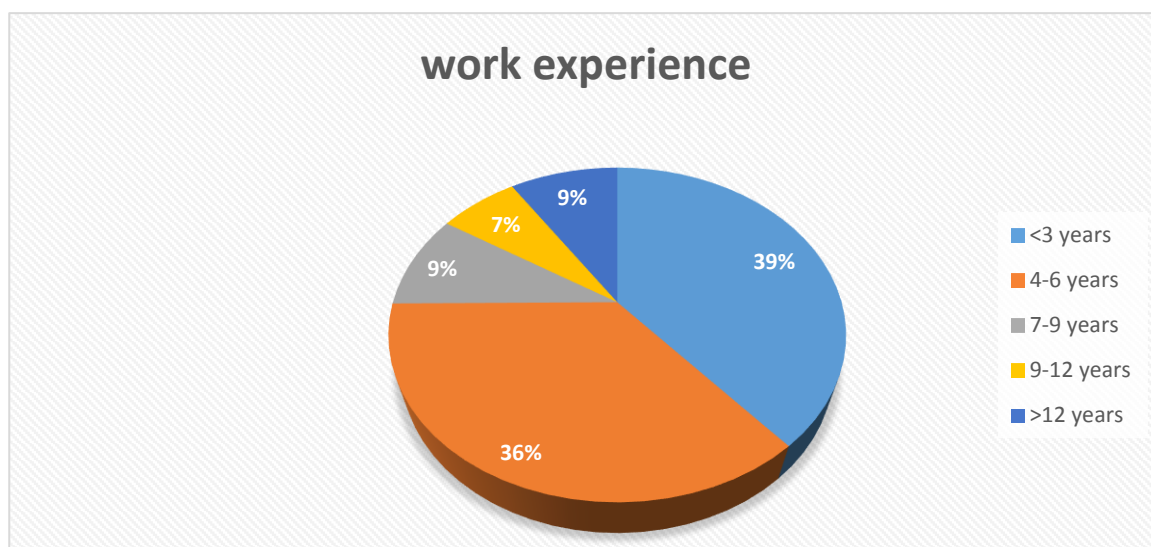
Based on the educational status of the respondents from anesthesiology department there are 47.9 while from anesthesiologists they are 52.1. Among 47.9 anesthesiology dept. 84.2% are residents while 16.8% are senior consultants. Among the anesthesiologists while 46.8% are first degree anesthesiologist while 35.5% are master of anesthesia.



Graph 5. Educational level of participant

5.1.7 Professional work experience

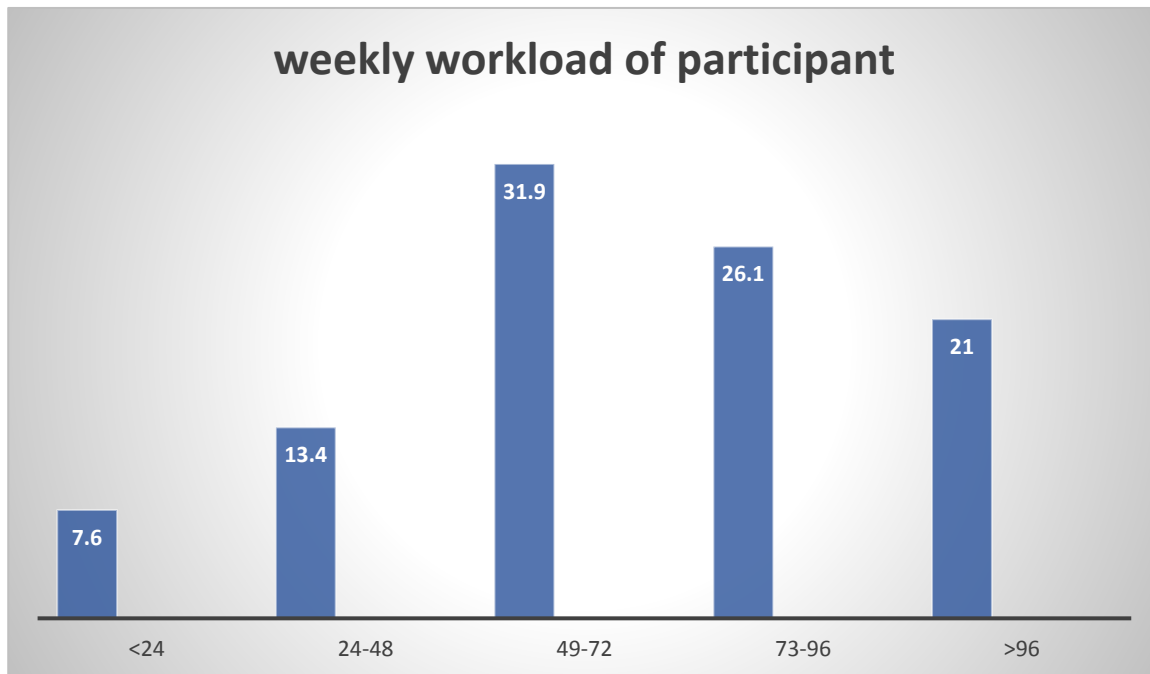
Among the respondents most of the respondents have experience less than three years which is shown in graph below



