ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE, DEPARTMENT OF SURGERY

THE INFLUENCE OF WORK-LIFE BALANCE ON SURGICAL RESIDANT'S PERFORMANCE AND SATISFACTION IN TIKUR ANBESSA SPECIALIZED HOSPITAL, ADDIS ABABA, ETHIOPIA, 2025

A CROSS-SECTIONAL STUDY

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APPROVAL SHEET

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I, the undersigned general surgery resident, declare that I have submitted my original work on The influence of work-life balance on surgical resident's performance and satisfaction in Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia, 2025 for the examination.

Submitted by:

Dr. Bethlhem Denbel	Signature	Date

This thesis work has been submitted for examination with my approval as an advisor.

Approved by:

Dr. Zelalem Assefa	Signature	Date

Statement of the Author

I hereby declare that this thesis is my original work and has not been presented for a degree in any other university and all sources of material used for this thesis have been duly acknowledged.

Name: Bethlhem Denbel (MD)

Signature: _____

Date: _____

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First, I would like to thank God for helping me throughout the preparation of this research. My next gratitude goes to Dr Zelalem for his humble guidance throughout the development of this research.

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Abstract

BACKGROUND: Residency, especially in surgical specialties, is notorious for demanding schedules and high stress levels. Surgical trainees often work extended hours and face emotionally and physically taxing duties, which can encroach on personal and family life. Many Surgeons Worldwide reports imbalance between Work and their personal life.

In a study done in Ethiopia. Physicians have poor life work balance which lead to poor patient care and increased medical erros. Which shows how negative WLB affects quality of care. Work-life balance is positively associated with well-being and job satisfaction and negatively associated with stress and mental health problems. Conversely, work-life conflict has been found to contribute to burnout, dissatisfaction, and intent to leave the profession

Methods institutional based retrospective study done from January 1 2025- dec 31 2025 using online questioners and

Results In this study we found that nearly two-thirds (65.5%) of surgical residents met the criteria for burnout. Which is defined as high emotional exhaustion and/or depersonalization. The result is comparable to reports from other surgical training programs, Specially in low- and middle-income countries like Ethiopia. In this resource limited counties prolonged working hours, frequent night duties, and limited institutional support are very common. Emotional exhaustion had the highest mean score among the burnout dimensions. Which shows workloads and long standing stress are major contributors to burnout in the study population. In contrast, personal accomplishment scores were moderate. This shows that despite high level of stress residents have professional fulfilment.

Conclusion In conclusion burnout is highly prevalent among surgical residents at Tikur Anbessa Specialized Hospital. This burnout is strongly associated with workload, poor work–life balance, significantly reduce residents' performance, and lower job satisfaction. In contrast positive work–life balance showed meaningful positive relationships with both performance and job satisfaction. Works targeting and addressing modifiable workplace factors are very important to improve resident well-being, improve job satisfaction and performance, and ensure high-quality patient care.

Key words Work-life balance, Burnout, performance and satisfaction, high burnout, poor WLB.

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Residency, especially in surgical specialties, is notorious for demanding schedules and high stress levels. Surgical trainees often work extended hours and face emotionally and physically taxing duties, which can encroach on personal and family life. Many Surgeons Worldwide reports imbalance between Work and their personal life.

In a study done in Ethiopia. Physicians have poor life work balance which lead to poor patient care and increased medical erros. Which shows how negative WLB affects quality of care. Work-life balance is positively associated with well-being and job satisfaction and negatively associated with stress and mental health problems. Conversely, work-life conflict has been found to contribute to burnout, dissatisfaction, and intent to leave the profession

Addis Ababa University (AAU) functions as Ethiopia's primary center for surgical education because it produces most of the country's surgeons. Tikur Anbessa which establish the standards for surgical residency education. The available information about residents' wellness and their ability to balance work and personal life remains extremely limited within this particular setting. The BMC research at AAU analyzed how residents felt about their educational experience but it did not investigate their ability to balance work and personal life. The research from Frontiers which took place in Ethiopia showed that surgical and obstetrics/gynecology healthcare staff experienced major burnout symptoms because 26% of them met the criteria for burnout but the study did not show how this related to their work-life balance. Surgical residents throughout the world report higher levels of stress than workers in most other fields yet they achieve similar life satisfaction levels to their professional colleagues. US surgical residents face work-life conflicts which affect 50 percent of them because their busy

schedules leave them with no time to do personal things while their career unhappiness and burnout rates continue to rise. The research shows that female residents experience more work-life difficulties than their male counterparts.

Generally, evidence suggests that work-life balance is a key determinant of residents' well-being, satisfaction, and possibly performance. However, there is little research on how WLB affects surgical residents in Ethiopia. Given TASH central role in training Ethiopian surgeons and the high workload faced by its residents, it is critical to understand this relationship. This research did investigate the influence of work-life balance on surgical residents' performance and satisfaction at TASH. By grounding the study in current literature and the Ethiopian context, we generate locally relevant evidence to improve training conditions and resident health.

1.2 Statement of the Problem

Work-life Balance stands as the primary factor which determines how residents experience their mental health and their overall happiness and also their ability to perform at work. However, there is little research done on how WLB affects surgical residents in Ethiopia. Since TASH is the main surgical training institute in Ethiopia. And its residents experience intense work demands which motivate us on studying on this subject matter. The study analyzed how surgical residents at TASH experienced work-life balance while examining their Surgical performance and their satisfaction levels. The research aim to address the gap by investigating he relationship between WB, performance and satisfaction among residents at TASH.

