



SEEK WISDOM, ELEVATE YOUR INTELLECT AND SERVE HUMANITY!

Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ



**PARENTS ACCEPTANCE OF MEDICAL STUDENTS AND FACTORS
AFFECTING MEDICAL STUDENTS' INVOLVEMENT IN THEIR CHILD'S
HEALTH CARE AT TIKUR ANBESSA SPECIALIZED HOSPITAL,
ADDISABABA, ETHIOPIA**

**By: MUKTAR AMAN (MD, YEAR III PEDIATRICS AND CHILD HEALTH
RESIDENT)**

**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF MEDICINE,
DEPARTMENTN OF PEDIATRCICS AND CHILD HEALTH, FOR PARTIAL
FULFILLMENT FOR THE REQUIREMENT OF SPECIALTLY CERTIFCATE
PROGRAM IN PEDIATRICS AND CHILD HEALTH**

ADDIS ABABA, ETHIOPIA

FEBRUARY, 2024

Parents acceptance of medical students and factors affecting medical students' involvement in their child's health care at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

Principal investigator:

Muktar Aman (MD, Pediatric and Child Health Resident)

Email address: muktaramn461@gmail.com

Advisor:

Prof. Amha Mekasha (MD, MSC, professor, department of pediatrics and child health, School of Medicine, College of health sciences, Addis Ababa University)

Email address: amhamekasha@gmail.com

Addis Ababa, Ethiopia

February, 2024

Declaration form.

This is to certify that the thesis is prepared by **Dr. Muktar Aman**, entitled: **Parents acceptance of medical students and factors affecting medical students’ involvement in their child’s health care at Tikur Anbessa Specialized Hospital Addis Ababa, Ethiopia**, from November 11, 2023 to January 9, 2024.

ASSURANCE OF PRINCIPAL INVESTIGATORS

I, the undersigned, declare that this postgraduate degree thesis is my original work, has not been presented for a degree at any other university, and that all sources of materials used for the thesis have been duly acknowledged.

Name of the student: _____ Signature _____ Date. _____

Approval by the advisor: This thesis paper has been submitted with my approval as a research advisor.

Name of the advisor:

Signature

Date

Prof Amha Mekasha (MD, MSC)

Acknowledgements

I am deeply honored to have the opportunity to express my heartfelt gratitude and utmost respect to my esteemed advisor, professor Amha for his unwavering comment, invaluable guidance, and exceptional expertise have been instrumental in shaping the development of this research thesis and I am profoundly grateful for their invaluable support and dedication throughout the entire process.

I would like to extend my sincere gratitude to Addis Ababa University, College of Health Sciences, and the department of pediatrics and child health for their generous funding and support that have made this study possible and for giving me the chance to undertake this research.

Contents

Acknowledgements	i
List of acronyms	iv
List of figures.....	v
Abstract.....	vi
1. Introduction.....	1
1.1. Background	1
1.2. Statement of the problem	2
1.3 Significance of the study	3
2. Literature Review	4
3. Objectives.....	7
3.1. General objective	7
3.2. Specific objectives	7
4. Method and Materials	8
4.1. Study area and period	8
4.2. Study design.....	8
4.3. Population.....	8
4.3.1. Source population	8
4.3.2. Study population.....	8
4.4.1 Inclusion.....	8
4.4.2 Exclusion criteria	9
4.5. Sample size determination and sampling technique.....	9
4.5.1. Sample size determination.....	9
4.5.2. Sampling technique and procedure.....	9
4.6 Data Collection Tool and Procedures.....	9
4.7. Data Quality control and management.....	9
4.8. Variables	10
4.8.1 Outcome variable	10
4.8.2 Explanatory variables.....	10
4.9. Operational Definition.....	10
4.10. Data processing and Analysis.....	10
4.11. Ethical consideration	11
4.12. Dissemination and utilization of results	11
5. Result.....	12
5.1 Socio-demographic characteristics.....	12

5.1.1 Socio-demographic Characteristics of the patient	12
5.1.2 Socio-demographic Characteristics of the parents	13
5.2 Medical Student acceptance and extent of medical student’s involvement	15
5.3 Attitude of the parent towards future medical student’s involvement	19
5.4 Factors affecting medical student involvement.....	19
6. Discussions	21
7. Limitations of the study	24
8. Conclusions	25
9. Recommendations	26
10. Reference	27
Annex I: Consent form	28
Annex II Data collecting Questionnaire.	29

List of acronyms

AAU	Addis Ababa University
CHS	College of health sciences
CI.	Confidence interval
PI.	Principal investigator
PC	Patient centered
TASH.	Tikur Anbesa Specialized hospital
SPSS	Statistical Package for Social Sciences

List of figures

Figure 1. Current medical problems of the child at Tikur Anbessa Specialized Hospital in 2023 17

List of tables

Table 1: Socio-demographic characteristics of the child at Tikur Anbessa specialized Hospital, 2023.....	12
Table 2. Socio-demographic characteristics of the parent at Tikur Anbessa specialized Hospital 2023.....	14
Table 3. Parents knowledge of medical students practicing at Tikur Anbessa Specialized Hospital and medical students acceptance at TASH in 2023.....	15
Table 4. Medical Student acceptance and extent of medical student’s involvement at Tikur Anbessa specialized Hospital 2023.....	16
Table 5. Parents previous intraction with medical students at Tikur Anbessa specialized Hospital,2023...	18
Table 6. Bivariable and Multivariable Logistic Regression analysis results of factors associated with medical students’ acceptance at TASH Hospital, Addis Ababa, Ethiopia, 2023.....	20

Abstract

Background: Direct patient interaction is one of the most effective educational strategies for fostering clinical reasoning, professional attitudes, decision-making, empathy, communication skills and patient management. Although many medical schools have begun to incorporate simulations into their curriculum, actual patients are frequently the sole option for students to get practical clinical experience. However, the practice of patient-centered clinical activity relies heavily on the willingness and comfort of the parents to actively involve medical students in their child's health care.

Objective: This study aimed to assess parents acceptance of medical students' and factors affecting medical students' involvement in their child's health care from November 11, 2023 to January 9, 2024 at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

Methods: Facility based cross-sectional study was done from November 11, 2023 to January 9, 2024 at TASH, Department of Pediatrics and Child Health in pediatric emergency unit and pediatric wards. A total of 422 patients were studied. The data was gathered through the utilization of a structured questionnaire and analyzed employing the SPSS version 27. Categorical data were described using frequency and percentage. Bivariable and Multivariable logistic regression analyses were conducted to assess the factors impacting the acceptance of medical students. This study used an adjusted odds ratio (AOR) with 95% confidence interval to estimate the strength of the association at a statistical significance level of 5%.