Graph 6. Professional work experience

5.1.8 Weekly work load of the participant

When we try to see the work load of the participant, as it is depicted below in the graph those practitioners who work 49-72 are 31.9% , those who work more than 96 is about 21%.



Graph 7. Weekly workload

5.2 Prevalence of burnout

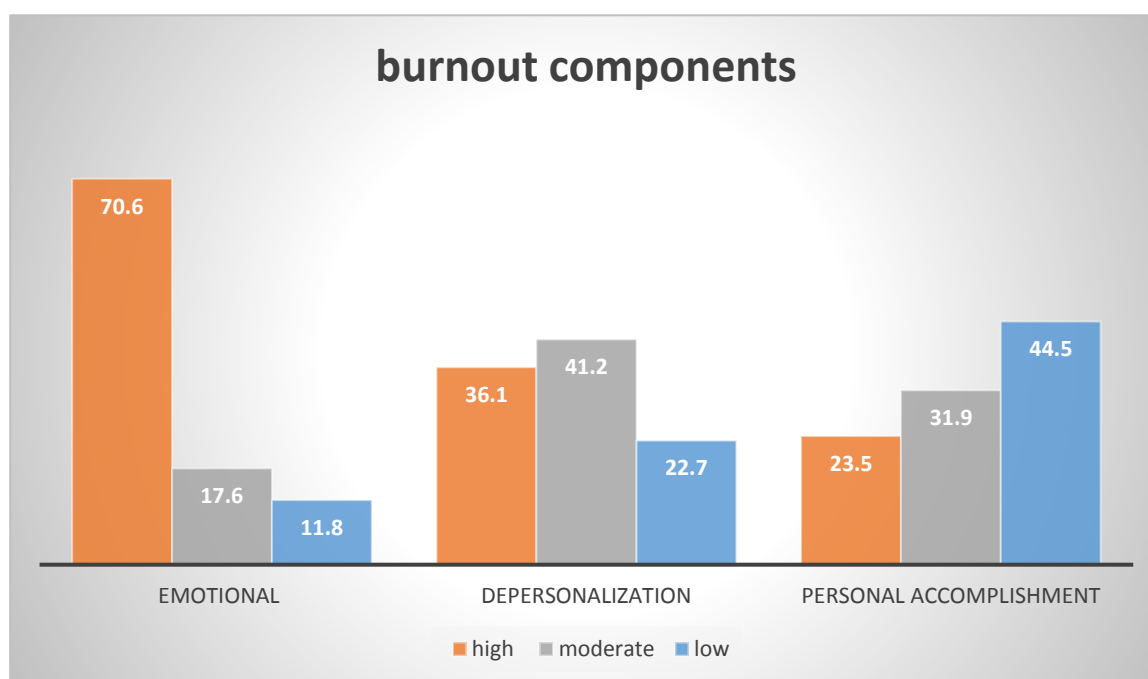
The prevalence of burnout as it is calculated using the MBI-HSS questionnaire which contains 22 question should fulfill the following requirement: high emotional exhaustion, high depersonalization and low personal accomplishment.

According to this criteria, as shown in the table below, the prevalence of burnout among the anesthesia providers in black lion is 16%.

When we see the prevalence of the components of burnout is 70.6%, 36.1%, 44.5% for high emotional exhaustion, high depersonalization, and low personal accomplishment respectively.

	Frequency	Percentage
Burnout	19	16
No burnout	100	84
Total	119	100

Table 2. The frequency of burnout



Graph 8. Burnout components

5. 3. The association between the socio demographic variable and burnout

The collected data were analyzed using chi square test correlation statistical method to see the extent to which all the sociodemographic variables are associated with burnout (dependent variable) and the result presented on the table 4 below.