1.3 Significance of the Study

The Study contains three main significance which demonstrate its importance because it creates better environment for surgical residents while improving patient safety and service quality and it helps develop excellent surgical residency programs in the country.

A. Enhancing Resident Well-Being and Satisfaction

Surgical residents worldwide claim that surgical residency training is their most difficult professional stage. Since they are required to handle long duty hours with multiple responsibilities in the operating room. Which create both physical and mental exhaustion. In Ethiopia with limited resources and surgical materials residents obligated to see and treat multiple patients and institutional backing remain low. The research study investigates how surgical residents at Addis Ababa University experience their work-life balance through their professional and personal fulfillment at their workplace. The study provides evidence-based insights which help create interventions that fight burnout while building better morale and establishing sustainable training environments. Residents who maintain work-life balance will achieve better training satisfaction while preserving their motivation and continuing their professional and personal growth.

B. Improving Performance and Patient Care

Medical professionals who experience excessive work demands and high stress levels and burnout become more likely to commit clinical errors while their ability to empathize with patients and their cognitive abilities decrease. The two main issues create obstacles which prevent residents from learning and growing while they create safety threats for patients. The study demonstrates how work-life balance affects healthcare providers because their mental health state directly influences their ability to provide quality patient care. The promotion of resident wellness needs to become an essential base for surgical care because it supports both patient safety and surgical efficiency and compassionate treatment delivery.

C. Informing Policy and Program Development

At the institutional level, this research solves a major research gap. Despite increasing attention to resident burnout globally, few studies have been conducted in Ethiopia to evaluate how work-life balance affects surgical residents' outcomes. The findings from this study will provide essential data for better scheduling systems, wellness programs, and mentorship that support both training and wellbeing. The result also can be contribute on nationwide stages and discussions on residency program reform and human resource retention in healthcare system.

In conclusion, this study will improve the quality of surgical training, promote resident wellbeing, and moreover enhance patient outcomes in Ethiopia. It aims to serve as a foundation for institutional change and a model for similar research in other low-resource settings.

1.4 Objectives

1.4.1 General objective:

To assess the influence of work-life balance on the clinical performance and job satisfaction of surgical residents.

1.4.2 Specific Objectives:

1, To evaluate the level of work-life balance among surgical residents.

2, To assess the level of clinical performance and job satisfaction among surgical residents.

3, To determine the relationship between work-life balance and clinical performance among surgical residents.

4, To examine the association between work-life balance and job satisfaction among surgical residents.

5, To identify demographic and institutional factors that influence work-life balance among surgical residents.

1.5 Limitation of the study

Despite its significance, this study has several limitations. First, as a crosssectional design, it captures residents' experiences and perceptions at a single point in time, which limits the ability to establish causal relationships between work-life balance, performance, and satisfaction. Second, data will be based on self-reported

questionnaires, which may be subject to response bias, such as underreporting of stress or over reporting of satisfaction due to social desirability. Third, the study is confined to surgical residents at TASH and may not reflect the experiences of residents in other universities or specialties across Ethiopia. Additionally, variations in individual coping mechanisms, support systems, or departmental cultures may influence the findings but are not fully accounted for in the study design. Lastly, resource and time constraints may limit the depth of qualitative data collection and analysis. These limitations will be acknowledged when interpreting the results and drawing conclusions.

1.6 Research questions

1, What is the level of work-life balance among AAU surgical residents?

2, How satisfied are surgical residents with their training and personal life balance?

3, How do work-life balance scores correlate with measures of resident performance and job satisfaction?

4, What do residents report as the main barriers and facilitators to achieving worklife balance?

5, Do factors such as gender, marital status, or training year affect WLB and its relationship to performance/satisfaction?

1.7 Hypotheses

1. Work-Life Balance and Performance

A, H_0 (Null): There is no significant relationship between work-life balance and clinical performance among surgical residents.

B, H_1 (Alternative): There is a significant relationship between work-life balance and clinical performance among surgical residents.

2. Work-Life Balance and Job Satisfaction

A, H_0 (Null): There is no significant association between work-life balance and job satisfaction among surgical residents.

B, H_1 (Alternative): There is a significant association between work-life balance and job satisfaction among surgical residents.

1.8 Conceptual framework Independent

Variable

Socio-demographic characters

Work-Life Balance (WLB): Measured using, Masalach Burnout Inventory (modified),Likert-scale items (e.g., time for rest, family, personal control, and emotional exhaustion)

Workload: Hours per week, night shifts, level of training

Institutional Support: Presence of wellness programs, supervision, leave policies

Dependent Variables:

A, Performance of Surgical Residents

B, Satisfaction of Surgical Residents

CHAPTER TWO

LITERATURE REVIEW

Work-Life Balance and Physician Well-Being

Work-life balance (WLB) is about balancing work and personal life. it refers to the balance between professional and personal life. Better work-life balance known to show and improve one's productivity, job satisfaction, and mental health. On the other side poor work-life balance leads to burnout and poor job satisfaction. Physicians with low work-life balance report higher burnout and lower career satisfaction. Bodendieck et al. (2022) stated that General practitioners with good work-life balance reported significantly lower burnout on all dimensions and have surprisingly high motivation to remain in their job. Burnout among doctors which characterized by exhaustion and depersonalization, negatively affects their job performance in hospitals and quality of their patient care. Burnout also associated with increased medical errors by decreasing work efforts and quality of care. So the findings not only address personal wellbeing but also quality of healthcare services.

