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College of Health Sciences
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Assessment of level of satisfaction and associated factors among final year undergraduate medical students of Addis Ababa University during Emergency Department Rotation at Teaching Tertiary Hospital, Addis Ababa, ETHIOPIA – Mixed Study

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A research thesis submitted to the College of Health Sciences, Department of Emergency Medicine, presented in partial fulfillment of the requirements for a specialty certificate in Emergency and Critical Care Medicine

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Acronyms

AA -----Addis Ababa

AAU ----- --Addis Ababa University

CHS – -----College Of Health Sciences

ECCM -----Emergency and Critical Care Medicine

ECG ----- ----Electrocardiography

ED – -----Emergency Department

NGO -----Non-governmental Organization

SPMMC ----- Saint Paul Millennium Medical College

TASH – -----Tikur Anbessa Specialized Hospital

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Acknowledgement

I want to thank the College of Health Sciences of Addis Ababa University who allows me to prepare this thesis for the partial fulfillment of my specialty certificate in Emergency and Critical Care Medicine. My special thanks will be to my advisors (Dr Merah and Dr Berhanu) who helped me with topic selection and guided me in developing this thesis.

Abstract

Background –Continuous evaluation of academic systems and identification of factors affecting quality are very essential after designing and implementing programs. Based on the evaluation findings, policymakers can make necessary interventions. Four years ago, the Emergency Medicine department introduced a five-week undergraduate program for final-year medical students.

Objective – The main aim of this study was to assess the level of satisfaction and identify associated factors and challenges faced by final-year undergraduate medical students during their Emergency Department rotation at Tikur Anbesa Specialized Hospital in Addis Ababa, Ethiopia.

Methods – A mixed-method study using a convergent parallel design was conducted. A total of 103 participants were included in the quantitative study, and 11 participants were included in the qualitative study. Participants were selected through a non-probability consecutive sampling technique for the quantitative study and a purposive sampling strategy for the qualitative study. Data were collected using a self-administered questionnaire, then cleaned and analyzed with SPSS version 27. Frequency, percentage, mean, and standard deviation were used for descriptive analysis, while ordinal regression was performed for association assessment. Thematic content analysis was conducted on the qualitative data gathered through focused group discussions.

Result – A total of 103 participants responded to the data collection. Overall academic and clinical satisfaction was 88.3%. Additionally, 97.1% were satisfied with the professionalism and ethical behavior of the staff, while 62.1% were satisfied with the working conditions. However, only 19.4% reported good procedural exposure, and 68.9% reported fair exposure. Factors affecting satisfaction levels included professionalism and ethical behavior of the staff ($P < 0.001$, OR = 12.1, 95% CI = 1.435–3.548), working conditions ($P < 0.001$, OR = 9.68, 95% CI = 1.038–3.501), procedural exposure ($P = 0.014$, OR = 3.52, 95% CI = 0.256–2.260), and the timing of the Emergency Department rotation (first rotation $P = 0.005$, second rotation $P = 0.023$, and third rotation $P = 0.019$). Participants of focus group discussion expressed high satisfaction with teaching activities and the team spirit of Emergency Department staff, though they noted major challenges such as lack of infrastructure, overcrowding, and bureaucratic administration. They reported learning teamwork, effective communication, and various virtues in the Emergency Department. Recommendations included extending the duration of the Emergency Department rotation, establishing protocols for the Emergency Department, and improving the triaging system.

Conclusion and recommendation – The overall satisfaction of final-year undergraduate medical students in the Emergency Department was very high, despite challenges such as insufficient infrastructure, overcrowding in the Emergency Department, and a bureaucratic administrative system. To enhance the Emergency Department experience, we recommend to improve triaging system, to maintain the commitment of teaching activities, to continue fostering the team spirit and improving the administrative system.

Key words – *Emergency department, satisfaction, final year medical students, TASH*

1, Introduction

1.1 Background

Emergency medicine is one of the youngest medical disciplines, established as a separate specialty worldwide. As a specialty, it focuses on the prevention, diagnosis, and management of acute and critical illnesses and injuries across all age groups, at any time and place. However, emergency medicine is still underdeveloped in many low-income countries. In Africa, the first formal emergency medicine systems were developed in South Africa in the late 1990s, primarily driven by the Trauma Society of South Africa. Recently, it has expanded to various African countries, including Ethiopia, Botswana, Liberia, and Egypt (1).

In the Ethiopian context, emergency medicine was introduced as a distinct discipline in the first decade of the millennium. The residency program was established in 2010, nearly fifty years after the inception of modern medical education in Ethiopia at Addis Ababa University, College of Health Sciences, Tikur Anbessa Specialized Hospital (1)(2). Three years later, the faculty of the Emergency Department began teaching undergraduate medical students. Prior to becoming a separate discipline, training in emergency care for undergraduate students was provided by various departments: pediatric emergencies by the Pediatrics and Child Health Department, adult medical emergencies by the Internal Medicine Department, surgical emergencies by the Surgery Department, and obstetric emergencies by the Gynecology and Obstetrics Department.

The initial undergraduate program was primarily lecture-based, focusing on fifth-year medical students and implemented over seven weeks. It covered adult and pediatric emergencies along with selected topics from the Anesthesiology Department (1)(2). Final-year medical students' rotations continued to be managed by other departments until 2021 when a dedicated five-week rotation in the Emergency Department was introduced for final-year students.

The final-year program for undergraduate medical students (internship in the Ethiopian context) is a critical phase in medical education, where rotations in the Emergency Department provide valuable experiential learning opportunities (3). Final-year medical students, known as interns, are the most senior undergraduate medical students in the Ethiopian medical education curriculum. At the College of Health Sciences, Addis Ababa University (AAU), the final year lasts fifty weeks, divided as

follows: 10 weeks in internal medicine, 10 weeks in surgery, 10 weeks in pediatrics, 10 weeks in gynecology and obstetrics, 5 weeks in emergency and critical care medicine, and 5 weeks in psychiatry and anesthesiology.

During this final year, students acquire medical knowledge and skills, including performing various procedures, communicating with different members of the treatment team, and developing appropriate medical ethics and practices. They also apply knowledge from their pre-clinical and clinical years to real patient cases, helping them develop an understanding of what it means to be a physician as they prepare to complete their internship.

During their Emergency Department rotation, final-year medical students serve as front-line providers, assessing patients and handling real emergencies and critically ill cases that are challenging to manage and stabilize. In the Emergency Department, they evaluate patients across various areas, including triage, the red zone, front area, waiting area, and zones designated as orange, yellow, and green. They work under the supervision of residents and consultants assigned to each area.

Students perform a range of procedures, including intravenous line insertion, catheterization, lumbar puncture (LP), Focused Abdominal Sonography for Trauma (FAST), Extended-FAST (E-FAST), thoracentesis, paracentesis, splint application with Plaster of Paris, suturing lacerations, electrocardiography (ECG) tracing and interpretation, and needle decompression for tension pneumothorax. They also assist with and observe more advanced procedures performed by residents or consultants, such as tracheal intubation, pericardiocentesis, chest tube insertion, central line insertion, cardioversion, defibrillation, and intraosseous (IO) line insertion.

