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Satisfaction of medical and health science students with their clinical learning environment and its determinant factors at Debre Markos University, northwest Ethiopia

Temesgen Ayenew[1*], Adane Fentie Tadesse[2], Tsinunat Fikru[3], Mihretie Gedfew[1], Haile Amha[1], Mamaru Getie Fetene[4], Afework Edmealem[1], Addisu Getie[1], Setarg Ayenew Birhanie[1] and Mengistu Abebe Messelu[1]

Abstract

Background Understanding the student's perspective of their clinical learning environment (CLE) might assist to discover solutions to improve the learning process and increase engagement. However, there is a lack of information on this issue, particularly in Ethiopia. The purpose of this study was to assess the satisfaction of undergraduate medical and health science students with their clinical learning environment, as well as to identify the factors that affect it.

Methods Institutional-based cross-sectional study was conducted using a self-administered questionnaire among 412 medical and health science students from Debre Markos University in 2023 through a simple random sampling technique. Mean, median, frequencies, and percentages were used to describe the data. A multivariate logistic regression model was fitted to test the association of dependent and independent variables. The Hosmer-Lemeshow goodness-of-fit test was used to check the fitness of the model. Variables with a p-value < 0.05 with a 95% confidence interval were considered statistically significant.

Results The questionnaire was completed by 394 individuals in total, generating a response rate of 95.63%. Approximately half (49.7%) of the participants were satisfied with their CLE. Age (AOR = 1.12; 95%CI = 1.02, 1.22), university positive perceptions (AOR = 1.60; 95%CI = 1.04, 2.43) and curriculum positive perception (AOR = 2.70; 95%CI = 1.73, 4.10) were all positively associated with CLE satisfaction.

Conclusion In this study, approximately half of the respondents were satisfied with their CLE. Age, positive perceptions of the university and positive perceptions of the curriculum were all positively associated with CLE satisfaction. The university and clinical facilitators should work together to improve infrastructure, and the facilities

*Correspondence:
Temesgen Ayenew
teme31722@gmail.com; temesgen_ayenew@dmu.edu.et

Full list of author information is available at the end of the article

at the university, build dormitories at the clinical placement sites, as well as the curriculum review should involve students to increase their academic performance, self-esteem, and satisfaction with CLE.

Keywords Medical and health science students, Satisfaction with clinical learning environment, Associated factors, Ethiopia

Introduction

The learning environments (LE) of healthcare workers are primarily determined by the interactions between various stakeholder groups and the organizational structures of their surroundings. Although the literature now in publication highlights the importance of LE, it frequently fails to provide a detailed description of what this environment entails [1]. LE encompasses social interactions, institutional culture, physical space, infrastructure, supervision, and both formal and informal curricula [2].

Clinical learning has two components: the clinical learning environment and the supervision provided by clinical educators [3]. The clinical learning environment is defined as an interacting network of elements that influence student learning outcomes in the clinical setting [4]. However, a considerable mismatch was discovered between the preferred and actual learning settings of health science students [5]. Successful clinical education requires quality supervision and strong interaction between clinical educators and students [6, 7].

Since CLE may involve a variety of circumstances, traits, and parties, exploring it can be challenging. Research has shown that CLE significantly affects the behavior learners and affects their learning, performance, contentment, and success, making them an important stakeholder group [1]. Given its complex nature, understanding the experience from the student's point of view can help identify strategies to improve the learning process and facilitate engagement [8].

There were regional and study-specific differences in the contentment of health science students with CLE. Asia saw a range of 50.5–84.5%, Europe 42–89%, and Africa 41.6–65.5% [9–17]. Their year of education, preclinical orientation, comfort level in the rotation of the ward, infrequent supervision, and clinical staff support were highly correlated with their level of satisfaction [17]. Furthermore, students' perceptions of their academic and social selves, as well as their perceptions of their university and curriculum, all have an impact on how satisfied they are with the clinical learning environment [18–20].