Surgical training is very hard. Surgical residents have to learn skills and work long hours, which can be very stressful. However, some evidence suggests that with adequate support, this stress may not worsen overall quality of life

Zubair et al. (2017) used a Work-Related Quality of Life (WRQoL) questionnaire on 738 US general surgery residents found that even though surgeons were stressed their overall quality of life was similar to people in jobs. They also found that female surgeons had a time balancing work and life than male surgeons. This suggests that the work environment and support can make a difference in how happy and balanced physicians are.

Burnout, Performance, and Satisfaction in Surgical Training

It is a known fact that burnout among residents is a very known concern. A systematic review noted that a majority of surgical trainees report burnout symptoms. High burnout has been always associated with poor professional outcomes. Appelbaum et al. (2019) surveyed 160 US general surgery residents and that the work environment and support from colleagues are very important for residents happiness and burnout. When the work environment is supportive residents are happier and less tired. This suggests that the training environment is very important for residents' well-being.

This suggests that not only personal excellence but the training environment plays important role. A hostile or negative environment can increase stress and dissatisfaction. Surgical residents with extensive work-hours or repeated duties usually report more errors and impaired concentration.

How well residents do in their training can be measured in ways. The literature suggests that having a balance between work and life can affect how well residents do in their practice. For example, Bodendieck et al. noted that residents who had a balance between work and life were more confident in their abilities. On other hand burnout (with high exhaustion) can make it hard for residents to focus and do a good job which would affect their surgical performance. Although there are no studies that look at link between WLB and surgical, it is reasonable to think that that a resident who are tired and stressed will have poor performance compaired to those with good WLB.

Resident happiness is also very important. Some factors such as having control over their work, having a good work environment and having good mentors can affect how happy residents are. The JAMA 2024 national survey in US found that 48–52% of surgical residents in the US were unhappy with their work and life balance and this was linked to wanting to leave their job. Very important specialties like general surgery, usually report lower satisfaction than other specialties and subspecialities. Kim et al. (2023) who tried to compare specialties

in Korea found that residents in very important specialties like general surgery had the lowest work-life balance, high burnout scores and higher stress compared to other specialties. In the same study female residents also tend to have lower satisfaction than male residents. Which supports gender differences in WLB reported by Zubair. In conclusion,surgical residency requires heavy demands, especially for women and for those in more intense specialties, resident satisfaction significantly drops.

Ethiopian and Regional Context

Limited studies done addressing Burnout and WLB among Ethiopian physicians. Up to 72% emotional exhaustion was reported from one hospital in Southern Ethiopia. This number is very alarming yet expected in poor country with limited resource like Ethiopia. Since number of physicians in Ethiopia is very low extreme workload and and very poor WLB is expected, but data were lacking at the time. Their study also noted the lack of prior research on physician burnout in Ethiopia.

Recent Studies in Ethiopian begun to fill this gap. Gelaw et al. (2023) surveyed health professionals in Addis Ababa and Bahir Dar and found that 26% among those who participated met criteria for burnout. Emotional exhaustion was particularly high (53%). Significant work hours, lack of man power, workload recognition, and Support for their peers were predictors of burnout dimensions. These findings confirm that burnout is a significant issue in Ethiopian hospitals, Even if the study didn't measure work-life balance. In terms of satisfaction, an AAU study (Kejela & Tiruneh, 2022) found that training programs and intuitional support predicts resident satisfaction. But this study did not address how sociodemographic factors affect work-life balance.

Evidence suggests that Ethiopian residents face work-life challenges. However, there is no Ethiopian study has specifically measured surgical residents' WLB and linked it to performance.

Regionally, very few data from Sub-saharan countries suggest that WLB is often poor due to resource constraints. while global literature consistently links poor WLB to burnout and low satisfaction, the specific impact on Ethiopian surgical residents remains unstudied.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Site: Tikur Anbessa Specialized Hospital (TASH) located in Addis Ababa, Ethiopia. TASH serves as a referral center for patients from across the country, Its Surgical department being one of the oldest in the whole country. Offering specialized medical services in various fields, including surgical specialties like Neurosurgery, Urology, Plastic surgery, Pediatric surgery, General surgery and recently added Thoracic surgery program.

Description of the Setting: The hospital's Department of Surgery contains various specialties and producing significant amount of specialists and subspecialists for the Country

Selection Rationale: Since TASH is pioneer in surgical specialty training and holds significant number of surgical trainees in the country it is ideal environment for studying influence of work-life balance among residents, given its focus on surgical care and the availability of specialized resources.

Population and Sample: The study will target surgical residents enrolled in the residency training program at Tikur Anbessa Specialized Hospital. This population represents aspiring surgeons undergoing training under the guidance of experienced consultant and seniors within the hospital's Surgical Department.

Previous Research: While Tikur Anbessa Specialized Hospital has been the subject of numerous research endeavors across various medical disciplines, the proposed study will mark the first comprehensive analysis on work-life balance affecting the performance of surgical residents and their satisfaction at the institution.

