

2022-03-22

PERCEIVED QUALITY OF
PEDIATRICS HEALTHCARE
SERVICES AND ASSOCIATED
FACTORS IN FELEGE HIWOT
COMPREHENSIVE SPECIALIZED
HOSPITAL, BAHIR DAR,
NORTH-WEST ETHIOPIA, 2019.

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BAHIR DAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES, SCHOOL OF
PUBLIC HEALTH, DEPARTMENT OF HEALTH SYSTEM
MANAGEMENT AND HEALTH ECONOMICS

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THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH SYSTEM
MANAGEMENT AND HEALTH ECONOMICS, SCHOOL OF PUBLIC
HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS
OF PUBLIC HEALTH IN HEALTH SYSTEM AND PROJECT
MANAGEMENT

JANUARY, 2020

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Acknowledgements

First of all, I would like to thank my almighty God for his countless help and permission of finishing this job as I planned. My special thank will be to Bahir Dar university college of medicine and health sciences librarians for their contribution of accessing long time operating library with internet access which helped me to download and review literatures. Next my gratitude will be to my advisors Mr. Ayinengida A and Mr. Desta D for their valuable comments and guiding me on the way of conducting this study. My appreciation is also to data collectors and supervisor for their exhaustive efforts exhibited and without this the research paper might not be reached at this stage. Last but not least I would like to thank my wife w/ro Misgana H for her contribution in data entry along with her fruitful moral supports.

Abstract

Background: Driving quality in pediatric healthcare services plays an important role both in reducing mortality and morbidity and to bring parental satisfaction. Parental perception is an important method of measuring the functional quality of pediatric healthcare services. Conducting this study was reasonably needed to generate evidences regarding to driving quality in pediatric healthcare services.

Objectives: The major objective of this study was to assess the perceived quality and associated factors in pediatric healthcare services at Felege Hiwot Comprehensive Specialized Hospital, northwest Ethiopia, 2019.

Method: A facility-based cross sectional study design was employed among parents or caregivers of childhood patients triangulated with qualitative study among care providers. Exit interview and focus group discussion were methods of data collection. A total of 407 and 18 participants were recruited for quantitative and qualitative study respectively. Stratified random sampling technique was used for quantitative study and participants of qualitative study were selected purposively. SPSS software was used for data processing and analysis for quantitative study. Binary logistic regression model was computed to analyze factors associated with parental quality perception. Qualitative data was analyzed based on thematic framework.

Results: A total of 401 parents participated in the study. The overall perceived level of quality was found to be 57.6% [95% CI (52.6%-62.3%)]. Shortage in required resources, inadequacy of facilities and unsafe working environment were identified as barriers regarding to driving quality in pediatric healthcare services. The study evidenced that college and above parental education status [AOR=5.22, 95% CI: (2.39-11.38)], urban residency [AOR=3.35, 95% CI: (1.97-5.72)], outpatient services [AOR=2.52, 95% CI: (1.35-4.71)] and surgical illnesses [AOR=2.18, 95% CI: (1.28-3.73)] were significantly associated factors with overall perceived lower level of quality.

Conclusion: Perceived quality assessed in the study showed that pediatrics healthcare services were not addressed adequately reflecting that childhood patients did not receive optimal care.

Key Words: Perceived Quality, Pediatric Healthcare Service, Felege Hiwot Comprehensive Specialized Hospital, North-West.

Abbreviations & Acronyms

AOR - Adjusted Odds Ratio

BP - Blood Pressure

CBC - Complete Blood Count

CBHI - Community Based Health Insurance

CEO - Chief Executive Officer

CI - Confidence Interval

COR - Crude Odds Ratio

CPAP - Continuous Positive Air Pressure

ETAT - Emergency Triaging Assessment and Treatment

FGD - Focus Group Discussion

FHCSH - Felege Hiwot Comprehensive Specialized Hospital

HCSQ - Health Care Services Quality

HEALTHQUAL - Health Quality

HSTP - Health Sector Transformation Plan

Km - Kilometer

MOH - Ministry of Health

ICU - Intensive Care Unit

IOM - Institute of Medicine

IPD - In Patient Department

IV - Intra Venous

NFGD - Nurse Focus Group Discussant

NICU - Neonate Intensive Care Unit

OPD - Out Patient Department

PFGD - Physician Focus Group Discussant

RDS - Respiratory Diseases Syndrome

SD - Standard Deviation

SERVQUAL - Service Quality

SPSS - Statistical Package for Social Sciences

VIF - Variance Inflation Factor

WHO - World Health Organization

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1. Introduction

1.1. Background

The term ‘healthcare quality’ is somewhat complex and is a multidimensional concept(1). The Institute of medicine (1990) has defined healthcare quality as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”(2). For Ethiopian ministry of health, quality for healthcare is defined as “comprehensive care that is measurably safe, effective, patient-centered, and uniformly delivered in a timely way that is affordable to the Ethiopian population and appropriately utilizes resources and services”(3).