Ethiopian health science students are required to complete a clinical setting practicum beginning in their second year of study. To improve the quality of their education, students also take a national competency assessment after their studies. However, most Ethiopian studies revealed that clinical competence was less than 50% [21–23]. Studies suggested that improving the satisfaction of health science students with clinical practice can be used to improve their competence [24]. On the other hand, little is known about how students perceive the clinical learning environment, particularly in this study area. Therefore, the purpose of the study is to assess how undergraduate health science students perceive the clinical learning environment and to pinpoint the factors that influence it.

Methods

Study design period and area

The study used an institutional-based cross-sectional study design. The study was conducted from 10 to 30 June 2023. Debre Markos University is one of the 2nd generation higher institutions that have been established in 2005. Debre Markos University is located in the town of Debre Markos, which is located in the north western part of Ethiopia. The town is 300 km northwest of the capital Addis Ababa and 265 km southeast of Bahir Dar, the capital of the Amhara National Regional State.

The College of Medicine and Health Sciences includes 11 departments (medicine, public health, paediatric nursing, comprehensive nursing, midwifery, clinical pharmacy, health informatics, human nutrition, environmental health, medical laboratory science and technology, and anaesthesia). Students in medicine, public health, pediatric nursing, comprehensive nursing, midwifery, medical laboratory science and technology, and anaesthesia spend a significant amount of time learning in clinical settings. Clinical training begins in the second year and students spend varying amounts of time in clinical settings, working under clinical supervisors, with regular visits from Debre Markos University lecturers to streamline, lead, and instruct.

Eligibility criteria

Inclusion criteria

Included were all second-year and above undergraduate health science students at Debre Markos University's College of Medicine and Health Science who had a clinical attachment during the study period. This is because clinical-based education begins at the second year.

Exclusion criteria

Students who were on sick leave during the time of data collection was excluded. In addition, students who were in their first year of study in each department were excluded because they have no exposure to clinical-based education in the first year of study.

Sample size determination

The sample size was estimated using a single population proportion formula, with a proportion of 41.6% from a similar study in northwest Ethiopia [17] as follows:

$$n = \frac{(Z\alpha\ /2)^2 * p * q}{d^2}$$

where, n = minimum sample size.
P = proportion (41.6%).
q = 1-P.
d = marginal error (005)
Z = Critical value with 95% confidence interval (1.96).
Therefore, the minimum required sample size was.

$$n = \frac{(1.96)^2 * 0.416 * (1 - 0.416)}{0.05^2} \sim 374$$

Taking a 10% non-response rate, a total of study participants recruited were ~412.

Sampling technique

Study participants were recruited using a simple and stratified random sampling process. The study includes seven departments that offer various clinical courses. The students were first divided into groups according to their departments. The sample size was then proportionally allocated based on the number of students in each department in 2023 to meet the required sample size. (Fig. 1)

Variables

The dependent variable was the satisfaction of the students with their clinical learning environment. However, the independent variables were sociodemographic characteristics (sex, age, department, study year, residence, site of clinical attachment, cumulative grade point average (CGPA), student's academic self-perception, student's social self-perception, perception of the university and perception of the curriculum.

Operational definitions

Satisfaction with CLE Those participants who scored ≥ the overall mean score of CLEI-19 items were considered as satisfied with their CLE, where as those who scored below the mean score were considered as unsatisfied.

Positive perception about academic self-performance Those students who scored ≥ the overall mean score of students' academic self-perception items were considered as having positive perception whereas, those who scored below the mean score were considered as having negative perception.