3.2 Study design: Cross-Sectional Survey Study

3.3 Study Variables: Described above in the conceptual frame work sub-topic.

3.4 Study Population: Surgical residents enrolled in a surgical residency program at Tikur Anbessa Specialized Hospital.

3.3.1 Inclusion Criteria:

1. **Surgical Residents:** Individuals currently enrolled in a surgical residency program at Tikur Anbessa Specialized Hospital
2. **Consent:** Include only those surgical residents who provide informed consent to participate in the study.

3.3.2 Exclusion Criteria

1. Surgical residents who are not willing to or couldn't provide informed consent to participate in the study

3.4 Sample Size Determination

Census Methodology or complete enumeration will be used. data is collected from every individual or element within the population i.e., every surgical resident that is eligible will be included in the data collection.

3.5 Data Collection Methods

Data collection: Cross sectional study will be done; data will be collected by questionnaire filled by surgical residents in TASH, Addis Ababa.

Data analysis: Data coding, entering, storing analysis will be done by SPSS software.

Data quality: will be ensured through supervision and quality control.

Proposal will be submitted and reviewed by ethical committee for ethical clearance. The questionnaire will be anonymous to keep confidentiality of study subject, only study subject profile

3.6 Ethical Considerations

Ethical approval will be obtained from the department of Research and Ethics

Review Committee (DRERC) of Addis Ababa University College of Health Sciences, Ethical Review Committee Office (ERCO) and Addis Ababa Health Bureau IRB (Internal Review Board).

A letter informing Tikur Anbessa Hospital will be collected from Ethical committee of the Departmental Research and Ethics Review Committee (DRERC) about the study.

Ethical Clearance: Before any data collection begins, an ethical clearance letter will be obtained from the appropriate ethics committee. All data collection instruments, informed consent forms, and study protocols will be submitted for review and approval.

Informed Consent: Participants will receive clear and comprehensive information about the study's objectives, procedures, potential risks and benefits, and their rights. Written informed consent will be obtained from each participant before they start to fill the questioner. Participation will be entirely voluntary, and participants may withdraw at any point with no consequences.

Confidentiality and Anonymity: All data will be handled with strict confidentiality. Participants email address or named will not be linked to their responses. Surveys will be anonymous. Data will be password-protected in secure computers, accessible only to the principal investigator.

Data Use and Publication: Data will be used exclusively for the purposes of this research and potential academic publication. No identifying information will be disclosed in reports, presentations, or publications.

Operational Definitions

Burnout: A psychological syndrome characterized by emotional exhaustion and depersonalization among surgical residents, measured using the abbreviated 9-item Maslach Burnout Inventory (MBI). In this study, burnout was operationally defined as having scores at or above the sample median for emotional exhaustion and/or depersonalization.

Emotional Exhaustion (EE): A core dimension of burnout reflecting feelings of being emotionally overextended and depleted of emotional resources, measured as a continuous variable using the emotional exhaustion subscale of the abbreviated MBI.

Depersonalization (DP): A dimension of burnout characterized by an unfeeling and impersonal response toward patients or work, measured as a continuous variable using the depersonalization subscale of the abbreviated MBI.

Personal Accomplishment (PA): A dimension reflecting feelings of competence and successful achievement in one's work, measured as a continuous variable using the personal accomplishment subscale of the abbreviated MBI.

Work–Life Balance (WLB): The perceived balance between professional duties and personal life activities

Performance: The self-reported professional performance of surgical residents. perceived efficiency, effectiveness, and ability to meet training demands

Job Satisfaction: The extent to which surgical residents feel fulfilled with their training and professional role.

Surgical Resident: A physician or a resident enrolled in a surgical specialty or subspecialty training program at Tikur Anbessa Specialized Hospital during the study period.

Duty: A scheduled period during which a surgical resident is required to remain in the hospital for patient care and responsibilities after working hours.

Mentorship: Access to professional guidance and support provided by seniors and consultants within the department

5. RESULTS

VARIABLE	CATEGORY	FREQUENCY	PERCENT
AGE	25–29 years	39	35.5
		65	59.1
	30–34 years		
	≥35 years	6	5.5
GENDER	Male	80	72.7
	Female	30	27.3
RELIGION	Orthodox	68	61.8
	Protestant	22	20.0
	Muslim	13	11.8
	Others*	7	6.4
RELATIONSHIP	Single, never	69	62.7
	Married	33	30.0
	Cohabitating	7	6.4
	Widowed	1	0.9
CHILDREN	No	86	78.2
	Yes	24	21.8

Table 1. Sociodemographic Characteristics of Surgical Residents, Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia (N = 110)

Variable	Category	Frequency (n)	Percentage (%)
Specialty/Subspecialty	General Surgery	31	28.2
	Pediatric Surgery	20	18.2
	Urology	19	17.3
	Neurosurgery	16	14.5
	Plastic & Reconstructive Surgery	16	14.5
	Thoracic Surgery	8	7.3
Year of Residency	Year 1	31	28.2
	Year 2	29	26.4
	Year 3	15	13.6
	Year 4	18	16.4
	Year 5	17	15.5