Academically, students are required to present seminars once a week on selected topics. They are also given assignments by consultants or residents for case-based bedside discussions. Attendance at morning sessions, journal clubs, and case and death presentations is mandatory. Additionally, students are expected to present case scenarios during the case and death presentation sessions, alongside the residents of the Emergency Department.

1.2 statement of the problem

Continuous quality improvement is a fundamental component of educational systems aimed at developing well-educated, skilled, responsible, and passionate human resources. This is especially critical in medical schools, where health professionals are trained to care for human lives. In such institutions, quality improvement should be at the heart of academic activities. In our country, where there is a shortage of health professionals to meet the needs of the population, many medical schools are working to alleviate this burden. Therefore, the quality of teaching should be regularly evaluated and reassessed.

Despite the importance of this issue, to the best of the investigator's knowledge, and after reviewing various sources, there is no study on the level of satisfaction among final-year undergraduate medical students and the associated factors during their rotations in different departments in Ethiopia. Feedback from senior medical students is crucial for further improving the quality of our medical education system. In ED rotation, despite being recognized as the best teaching department in the hospital by over eight consecutive batches of final-year medical students, the level of satisfaction remains unknown. Additionally, there is no validated tool for data collection and analysis regarding this issue.

A descriptive cross-sectional study, which explores the attitude of fifth year medical students towards the implementation of undergraduate emergency program, done in TASH, showed that 80% of students were satisfied by the undergraduate program. But the study didn't include final year medical students because their rotation to Emergency was not under the lead of ED and it was a transition time from fifth year to final year (internship) when the study was conducted (1).

1.3 Significance of the study

This study might provide valuable insights into this issue, helping to enhance the teaching activities for final-year undergraduate medical students, who are the future workforce of our country's health system. Specifically, for the Emergency Department, which introduced the undergraduate program only a decade ago, this study will serve as a foundation for more organized and goal-directed training for medical students, particularly those in their final year. This is crucial, as in our country's health system, junior doctors—who were final-year students just weeks ago—are often the ones working in

primary hospitals, where no consultants are available. These junior doctors are responsible for managing critically ill and injured patients in primary healthcare settings across the country.

Given that the department is less than two decades old in Ethiopia, it is essential to continuously assess and improve teaching activities. Gathering feedback and enhancing the quality of education will not only improve training but also strengthen advocacy efforts. Furthermore, this study may serve as a reference for future research on this topic.

2, Literature review

Emergency Medicine (EM), focused on preventing, treating, and reducing the complications of acute and critical clinical conditions, has been one of the priorities of global health policy for the past few decades. This priority involves a range of stakeholders, including national ministries (Health, Education, Finance), universities and allied health schools, professional organizations for physicians and nurses, civil service agencies (police, emergency medical services, fire departments), non-governmental organizations (NGOs), key professionals (e.g., physicians, nurses), and civic leaders, especially in low- and middle-income countries. Emergency medicine initiatives have become a priority for both governments and NGOs. Sustaining these initiatives requires a clear, well-organized framework and a system of various programs to improve emergency medicine by involving and educating legislators, planners, administrators, academicians, researchers, and clinicians (4).

Another exploratory cross-sectional study conducted four years ago in four medical schools in Saudi Arabia, titled "Factors Influencing Interns' Satisfaction with the Internship Training Program at Saudi Medical Schools," identified five dimensions that significantly influence overall final year medical student satisfaction. These dimensions include supervision, hospital activities, orientation, relationship with superiors, and training site services. The overall satisfaction with the internship program was 57.3% (agree or strongly agree). This paper recommended that policymakers in Saudi Arabia improve the internship training program to enhance interns' overall satisfaction, which could potentially improve their learning outcomes and clinical training (6). This study assesses the overall internship satisfaction and factors influencing it across different training sites in the selected medical schools.

A qualitative study was conducted in Australia in 2018 among interns working at a rural health institution. The study involved 12 interns who were interviewed directly, and thematic analysis was performed. The study showed that interns were satisfied with the supportive work environment, quality supervision (mainly in the emergency department), good teaching, and the advantages of rural internships. However, they were dissatisfied with poor access to administration, unduly stressful working situations, lack of support for mental health and well-being, and poorly organized teaching sessions (7).

Another descriptive cross-sectional study was conducted in Thailand and published in April 2024, assessing intern physicians' quality of work life and burnout status. The findings revealed that 72.6% of participants reported moderate to high quality of work life, while 27.4% had low quality of work life. The study recommends that health institutions regularly assess the quality of work life and burnout status of intern physicians, prioritizing interventions that ensure reasonable work hours, schedule adjustments, open communication, and the development of support systems for cost-effective interventions (8).

A survey conducted twelve years ago on post-training (problem-based learning and lectures on selected topics) in undergraduate emergency medicine at an African medical school was carried out at the Emergency Center of the main tertiary referral hospital in Gaborone, Princess Marina Hospital. This survey followed the implementation of a ten-week rotation in the Emergency Department for third-year medical students at the University of Botswana, School of Medicine (UBSOM). In this survey, more than eighty percent of participants agreed or strongly agreed with the inclusion of the training. Additionally, 75% of them requested further training in the Emergency Department before graduation. The survey recommended incorporating EM training into undergraduate medical school programs across Sub-Saharan African countries (5).

Additionally, a nine-item survey was conducted ten years ago on the attitudes of fifth-year medical students towards the implementation and contribution of undergraduate Emergency Medicine training at Tikur Anbessa Specialized Hospital, College of Health Sciences, Addis Ababa University, Ethiopia. In this study, 80% of the participants agreed on the importance and implementation of Emergency Medicine training for undergraduate medical students. The survey recommended starting undergraduate Emergency Medicine training in various medical colleges across the country (1).

A descriptive cross-sectional study was conducted at Mashhad University, Iran, two years ago, to assess the level of satisfaction among interns in the Emergency Department after completing a 28-day academic course. In this study, more than half of the participants were satisfied with the emergency course, including the workshops, educational topics, and practical training provided during the course (3).

There are three phases when designing a curriculum: development of design, implementation, and evaluation. Evaluation can be done through self-evaluation, peer evaluation, classroom research techniques, and course and faculty evaluation (9)(10). This study aims to evaluate the level of satisfaction and associated factors among final-year undergraduate medical students in the Emergency Department. The goal is to understand students' views on their activities in the ED, allowing ED faculty to identify areas for improvement and develop a more organized and goal-directed approach to delivering the training.