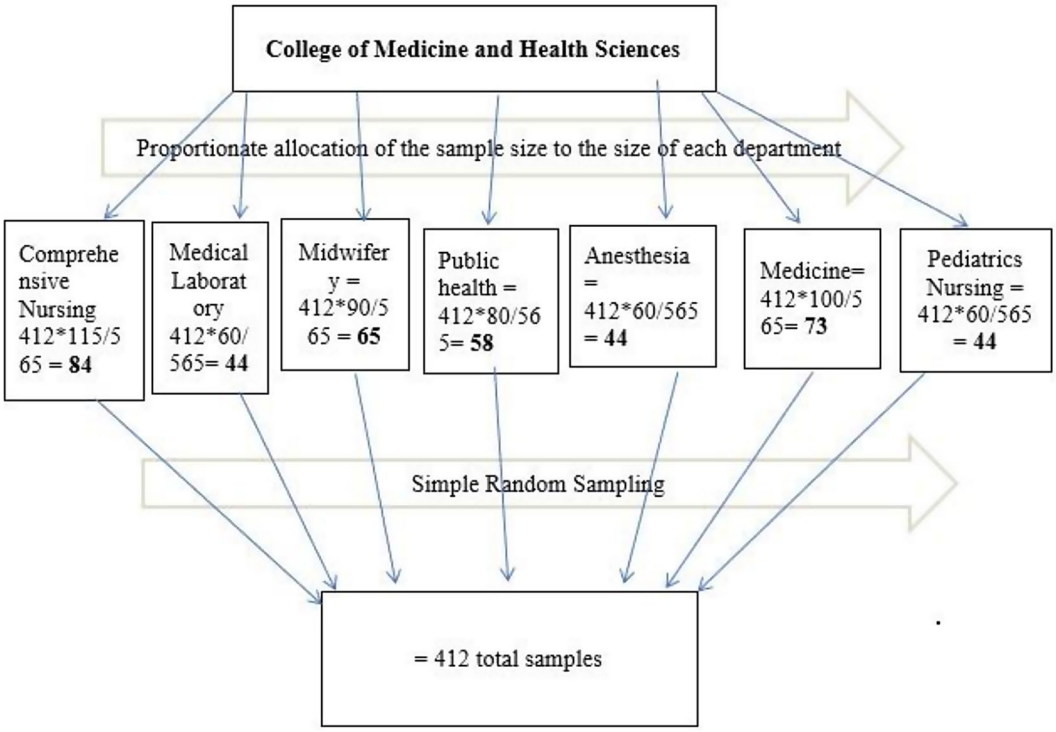

Fig. 1 A flow diagram showing the sampling technique for a study of satisfaction of medical and health science students with their clinical learning environment and its determinant factors at Debre Markos University, northwest Ethiopia, 2023

Positive social self-perception Those participants who score ≥ the overall mean score of students' social self-perception items were considered as having positive perception and those who scored below the mean were considered as having negative perception.

Positive perception about the university Those participants who scored ≥ the overall mean score of the items for the students' perception about the university were considered as having positive perception and their counterpart were considered as having negative perception.

Perception about the curriculum Those participants who scored ≥ the overall mean score of the items for students' perception of the curriculum were considered as having positive perception and their counterparts were considered as having negative perception.

Data collection tool and procedure

The tool consists of six components: sociodemographic variables (6 items) developed by the researchers of this manuscript from review of similar studies [18–20]; students' academic self-perception (8 five-level Likert scale items) and students' social self-perception (7 five-level Likert scale items) adopted from Dundee Ready Education Environment Measure (DREEM) tool [25]; students' perception of the university (3 five-level Likert scale items) and students' perception of the curriculum (2 five-level Likert scale items) adapted from a similar study by Fego MW et. al [26], and students' satisfaction with their CLE (19 five-level Likert scale items) adopted from a prior, similar study [27]. The CLEI-19 is a valid and reliable tool with a Cronbach alpha coefficient of 0·93. The five-point Likert scales for these items are 1: strongly disagree, 2: disagree, 3: neutral, 4: agree, and 5: strongly agree. The participant's responses to each five-level Likert item of the questionnaire were summarized, and the mean score was used to dichotomise the results for descriptive and inferential statistical analysis purposes. Before calculating the mean score, since 9 out of 19 CLEI-19 items were negatively worded, reverse scoring was done for these items. (Supplementary file 1)

Data were collected using a self-administered standardized questionnaire developed in English and translated into the local language (Amharic). Five nurse educators (investigators) were involved in data collection. First, the different department heads provided us with a list of eligible study participants for each study year. Then, stratification was performed using departments as a stratum. The sample was then proportionally allocated. Finally, using the Microsoft Excel list of eligible study participants as a sampling frame, a simple random sampling procedure was used. The randomly selected participants received a hard copy of the Amharic version of the questionnaire. The participants spent an average of 20 min completing the questionnaire.