Post -duty day-offs	Yes	5	4.5
	No	105	95.5
Duties per week	≤1 per week	17	15.5
	2–3 times/week	77	70.0
	>3 times/week	16	14.5
Extra shifts	Yes	11	10.0
	No	99	90.0
Financially support family	Yes	50	45.5
	No	60	54.5
Family financially supports resident	Yes	54	49.1
	No	56	50.9
Work during month off	Yes	37	33.6
	No	73	66.4
Salary sufficient	Yes	5	4.5
	No	105	95.5
Sports ≥ once per week	Yes	35	31.8
	No	75	68.2
Recreational substances	None	89	80.9
	Alcohol	15	13.6
	Cigarette	2	1.8
	Coffee	3	2.7
	Khat	1	0.9
live in TASH compound	Yes	16	14.5
	No	94	85.5
Way of transportation	Taxi/Mini bus	58	52.7
	Bus	28	25.5
	Walking	13	11.8
	Personal automobile	10	9.1
	Other	1	0.9

departmental mentorship	Yes	21	19.1
	No	89	80.9
Mentorship perceived as necessary	Yes	108	98.2
	No	2	1.8

Table 2. Education, and Work-Related Characteristics of Surgical Residents (n = 110)

110 surgical residents at TASH was participated in the study. The majority of participants between age 30–34 years (59.1%), followed by 25–29 years (35.5%), while a small proportion were aged 35 years or older (5.5%). Most participants were male (72.7%). Regarding religion, 61.8% identified as Orthodox, 20.0% as Protestant, and 11.8% as Muslim. Most residents were single and had never been married (62.7%), and the majority did not have children (78.2%).

In terms of training characteristics, General Surgery was the most common specialty (28.2%), followed by Pediatric Surgery (18.2%) and Urology (17.3%). Residents were distributed across all years of training, with slightly higher representation in the first and second years. Only 4.5% of residents reported receiving post-duty day-offs, while the vast majority (95.5%) did not. Most participants reported having two to three on-call duties per week (70.0%). Nearly all residents indicated that their salary was insufficient (95.5%), and only 19.1% reported access to departmental mentorship, although 98.2% perceived mentorship as necessary.

Burnout status and Prevalence

Variable	**N**	**Minimum**	**Maximum**	**Mean ± SD**
Emotional Exhaustion (EE)	110	0.33	6.00	3.96 ± 1.83
Depersonalization (DP)	110	0.00	6.00	2.72 ± 1.87
Personal Accomplishment (PA)	110	0.00	6.00	3.47 ± 1.89

Table 3. Descriptive Statistics of Burnout Dimensions (N = 110)

Burnout Status	**Frequency (n)**	**Percent (%)**
No	**38**	**34.5**
Yes	**72**	**65.5**
Total	**110**	**100.0**

Table 4. Prevalence of Burnout (High EE and/or High DP)

Variable	**χ^2**	**Df**	**p-value**

Gender	1.72	1	0.190
Post-duty off	1.10	1	0.294
Residency year	2.29	4	0.682
Relationship status	0.68	3	0.879
Salary sufficient	1.91	1	0.167
Specialty/Subspecialty	**11.83**	5	**0.037**
Average duties per week	**9.05**	2	**0.011**

Table 5. Likelihood Ratio Tests for Factors Associated with Burnout

NB: Due to the absence of validated cutoff values for the abbreviated 9-item MBI, emotional exhaustion and depersonalization scores were analyzed as continuous variables. For prevalence estimation, high burnout was defined as scores at or above the sample median for emotional exhaustion and/or depersonalization, consistent with prior physician burnout studies.

A total of 110 participants were included in the analysis. The mean score for Emotional Exhaustion (EE) was **3.96 ± 1.83**, while Depersonalization (DP) and Personal Accomplishment (PA) had mean scores of **2.72 ± 1.87** and **3.47 ± 1.89**, respectively (Table 3).Overall, **65.5% (n = 72)** of participants met the criteria for burnout, defined as having high Emotional Exhaustion and/or high Depersonalization, whereas **34.5% (n = 38)** did not exhibit burnout (Table 4).Likelihood ratio tests from the logistic regression model demonstrated that **specialty/subspecialty enrolled in** ($\chi^2 = 11.83$, df = 5, $p = 0.037$) and **average number of duties per week** ($\chi^2 = 9.05$, df = 2, $p = 0.011$) were **significantly associated with burnout**. In contrast, gender, post-duty off availability, residency year, relationship status, and salary sufficiency were **not significantly associated** with burnout (all $p > 0.05$) (Table 5).

Variable	**N**	**Mean ± SD**	**Minimum**	**Maximum**
Performance score	110	2.92 ± 0.59	1.57	4.43
Work–life balance score	110	1.98 ± 0.67	1.00	4

Table 6. Descriptive Statistics of Performance Status and Work–Life Balance Scores (N = 110)

Burnout status	N	Mean rank	Mann–Whitney U	Z	p-value
No burnout	38	65.79			
High burnout	72	50.07	977.0	−2.47	**0.014**

Table 7. Comparison of Performance Status by Burnout Status

Burnout Dimension	Spearman's rho (ρ)	p-value	Direction of Association
Emotional Exhaustion (EE)	−0.461	<0.001	Negative
Depersonalization (DP)	−0.391	<0.001	Negative
Personal Accomplishment (PA)	0.219	0.021	Positive

Table 8. Association Between Work–Life Balance and Burnout Dimensions (Maslach Burnout Inventory) (N = 110)

Variables	Spearman's rho (ρ)	p-value
Work–Life Balance score vs. Performance score	0.409	<0.001

Table 9. Correlation Between Work–Life Balance and Performance Scores

Outcome Variable	Correlation Coefficient (Spearman's ρ)	p-value
Job satisfaction	0.380	<0.001
Overall performance satisfaction	0.297	0.002
Performance score	0.409	<0.001

Table 10: Association of Work–Life Balance with Job Satisfaction and Performance among Surgical Residents (N = 110)

A total of 110 participants were included in the analysis. The mean performance status score was **2.92 ± 0.59**, while the mean work–life balance score was **1.98 ± 0.67**, indicating moderate levels of perceived performance and work–life balance within the study population (Table 6).