2.1, Conceptual frame work

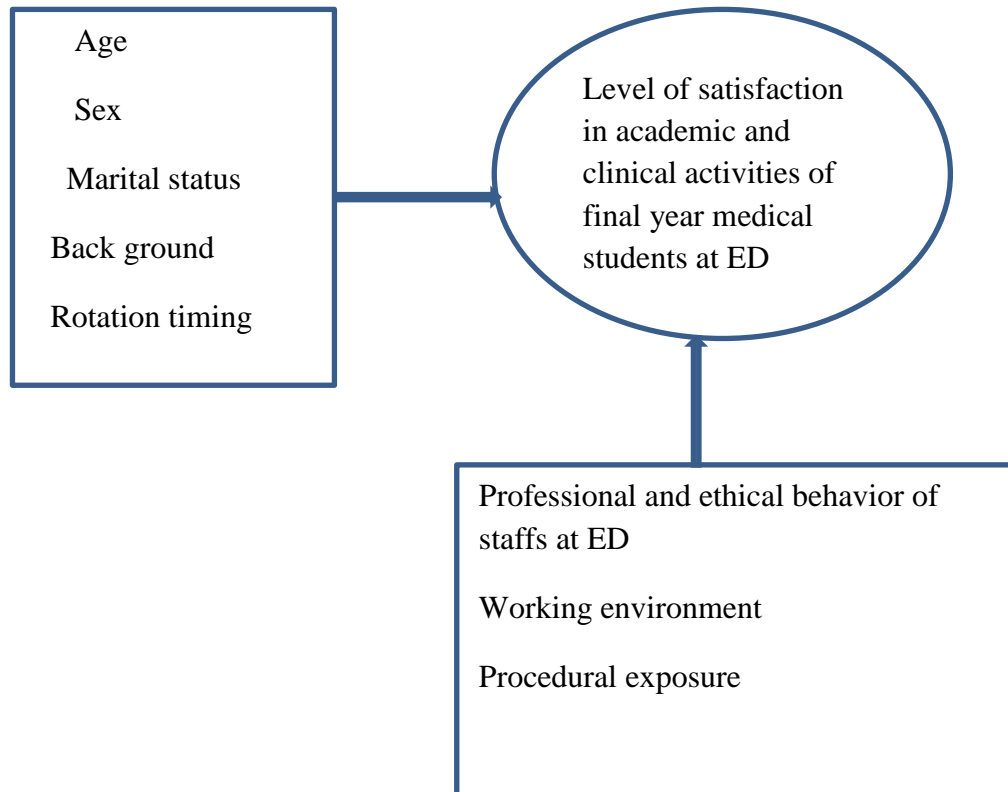


Fig 1 Relationship between level of satisfaction and possible factors affecting satisfaction level

3, Objective

3.1 General objective

Assess the level of satisfaction and identify associated factors among final year undergraduate medical students during their ED rotation in TASH.

3.2 Specific objectives

Assess the level of satisfaction of final year undergraduate medical students during their ED rotation.

Identify factors that affect the level of satisfaction in the ED.

Explore the challenges students face during their ED rotation.

4, Methodology

4.1 Study design

The study is a mixed type – convergent parallel design.

4.2 Study setting

The study was conducted at Tikur Anbessa Specialized Hospital (TASH), a leading tertiary teaching hospital under the College of Health Sciences (CHS) at Addis Ababa University (AAU), from March 2024 to October 2024. TASH is the largest and one of the oldest teaching hospitals in Ethiopia. It serves as a specialty care center for patients from across the country and as a training facility for health professionals from various medical schools in Ethiopia. The hospital has approximately 800 beds and provides academic services to a wide range of health professionals, including doctors, dentists, nurses, anesthetists, laboratory technicians, midwives, and pharmacists, in both undergraduate and postgraduate programs. Located in Addis Ababa, the capital city of Ethiopia, TASH is a critical healthcare and educational hub for the country (11).

The participants in this study were final-year undergraduate medical students at TASH, who are set to complete their Doctor of Medicine (MD) degree within less than a year. Currently, there are 160 final-year medical students at TASH, who are undertaking their internship program at various training sites, including the Emergency Department (ED).

4.3 Population

4.3.1 Target population

For the quantitative study: Final-year undergraduate medical students in various teaching hospitals in Ethiopia who have completed an ED rotation.

For the qualitative study: Final-year undergraduate medical students in various teaching hospitals in Ethiopia who have completed an ED rotation.

4.3.2 Source population

For quantitative study–Final-year medical students at teaching hospitals in AA who had an ED rotation.

For qualitative study– Final year medical students at teaching hospitals in AA who had an ED rotation.

4.3.3 Study population

For quantitative –final year medical students of AAU who had ED rotation at TASH.

For qualitative – final year medical students of AAU who had ED rotation at TASH.

4.3.4 Sample population

For the quantitative –final year medical students of AAU who had ED rotation at TASH and who participated in the study.

For the qualitative – final year medical students of AAU who had ED rotation at TASH and who participated in the study.

4.4 Sample size determination and sampling technique

4.4.1 Sample size determination

For the quantitative part, the single population proportion formula for cross-sectional study used to calculate sample size.

$$n = (z_{\alpha/2})^2 p(1-p)/D^2$$

Where n is the minimum required sample size, $Z_{\alpha/2}$ is the value under the standard normal table for a given confidence interval (1.96 for 95% CI), p is the best estimate of prevalence. We used the cross sectional study (done during transition from fifth year to internship) at the same setting which showed 80 % of fifth year medical students agreed or strongly agreed that they are satisfied on the undergraduate program and D is the margin of error (0.05).

$$n = (1.96)^2(0.8)(0.2)/(0.05)^2 = 246$$

Since the sample frame is less than 10000, we use the **adjustment formula**, $n_{adj} = n / ((1 + (n/N)))$.

Where n_{adj} = Adjusted sample size, n = calculated sample size, n = 246 and N = study population, N=160 (number of final year undergraduate medical students in AAU), $n_{adj} = 246 / (1 + 246/160) \approx 97$. Considering a 10 % non-response rate, sample size = effective sample size / (1 - non response rate anticipated) = $97 / (1 - 0.1) = 108$.

For qualitative study – purposely selected 11 final year undergraduate medical students were involved in the study.

4.4.2 Sampling technique

Non-probability consecutive sampling technique was applied i.e all final year medical students who came to ED for rotation during the study period were included in the quantitative study.

4.5 Eligibility criteria

4.5.1 Inclusion criteria- final year undergraduate medical students who had rotation to ED for five weeks.

4.5.2 Exclusion criteria- final year undergraduate medical students who didn't attach to ED or didn't complete five weeks rotation of ED.

4.6 Study variables

4.6.1 Independent variables

These were the independent variables - age, sex, back ground, period of rotation, working environment, learning opportunities, exposure to procedures, communication, and orientation before starting training, hospital activities, clinical training, and attitude of staff towards final year students.

4.6.2 Dependent variable

The level of satisfaction of final year medical students was the dependent variable.

4.7 Data collection tools and technique

For the quantitative study, data was collected using a self-administered questionnaire, which was directly distributed by the investigator. The questionnaire was developed by the investigator, with some components adapted from existing literature and others specifically tailored to the context of the study area. Data collection began after the questionnaire was reviewed and approved by three consultants responsible for teaching and supervising undergraduate medical students, including final-year students. Later a pilot study was conducted on final-year medical students from a private college who were completing their ED rotation at Zewditu Memorial Hospital, which was being managed by our ED team due to an affiliation.

For the qualitative study, four open-ended questions were prepared, and a focused group discussion was conducted with 11 participants. The selection process aimed to include final-year undergraduate medical students who were actively engaged in academic and clinical activities, had good

communication skills, held leadership roles, and were willing to participate in the group discussion. Additionally, group leaders from each team were selected, as the investigator believed they would have a better understanding of their team members' perspectives and the Emergency Department.