Data quality assurance

Before starting data collection, data collectors received training. To verify reliability, the questionnaire was pilot tested on 5% of Injibara University health science students who were on clinical attachment. The results of the pilot tests showed reliability, with a Cronbach's α score of 0.76. Furthermore, three expert reviewers verified the validity of the questionnaire. The lead investigators evaluated the completeness of the data on a regular basis, rejected incomplete questions, and issued new questionnaires to participants.

Data processing and analysis

The data was coded, entered, and edited using EpiData 4.4.2. The data was then exported and analyzed using SPSS version 25. Data were described using frequencies, percentages, means, and medians. A multivariate binary logistic regression model with a 95% confidence interval (CI) was used to examine the association between the independent variables and the dependent variable. The stepwise backward conditional variable selection method was applied. The fitness of the model was evaluated using the Hosmer-Lemeshow goodness of fit test. Variables with a value $p<0.05$ in multivariable binary logistic regression were considered statistically significant. Finally, the data was displayed as text and tables.

Results

Sociodemographic characteristics of the participants

A total of 394 individuals completed the questionnaire, with a response rate of 95.63%. The median age of the participants was 22 years, with an interquartile range (IQR) of three. Most of the participants (47.7%) are in their fourth year of study, with comprehensive nursing students accounting for 21.8%. Most of the participants have a cumulative grade point average (CGPA) of 3.5 to 4, and most of their most recent clinical attachment was at Debre Markos Comprehensive Specialized Hospital (DMCSH) (63.5%). (Table 1)

Students' academic self-perception

The satisfaction of the participants with academic self-perception averaged 17.42 ± 4.91. The lowest mean score (1.65 ± 0.93) was observed in the level of confidence of students in passing that academic year. Students had the highest mean score (2.92 ± 1.1) for their ability to memorize everything they needed. Only 184 (46.70%) of the study participants had a positive academic self-perception. (Tables 2 and 3)

Table 1 Sociodemographic characteristics of a study of satisfaction of health science students with their clinical learning environment and its determinant factors at Debre Markos University, northwest Ethiopia, 2023

Variables		Frequency ($n=394$)	Percentage (%)
Year of Study	second year	20	5.1
	third year	174	44.2
	fourth year	188	47.7
	fifth year	12	3.0
Sex of participants	Male	218	55.3
	Female	176	44.7
residence of students	in campus	332	84.3
	out of campus	62	15.7
CGPA	2-2.49	6	1.5
	2.5–2.99	22	5.6
	3-3.49	158	40.1
	3.5-4	208	52.8
Site of clinical placement	DMCSH	250	63.5
	F/Selam	52	13.2
	Motta	20	5.1
	Injibara	66	16.8
	Others	6	1.5

Table 2 Medical and health science students' academic self-perception, social self-perception, perception of the university, and perception of the curriculum at Debre Markos University, northwest Ethiopia, 2023

Variables	Number of items	Score range	Mean	Std. Deviation
Students' academic self-perception	8	8–40	17.42	4.91
Students' social self-perception	7	7–35	20.51	3.75
Perception of students about the organization / the university	3	3–15	10.61	2.80
Students' perception of the curriculum	2	2–10	6.32	2.10

Student social self-perception

The students' social self-perception overall mean score was found to be 20.51±3.75. The component of feeling lonely had the highest mean satisfaction score with the social self-perception of the students (3.75±1.234), whereas the dimension of having good friends at school had the lowest mean satisfaction score. Of the study participants, approximately half (49.75%) have positive social self-perception. (Tables 2 and 3)

Student perception of the organization / the university

The overall mean rating of student satisfaction with the university was 10.61±2.80. The dimension of good support systems for students had the highest satisfaction score (3.96±1.04). The university infrastructure (availability of dormitory in clinical placement sites) dimension had the lowest satisfaction score (3.03±1.27). Approximately 212 (53.81%) of the participants were satisfied with the university. (Tables 2 and 3)

Table 3 Perception of medical and health science students about their clinical learning environment (CLEI-19), Debre Markos University, northwest Ethiopia, 2023