Result: A survey of 422 parents of pediatric patients found that 83.9% of the respondents showed positive attitude towards medical students and 262 were aware of medical students practising at TASH. However, 29.4% and 36% of respondents refused clinical examinations and procedures on their child without presence of supervising physician. Meanwhile, 17.8% and 28.2% of respondents refused clinical examinations and procedures on their child in the presence of a supervising physician. The study found that the absence of a supervisor during a medical procedure and negative previous interactions significantly impacted medical student acceptance, with (AOR = 0.24[0.082–0.73]; 95% CI) with a P value of 0.01 and (AOR = 0.16 [0.05-0.48]; 95% CI) with a P value of 0.001, respectively.

Conclusion: Nearly one-thirds of parents whose child was admitted to Tikur Anbessa Specialized Hospital objected to clinical examinations and procedures on their children in the absence of supervising physician. Therefore, medical students may find it difficult to develop clinical skills at Tikur Anbessa Specialized Hospital.

Recommendation: To improve the low acceptance rate in clinical practice, TASH should raise the awareness of parents about the importance and necessity of clinical practice, address their concerns, and enhance the use of simulation-based practice.

Key words: Parents, acceptance, medical students, factors, Ethiopia

1. Introduction

1.1. Background

A university teaching hospital's primary purpose is to educate and train future doctors(1), give medical students enough learning opportunities to enable them to become capable, responsible, and compassionate doctors (2). Since students will eventually become health professionals, they should get experience by actively participating in direct involvement in patient's healthcare under close supervision of qualified professionals(1).

This is anticipated to be accomplished via a variety of teaching methods, including lectures, bedside teaching, clinical skill laboratories, attending clinics, participating in ward rounds, simulation, and direct patient evaluation(3)

Although many medical schools have begun to incorporate simulations into their curriculum, actual patients are frequently the sole option for students to get practical clinical experience(4,5). Patients play a crucial role in medical education, serving as the foundation for acquiring and honing clinical skills. These skills encompass various aspects, such as obtaining medical histories, conducting physical examinations, performing procedures, and formulating comprehensive care plans. (6)

Engaging in direct interactions with patients is acknowledged as a highly effective educational approach for nurturing clinical reasoning, professional attitudes, critical thinking skills, empathy, effective communication, and care (7). Moreover, establishing a strong connection between patients and students can act as a motivating factor for patients to openly share comprehensive and precise details regarding their condition and comply with treatment plans, resulting in enhanced health outcomes (7).

However, patient-centered (PC) clinical practice relies on the voluntary participation and comfort of the patients in including students in their health issues(4).

Studies done on adult patients have found that various aspects, such as prior experiences with medical students, the specific medical concerns they have, the physical appearance, behavior, and gender of the students, may impact their willingness and comfort in engaging with students in their health care (1, 4, 6).

1.2. Statement of the problem

Medical school students must possess the necessary clinical competencies to meet the minimum requirements set forth in the approved standards before they can be deemed qualified to practice their chosen profession(4,7).

This is supposed to be accomplished by translating their theoretical knowledge into practice under supervised practice in a range of clinical scenarios involving patient engagement in all clinical areas.(4,7)

But there are studies that have been done on perception and attitude of adult participants towards engagement of medical students in their care, majority of them showed low acceptance of students particularly in the absence of supervising doctors (3,8,9).

Contemporary healthcare recipients are actively engaged in choosing their health care, which poses difficulty in training students when patients choose not to be involved. With a growing emphasis on patients' rights and the importance of informed consent, patients now have the ability to decide whether they want medical students to be present during their consultations. (10).

TASH is teeming with its own students and students from various governmental medical universities, causing patients to interact with students with diverse knowledge, skills, areas of focus, and inquiries (1).

Medical ethics are unequivocal in their defense of patients' autonomy in medical practice(4) and crowded hospital settings may be the reason for the low acceptance rate of medical students' participation in their health care.

However, little is known about parents' acceptance toward medical students' engagement in their child's healthcare when visiting teaching hospitals, including TASH. It is important to gain an understanding of how parents visiting Tikur Anbessa specialized teaching hospitals feel about medical students' involvement in their healthcare.

1.3 Significance of the study

The findings of this study may inspire students to consider parents' wishes during clinical practices. This survey should also help to ensure parents' comfort and contentment with their child's health care, resulting in an enhanced quality of care at Tikur Anbesa Hospital. As a result, the purpose of this survey is to evaluate parents' acceptance of medical students' engagement in their child's health care and associated factors at TASH, so this study will serve for consideration of medical student interaction with parents/guardians of sick kids and as a baseline for further studies.

2. Literature Review

Engaging in clinical practice enables students to learn essential skills such as critical thinking, decision-making, and patient management; however, the successful acquisition of these skills hinges on the reasonable acceptance demonstrated by patients towards medical students(4,7,11).

Regarding this issue, few cross-sectional studies have been done on the acceptance of medical students' engagement in their health care, and all of them were done on adult patients.

A cross-sectional survey was done on the attitudes of patients towards the presence of students in clinical practice at Navamindrachiraj University, Thailand. In this study, of a total of 115 respondents interviewed, 56% expressed a preference for physicians to seek their permission before engaging students in their care, and 40% of the participants indicated that they were not comfortable with medical students evaluating certain parts of their bodies. However, it is important to note that a majority of the participants (66%) expressed satisfaction with the presence of medical students in the examination room. Furthermore, over 90% of the respondents expressed their consent to have medical students present during their future visits to the facility (8).

In Jordan, a hospital-based cross-sectional survey was done on patients' perceptions toward medical student participation in their healthcare. The survey included 420 adult participants; the majority (94%) were conscious that they were receiving treatment at a teaching hospital; 92% acknowledged the availability of medical students during consultation; and 80% agreed to be seen and evaluated by students when a senior doctor was present. In the absence of a senior physician, however, their willingness dropped to 30.5%. Eighty-three percent of the 420 respondents believed that their permission should be earned first. However, 58% of respondents said the student asked for permission before engaging with them (9).