4.8 Data analysis and management

For quantitative design

After data collection was completed, the data was cleaned and checked for completeness by the investigator. It was then entered into SPSS software version 27. The reliability of the data was assessed, with Cronbach's Alpha yielding a value of 0.866 and 91.3% valid data, indicating high reliability. Descriptive statistics were used to summarize the data, including frequency, percentage, and mean with standard deviation. The mean scores of the Likert scale were subsequently recoded and categorized into three ordinal outcomes:

- "Satisfied" for mean scores between 3.5 and 5.0,
- "Neutral" for mean scores between 2.6 and 3.4,
- "Not satisfied" for mean scores between 1.0 and 2.5.

For procedural exposure, the Likert scale was categorized as:

- "Good exposure" for mean scores between 3.5 and 5.0,
- "Fair exposure" for mean scores between 2.6 and 3.4,
- "Poor exposure" for mean scores between 1.0 and 2.5.

Ordinal regression analysis was performed to assess the association between the recoded ordinal variables derived from the Likert scale. Model fitness was evaluated using the Pearson test, which yielded a P-value of 0.987, indicating significance. The estimated impact of the independent variables on the dependent variable was assessed using the Pseudo R-squared, showing that the independent variables explained 34% of the variance in the dependent variable. Additionally, the Test of Parallel Lines was conducted and yielded a value of 0.978, confirming the data was suitable for ordinal regression. Results were reported with a significance level of P-value less than 0.05.

For qualitative design

For the qualitative part of the study, a focused group discussion was conducted in one of the cafeterias within the TASH compound in Addis Ababa, Ethiopia. The investigator facilitated the discussion and labeled the participants as Participant A, B, C, and so on up to Participant K. After assuring the discussants that they could raise any concerns, allowing them to freely express their ideas, and obtaining their oral consent, the discussion began. The session was audio-recorded, and the discussion lasted approximately one hour. The conversation was conducted in both Amharic and English. The investigator then listened to the audio recording multiple times to understand, translate, and categorize the participants' ideas. Finally, the qualitative data was analyzed using thematic content analysis.

4.9 Operational definitions

Internship – undergraduate medical students' academic program when the students work as a junior doctor under supervision of residents or consultants in Ethiopian medical school curriculum

Level of satisfaction - feeling of pleasure or contentment that someone experiences when their expectations are met or exceeded

Satisfied – those who score mean of the Likert scale greater than 3.4

Not satisfied – those who score mean of the Likert scale below 2.6

4.10 Ethical considerations

Before implementing the study, ethical approval was obtained from the Addis Ababa University School of Medicine, Department of ECCM, through an official letter. The letter was then submitted and approved by the Research Directorate and the Emergency Clinical Service Directorate. All final-year undergraduate medical students were informed that participation in the study was voluntary, and they could withdraw at any time without providing a reason. Data confidentiality was maintained throughout the study. Informed consent was obtained from participants before they filled out the questionnaire and participated in the focused group discussions for the qualitative study.

5, Result

Part I - Result of quantitative study

A - Demography

A total of 103(95.4% of planned sample size) final-year medical students participated in the quantitative study, of which 60 (58.3%) were male and 43 (41.7%) were female. The mean age of the participants was 25.21 years. Regarding marital status, 98.1% of the participants were single, and 95.1% were from urban backgrounds. The students attended the ED in seven groups across seven rotations, with an average of 14.7 students per rotation. Detail description is shown in Table 1.

Table 1 – Demographic characteristics of participants

Characteristics		Frequency	Percentage
Age	<26	72	70
	>= 26	31	30
Sex	Male	60	58.3
	Female	43	41.7
Marital status	Single	101	98.1
	Married	2	1.9
Back ground	Urban	98	95.1
	Rural	5	4.9
Period of ED rotation	First rotation	12	11.7
	Second rotation	13	12.6
	Third rotation	16	15.5
	Fourth rotation	14	13.6
	Fifth rotation	19	18.4
	Sixth rotation	12	11.7
	Seventh rotation	17	16.5

B - Professionalism and ethical behavior of staff at ED

The participants were asked if they received an orientation at the beginning of their rotation. A majority, 80.6%, agreed or strongly agreed that they received adequate orientation at the start of their ED rotation. However, 15.5% were neutral, and 3.8% disagreed or strongly disagreed.

Regarding guidance during clinical practice, 96.1% of the participants agreed or strongly agreed (35/61.1%) that the ECCM residents provided guidance and supervision, with no disagreement noted. Only 3.9% were neutral. Additionally, 97.1% of the participants agreed or strongly agreed (35/62.1%) that the ED team was eager to teach the final-year medical students, with no disagreement observed.

Furthermore, 95.1% of participants agreed or strongly agreed that the ED team displayed a very positive attitude toward the students. Also, 87.4% of participants agreed or strongly agreed that the staff members worked together as a team, while 7.8% were neutral.

Regarding communication, 94.2% of participants agreed or strongly agreed that there was good communication between the ED team and the final-year medical students, with only 5.8% being neutral.

In terms of ethical behavior, 66.9% of participants felt comfortable reporting any ethical misconduct, 18.4% were neutral, and 10.7% felt uncomfortable doing so. Additionally, 91.2% of participants felt respected and supported, regardless of their cultural background or identity. Furthermore, 82.5% agreed or strongly agreed that the ED staff demonstrated consistent professionalism and ethical conduct, with 5% disagreeing and 12.5% being neutral.

Lastly, participants were asked whether they would consider joining the ED for specialty training. A total of 42.7% agreed or strongly agreed that they would, while an equal percentage (42.7%) remained neutral. However, 14.5% disagreed or strongly disagreed with the idea of joining the ED for specialty training. Detail description is shown in Table 2.

Table 2 – The final year undergraduate medical students’ assessment of Professionalism and ethical behavior at ED in TASH, Addis Ababa, Ethiopia

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean(± Standard deviation)
I was given adequate orientation at the start of attachment.	1.9	1.9	15.5	36.9	43.7	4.18 (0.905)
Residents have guided and supervised me well on clinical activities.	0	0	3.9	35	61.1	4.57(0.571)
The staff members work well together as a team.	0	4.9	7.8	37.9	49.5	4.32(0.82)
The ED team was willing and eager to teach interns.	0	0	2.9	35	62.1	4.59(0.55)
The ED team had very nice attitude towards interns.	1	0	3.9	32	63.1	4.56(0.687)
There was good communication between interns and the ED team.	0	0	5.8	37.9	56.3	4.50 (0.608)
I feel comfortable reporting any ethical concerns or violations I witness.	2.9	7.8	18.4	36.9	34	3.91(1.05)
I feel respected and supported regardless of my cultural background or identity.	0	1	7.8	26.2	65.0	4.55(0.682)
Staffs consistently demonstrate professionalism and ethical conduct.	1	3.9	12.6	36.9	45.6	4.22 (0.883)
I want to join emergency medicine as specialty training.	5.8	8.7	42.7	25.2	17.5	3.4 (1.08)

C - Academic and clinical activity satisfaction assessment

During their stay at the ED, 92.3% of participants agreed or strongly agreed that their participation in clinical practice was very good. Additionally, 88.3% of them agreed or strongly agreed that they were encouraged to prepare presentations on selected topics.