Variables	Score Range	Mean	Std. Deviation
Satisfaction with clinical facilitator's support of learning			
The clinical facilitator would consider students' feelings	1–5	3.20	1.239
The clinical facilitator would be unfriendly and inconsiderate towards students	1–5	3.36	1.076
The clinical facilitator would not be interested in students' problems	1–5	3.21	1.120
The clinical facilitator would go out of their way to help students	1–5	3.30	1.047
The clinical facilitator would help the student who is having trouble with the work	1–5	3.30	1.086
The clinical facilitator would think up innovative activities for students	1–5	3.51	1.108
The clinical facilitator would talk individually with students	1–5	3.60	1.108
The clinical facilitator would often think of interesting activities	1–5	3.37	1.072
The clinical facilitator would often get sidetracked instead of sticking to the point	1–5	2.86	1.244
The clinical facilitator would dominate debriefing sessions	1–5	3.12	1.153
The clinical facilitator would talk rather than listen to the students	1–5	3.09	1.124
The clinical facilitator would seldom go around to the ward to talk to students	1–5	3.02	1.298
Satisfaction with clinical placement			
This clinical placement would be interesting	1–5	2.80	1.383
Students would enjoy coming to this ward	1–5	2.38	1.224
This clinical placement would be a waste of time	1–5	3.95	1.173
This clinical placement would be boring	1–5	3.61	1.289
After the shift, the students would have a sense of satisfaction	1–5	2.55	1.270
Students would look forward to coming to clinical placement	1–5	2.60	1.218
Students would be dissatisfied with what is done in the ward	1–5	3.42	1.280
Total	**19–95**	**60.25**	**6.68**

Student perception of the curriculum

The total mean score for student satisfaction with the curriculum was 6.32±2.08. Only 170 (43.15%) of the

survey participants were happy with the curriculum they were taught. (Tables 2 and 3)

Student perception of their clinical learning environment (CLE)

The mean satisfaction score for students with CLE was 60.25±6.68. Only about half of the participants (49.7%) were satisfied with their CLE. The highest level of satisfaction was found in the CLE dimension of satisfaction with the clinical facilitator's support of learning (mean score of five items on the Likert scale of levels=3.25). However, the students weighed the satisfaction dimension with clinical placement as low, with a mean score of 3.04. From the dimension of satisfaction with the support of the clinical facilitator in learning, the lowest score was observed, especially because the clinical facilitator often drifted away instead of sticking to the point (2.86±1.244).

Table 4 Distribution of the satisfaction of medical and health sciences students with their CLE among different determinant variables at Debre Markos University, northwest Ethiopia, 2023

Variables		Satisfaction with CLE		Total
		Not satisfied	Satisfied	
Sex of participants	Male	106(48.6%)	112(51.4%)	218(100%)
	Female	92(52.3%)	84(47.7%)	176(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
residence of students	in campus	170(51.2%)	162(48.8%)	332(100%)
	Out of campus	28(45.2%)	34(54.8%)	62(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
CGPA	2-2.49	2(33.3%)	4(66.7%)	6(100%)
	2.5–2.99	12(54.5%)	10(45.5%)	22(100%)
	3-3.49	76(48.1%)	82(51.9%)	158(100%)
	3.5-4	108(51.9%)	100(48.1%)	208(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
Students' Academic Self Perception	Negative perception	118(56.2%)	92(43.8%)	210(100%)
	Positive perception	80(43.5%)	104(56.5%)	184(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
Students' social self-perception	Negative perception	106(53.5%)	92(46.5%)	198(100%)
	Positive perception	92(46.9%)	104(53.1%)	196(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
Students' perception about the university	Negative perception	108(59.3%)	74(40.7%)	182(100%)
	Positive perception	90(42.5%)	122(57.5%)	212(100%)
Total		198(50.3%)	196(49.7%)	394(100%)
Students' perception about curriculum	Negative perception	136(60.7%)	88(39.3%)	224(100%)
	Positive perception	62(36.5%)	108(63.5%)	170(100%)
Total		198(50.3%)	196(49.7%)	394(100%)

However, in the dimension of satisfaction with clinical placement, the lowest satisfaction score was observed mainly because students felt that students would not enjoy coming to their ward (2.38±1.224). (Table 4)