A survey conducted at Damascus University's teaching hospitals found that 67.8% of patients approved of students' presence during consultations, and 58.2% felt comfortable with their presence. The majority (81.5%) and 40.2% expressed willingness to be evaluated by students in the presence and absence of attending physicians, respectively (10).

In a study done on adult patients in Kuwait, among a total of 932 participants, 48.8% and 62.2% of respondents showed refusal to authorize medical students to take their histories and evaluate them in the absence of supervisor (12).

A survey conducted at King Fahad University Hospital on 102 adult participants revealed that 57% of respondents chose both physician and student engagement in their dermatology clinic care. Forty-six percent acknowledged students' presence during clinical examinations. Sixty-five percent of the participants felt at ease sharing personal details with the students; 68.7% liked their engagement with students; and 63.7% of patients agreed that the students displayed a good understanding of their healthcare needs (13).

In a study from Saudi Arabia, of the 492 patients surveyed, 60.2% of them had previously communicated with medical students. The majority of the patients (80.7%) expressed that the appearance and demeanor of the medical students impacted their cooperation. However, 64% of the patients did not refuse to the presence of medical students during physical examinations. Additionally, 63% of the participants believed that they should be informed in advance about the engagement of medical students. More than half of the patients expressed their right to refuse the involvement of medical students, and 57.9% favored medical students of the same gender (5).

Whereas 42% of the patients expressed a preference for the physician's sole presence during examinations, while 38% were eager to acknowledge the presence of both the doctor and students (5).

When we came to the continent of Africa, a hospital-based cross-sectional study was done on patients' attitudes towards undergraduate medical students at a university charity teaching hospital in Sudan: Among the 432 patients interviewed, 95.2% granted the participation of medical students during the medical consultation, 79.8%, and 33.5% agreed to be evaluated by students in the presence and absence of the supervising physician, respectively. More than fifty percent of the participants believe that students' participation in their health care is part of their practical training (14).

Another cross-sectional study was done on patient's perceptions and attitudes towards medical students at a Nigerian university teaching hospital. Of a total of 240 participants, 77.1% showed their cooperation to permit students participation in their care (4).

Among 55 respondents who were unwilling to allow medical students participation in their care, their reasons were privacy concerns, a lack of confidence in medical students, and their past experience with medical students being unfavorable (4).

Another cross-sectional survey was undertaken on patients' attitudes towards the engagement of medical students in their care at university teaching hospitals in Uganda. Out of a total of 855 patients included in the study, 70% were able to identify and distinguish medical students from qualified physicians. Furthermore, 65% of the patients had previously engaged with medical students during

their prior consultations. It is noteworthy that the majority of participants (96%) considered the engagement of medical students in their care as an essential component of training future doctors (11).

When it came to Ethiopia, one cross-sectional study was done thirteen years ago in adult participants on the engagement of medical students in their health care by Worku Animew, and it found that of 392 respondents, 105 (26%) patients had a negative attitude towards students' participation in their health care, and nearly half of the participants expressed unwillingness to be evaluated by students (1).

3. Objectives

3.1. General objective

- ❖ To assess parents'/caregivers' acceptance of medical students and factors affecting medical students' acceptability by parents/care givers' child's health care at TASH

3.2. Specific objectives

- ❖ To assess the acceptance of medical students by the parents of pediatric patients at TASH,
- ❖ To determine factors affecting the acceptance of medical students' acceptability in their child's health care at TASH

4. Method and Materials

4.1. Study area and period

The study was conducted at TASH, Department of Pediatrics and Child Health, Addis Ababa, Ethiopia, from November 11, 2023, to January 9, 2024.

Tikur Anbessa Specialized Hospital is the largest teaching and referral hospital in Ethiopia. The hospital offers numerous undergraduate, specialty, and sub-specialty training programs in a variety of fields of study. The school of medicine admits on the average 300 medical under graduate students yearly. There are also sub-specialty training programs including oncology, cardiology, neurology, infectious diseases, nephrology, neonatology, gastroenterology, and pulmonology. Specialty training programs enrolls 40 residents annually to run for 3 full years. In addition to teaching and learning activities, TASH provides diagnostic tests and treatment services to nearly 400,000 patients each year.

4.2. Study design

- ❖ A hospital-based cross-sectional study was carried out at TASH, Department of Pediatrics and Child Health.

4.3. Population

4.3.1. Source population

- ❖ All parents/ caregivers of pediatric patients visited TASH, Department of Pediatric and Child Health and who were admitted for in-patient care at the time of the data collection period.

4.3.2. Study population.

- ❖ All Parents /care givers of pediatric patients who visited TASH, pediatric and child health department, and were admitted to pediatric emergency and pediatric wards from November 11, 2023, to January 9, 2024.

4.4. Eligibility

4.4.1 Inclusion

- ❖ All parents of pediatric patients who consented to engage in this study during the data collection period.

4.4.2 Exclusion criteria

- ❖ Parents of pediatric patients who declined to participate in this study and parents of critically ill children during the data collection period.

4.5. Sample size determination and sampling technique

4.5.1. Sample size determination

- ❖ The total sample size was calculated by using the single population proportion formula. Since no prior similar study has been conducted in the pediatric age group, 50% population proportion was used to compute the required sample size.

Where: n = sample size P = proportion q = 1-p d = desired degree of precision
(5%) Z= is the standard normal value at 95% confidence level

$$n = \frac{p(1-p) \left(Z_{\frac{\alpha}{2}} \right)^2}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.5(1-0.5)}{0.05^2} = 384 \longrightarrow 384 + 10\% \text{ non-respondent} = 422$$

The final sample size was determined 422.

4.5.2. Sampling technique and procedure

- ❖ The Consecutive sampling technique was used at respective wards during the study period until the desired sample size is obtained.

4.6 Data Collection Tool and Procedures

- ❖ Six internship students were recruited and trained to collect the data. A structured questionnaire was used, which comprised three sections.
 - *Section 1*- Socio-demographic data
 - *Section 2* – History of previous contact and extent of medical student’s involvement
 - *Section 3* – Attitude of the parent towards future medical student’s involvement in their childcare

4.7. Data Quality control and management

- ❖ To ensure the quality of the data, the questionnaire was pretested with 10% (about 42 participants) of the total sample size to assess the consistency of the questionnaire and the ability of the data collectors to carry out the study. The questionnaire was modified based on pretested results. Ahead of data collection, short training was provided to the data collectors on

data collection methods, and techniques. The tool was reviewed and verified for completeness daily by the principal investigator (MA). The overall activity of data collection was monitored and facilitated by the principal investigator (MA).