According to the table below there is statistically significant association between the gender of participant and burnout and higher level of burnout among male respondents with odds ratio of 5.9 and 95% CI (1.29-26.9).

In addition to gender there is also statistically significant association between the level of education and professional work experience and burnout with p value of 0.018, and 0.036 respectively.

Variables	category	Burnout			Chi square		Odds ratio	
		Yes(%)	No(%)	Total	value	P value	value	95% CI
Gender	Male	17, (22)	59(78)	76	5.17	.023	5.9	1.29-26.9
	female	2, (5)	41(95)	43				
Age	<30	12(15)	68(85)	80	.386	.943	NA	NA
	31-40	5(19)	21(81)	26				
	41-50	1(13)	7(87)	8				
	>50	1(20)	4(80)	5				
Religion	Orthodox	9(13)	61()	70	2.689	.611	NA	NA
	Protestant	6(23)	20(77)	26				
	Muslim	4(21)	16(79)	20				
	Waqefata	0	2(100)	2				
	others	0	1(100)	1				
Marital status	Married	11(19)	47(81)	58	.83	.661	NA	NA
	Single	7(13)	48(87)	55				
	engaged	1(17)	5(83)	6				

Number of participant children	None	14()	63(86)	77	2.78	.249	NA	NA
	1-2	5()	30(85)	35				
	3-4	0	7(100)	7				
Personal income	<5000	2(12)	15(88)	17	1.21	.749	NA	NA
	5-10000	8(15)	44(85)	52				
	10-20000	9(19)	39(81)	48				
	>20000	0	2(100)	2				
Level of education	Sub spec	0	1(00)	1	13.64	.018	NA	NA
	Speciality	0	8(00)	8				
	Resident	13(27)	35(73)	48				
	Masters of anesthetist	1(4)	21(96)	22				
	Student of masters	0	11 (100)	11				
	Anesthetist	5(17)	24(83)	29				
Professional work experience	<3	12(26)	34(74)	46	10.25	.036	NA	NA
	4-6	6(14)	37(86)	43				
	7-9	0	11(100)	11				
	9-12	0	8(91)	8				
	>12	1(16)	10(84)	11				
Weekly work load in hours	<24	0	9(100)	9	4.7	.32	NA	NA
	24-48	2(12)	14(88)	16				
	48-72	5(13)	33(87)	38				
	72-96	7(22)	24(78)	31				
	>96	5(20)	20 (80)	25				

Table 3. Correlation of sociodemographic factors and burnout

A multiple regression was carried out to investigate whether gender, level of education and professional work experience could significantly predict the presence of burnout.

A binary logistic regression done indicated that only gender is significantly predictor of burnout with chi-square of 24.67, $df = 10$, and $p=006 (< 0.05)$. The other predictors level of education and work experience are not significantly predict burnout.

All the 3 predictors including the gender, level of education and work experience together can predict 32% of variability for the presence of burnout. Gender is significant at 5% level at Wald = 4.118, $p = 0.042 (< 0.05)$. The model correctly predicted 100% for non-burnout and 0% for burnout, giving overall prediction rate of 84%.

6. Discussion

The intricate relationship between work life balances can either manifest itself positively in an individual, resulting in positive job engagement and pleasure filled life. Or at the other end of the spectrum, this can negatively impact the person's social and psychological being resulting in stress and burnout. 25

Several definitions and theories abound to describe Burnout and its associated symptoms that are collectively called "The Burnout Syndrome". It has been hard to describe Burnout Syndrome, since it is more of a subjective feeling and rather difficult to objectify. Simply put, Burnout Syndrome is a state of being, in which the individual is unable to cope up with the demands of his work environment, feels de-energised and loses interest in his work outcome. How close one can get to burnout depends on the individual's capacity to handle stress.

The most widely accepted work for quantitative assessment of Burnout is the Maslach Burnout Inventory (MBI) developed by Maslach and Jackson in 1981³. They have defined burnout syndrome as having three dimensions of emotional exhaustion, depersonalisation and a feeling of lack of personal accomplishment⁴.

Even using Maslach Burnout inventory there are variety of measuring the burnout. In systematic review of 182 studies across the world from 1991 to 2018 showed that among which 57.8 used the original MBI_HSS, the questionnaire that was used in this research, This MBI versions ask survey takers to rate how often they experience specific feelings of burnout at work on a 7-point Likert scale, with 0 representing "never" and 6 "every day". The MBI-HSS produces scores on 3 subscales: emotional exhaustion (scores range from 0-54), depersonalization (scores range from 0-30), and low personal accomplishment (scores range from 0-48).