Regarding the balance of education, 82.6% of participants agreed or strongly agreed that there was a balance between theoretical and practical education, while almost 15% remained neutral. For case-

based assignments and discussions during bedside rounds, 76.7% of participants found them adequate, while only 6% felt they were not adequate.

When asked about their exposure to medical equipment and materials, 75.8% of participants agreed or strongly agreed that it was good, with 14.6% remaining neutral. However, only 51.5% agreed or strongly agreed that the morning presentations and discussions were inclusive of final-year medical students. On the other hand, 21.4% disagreed or strongly disagreed, and 27.2% were neutral. The detail is shown in the following table.

Table 3 – Academic and clinical activity satisfaction assessment of final year undergraduate medical students at ED, TASH, Addis Ababa, Ethiopia

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean(± Standard deviation)
Morning presentations and discussions were inclusive of final year medical students.	4.9	16.5	27.2	40.8	10.7	3.36 (1.037)
There was a balance of theoretical and practical education.	0	2.9	14.6	51.5	31.1	4.11(0.753)
The case based assignments and discussions during rounds at bedside were adequate.	1	4.9	17.5	49.5	27.2	3.97 (0.857)
I have good exposure to medical equipment and materials.	1	8.7	14.6	40.8	35.0	4.00 (0.97)
My participation in clinical activities was very good.	0	1.9	5.8	51.5	40.8	4.31 (0.672)
The final year medical students were encouraged to prepare presentations on selected topics.	1	1	9.7	33	55.3	4.41(0.785)

D - Working environment assessment

The working environment of the ED was assessed by final-year medical students using several parameters, and the findings were as follows:

- Rest after duty: 88.1% of participants were satisfied with the rest they got after duty, while 7.9% were dissatisfied, and 3.9% were neutral.
- Workload: 59.8% of participants agreed or strongly agreed that the amount of work they were doing was as expected. However, 15.7% felt the workload was greater than expected, and 24.5% were neutral.
- Job description and role: Only 37.3% of participants agreed or strongly agreed that they had a specific job description and role. In contrast, 27.1% disagreed or strongly disagreed, and 35.3% were neutral.
- Working environment safety: Only 28.4% of participants agreed or strongly agreed that the working environment was safe, while 32.3% disagreed or strongly disagreed. 39.2% of participants were neutral on this matter. These were shown in Table 4 below.

Table 4 – Working condition assessment of final year medical students at ED, TASH, Addis Ababa, Ethiopia

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	Mean(± Standard deviation)
Final year medical students' job description and role was specified.	10.4	16.7	35.3	25.5	11.8	3.11 (1.151)
The working area was safe.	9.8	22.5	39.2	17.6	10.8	2.97(1.112)
The amount of work expected of me was reasonable.	2.0	13.7	24.5	38.2	21.6	3.64(1.032)
Adequate rest was given after duty.	5.9	2.0	3.9	34.3	53.9	4.28(1.057)

E - Procedural Exposure Assessment

The top three procedures performed by the participants were IV line cannulation(90.3% of participants have frequent/very frequent exposure), ECG tracing and interpretation(88.4%) and urinary catheterization (80.6%). The three procedures that the participants had poor exposure were lumbar puncture (2.8% only had frequent/very frequent exposure), POP and splint application for fractured bones (2.9%) and chest tube insertion/assist (4.9%). The rest of procedure exposure frequency is shown in the following table 5.

Table 5 - Frequency of Procedural exposure of final year medical students at ED, TASH, Addis Ababa, Ethiopia

Procedure done	Never	Rarely (1-2)	Occasional ly(3-5)	Frequently (6-10)	Very frequently	Mean(± Standard deviation)
Suturing lacerations	37.9	48.5	6.8	4.9	1.9	1.84(0.894)
ECG tracing & Interpretation	0	1.0	10.7	24.3	64.1	4.51(0.726)
IV line cannulation	0	0	9.7	34	56.3	4.47(0.669)
Pleural Tap	0	10.7	41.7	25.2	22.3	3.59(0.954)
Paracentesis	2.9	10.7	36.9	29.1	20.4	3.53(1.027)
NGT insertion	0	12.6	30.1	32.0	25.2	3.70(0.989)
Urinary catheterization	0	1.9	17.5	31.1	49.5	4.28(0.821)
Bedside ultrasound scanning	1.0	11.7	19.4	33.0	35.0	3.89(1.047)
Lumbar puncture	52.4	35.9	8.7	2.8	0	1.62(0.768)
POP & Splints	53.4	33.0	10.7	2.9	0	1.63(0.792)
Attending tracheal intubation	21.4	33.1	30.0	12.6	2.9	2.43(1.053)
Chest Tube insertion or assist	35.0	40.8	19.4	3.9	1.0	1.95(0.89)
CPR procedure you attended	2.9	9.7	26.2	39.8	21.4	3.67(1.014)

To summarize, the mean of the above Likert scales were recoded and categorized in to three ordinal categories (satisfied/good exposure if mean is 3.5 -5.0, neutral/ fair exposure if mean is 2.6-3.4 and not satisfied/poor exposure if mean is 1.0 -2.5). With this categorization, 97.1% of participants were satisfied in professional and ethical behavior of the staff. Similarly, 88.3% of them satisfied in academic and clinical activities at ED. And 62.1% of them satisfied in the working condition of ED. However, only 19.4% of them had good procedural exposure and 68.9% had fair exposure. It is represented in the following graph.

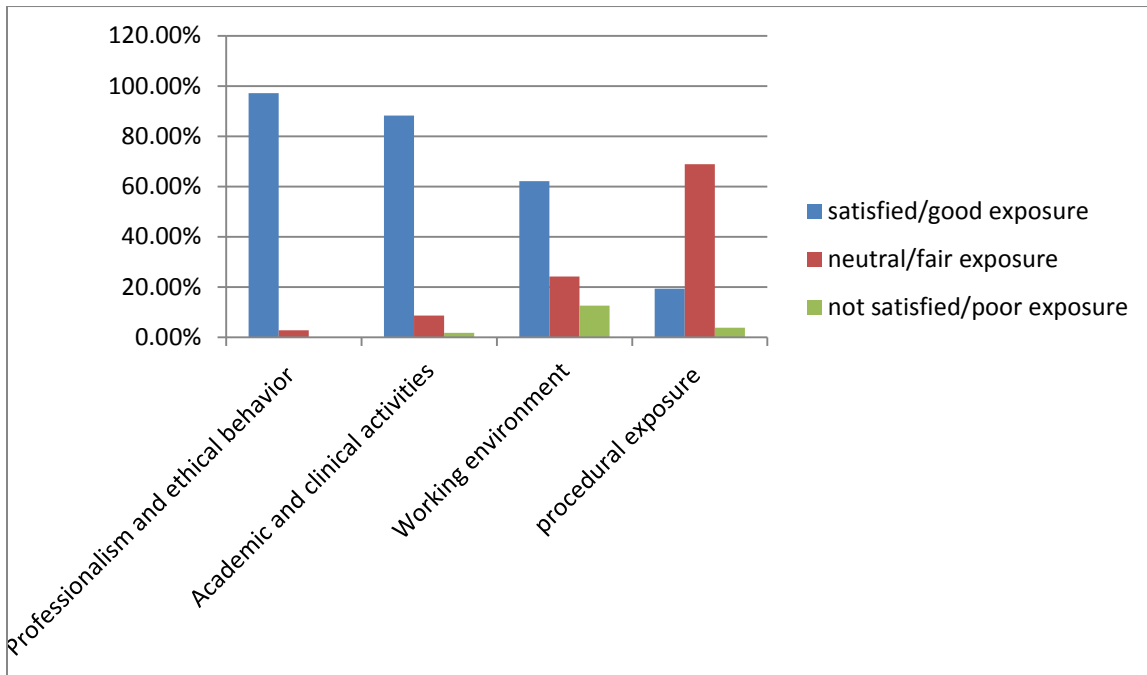


Figure 2 - Level of satisfaction of the Likerts' scale in to three ordinal categories (NB: for procedural exposure, use good exposure, fair exposure and poor exposure)