4.8. Variables

4.8.1 Outcome variable

- ❖ Acceptance of medical students

4.8.2 Explanatory variables

- ❖ Age of the parent/care taker
- ❖ Educational status
- ❖ Religion
- ❖ Previous experience with medical students
- ❖ Place of residency
- ❖ Site of interview
- ❖ Nature of their child's problem
- ❖ Absence of supervising Doctor

4.9. Operational Definition

- ❖ **Acceptance of medical students:** - Refers to the willingness and approval of parents or caretakers of pediatric patients towards the involvement of medical students in their child's healthcare.
- ❖ **Manner of medical students:** - defined as the behavior, conduct, or approach of medical students as perceived by parents or caretaker of pediatric patients.

4.10. Data processing and Analysis

- ❖ Following the completion of data collection, each form was thoroughly checked for completeness and exported to SPSS version 27 for analysis. Categorical data were described using frequency and percentage. To uncover factors linked to the acceptance of medical students, first, a bivariable analysis was done. Then variables with a P-value < 0.25 in a bivariable analysis were chosen as potential variables to be included in a multivariable analysis. Lastly, variables with a p-value < 0.05 in multivariable analysis were considered statistically significant, and the association was measured using an adjusted odd ratio (AOR) along with a 95% confidence interval. The results were presented using tables and graphs and finally interpreted into valuable information.

4.11. Ethical consideration

- ❖ Ethical clearance was obtained from the Department of Pediatrics and Child Health, Research and Ethical Review Committee (DRERC). Verbal consent was obtained from parents or caregivers preceding data collection. Confidentiality was ensured at all stages of the survey, the information gathered from the respondents kept confidential and utilized solely for research intents

4.12. Dissemination and utilization of results

- ❖ The findings of this research will be submitted to Addis Ababa University, College of Health Sciences, Department of Pediatrics and Child Health. It will be presented during the final defense for partial fulfillment for specialty certificate in pediatrics and child health program. An attempt will be made to present the findings at various review meetings, and workshops. Furthermore, the manuscript will be published on peer-reviewed journals.

5. Result

5.1 Socio-demographic characteristics

5.1.1 Socio-demographic Characteristics of the patient

In the study period, a total of 422 responses were collected from eligible participants. Among the total patients, 216 (51.2%) were male and 206 (48.8%) were female, resulting in a male-to-female ratio of 1:1. Among the children included in the study, more than one-third (168, 39.8%) of the children were in the age group of >59 months, followed by 127 (30.1%) in the age group of 12-59 months.

Table 1: Socio-demographic characteristics of attending child at Tikur Anbessa specialized Hospital, 2023

Variable		Frequency	Percent
Age of the patient	<1month	22	5.2
	1-12months	105	24.9
	12-59months	127	30.1
	>59months	168	39.8
Gender of the patient	Male	216	51.2
	Female	206	48.8
Total		422	100.0

5.1.2 Socio-demographic Characteristics of the parents

There were 422 participants, of whom 199 (47.2%) were male and 223 (52.8%) were female. This distribution resulted in a balanced male-to-female ratio of 1:1. Among the surveyed parents, more than one-third (181, 42.9%) fell within the age group of 28–37 years. The second most prominent age group was 38–47 years old, comprising 106 (25.1%) parents. Nearly half (205, 48.6%) of the children's current caretakers were their mothers. More than one-third (159, 37.7%) of the parent's religion was Muslim, followed by Orthodox, which accounts for 158 (37.4%). About 366 (86.7%) of the respondents were married. Regarding the educational status of parents/caregivers, more than one-third (159, 37.7%) have completed secondary school, and more than a quarter (121, 28%) of the parents have completed primary school. Regarding occupational status, about 143 (33.9%) of the parents were housewives, followed by farmers, which account for 97 (23%). More than half (251.59.5%) of the patients came from urban areas. Regarding the place of interview, more than half (229, 54.3%) of the parents were interviewed at a pediatric emergency, whereas the rest (193, 45.7%) were at the pediatric ward (Table 2).

Table 2. Socio-demographic characteristics of the parent at Tikur Anbessa specialized Hospital 2023

Variables		Frequency	Percent
Age of respondents	18-27	70	16.6
	28-37	181	42.9
	38-47	106	25.1
	48-57	53	12.6
	>58	12	2.8
Gender of the respondents	Male	199	47.2
	Female	223	52.8
Religion of the respondent	Orthodox	158	37.4
	Muslim	159	37.7
	Protestant	90	21.3
	Others	15	3.6
Occupational status of respondent	Housewife	143	33.9
	Government employe	39	9.2
	Merchant	54	12.8
	Private worker	44	10.4
	Farmer	97	23.0
	Others	45	10.7
Educational status of the respondent	No formal education	53	12.6
	Primary school	121	28.7
	Secondary school	159	37.7
	Diploma	33	7.8
	Degree and above	56	13.3
Marital status of the respondents	Married	366	86.7
	Single	18	4.3
	Divorced	18	4.3
	Widowed	20	4.7
Place of interview	Pediatric emergency	229	54.3
	Pediatric ward	193	45.7
Place of residency	Urban	251	59.5
	Rural	171	40.5
Relationship of the respondent to the child	Father	189	44.8
	Mother	205	48.6
	Others	28	6.6
Total		422	100.0

5.2 Medical Student acceptance and extent of medical student’s involvement

Out of the 422 respondents surveyed, nearly two-thirds (262, 62.1%) of the parents demonstrated awareness of medical students practicing at Tikur Anbessa Specialized Hospital.

In this study, medical student acceptance was found to be 354 (83.9%; 95% CI: 80.0-87.3) at Tikur Anbessa specialized hospital in 2023.

Among the 262 respondents who knew medical students were practicing at TASH, 227 (86.6%) of them accepted medical students’ involvement in their child’s health care, which accounts for 53.8% of the total acceptance rate. whereas among 160 respondents who were not aware that medical students were practicing at TASH, 127 (79.4%) of them reported that they would allow medical students involvement in their child’s healthcare, which accounts for 30.1% of the total acceptance rate.