Among those who used MBI only 17.2% (21/122) used the cut off required to label individuals to score all of at least 27, at least 10, and no more than 33 on the MBI exhaustion, depersonalization, and personal accomplishment subscales, respectively. This corresponds the criteria we used in this research which is emotional exhaustion of at least 27, depersonalization of at least 13 and low personal accomplishment of at most 31.

Physician's burnout is an emerging problem for healthcare systems with an increase in the percentage of physicians reporting at least one burnout symptom, from 45% to 54% between 2011 and 2014 [27]

The prevalence of burnout in this study among the anesthesia providers in TASH is 16%. Which is lower than the South African study that studied the prevalence of burnout in anesthesiologists which is 21% of wits doctor. Higher burnout scores were noted in female doctors ($p = 0.49$), less years of anaesthetic experience ($p = 0.37$), doctors of younger age ($p = 0.07$), registrars ($p = 0.22$) and writing examinations within three months of completing the survey ($p = 0.15$), but none were statistically significant. The study used the same definition of burnout as we used but the cut offs are lower in depersonalization and little higher in personal accomplishment as this could be the reason this study is higher than ours.

In other study done at Chinese anesthesiologist²⁸ where they used cut-off similar to this study found out that the level of emotional exhaustion is at higher in this research which is 70.6 vs 57 but lower percent of high DP and PA which is 36.1 vs 49 and 44.5 vs 57. And if we see the overall burnout of this research it is 29% which is higher than our research finding. This may be due to higher number of samples used in this research to tell us the finding of true burnout prevalence.

In study done at mekelle³⁰ that investigated Prevalence and associated factors of burnout syndrome among healthcare workers in public and private hospitals in Mekelle City in three hospitals is Overall 109 (47.6%) of respondents had burnout syndrome. Independent predictor factors were: being female, few years of work experience, working night shifts and long working hours each week. The prevalence of burnout is higher in health worker in this area is higher because the definition of burnout here is a loose defining it as high value in at least two of its components. When we see the components of burnout all the components are higher in this research than mekelle's EE, DP and PA (70.6 vs 52.9), (36 vs 35.6) and (44.5 vs 26) respectively

In another study done in jimma among all physician who are working in SNNPR²⁹ for more than 6 months are higher than this study which depicted in components rather than the overall burnout as EE, DP, PA (70.6 vs 65.2), (36 vs 85.1) and (44.5 vs 91) respectively. Only the emotional exhaustion of this study is higher. This possibly could be due to less employment, poor living condition or poor infrastructure of that area.

Prevalence of stress and burnout in anesthetists in Belgium University Network has been studied by Nyssen et al ²⁰. The median score for burnout (MBI-Emotional Exhaustion subscale) was 27 (range 10±59), which corresponds to a moderate level according to the normative scores. 40.4% of the anaesthetists were in the high-level

burnout group and 44.4% and 15.2%, respectively, in the medium- and low-level groups.

Surprisingly, anaesthetists under 30 years of age showed the highest burnout rates. The lack of empowerment and the lack of support/quality supervision, by decreasing the individual's ability to cope with stressful situations, could explain the high score for emotional exhaustion found in the young anaesthetist group.

This result is higher than ours as the cut-off point used is lower than what we used and they also used only emotional exhaustion to define the level of burnout in that case had we used this cut-off for this research the prevalence of burnout would be 70.6% which is much higher than theirs. Even though this research is consistent in that the burnout is higher in younger than 30 but highest in 31-40

In this research gender, level of education and work experience is significantly associated to burnout syndrome. In research done on Chinese anesthesiologist Age, title, hospital category, working hours per week, caseload per day, frequency of perceived challenging cases, taking night shift, income, MSQ score, sleep hours, and sleep quality were significantly different between these 2 groups of burnout and non-burnout. While no significant difference between the genders.

In our research being male is risk factor with OR of 5.25, 95% CI [1.06- 26.1]. While the research done in Chinese anesthesiologist have no significant difference between the two genders. In other studies done in mekelle being female is riskier with OR 3.02 with 95% CI of [1.44-6.32].

7. Strength and limitation of this study

7.1 The strength of this study

The strength of this study is it is first study to see prevalence of burnout and its associated factors in anesthesia providers, this makes it milestone for other research to be done on the subject matter in the future.

It used the structured and standard questionnaire to assess the prevalence of burnout the MBI-HSS.