When performance status was compared by burnout status, participants with high burnout demonstrated significantly lower performance scores than those without burnout. The mean rank of performance scores was **65.79** among participants without burnout compared to **50.07** among those with high burnout. This difference was statistically significant (**Mann–Whitney U = 977.0, Z = −2.47, p = 0.014**) (Table 7).

Work–life balance showed a positive correlation with job satisfaction. Residents reporting better work life balance were more likely to express higher levels of satisfaction with their job. This association was also statistically significant($P<0.001$) (Table 10).

Similarly, work–life balance scores differed significantly regards to burnout. Participants with high burnout had markedly poorer work–life balance scores, with a mean rank of **46.96**, compared to **71.68** among those without burnout. This association was highly significant (**Mann–Whitney U = 753.0, Z = −3.89, p < 0.001**) (Table 8).

Correlation analysis showeda **moderate positive association** between work–life balance and performance status. Higher work–life balance scores were significantly correlated with higher performance scores (**Spearman's ρ = 0.409, p < 0.001**), suggesting that better work–life balance is associated with improved professional performance (Table 9).

Interventions aimed at improving work–life balance may hold dual benefits by enhancing both resident well-being and professional performance.

6. Discussion

This study examined the prevalence of burnout among surgical residents at Tikur Anbessa Specialized Hospital. We also tried to explore the relationships between burnout, work–life balance, performance, and job satisfaction. The results shows a

significant burden of burnout and that work–life balance is closely linked to residents' performance and also to their overall job satisfaction.

Prevalence of Burnout

In this study we found that nearly two-thirds (65.5%) of surgical residents met the criteria for burnout. Which is defined as high emotional exhaustion and/or depersonalization. The result is comparable to reports from other surgical training programs, Specially in low- and middle-income countries like Ethiopia. In this resource limited counties prolonged working hours, frequent night duties, and limited institutional support are very common. Emotional exhaustion had the highest mean score among the burnout dimensions. Which shows workloads and long standing stress are major contributors to burnout in the study population. In contrast, personal accomplishment scores were moderate. This shows that despite high level of stress residents have professional fulfilment.

Factors Associated with Burnout

According to our study burnout was significantly associated with specialty or subspecialty program and the average number of duties per week. Residents in Neurosurgery specialty program and those with more than 2 duties per week were more likely to experience burnout, which shows the role of workload intensity and specialty-specific demands. Surprisingly unlike other studies done worldwide socio-demographic conditions like gender, year of residency, relationship status,

post-duty day-off, and salary were not that much associated with burnout. These findings suggest that organizational and structural factors were more associated with burnouts among surgical residents rather than individual demographic characteristics.

Work–Life Balance and Burnout

Work–life balance showed significant associations with all three burnout dimensions of MBI score. Higher emotional exhaustion had negative impact on worklife balance. Depersonalization were moderately and negatively correlated with work–life balance. Personal accomplishment showed a significant positive association. These findings back our conceptual framework that poor work–life balance contributes to burnout, specially by increasing emotional fatigue and loss of interest at work. In contrast, residents who perceived greater personal accomplishment tended to report better work–life balance which suggests a role of professional fulfillment.

Burnout, Performance, and Job Satisfaction

Residents with high burnout demonstrated significantly lower performance scores compared to those without burnout. This Findings supports previous researches done over the study matter, that Burnout negatively affects efficiency, motivation and performance of surgical trainee. Reduced performance of surgical residents in

return will have impact on patient safety, patient care and overall surgical outcomes

Additionally work–life balance was positively associated with job satisfaction. Residents reporting better work–life balance were significantly more satisfied with their jobs and working environment. This finding shows the importance of balance between professional and personal life in maintaining job satisfaction during demanding surgical training. Job satisfaction determines whether workers want to stay in the field, maintain their professional relationships, and achieving sustainable carrier development, this association is important for residency programs.

Relationship Between Work–Life Balance and Performance

In this paper moderate positive correlation was observed between work–life balance and performance status, which indicating that residents who reported better work–life balance also have better performance in their jobs. Which concludes the notion that work–life balance is not just a personal concern but a key in clinical and surgical performances of a resident.

Interventions which focused on improving work–life balance therefore help in improving residents' performance in addition to their emotional health.

Implications for Surgical Training Programs

The findings of this study will imply in future surgical trainings and believe to help in decreased emotional exhaustion, burn out and reduce performance. We can address this problems through duty hour adjustment and post duty day offs.

Strengths and Limitations

This study provides valuable data about burnout, work–life balance, performance, and job satisfaction among surgical residents in Ethiopia. Here the topic is not well addressed in literatures. The inclusion of multiple surgical specialties and subspecialties in TASH and the use of validated measurement tools strengthen our findings. Being a cross-sectional design limits casual relationship between the variables, and its based on self-reported questioners may introduce response bias..