Table 3 Parents Knowledge of medical students practicing at Tikur Anbessa Specialized Hospital and medical students acceptance at TASH,2023

Variable	Medical student Acceptance		
	No	Yes	
Parent knowledge of Student practice at TASH	Yes	35(13.4%)	227(86.6%)
	No	33(20.6%)	127(79.4%)
Total		68(16.1%)	354(83.9%)

Of 422 parents, most (83.9%) of them permit medical students to read medical files in the absence of a supervisor; most (80.3%) allow medical students to take history from the parents in the absence of supervising physician; more than two-thirds (70.6%) of them allow medical students to examine the patient in the absence of a supervising physician; and nearly two-thirds (64%) of the parents permit medical students to do procedures in the absence of a supervising physician. Whereas most (83.9%), (83.9%), (82.2%), (83.2%), and (71.8%) of them permit medical students to read medical files, take histories, attend while a physician performs a physical examination, examine patients, and do procedures in the presence of supervising physician, respectively.

Regarding the reason for accepting medical students, nearly half (153, or 43.2%) of the parents reasoned that accepting medical students was important for their learning process, followed by considering the medical students as qualified physicians, which accounted for 103 (29.1%). Whereas nearly two-thirds (42, 61.8%) of the parents reasoned for the rejection of medical students’ acceptance was their child’s nature of illness, followed by a lack of confidence in medical students, which accounted for 21 (30.9%).

Table 4. Medical Student acceptance and extent of medical student's involvement at Tikur Anbessa specialized Hospital 2023

Variables		Frequency	Percent
Knowledge about medical students practicing at TASH	Yes	262	62.1
	No	160	37.9
Permit medical students to read medical file in the absence of supervisor	Yes	354	83.9
	No	68	16.1
Permit medical students to take history in the absence of supervisor	Yes	339	80.3
	No	83	19.7
Permit medical students to examine in the absence of supervisor	Yes	298	70.6
	No	124	29.4
Permit medical students to do procedure in the absence of supervisor	Yes	270	64.0
	No	152	36.0
Permit medical students to attend Physical examination	Yes	347	82.2
	No	75	17.8
Permit medical students to read medical file in the presence of supervisor	Yes	354	83.9
	No	68	16.1
Permit medical students to take history in the presence of supervisor	Yes	354	83.9
	No	68	16.1
Permit medical students to examine in the presence of supervisor	Yes	351	83.2
	No	71	16.8
Permit medical students to do procedure in the presence of supervisor	Yes	303	71.8
	No	119	28.2
Reason to allow/accept medical students	Considered him/her as a qualified physician	103	29.1
	Important learning process	153	43.2
	Helps me understand my child's condition better	56	15.8
	It will make the doctor pay more attention to my child	39	11.0
	Others	3	0.8
	Total	354	100.0
Reason to reject medical students	My past experience	1	1.5
	I do not have confidence	21	30.9
	Nature of my child's illness	42	61.8
	Will make consultation time longer	1	1.5
	Students are too many	3	4.4
	Total	68	100.0
Total		422	100.0

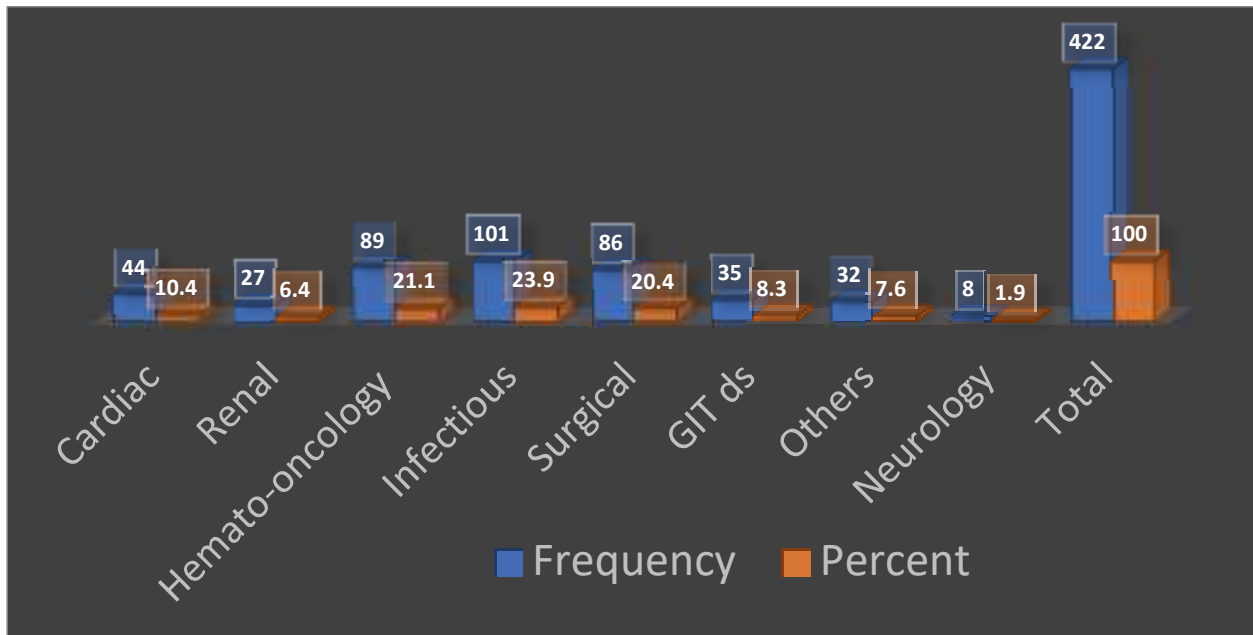


Figure 1 shows current medical problem of the child at Tikur Anbessa specialized hospital in 2023

Nearly a quarter (101, 23.9%) of the child's current medical illness was infectious, followed by Hemato-oncology and surgical cases, which account for 89 (21.1%) and 86 (20.4%), respectively. Fig1.

More than one-third (34.6%) of the parents of pediatric patients responded that their acceptance of medical students' involvement in their child's healthcare was affected by the nature of their child's illness.

Less than half (188, or 44.5%) of the parents had a previous history of contact with medical students; more than half (109, or 58%) of medical students took history and did physical examinations, whereas 49 (26.1%) took history only, 26 (13.8%) did physical examinations, and the rest (2.1%) observed while the doctor was doing examinations.

Among respondents who had a prior history of contact with medical students, nearly half (93, or 49.5%) of the parents have a positive attitude towards medical students, whereas 44 (23.4%) and 51 (27.1%) have negative and neutral attitudes, respectively.