F - Level of satisfaction and associated factors in academic and clinical activity

After dividing the data of academic and clinical activity into three ordinal categories (not satisfied, neutral, and satisfied), the level of satisfaction was assessed. The result showed that 88.3% of participants were satisfied, 8.7% of them were neutral and 2% of them weren't satisfied. Then, ordinal regression was done to assess for any associated factor. As shown below in the table, professionalism and ethical behavior of ED staffs ($p < .001$ with 95% CI (1.435 – 3.548)), working environment ($p < 0.001$ with 95% CI (1.038 – 3.501)), procedural exposure ($p = 0.014$ with 95% CI (0.256 – 2.260)), being married ($p = 0.011$ with 95% CI (1.204 – 9.279)) and period of ED rotation (mainly the first three rotations) were significantly associated with academic and clinical activity satisfaction of final year undergraduate medical students. Otherwise, there was no significant association between level of satisfaction and age, sex, and back- ground. The summary is explained in Table 6 and detail is explained in table 7 below.

Table 6 – Summary of the identified factors associated with satisfaction level.

Independent variables	Association values			
	Estimate	P value	95% CI	Odds ratio(e^{\wedge})
Professionalism and ethical behavior	2.492	<0.001	1.435 – 3.548	12.1
Working condition	2.270	<0.001	1.038 – 3.501	9.68
Procedural exposure	1.258	0.014	0.256 – 2.260	3.52
Period of rotation (first)	2.281	0.005	0.707 – 3.855	9.786
Period of rotation (second)	1.589	0.023	0.223 – 2.956	4.90
Period of rotation(third)	1.572	0.019	0.257 – 2.886	4.80

Table 7 -Association of academic and clinical activity satisfaction with other variables

Characteristics		Academic and clinical satisfaction level				
		Not Satisfied	Neutral	Satisfied	P value	95% CI
Age	24 years	0	2	12	0.41	-3.285 – 8.050
	25 years	0	5	52	0.288	-2.549 – 8.574
	26 years	2	1	23	0.230	-2.130 – 8.854
	27 years	0	1	3	0.555	-4.040 – 7.529
Sex	Male	1	5	53	-	-
	Female	1	4	38	0.426	-1.093 -0.461
Marital status	Single	2	9	89	-	-
	Married	0	0	2	0.011	1.204 – 9.279
Back ground	Urban	2	9	87	0.618	-1.406 – 2.366
	Rural	0	0	4	-	-
Period of ED rotation	1 st rotation	0	1	11	0.005	0.707 – 3.855
	2 nd rotation	0	1	12	0.023	0.223 – 2.956
	3 rd rotation	0	1	15	0.019	0.257 – 2.886
	4 th rotation	0	2	12	0.470	-0.829 – 1.798
	5 th rotation	0	2	16	0.261	-0.509 - 1.879
	6 th rotation	0	0	12	0.046	0.029 – 3.021
	7 th rotation	2	2	13	-	-
Professionalism and ethical behavior of staffs	Satisfied	2	9	91	<0.001	1.435 – 3.548
	Not satisfied	0	0	0		
Working condition of ER	Satisfied	0	6	83	<0.001	1.038 – 3.501
	Not satisfied	2	3	7		
Procedural exposure	Good	2	8	86	0.014	0.256 – 2.260
	Poor	0	1	3		

Part II - Result of Qualitative Study

A focus group discussion was conducted with 11 final-year undergraduate medical students, of whom 8 (73%) were male and 3 (27%) were female, aged between 25 and 26 years. Only one participant was from a rural background, while the rest were from urban areas. The discussants represented different rotation teams, with six serving as team coordinators during their rotations. The discussion focused on four major issues, and the participants' insights are summarized as follows.

I, Explaining the stay in ED

All discussants were very happy with their stay at ED. There were three themes in which they were satisfied.

1, Academic activities;

All the discussants expressed high satisfaction with the department's academic activities. They noted "The teaching activities were well-organized, including seminar sessions, bedside case-based discussions, reading assignments, and exposure to diverse case scenarios. The consultants and residents were eager to teach, and supervision was excellent."

Participant A highlighted, "Their approach was purely to teach us, not to blame us for any mistakes." Participant E added, "Despite the chaotic environment and patient overcrowding, the residents were eager to teach us. They made time and space for teaching." Participant F commented, "In the ED, not knowing something isn't a sin. If we didn't know something, they taught us rather than blaming us." Participant G noted, "In the ED, everyone is trying to learn and teach. They used their energy for academic purposes and helped us understand what we needed to do."

Participant H observed, "Most of the teachings were based on the latest updates, which inspired me to keep myself constantly updated. We learned more from the discussions because the instructors were enthusiastic about teaching." Participant I remarked, "The department genuinely cared about what we should know during our time in the ED, and everyone around was eager to teach us." Similarly, Participant J praised the "Bilateral exchange of information, which was very beneficial." Participant K said, "It's the only department I enjoyed more the longer I stayed," and Participant C added, "It was beyond my expectations."

Overall, they all agreed, "It was a great experience and the best rotation compared to others."

2, Team spirit;

All the discussants were very pleased with the team spirit within the ED. They commented, “There was mutual respect among the team, with no hierarchical ego.”

Participant D noted, “I observed genuine supportive energy from consultants to residents and medical students, which I believe is what makes the department function well. I saw 'order in chaos'—the environment was chaotic and overcrowded, yet the academic and clinical activities were organized and structured.”

Person B added, “The smooth communication among team members made us feel comfortable and encouraged to learn.”

3, Clinical activities;

All the discussants were satisfied with the clinical experience they gained. They shared, “We performed many procedures and encountered a wide variety of cases.”

Participant F said, “It was the best time to apply what we learned theoretically. I experienced what it feels like to be a doctor, which greatly boosted my confidence to perform procedures in other rotations.” Similarly, Participant H commented, “I now feel confident handling life-threatening situations anywhere. Before this rotation, I worried about emergencies, wondering if I could truly call myself a doctor in such cases. Now, I feel prepared to help people with the skills I’ve gained, stabilize them, and direct them to appropriate care settings for further management.”

II Challenges you faced

The discussants encountered several challenges during their time in the ED that made their experience more difficult. These were their main challenges:

1, Lack of Infrastructures;

All the discussants were challenged by the lack of resources for patient care. They shared, “It was very frustrating. We knew how to manage and monitor patients, but we couldn't access emergency medications or essential monitoring equipment such as BP cuffs, thermometers, glucometers, pulse oximeters, and similar items. We also lacked stretchers and wheelchairs for patient transportation.”