Distribution of student satisfaction with their CLE on different determinants

According to this study, a higher proportion of women (52.3%) than of men (48.6%) are unhappy with their CLE. Compared to students who live outside campus (45.2%), those who live on campus are quite satisfied with their CLE (51.2%). Compared to students who were satisfied with their academic performance (43.5%), those who were dissatisfied with their performance had a higher rate of dissatisfaction (56.2%) with their CLE. Factors of social self-perception (53.5% versus 46.9%), university perception (59.3% versus 42.5%), and curriculum perception (60.7% versus 36.5%) also showed similar results of dissatisfaction with CLE. (Table 3)

Determinants of student satisfaction with CLE

After fitting a multivariate logistic regression model, age, university perception, and curriculum perception were found to be statistically significant predictors of student satisfaction with their CLE. A unit increase in the age of the participants increases the likelihood of student satisfaction with CLE by 1.12 times (AOR=1.12; 95% CI=1.02, 1.22). Students who had a positive view of the university were 1.60 times (AOR=1.60; 95% CI=1.04, 2.43) more likely to be satisfied with their CLE than those who had negative views. Similarly, students with a positive view of the curriculum were 2.67 times (AOR=2. 70; 95%CI=1.73, 4.10) more likely to be satisfied with their CLE than those who did not. (Table 5)

Discussion

Exploring CLE can be difficult because it can involve a variety of contexts, characteristics, and stakeholders. Students are a crucial stakeholder group and research has shown that the CLE substantially influences their behaviours and contributes to their learning, performance, satisfaction, and success [1]. This study assessed the satisfaction of health science students with their CLE and the factors that affect it.

In this study, almost half of the participants (49.7%, 95%CI=44.8%, 54.7%) were satisfied with their CLE, with a total mean score of 60.25±6.68. This finding is much lower than studies done in Biratnagar [9] (84.5%), European countries [13] 57%, a systematic review [12] 83.2%, Ghanian study of nursing and midwifery students [14] (65.6% and 63.5%), and a Rwandan study [16] (58%). It is similar to the Turkish [10] (53.8%) and Malaysian [11] (51.6%) studies. However, our finding is slightly higher than a similar study in northwest Ethiopia [17] (41.6%).

Table 5 Multivariable logistic regression showing the significant factors associated with medical and health sciences students' satisfaction with their CLE at Debre Markos University, northwest Ethiopia, 2023

Variables		Satisfaction with CLE		AOR with 95% CI	*P*-value
		Dissatisfied	Satisfied		
Age		-	-	**1.12(1.02,1.22)**	**0.013***
Students' perception about the university	Negative perception	108	74	Reference	
	Positive perception	90	122	**1.60(1.04,2.43)**	**0.031***
Students' perception about curriculum	Negative perception	136	88	Reference	
	Positive perception	62	108	**2.70(1.73, 4.10)**	**0.000***

CLE Clinical learning environment; *AOR* Adjusted odds ratio; *CGPA* Cumulative grade point average; *CI* confidence interval; *Significant at 95% CI

Variations in clinical settings and differences in mentoring approaches could be used to explain these variations. This is supported by our finding that the highest satisfaction was observed in the CLE dimension of satisfaction with the clinical facilitator's support of learning (mean score of 3.25), while students rated the CLE dimension of satisfaction with clinical placement as low (mean score of 3.04). The disparity between our findings and those of a similar study in northwestern Ethiopia could be explained by the fact that our study included all students of health science while the study in northwestern Ethiopia only included nursing students.

Compared to their peers in the study, students who were unhappy with their academic performance had a higher percentage of dissatisfaction (56.2%) with their CLE. Similar research showed that clinical and academic performance was positively correlated. For example, higher clinical competency among graduating medical students is correlated with a higher grade point average (CGPA) [28, 29]. Only 46.70% of the study participants have positive academic self-perception. This suggests that providing low-performing students with academic counseling and support will improve their academic performance and self-perception, thus increasing their satisfaction with CLE.

According to the findings of this study, each increase in the unit of age of the participants increases the probability of student satisfaction with CLE by 1.12. This could be due to the fact that age correlates with the year of study. The majority (47.7%) of the participants in this study were in their fourth year of study. According to a similar study, student satisfaction with CLE increases with each study year of study [30]. This may imply that an effective orientation may be required to increase the first impression of students on their first exposure to clinical placement, so that their satisfaction may increase in their earlier year of study [31, 32].