7.2 The limitation of the study

The small sample size may mask the true incidence. This research didn't look for the consequences of burnout on patient care and the role of organization and hospital administrators on the prevalence of burnout which would reveal condition that may decrease or increase the incidence of burnout.

8. Conclusion and recommendation

8.1 Conclusion

In this research the prevalence of burnout is lower than other respective studies done. This can be contributed to the tight definition that is used in this research. This research also showed there is high level of high emotional exhaustion which is about 70.6% which is higher than most studies in the literature.

The impact of high level of burnout includes, but is not limited to, impairment of judgment, late and inadequate responses to changes in the clinical situation, less patient satisfaction, and less patient trust in their physicians, more adverse effects.

8.2 Recommendations

Since burnout has many bad consequences it should prevented before it occurs. Once it occurs it has detrimental consequences both on patient care and hospital productivity.

We recommend in depth study on the subject matter so that both protective and risk factors should be studied so that we prevent the adverse consequence of burnout before it ever occurs.

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10. Annexes

Annex 1. Part 1 of the questionnaire

- I. Demographics
 - A. Gender
 - 1. Male
 - 2. Female
 - B. Age
 - 1. ≤ 30
 - 2. 31-40
 - 3. 41-50
 - 4. > 50
 - C. Religion
 - 1. Orthodox
 - 2. Protestant
 - 3. Muslim
 - 4. Waaqeffata
 - 5. Others
 - D. Marital status
 - 1. Married
 - 2. Single
 - 3. Divorced
 - 4. Engaged
 - 5. Others, specify
 - E. Number of children
 - 1. None
 - 2. 1-2
 - 3. 3-4
 - 4. ≥ 5
 - F. Personal income
 - 1. ≤ 5000
 - 2. 5000- 10000
 - 3. 10000- 20000
 - 4. > 20000
 - G. Level of education
 - 1. Sub specialty
 - 2. Specialty
 - 3. Resident, specify the year you are in
 - 4. Master of anesthesia
 - 5. Anesthetist
 - 6. Anesthesia students, specify the year you are in
 - H. Professional work experience
 - 1. ≤ 3

2. 3-6
3. 6-9
4. 9-12
5. ≥ 12

I. Weekly work load

1. < 24
2. 24-48
3. 48-72
4. 72-96
5. > 96

Annex 2. Part 2 of the questionnaire

II. Maslach Burnout Inventory-Human Services Survey (MBI-HSS)

Under this section there are 22 work related sentiment items please read each statement carefully and decide if you have ever felt this way about your work.

If you have never had this feeling, write the (zero before the statement

If you have had this feeling, indicate how often you have felt it by writing the number (from 1 to 6 which describes how often you feel this way. n example is shown below.

	Please circle the number that best describes your situation	0. Never 1. A few times a year or less 2. Once a month or less 3. A few times a month 4. Once a week 5. A few times a week 6. Every day						
1	I feel emotionally sucked by my work	0	1	2	3	4	5	6
2	I feel consumed at the end of a work day	0	1	2	3	4	5	6
3	I feel fatigued when I get up in the morning and have to face another day in this job	0	1	2	3	4	5	6
4	I can easily understand how my patients feel about things	0	1	2	3	4	5	6
5	I feel that I treat some patients as if they were objects	0	1	2	3	4	5	6
6	Working with people all day long is really a big strain for me	0	1	2	3	4	5	6
7	I deal effectively with the problems of my patients	0	1	2	3	4	5	6
8	I feel exhausted by my work	0	1	2	3	4	5	6
9	I feel that I positively influence other people through my work	0	1	2	3	4	5	6
10	I've been more insensitive about people since I took this job	0	1	2	3	4	5	6
11	I worry this job is hardening me emotionally	0	1	2	3	4	5	6
12	I feel very willing	0	1	2	3	4	5	6
13	I feel frustrated by my job	0	1	2	3	4	5	6
14	I feel like I'm working too hard on my job	0	1	2	3	4	5	6
15	I really don't care what happens to some patients	0	1	2	3	4	5	6
16	Working directly with people puts a lot of stress on me	0	1	2	3	4	5	6
17	I can easily create a relaxed mood with my patients.	0	1	2	3	4	5	6
18	I feel excited after working very close to my patients	0	1	2	3	4	5	6
19	I've been doing a lot of things worth doing in this job	0	1	2	3	4	5	6
20	I feel like I'm at the end of the line	0	1	2	3	4	5	6
21	In my work I deal with emotional problems quietly	0	1	2	3	4	5	6
22	I feel that patients blame me for some of their problems.	0	1	2	3	4	5	6