Conclusion

In conclusion burnout is highly prevalent among surgical residents at Tikur Anbessa Specialized Hospital. This burnout is strongly associated with workload, poor work–life balance, significantly reduce residents' performance, and lower job satisfaction. In contrast positive work–life balance showed meaningful positive relationships with both performance and job satisfaction. Works targeting and addressing modifiable workplace factors are very important to improve resident

well-being, improve job satisfaction and performance, and ensure high-quality patient care.

Recommendations

Based on the findings of this study we recommended

1. **Improve Work–Life Balance to Enhance Performance and Satisfaction**
   By limiting duty hours, having post duty day offs and structured mentorship programs
2. **Optimize Duty Schedules and Reduce Excessive Workload**
   Given the connection between duty and burnout residency programs should review their schedule to minimize workload. Ensuring rest time after being on duty the previous night might reduce exhaustion and improve resident satisfaction.
3. **Implement and Enforce Post-Duty Day-Off Policies**
   Residency programs should consistently enforce policies that give residents a day off. Getting rest after being on duty is essential for maintaining wellbeing, job satisfaction and optimal performance
4. **Strengthen Structured Mentorship Programs**
   Departments should develop mentorship programs that provide guidance, emotional support, and career counseling. Improved access to mentorship may help reduce burnout, improve job satisfaction, and support residents' over all development
5. **Address Specialty-Specific Stressors**
   Since burnout and dissatisfaction can vary across specialties, in our case more burnout were reported from Neurosurgery residents, targeted and specialty-specific actions should be implemented.
6. **Provide Psychological Support and Burnout Screening**
   Regular screening for burnout and job dissatisfaction using validated tools like those we used should be incorporated into residency programs. If its feasible access to psychological support should be arranged for the residents

7. **Institutional Policy and Resource Allocation**

   Resources should be allocated to wellness programs, mentorships and providing surgical training materials may increase the satisfaction which in return increases performance and job satisfaction

8. **Future Research**

   Longitudinal and interventional studies are recommended to further explore causal relationships between work–life balance, burnout, performance, and satisfaction. Future research using validated satisfaction scales and larger multicenter samples would strengthen the evidence base

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Work Plan

No	Activity	Responsible bodies	May	June	July	August	Sept	Oct
1	Research proposal	Investigators	✓	✓				
2	Securing ethical clearance	Investigators		✓ ✓				

3	Securing fund	Investigators		✓				
4	Arranging logistics	Investigators			✓			
5	Data collectors and supervisors training	Investigators and data collectors			✓			
6	Pretest	Investigators and data collectors			✓			
7	Data collection	Investigators and data collectors				✓		
8	Data entry & cleaning	Investigators and data managers				✓	✓	
9	Data analysis	Investigators and data collectors					✓	
10	Writing manuscript for publication	Investigators						✓

Budget plan

SN	Activity	unit	Quant	Payment /unit/day	No of days/item	Total cost	Remark
1	**Training of data collectors and supervisors**						

A	Allowance of trainer on data collection tool	person	2	1000	1	2000	
b	Allowance of trainee	person	10	300	1	3000	
Subtotal						5,000	
2	**Materials cost**						
A	Questioner duplication		5	3	200	3000	
b	Pen	Each	1	20	15	3000	
c	Pencil	Each	1	5	10	50	
d	Eraser	each	1	5	10	50	
e	Notebook	each	1	100	20	2000	
Subtotal						8,100	
3	**Data collection cost**						
a	Supervisor's payment	person	2	500	10	10,000	
b	Data collector's payment	Person/ questionnaire	1	100	200	20,000	
Subtotal						30,000	
4	Data entry, analysis, and report writing						
a	Data entry clerk for double entry	questionnaire	1	30	200	6000	
b	Data cleaning and analysis	person	2	1000	7	14,000	
c	Research report writing	person	2	1000	7	14,000	
Subtotal						34,000	

Total cost	78,000	

Annex I : Questionnaire

This survey aims to collect socio-demographic information, past and current educational history, current residency data, and information pertaining to burnout levels. By part-taking in this study, you will help provide valuable information to design better solutions to improve our educational system.

The study is conducted through the Addis Ababa University, School of Medicine, Department of Surgery. The survey will take approximately 15 minutes to complete. Please note that you do not

need to provide your name or any personally identifiable information and that all the information you enter into this survey will be confidential. Your participation is completely voluntary and you can stop, should you wish to not proceed further. If you have any questions about this study, please contact us at betidenbelb@gmail.com

I am (tick the following boxes to proceed):

☐ A surgical resident ☐ Willing to participate in this survey

Part 1: Sociodemographic Information

1. Age
    a. 25-29
    b. 30-34
    c. Above 35
2. Gender
    a. Male
    b. Female
3. Religion
    a. Orthodox Christian
    b. Catholic Christian
    c. Protestant Christian
    d. Muslim
    e. Atheist/Agnostic
    f. Nothing in particular
    g. Other: _____
4. Which of the following best describes your current relationship status?
    a. Married
    b. Widowed
    c. Divorced
    d. Separated
    e. In a domestic relationship or civil union
    f. Single, never married
    g. Cohabitating with a significant other

5. Do you have any children?
    a. Yes
        i. If yes, how many: _____
    b. No

Part Two: Past and Current Educational History

1. Year of graduation from undergraduate medical school (in G.C.):
2. What specialty or subspecialty are you currently enrolled in?
    a. General Surgery
    b. Pediatric Surgery
    c. Urology
    d. Plastic and Reconstructive Surgery
    e. Neurosurgery
3. What year of residency are you currently in?
    a. First
    b. Second
    c. Third
    d. Fourth
    e. Fifth