Among those who have a negative attitude towards medical students, most (40, 90.9%) of them reasoned that the students were too many at the time of previous contact; 2 (4.5%) of the parents reported that the student's way of communication was unfavorable, and 1 (2.3%) of the parents reported that the students made consultation time longer.

Regarding obtaining parent consent, 112 (59.6%) of the parents responded that consent was obtained prior to the students' involvement in their child's health care, and most (89, or 79.5%) of consent was obtained by medical students, and the rest 23 (20.5%) was obtained by a supervising physician.

Table 5 Parents previous interaction with medical students *at TASH in 2023*

Variable		Frequency	Percent
Interacted with medical students	yes	188	44.5
	no	234	55.5
	Total	422	100
what did medical students do for your child	Asked history only	49	26.1
	Did physical examination only	26	13.8
	Took history and did examination	109	58
	Observed	4	2.1
	Total	188	100
Attitude towards previous interaction	Positive	93	49.5
	negative	44	23.4
	neutral	51	27.1
	total	188	100
Reason for negative attitude in your previous contact	Students' method of communication was unfavorable	2	4.5
	Made consultation time longer	1	2.3
	The students were too many	40	90.9
	Others	1	2.3
	Total	44	100
Was consent obtained prior to interaction	Yes	112	59.6
	No	76	40.4
	Total	188	100
Who asked for consent	Student	89	79.5
	Physician	23	20.5
	total	112	100

Regarding obtaining consent, most 404 (95.7%) of the parents preferred to be informed in advance of medical student involvement in their child's health care.

5.3 Attitude of the parent towards future medical student's involvement

Regarding future involvement of medical students, most 303 (71.8%) of the respondents reported that they consented to involve medical students in their child's health care in the future visit, and the rest 119 (28.2%) of the respondents rejected future acceptance of medical students. Their main reason for rejecting medical students' involvement in the next visit was their child's nature of illnesses, which account for 49 (41.2%), followed by unfavorable past and current experiences with medical students, and there were too many students during previous contact, which accounted for 30 (25.2%) each, respectively.

Regarding medical student gender preferences, almost all 414 (98.1%) of the parents had no gender preferences, whereas 8 (1.9%) of the parents had gender preferences. Of those who prefer gender, eight of them prefer the female gender.

5.4 Factors affecting medical student involvement

In this study, explanatory variables such as age of the patient, sex of the patient, sex of the parent's, parent's age, parent's educational status, place of residence, nature of the child problem, absence of supervisor during the procedure, previous experience with medical students, and outcome of the interaction were analyzed first by bivariable analysis. Based on the p-value (< 0.25) of the bivariable analysis, three variables were identified as candidate variables for the multivariable analysis these are Age of the parent, absence of supervisor during the procedure, and outcome of the previous interaction

The result of the multivariable analysis revealed that: absence of supervisor during the procedure and negative outcomes in previous interactions were significantly associated with medical student acceptance.

The odds of medical student acceptance were 76% lower in the absence of a supervisor during the procedure as compared to the counter group (**AOR = 0.24[0.082–0.73]; 95% CI**) with P value of 0.01 The odds of medical student acceptance were 84% lower in the negatively impacted group previously as compared to the positively impacted group previously (**AOR = 0.16[0.05-0.48]; 95% CI**) with P value of 0.001

Table 6. Bivariable and Multivariable Logistic Regression analysis results of factors associated with medical students' acceptance at TASH, Addis Ababa, Ethiopia, 2023

Explanatory Variable	Acceptance of medical student		Bivariate analysis (COR)	Multivariate analysis (AOR)	P value	
	No	Yes				
Age of respondents	18-27	15	55	1.2[0.2-5.08]	0.89[0.13-6.09]	0.91
	28-37	33	148	1.4[0.3-5.82]	5.6[0.9-34.3]	0.06
	38-47	11	95	2.8[0.6-12.24]	5.10[0.78-33.1]	0.08
	48-57	6	47	2.6[0.5-12.40]	2.98[0.4-22.3]	0.28
	>58	3	9	1	1	
Absence of supervisor during procedure	Yes	52	218	0.4[0.2-0.89]	0.24[0.082-0.73]	0.01*
	No	16	136	1	1	
Outcome of the interactions	Positively	8	85	1	1	
	Negatively	14	30	0.2[0.07-0.5]	0.16[0.05-0.48]	0.001*
	Neutral	8	43	0.5[0.17-1.4]	0.42[0.13-1.31]	0.13

6. Discussions

This study was intended to assess parent's acceptance and factors affecting medical student's involvement in their child's healthcare.

The majority (83.9%) of the participants interviewed at TASH had a positive attitude towards the involvement of medical students in their child's health care; this result coincides with the studies done in, Sudan, and Saudi Arabia but it is slightly higher than the Nigerian and, local study done in Ethiopia. (1,4,7,9,14). The lower acceptance rate of medical students in previous local studies may be explained since the study was done on admitted adult patients, including surgical, medical, and gynecology/obstetric patients. In this study, the acceptance rate of medical students in gynecology/obstetric patients was low, which lowered the overall acceptance rate of the study. The low acceptance rate among gynecology and obstetrics respondents in the previous study may be attributed to the fact that majority patients in gynaecology and obstetrics are postpartum or postoperative and privacy concerns are heightened.

Whereas the Nigerian study was conducted on adult patients attending outpatient clinics, a possible explanation could be that many patients attending the outpatient clinic may have a desire to finish their appointment quickly and resume their routine activities, which results in a lower acceptance rate, and the majority of patients at the outpatient clinic may have chronic illnesses, which may further contribute to the lower acceptance rate among medical students.

Gender, marital status, occupation status, religion, place of residence, and educational level of the respondents were assessed as factors affecting medical students' involvement in their child's healthcare, but no significant association was seen.

Nearly one-third (29.4%) and 36% of parents responded that they would object to physical examinations and clinical procedures by medical students on their child in the absence of supervisor, respectively; this result is slightly lower than studies done in Nigeria (4). The study was done at an outpatient clinic, so most outpatient individuals are relatively stable compared to admitted patients who are acutely ill. Therefore, this could be attributable to a higher acceptance rate than what was observed in this study.