Participant D specifically noted, “The crash cart is almost always empty, with no emergency medications. If the necessary materials were available, patients could be managed effectively during the golden hours.”

Participant I added, “There was no basic personal protective equipment at the front line, where new patients are being evaluated, leaving us exposed to potential contagious diseases.”

Participant G also mentioned, “It was difficult to examine patients while respecting their privacy due to overcrowding and inadequate infrastructure. As a result, some clinical conditions might be missed or misdiagnosed. Additionally, there was no proper isolation or decontamination room for patients with suspected conditions like relapsing fever or tuberculosis.”

2, Overcrowding of ED;

The discussants were challenged by the high patient load in the ED. They shared, “It was always crowded, and it was difficult to assess every patient during rounds.”

Participant D explained, “Many patients who could be seen at the OPD or directly admitted to the ward for inpatient care were kept in the ED. Sometimes, patients with non-emergent conditions outnumbered those with real emergencies. This overcrowding compromised clinical care for the truly urgent cases.”

3, Bureaucracy;

Another challenge faced by the discussants was the bureaucratic administrative system. They shared, “Many responsible personnel did not fulfill their duties. So for the sake of patient care, we ended up performing roles such as porter, nurse, and oxygen technician. As a result, we spent half of our time on non-clinical and non-academic tasks. The social workers at TASH, who are supposed to assist patients who can't afford care, were poorly organized and lacked sufficient funds. We faced significant challenges in obtaining medications and materials for patients unable to pay.”

Participant I specifically noted, “Nurses did not perform their duties properly, especially at night. They would often disappear from the work area, and sometimes one nurse was assigned to multiple areas, which compromised patient care and added extra burden on the final-year medical students.

Some residents, particularly those from other departments rotating through the ED, also disappeared during duty hours.”

Additionally, Participant K mentioned, “The laboratory and radiology teams did not release investigation results on time, especially at night. To get results more quickly, we were often required to go and request them ourselves, which added to our workload.”

Participant C shared, “Due to the lack of support for some patients, I developed emotional attachments and frequently stayed in the ED for two or more hours after my shift ended.”

III, What did you learn from ED?

Apart from regular academic and clinical activities, the discussants shared several key lessons they learned during their ED rotation. These included teamwork, proper communication, patience, the impact of dedication and willingness, among others. Let’s explore some of these lessons in more detail.

1, Team work;

All the discussants agreed that “teamwork was the most important lesson learned in the ED.” Participant A specifically said, “I witnessed a positive hierarchy.” Participant I added, “The team members were respectful and friendly, which created a comfortable environment for both students and patients.” Lastly, Participant K noted, “I saw true respect among team members during our clinical activities.”

2, Proper communication;

After explaining the nature of the ED, where the ED team manages the patient's acute condition and subsequent definitive care is provided by other teams, most of the discussants highlighted that another key lesson they learned was the importance of proper communication among team members and interdepartmental consultations when treating critically ill patients. For example, Participant E said, “I learned how to communicate effectively with attendants, team members, paramedics, and other healthcare professionals during interdepartmental consultations.”

3, Different virtues;

Some discussants mentioned that they learned many important virtues for their future careers.

Participant D said, “With dedication and willingness, even a few people can bring about significant and impactful change. Dedicated individuals can influence their followers, even in uncomfortable environments. I learned the power of hope and change.”

Participant F highlighted another important virtue: “One of the most valuable lessons I learned was patience. Being patient in providing care for patients was remarkable in the ED. The residents were incredibly patient despite the high number of patients and attendants.”

Participant G added, “Overall, the department reflects the values of Professor Aklilu (the first physician of Emergency and Critical Care Medicine in Ethiopia) in many ways.”

6, Discussion

This mixed-method study found that 88.3% of participants were satisfied with the academic and clinical activities in the ED. Additionally, a statistically significant positive association was observed between satisfaction levels and several factors, including the professionalism and ethical behavior of ED staff, the ED work environment, procedural exposure in the ED, and having the ED as one of their first three rotations. Focus group participants also expressed satisfaction with the academic and clinical activities and team spirit within the ED. However, they were challenged by a lack of infrastructure, the bureaucratic management system, and the overcrowding of the ED with non-emergency patients. Despite these challenges, participants learned valuable skills in teamwork, communication, patience, empathy, dedication, hope, respect, and other virtues.

One potential bias in this study is that the ED was recognized as the best teaching department by final-year medical students for about eight consecutive years. Data was collected after their rotation and evaluation assessments. While selection bias is difficult to eliminate, the investigator made an effort to include team coordinators with an in-depth understanding of the department. Before data collection, clear information on the study's objectives and assurances of confidentiality were provided. All 103 respondents in the quantitative part and all 11 respondents in the qualitative part showed openness in providing information on the issues raised.

The satisfaction level found in this study was higher than that of a previous study conducted in the same setting. About ten years ago, a study focused on fifth-year students' attitudes toward the relevance of Emergency Medicine for undergraduates found an 80% agreement on the program's importance. This comparison indicates an increasing satisfaction level and a demand for more time in the ED rotation. Additionally, participants in this study faced challenges in accessing infrastructure for training, similar to past findings. The current study also identified a lack of infrastructure and medications as significant challenges in managing emergency patient presentations (1).

In Iran, a cross-sectional study conducted two years ago on final year medical students' satisfaction after a 28-day emergency training found that while most students were satisfied with academic and clinical activities, they were dissatisfied with patient safety and education aspects. Similarly, our study found high satisfaction with academic and clinical activities, though patient safety and care were challenging due to infrastructure deficiencies (3). An exploratory cross-sectional study in Saudi

Arabia six years ago found that 57.3% of final year medical students expressed overall satisfaction with their internship program, identifying orientation, site services, supervision, senior relationships, and hospital activities as influencing factors. But in our case, working environment and professionalism were key factors impacting satisfaction, with overall satisfaction levels higher in TASH (6).

A qualitative study in Australia four years ago evaluated rural medical final year medical students' job satisfaction, highlighting supportive work environments, quality supervision, and teaching as satisfaction factors but noting dissatisfaction due to limited administration access, stressful situations, and poor mental health support. Likewise, our final-year medical students were satisfied with teaching, team spirit, and support from the ED team, though they found the administrative system bureaucratic and the ED overcrowded, which contributed to a stressful work environment(7).

Two years ago, a pre- and post-training survey conducted at Pamukkale University in Turkey reported that over 65% of participants felt the academic system balanced theory and practice, while only 33.34% showed interest in pursuing ED as a specialty. In our study, 82.7% of participants agreed that theoretical and practical teaching was balanced, with over 42% expressing interest in ED specialty training, showing a stronger inclination toward the specialty despite some neutrality (10).

The findings of this research suggest that incorporating Emergency Medicine into undergraduate training was a sound decision, with academic and clinical teaching continually improving. Final-year medical students, soon to specialize, are likely to consider ED as a career, supporting departmental advocacy. However, the undergraduate program is currently conducted only at TASH as a separate rotation.