Part Three: Details of Residency

1. Do you have post-night shift day-offs?
    a. Yes
    b. No
2. An average number of duties per week:
    a. Once a week or less
    b. 2-3 times a week
    c. More than 3 times a week
3. Do you take extra shifts in private clinics and/or hospitals?
    a. Yes
        i. If yes, what is the average number of shifts you take per week?
            1. Once a week or less
            2. 2-3 times a week 3. More than 3 times a week

b. No

4. Do you work on your month off?
    a. Yes
    b. No
5. Do you consider your salary sufficient?
    a. Yes
    b. No
6. Do you financially support your family?
    a. Yes
    b. No
7. Do you participate in extra-professional (sports or leisure) activities (at least once a week)?
    a. Yes
    b. No
8. Which of the following do you use for recreational purposes?
    a. Yes
        i. Cigarette
        ii. Alcohol
        iii. Khat iv. Psychotropic medication
        v. Other:_____
    b. No
    c. If yes, how many times per week?
        i. Once a week
        ii. 2-3 times a week iii. More than 3 times a week
        iv. Everyday
9. Do you live in the TASH compound?
    a. Yes
    b. No
10. If your answer to the above question is no, please answer the following questions:
    a. On a typical day, which of the following forms of transportation do you use?
        i. Personal automobile
        ii. Bus
        iii. Taxi minibus iv. Train
        v. Walking
        vi. Other: _____
    b. How much time in total would you estimate to commute per day?

i. <10 minutes

ii. 10-30 minutes iii. 30-60 minutes iv. 1-2 hours

c. Do you have access to formal or informal mentorship from the surgical or specific subspecialty department staff?

i. Yes

ii. No

d. Do you think access to mentorship from the department staff is necessary?

i. Yes

ii. No

Part Four: Maslach Burnout Inventory (Modified)

	Questions	Never	A few times per year	Once a month	A few times per month	Once a week	A few times per week	Everyday
1	I feel emotionally drained by my work							
2	I feel burned out from my work							
3	I feel fatigued when I get up in the morning and have to face another day at work							
4	I feel I treat some patients or colleagues impersonally, as if they are objects.							
5	I have become more callous or less sensitive toward people since I began this residency							
6	I worry that this job is hardening me emotionally							

7	I deal effectively with my patients' or colleagues' problems.							
8	I feel that through my work I make a positive difference in other people's lives							
9	I am satisfied with my effectiveness and accomplishments in my work.							

Part Five Work-Life balance & Job satisfaction

	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I am satisfied with my current work-life balance					
2	My work schedule allows adequate time for personal and family life.					
3	My residency workload negatively affects my personal life					
4	I am generally satisfied with my job as a surgical l resident					
5	I feel supported by my department in maintaining a healthy work-life balance					

Part Six Performance and satisfaction scale

	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I can maintain focus and concentration during long surgical hours					
2	My fatigue or lack of rest affects my clinical decision-making.					
3	I perform my surgical and clinical duties efficiently					
4	I can manage stress effectively during complex or emergency cases.					
5	I have made avoidable mistakes due to exhaustion or poor rest.					
6	I feel satisfied with my overall performance as a resident					
7	I feel motivated and committed to my surgical training.					
8	I feel like i will be technically and scientifically proficient by the time i graduate from my training					

Annex II Ethical clearance



ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICINE
RESEARCH ETHICS COMMITTEE (REC)

Departmental Research Ethics Committee's Decision

Meeting No:- Do5/RED/167/2025/2018 Date :- 18,9,2025
Protocol number:

Protocol Title: Influence of work-life balance on surgical resedents' performance and satisfaction	
Principal Investigator:	Dr. Bethlhem Denbel
Department	Department of surgery
Elements Reviewed (Protocol):	☐ Attached ☐ Not Attached
Review of Revised Application ☐ Yes ☐ No	Date of Previous review: 20.08.2025
Decision of the meeting:	☑ Approved ☐ Approved with Recommendation ☐ Resubmission ☐ Disapproved

I. Elements approved- 1. Protocol Version No: 2
2.Protocol Version Date: 18,9,2025

II. Obligations of the PI-
1. Should comply with the standard international & national scientific and ethical guidelines
2. All amendments and changes made in protocol and consent form needs ethics committee approval
3. End of the study, including manuscripts and thesis works should be reported to the REC

III. To CHS IRB ☐

Departmental Research Ethics committee's Approval Period from: Sep01,2025 to Feb 28,2026

Follow up report expected in
3 Months___ 6 Months ✓ 9 Months___ one year √

Chairperson, Research Ethics committee's
Name: Dr Girmaye Tamirat
Signature:
Date: September 18,,2025

Head Department of Surgical
Name: Shimeles Negussie
Signature:
Date: September 18, 2025

Annex III: Similarity and AI index

THE INFLUENCE OF WORK-LIFE BALANCE ON SURGICAL RESIDENTS' PERFORMANCE AND SATSFACTION

ORIGINALITY REPORT

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AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

What does 'qualifying text' mean?
Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.

Bethlhem Denbel

THE INFLUENCE OF WORK-LIFE BALANCE ON SURGICAL RESIDENTS' PERFORMANCE AND SATSFACTION

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by Bethlhem Denbel

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