However, in comparison to local and other studies that were done in different countries, it showed different results, which showed refusal rates of 61%, 69%, 67%, and 45% in Saudi Arabia, Jordan,

Sudan, and local studies done in Ethiopia, respectively (1,7,9,14). Since those studies were conducted on adult patients, including medical, surgical, and gynaecology/obstetric patients, the lower acceptance rate in those studies could be attributed to privacy concerns. Those adult patients may be hesitant due to worries about the confidentiality of their personal information, and a lack of awareness of the potential benefits of involving medical students in their healthcare could be the cause of the lower acceptance rate in the previous study.

However, the study found that parents' objections to physical examination of their child's was reduced by at least two times in the presence of supervising doctors; this result is similar to studies done in Jordan, Sudan, and Nigeria, which are 20%, 21%, and 16.7%, respectively (4,9,14) but studies done in Saudi Arabia showed refusal to physical examination by students remained high (37%) despite the presence of supervising doctors (7).

Nearly two-thirds (64%) and three-fourths (71.8%) of parents would allow medical students to do clinical procedures in the absence and presence of supervisor, respectively; this result is similar to studies done in Jordan (9) but higher than that of studies done in Sudan, and Saudi Arabia, which was 28% and 43.9% respectively (7,14).

This study found that more than three-fourths of respondents would allow medical students involvement when there is minimal or indirect contact with their children, such as reading medical files, observing while the attending physician is doing a physical examination, and taking histories of their child even in the absence of supervisor; this result is almost consistent with studies done in Jordan, Sudan, and Saudi Arabia, but it is lower than studies done in Nigeria (4,7,9,14).

Study found that 96% of parents responded that medical students should ask permission first before any encounter with their child's healthcare. However, only 59.6% of students who had previously been in contact with parents were asked permission. This low percentage may be due to fear of rejection from attendants or the desire to act as a graduated physician. Departments or senior consultants should educate students on the importance of asking for consent to create trust and a smooth parent-student relationship.

This study found that 44.5% of the parents had a previous history of contact with medical students; half of them had a positive attitude, and a quarter of them had a negative attitude towards medical students. Nearly 91% of them reported that their reason for a negative attitude towards medical students was that there were too many students at the time of previous contact.

This study found that 28% of the parents interviewed responded that they will not allow medical students involvement in their child's healthcare in the future. Their main reason expressed by parents was unfavorable past and current experience with medical students, the students were too many at the time of previous contact, and students' manner which accounts for 53.8% of their reason for not involving students in their child's healthcare in the future visit. It is important to address these concerns and ensure that parents feel comfortable and confident in the involvement of medical students, in order to maintain a higher acceptance rate in the future.

7. Limitations of the study

While the research conducted in a single hospital provides valuable insights, it is crucial to note that the findings may not be applicable to the general population. The data collection method, which relied on interviews, introduces the possibility of response bias. It may have been influenced by their interaction with the data collectors. This potential bias could impact the accuracy and reliability of the data collected. The patients were expected to retrieve past and present experiences during the data collection, which may not reflect the true picture of their past experiences.

8. Conclusions

Parents in general have a positive attitude towards medical students' engagement in their child's healthcare, with acceptance largely influenced by involvement type, the number of students, the presence of supervisor, and the child's medical condition.

The study found a higher refusal rate in cases requiring direct physical contact, potentially resulting in reduced practical proficiency due to minimal clinical and procedural exposure.

The study revealed a lower percentage of parental permission for past parent-student engagement during a child's previous visit, which could potentially limit future participation.

The higher refusal rate suggests teaching hospitals should explore alternative teaching methods like simulation-based training, enhance student-parent relationships, and raise awareness about medical students' involvement in their child's healthcare.

9. Recommendations

Based on the findings of the study, to improve clinical training and patient-student relationships, the following recommendations are forwarded:

1. The department should raise the awareness of medical students about the significance of obtaining consent, fostering politeness and respect with each patient encounter, and providing important information about their child's illness after the end of the patient encounter. It is important to create a smooth parent-student relationship, enhance parents' confidence, and increase medical student's acceptance.
2. It is crucial for the medical school and stakeholders of Tikur Anbessa specialized hospital to establish effective strategies to raise awareness among patients about Tikur Anbessa Specialized Hospital being a teaching hospital where medical students actively participate in patient care. Emphasize the importance of patient-student interaction in developing students' skills and communication abilities, ultimately ensuring the delivery of high-quality care when they become physician.
3. To conduct a multicenter study to investigate the root causes behind lower parent's acceptance towards medical students, aiming to identify factors that influence pediatric patient parents' perception and develop strategies to enhance, trust and engagement with medical students in healthcare settings.

10. Reference

1. Temesgen WA. Patients' Attitude Towards Medical Students Involvement in Their Health Care at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2010. *Ethiop J Health Sci.* 2013 Jul;23(2):158–64.
2. Holambe V, Thakur N, Giri P. Student's preferences for learning in medical education. *Int J Community Med Public Health.* 2015;328–30.
3. Ahmed SS, Reddy SC. Clinical Medical Students' Preferred Teaching Methods: A Study at the National Defense University of Malaysia. *Eur J Med Health Sci.* 2021 Mar 30;3(2):74–8.
4. Onotai L. O., Asuquo E. O., Amadi E., Amadi- Oparelli A., Ali D. U. patients' perception and attitude towards medical students' involvement in patients care at a nigerian university teaching hospital. *Int Res J.* 2012 Sep;3(9):732–43.
5. Abdulghani H, Al-Rukban M, Ahmad S. Patient Attitudes towards Medical Students in Riyadh, Saudi Arabia. *Educ Health.* 2008;21(2):69.
6. Aljouidi SB, Alsolami SS, Farahat FM, Alsaywid B, Abuznadah W. Patients' attitudes towards the participation of medical students in clinical examination and care in Western Saudi Arabia. *J Fam Community Med.* 2016;23(3):172–8.
7. Iqbal M, Bukhamsin E, Alghareeb F, Almarri N, Aldajani L, Busaleh H. Participation of medical students in patient care: How do patients perceive it? *J Fam Med Prim Care.* 2020;9(7):3644.
8. Hathaipat Vaseenon, Yanaphan Rattanakitrungruang, Kevallee Eamvorasombat, Chayamai Hathaisaard, Chayut Dumrongsirikool, Atthawit Lertsansern, et al. Attitudes of Outpatients towards the Presence of Medical Students in Clinical Practice: A Cross-sectional Study. *Vajira Med J.* 2017; 61:3.
9. Taha HA, Al Saqer JK, Al Harbi NR, Younis RN, Al Dawoud F, Nawaiseh MB, et al. Patient's Perceptions and Attitudes Towards Medical Student's Involvement in Their Healthcare at a Teaching Hospital in Jordan: A Cross Sectional Study. *Patient Prefer Adherence.* 2023; 17:629–41.
10. Sayed-Hassan RM, Bashour HN, Koudsi AY. Patient attitudes towards medical students at Damascus University teaching hospitals. *BMC Med Educ.* 2012 Mar 22; 12:13.
11. Mwaka AD, Taremwa S, Adoch W, Achan J, Ainembabazi P, Walego G, et al. Patients' attitudes towards involvement of medical students in their care at university teaching hospitals of three public universities in Uganda: a cross sectional study. *BMC Med Educ.* 2022 Dec;22(1):519.
12. Marwan Y, Al-Saddique M, Hassan A, Karim J, Al-Saleh M. Are medical students accepted by patients in teaching Hospitals? *Med Educ Online.* 2012 Jan;17(1):17172.
13. Bukhari I, AlAkloby O, Al Saeed W. Patients' attitude towards medical students rotating in the dermatology clinic. *Indian J Dermatol.* 2008 Jan;53(1):12–4.
14. Alawad AAM, Younis FH. Patients' attitude towards undergraduate medical students at university charity teaching hospital in Sudan. *Int J Med.* 2014 Apr 16;2(1):28.