According to studies, the learning environment (LE) encompasses social interactions, institutional culture, physical space, infrastructure, and formal and informal curriculum [1, 2]. In our study, students with a positive perception of the university were 1.60 times more likely to be satisfied with their CLE than their counterparts. This is supported by a systematic review and meta-analysis study showing that physical infrastructure quality was positively associated with student satisfaction in higher education institutions [33]. This might be attributed to the fact that infrastructures, such as dormitories at the clinical placement site, are very crucial for the accommodation of students from universities without teaching hospitals such as Debre Markos University. The lowest score of the perception of students about their university in this study was observed in the item 'the university has good infrastructure (dormitory) at the site of clinical placement areas'. Similarly, students with a positive view of the curriculum were 2.67 times more likely to be satisfied with their CLE than those who did not. According to our study, only 43.15% of study participants were satisfied with the curriculum the instructors used. This could be because the clinical learning process is implemented according to the curriculum and if students have negative feelings about the curriculum, they could not be satisfied with their clinical learning environment. This would suggest that students' participation in reviewing the curriculum may be required to improve their positive views and better understand it [34].

Strength and limitation of the study

The strength of the study is that it includes all medical and health science students who have received intensive clinical setting-based training. However, it has limitations. For example, the findings of this study will not apply to health science students outside of Debre Markos University. Perception about the curriculum and the organization aspects of the tool were developed and pilot tested in our study and will need further tool validation for future studies in Ethiopian context. Even though we aimed to identify the proportion of satisfied and unsatisfied students and identify determinant factors for targeted interventions and used binary logistic regression (which is best applicable in our context), running a linear regression is recommended for the CLEI-19 tool. Furthermore, because it is a cross-sectional study, it

does not demonstrate a direct cause-and-effect relationship between dependent and independent variables. As a result, taking these limitations into account will allow the reader to judge the results with greater accuracy.

Conclusion

In this study, about half of the respondents were satisfied with their CLE. Age, university perception, and curriculum perception were all statistically significant predictors of student satisfaction with their CLE. Therefore, the university should consider building student dormitories in or near the clinical placement sites, as the lowest satisfaction score regarding perception about the university was observed in this aspect. Curriculum review should involve students to increase their understanding of the content of the curriculum, and the implementation strategies so that their academic performance, self-esteem, and satisfaction with CLE would be enhanced. Finally, more research is needed with a larger study area to offer nationally representative statistics on this topic. Furthermore, prospective follow-up study design will be required to establish the cause-and-effect relationship between the dependent and independent variables.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-024-06114-6.

Supplementary Material 1

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Author contributions
T.A., A.F.T. and T.F. conceptualized the study and wrote the main manuscript. M.G., M.G.F, A.E., A.G., M.A.M., H.A., and S.A.B. reviewed the manuscript. All authors have seen and approved the final manuscript for publication.

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Data availability
The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval
This study was approved by Debre Markos University's College of Medicine and Health Science Ethical Review Committee with approval number of 342/01/15.

Consent to participate
Data collectors explained the purpose of the investigation, its benefits, and its procedures to each potential respondent, and any respondent seeking further clarification was assisted. The written informed consent to participate was then obtained from all nurses and physicians before the start of the study. Any person unwilling to participate was not forced to do so and any person wishing to withdraw at any time during the study was free to do so. Confidentiality and privacy were strictly maintained. Only the principal investigator and research assistants accessed the data. In general, the study was carried out in accordance with the Declaration of Helsinki of the World Medical Association (WMA).

Competing interests
The authors declare no competing interests.

Author details
[1]Department of Nursing, College of Medicine and Health Sciences, Debre Markos University, Po. Box.: 269, Debre Markos, Ethiopia
[2]Nurse Professional, Akesta General Hospital, Akesta, Ethiopia
[3]Nurse Professional, Karibu Clinic, Moyale, Ethiopia
[4]Department of Midwifery, College of Medicine and Health Sciences, Debre Markos University, Debre Markos, Ethiopia

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