This study has some limitations. First, due to the Grade 12 national exam, final-year students missed about three weeks of clinical activity, extending the data collection period and reducing the sample size. Second, potential bias during data collection could have arisen as the investigator distributed the questionnaires for the quantitative part and facilitated the focus group discussions for the qualitative part. Third, the study did not assess students' quality of life or mental health while working in the overcrowded ED.

7, Conclusion

The level of satisfaction among final-year undergraduate medical students from AAU at the TASH Emergency Department was very high. Key factors affecting their satisfaction included the professionalism and ethical behavior of ED staff, the working environment, procedural exposure, and having the ED rotation early in their program. However, their main challenges were a lack of infrastructure, a bureaucratic administrative system, and overcrowding in the ED.

8, Recommendation

To our knowledge, this is the first study assessing the satisfaction of medical students in their final year in Ethiopia following the introduction of a separate internship rotation in the ED. We recommend further research that addresses the limitations of this study. Additionally, we suggest establishing separate ED rotations for final-year medical students in other teaching hospitals. To enhance the ED experience, we recommend improving the triage system to reduce overcrowding, developing ED protocols, ensuring the availability of infrastructure and medications, and extending the duration of the ED rotation. Finally, we encourage the ED team to maintain its commitment to teaching, continue fostering team spirit, and support students with ongoing improvements in training and mentorship.

9, Annexes

Annex 1 – Supplement (Recommendations for academic improvement)

After conducting the focus group discussion, the discussants provided various recommendations for the department to enhance academic and clinical activities for future generations of undergraduate medical students. These recommendations were categorized into the following main themes.

1, Duration of Rotation

All of the discussants agreed that the five-week rotation is insufficient. They recommended extending the rotation to allow more time for exposure and adequate clinical practice.

2, Simulation Sessions

Some discussants suggested incorporating more simulation sessions, such as ACLS and ATLS. Specifically, Participant H said, “It would be beneficial if we had an additional week dedicated to simulation sessions.”

3, Clinical Year Rotation

Two discussants recommended that the clinical year ED rotation should be more patient-based, allowing students to gain exposure to real clinical conditions. They also suggested that students should have night shifts for increased clinical exposure, and that the rotation duration should be extended.

4, Guidelines or Protocols

More than half of the discussants recommended developing clear, institution-based or national guidelines for managing common clinical conditions in the ED. They emphasized the need for a protocol that defines the responsibilities of each team member, such as residents, final-year medical students, nurses, and other paramedics. Specifically, Participant E said, “There should be a well-organized manual or protocol for patient management that final-year medical students can use during their ED rotation and in their future careers. We were using guidelines from developed settings, but we need our own, tailored to the conditions of our patients.”

5, Academic Activities

All of the discussants recommended continuing the current momentum of teaching activities and ensuring more consistency across different working areas. They noted, “There were a few senior residents who weren’t interested in leading bedside discussions. It would be helpful if all of them were more aware and willing to lead discussions, so students could benefit more from these opportunities.”

Annex 2 -A questionnaire informed consent for both quantitative and qualitative informations

Research project – assessment of level of satisfaction and associated factors of final year undergraduate medical students during ED rotation at TASH, CHS of Addis Ababa University, Ethiopia

Name of principal investigator – Tesfaye Alemnew, MD

This is information sheet and consent form prepared by the investigator whose main aim is to study the level of satisfaction and associated factors among final year medical students during their ED rotation at Tikur Anbessa Specialized Hospital, Ethiopia. The investigator is a third year emergency and critical care medicine resident in Addis Ababa University.

You are kindly invited to take part in this research because we believe you can provide the necessary information for the research. Participation in the study is voluntarily and the right to withdraw is kept. There is no risk or incentive associated with the participation in the study. Confidentiality and anonymity of respondents will be kept.

The questionnaire has five parts starting from socio-demographics, professionalism, academic and clinical activities, procedural exposure level and working condition of the ER. You are kindly requested to fill what you feel and think only.

Persons to contact for further information – if you have any questions, you can contact the principal investigator by the following address:

Name – Tesfaye Alemnew, MD

Phone number - +251946752977

Email – tesfaye.gsr-0059-14@aau.edu.et

Are you willing to participate in this study please?

Yes No

Annex 3 questioner

Part I- Demography

Age

Sex ; M F

Marital Status Single Married

State your level of agreement for the following statements! 1 – strongly disagree, 2- disagree, 3 – neutral, 4 – agree, 5 – strongly agree						
Dimension	Content	1	2	3	4	5
Part II – Professionalism and ethical behaviors	I was given adequate orientation at the start of attachment.					
	Residents have guided and supervised me well on clinical activities.					
	The staff members work well together as a team.					
	The ER team was willing and eager to teach final year medical studentss.					
	The ER team had very nice attitude towards final year medical studentss.					
	There was good communication between final year medical students and the ED team.					
	I feel comfortable reporting any ethical concerns or violations I witness.					
	I feel respected and supported regardless of my cultural background or identity.					
	Staffs consistently demonstrate professionalism and ethical conduct.					
	I want to join emergency medicine as specialty training.					

Part III – Academic and clinical activities	Morning presentations and discussions were final year medical students inclusive.					
	There was a balance of theoretical and practical education.					
	The case based assignments and discussions during rounds at bedside were adequate.					
	I have good exposure to medical equipment and materials.					
	My participation in clinical activities was very good.					
	Final year medical students were encouraged to prepare presentations on selected topics.					

Back ground : Rural Urban

Rate your frequency of Procedure Exposure in your ED stay! 1 – never, 2 – rarely(1-2), 3 – occasionally(3-5), 4- frequently(6-10), 5- very frequently(>10)						
Domain	Content	1	2	3	4	5
Part V – procedural exposure level	Suturing lacerations					
	ECG tracing & Interpretation					
	IV line cannulation					
	Pleural Tap					
	Paracentesis					
	NGT insertion					
	Urinary catheterization					
	Bedside ultrasound scanning					
	Lumbar puncture					
	POP & Splints					
	Attending tracheal intubation					
	Chest Tube insertion or assist					
CPR procedure you attended						

When Did You attach Emergency? From To.....

Dimension	Content	1	2	3	4	5
Part IV – Working conditions	Final year medical students’ job description and role was specified					
	The working area was safe.					
	The amount of work expected of me was reasonable.					
	Adequate rest was given after duty.					

Part VI- Questioner for qualitative study

- 1, How do you explain your stay at ED during the five weeks of internship attachment?
- 2, What challenges do you face during your internship rotation at ED?
- 3, What key things do you learn from your ED rotation?
- 4, What things do you recommend for ED in your academic activities to be improved?

Annex 4, ASSURANCE OF PRINCIPAL INVESTIGATOR

I, the undersigned, agree to accept all responsibilities for the scientific and ethical conduct of the research project. I will provide a timely progress report to my advisors and seek the necessary advice and approval from my advisors during the research. I will communicate timely to my advisors, all stakeholders involved in the study, including any funding source for this research.

Name of the student: _____

Signature: _____

Date: _____

Approval of the primary Advisors

1, Name of advisor: _____

Signature: _____

Date: _____

2, Name of advisor: _____

Signature: _____

Date: _____

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