Annex I: Consent form

Parent /Caregiver's Information sheet and Consent Form

Title - Parents acceptance of medical students and factors affecting medical students' involvement in their child's health care at Tikur Anbessa Specialized Hospital Addis Ababa, Ethiopia

Dear Respondent,

I am kindly requesting your willingness to participate in this research paper. I am conducting the survey on parent's acceptance of medical student's involvement in their child's health care for partial fulfillment of the specialty program in pediatrics and child health. The information you provide is confidential and is used only for the purpose of this study. Therefore, you are kindly requested to provide genuine response to the questions. If you have any questions about this study, please don't hesitate to ask the data collector, and you have the full right to refuse if you are not willing to participate.

Thank you in advance.

Date _____ signature _____

Annex II Data collecting Questionnaire.

I. Socio-demographic data.

1. Age of the parent (in years): _____
2. Age of the patient: _____
3. Gender of the parent (care giver): _____
4. Gender of the child _____
5. Religion: A. Orthodox Christian B. Muslim C. protestant D. Others specify_____
6. Occupation status of father/mother/attendant _____
7. Educational status of father/mother _____
8. Marital status: A. Married B. Single C. Widowed D. divorced
9. Place of interview? A. pediatric emergency B. pediatric ward
10. Place of residency: A. Urban B. Rural
11. Relationship of the attendant to the child? _____

II. History of previous contact and extent of medical student's involvement

12. Do you know medical students are practicing at TASH's department of pediatrics? **A. Yes B. No**
13. Would you allow medical students' involvement in your child's health care? **A. Yes B. No**
14. Would you permit medical students to read your child's medical file in the absence of supervising doctor?
A. Yes B. No
15. Would you permit medical students to take your child's medical history from you in the absence of a supervising doctor? **A. Yes B. No**
16. Would you permit medical students to examine your child without the presence of a supervising doctor?
A. Yes B. No
17. Would you permit medical students to perform procedures (inserting catheter, NG tube, blood sample) on your child in the absence of supervising physician? **A. Yes B. No**
18. Would you permit medical students to be present while the physician examining your child?
A. Yes B. No
19. Would you permit medical students to read your child's medical file in the presence of supervising doctor?
A. Yes B. No
20. Would you permit medical students to take your child's medical history from you in the presence of a doctor? **A. Yes B. No**
21. Would you permit medical students to examine your child in the presence of a supervising doctor?
A. Yes B. No
22. Would you permit medical students to perform procedures on your child in the presence of supervising physician? **A. Yes B. No**

23. **If your answer is “YES”**, why would you allow medical students to be involved in your child’s health care?
- A. Considered him/her as a qualified physician
 - B. Important learning process for future doctors
 - C. Helps me understand my child’s condition better
 - D. It will make the doctor pay more attention to my child
 - E. Others specify_____
24. If your answer is “**NO**”, why have you rejected medical students’ involvement in your child’s health care?
- A. My Past experience with medical students was unfavorable
 - B. I don’t have confidence in medical students’
 - C. Nature of my child’s illness
 - D. The medical students will make consultation time longer
 - E. Students are too many.
 - F. Others specify _____
25. What is your child’s current medical problem? _____ **please check medical record of the child**
26. Did your child’s nature of illness affect involvement of medical students in your child’s health care?
- A. Yes B. No**
27. Have you ever interacted with medical students during your child’s previous hospital admission?
- A. Yes B. No
28. If your answer is “**YES**” to **Q number 27**, what did the medical student do for your child?
- A. Asked me questions about my child illness
 - B. They did physical examination
 - C. Took history and did physical examination
 - D. Observed while supervising doctor was doing Physical examination.
29. How did your previous contact with the medical student affect your perception towards medical students?
- A. Positively B. Negatively C. Neutral**
30. If your answer is “**Negatively, to Q number 29**”, how was it affected negatively?
- A. The student’s method of communication was unfavorable.
 - B. The medical students made consultation time longer
 - C. The students were too many
 - D. Others specify _____
31. Was consent obtained prior to the students’ involvement in your child’s health care? **A. Yes B. No**
32. If your answer is “**YES**” to **Q No 31**, who asked for your consent? A. student B. the Physician
33. Do you prefer to be informed in advance that a medical student will be present during your child’s clinical examination? **A. yes B. No**

III: attitude of the parent towards future medical student's involvement in their child care

34. Would you consent to involving medical students in your child's care during the next visit? **A. yes**
B. No

35. If your answer is "NO" to **Q no 34**, why would you reject medical students' involvement in your child's future health care?

- A. My Past and current experience with medical student was unfavorable
- B. Medical students' manner
- C. Make consultation time longer
- D. Medical students were too many
- E. Others specify _____

36. Do you have gender preference regarding their involvement in your child's health care?

- A. Yes
- B. No

37. If "YES" to **Q number 36**, which gender, would you prefer? A. Male B. Female