Service quality refers to an organization’s capability of meeting the needs, wants and expectations of the users(4). Healthcare organizations are highly demanded to provide consistently quality assured healthcare services because of advancement in technology and medical sciences(5). Service quality is considered as important for the success and survival of organizations(6) as it ensures loyalty to users and maintains its competitive advantage(7). Customers who are receiving quality assured healthcare services will have a trusted relationship with the healthcare organizations which enhances them to use or revisit it for their future services.

Improvement in quality of healthcare services is required for achievement of patients’ satisfaction and ultimately to health system goals. Health system goals which basically are: reducing mortality, reducing morbidity, reducing health inequalities, improving outcomes of a particular disease and making health care safe could not be realized without quality healthcare delivery approaches(5).

Healthcare service quality also contributes a lot for the successful implementation of universal health coverage. Healthcare organizations may be well-resourced and services may be expanded to be accessible to all, however, the implementation may not result the desired health outcomes unless quality is driven. This is why WHO (2018) concluded that “Access without quality can be considered an empty universal health coverage promise”(8). The Ethiopian ministry of health also adopted healthcare services delivery and quality of care as one strategy of healthcare

implementation in the context of decentralization(9). For the last three decades, the main goal and focus of Ethiopian health system was on accessing and improving coverage of essential healthcare services which are basically preventive and curative in nature. But today, high attention has been given to ensure the high quality healthcare services to all levels of the system. The health sector transformation plan (HSTP) has launched quality care as one of its core goals through which high performing healthcare organizations will be built. Striving consistently for high quality of care to all patients regardless of their differences in socioeconomic status and geographic location has been initiated as cornerstone of Ethiopian HSTP(10).

Service quality of a health sector is generally categorized as technical quality and functional quality(11). The technical quality refers to the type of services or procedures offered to patients where as functional quality tells the way through which service is reached to patients that is service delivery process. The technical quality of healthcare service is often evaluated by providers and medical experts as patients usually lack knowledge on technical aspects of quality attributes. In contrary, the service delivery process can be understood and perceived by users and thereby patients are often evaluators of functional quality attributes of healthcare delivery system(12).

Service users' perception is an important method of measuring the functional aspect of healthcare service quality (HCSQ)(13). Hospital HCSQ is basically measured by collecting feedback on the services delivered from different perspectives(14). For pediatrics healthcare services the perceptions of their parents is required to measure its quality(15, 16).Parents perspective should be considered to adequately address the factors affecting hospital pediatric healthcare services quality which their children are receiving(17). Parents of childhood patients are expected to perceive the quality of pediatrics healthcare services which will be important for providers and decision makers to take focus of action on pediatrics care quality improvement in the hospital.

1.2. Statement of the Problem

Healthcare sectors are increasingly demanded for high quality services as patients are easily informed because of advancement in communication technology through which they will not hesitate to seek alternative healthcare services. Healthcare services without quality will not maintain users' satisfaction and hence the success and profitability of healthcare sector will be under question(18). Healthcare consumers have been interested to analyze the desired outcome of services they receive with respect to the cost they incur for it. They have answerable questions on the effectiveness of services which are delivered to them and they also want pertinent information to make their decisions on different treatment options(19).

A healthcare organization (hospital) can be considered as a health sector with high quality performing institution if and only if it can ensure the delivery of services with both technical and functional outcomes as wanted and meet patients' expectation. Healthcare service-even if delivered at an affordable cost and in well-resourced facility will not bring the desired outcomes unless it drives quality. Poor HCSQ affects the trust of community being served; wastes time and money; and most critically undermine the effectiveness of universal health coverage as mistrusted population will not reuse the services(5, 8).

Parental perception of healthcare services quality, most important method of measuring functional quality in pediatric care, may be influenced by different factors. Socio-demographic characteristics such as age, sex, educational level, occupation and residency were reported as factors with healthcare service quality perception (17, 20-22). History of patients' hospitalization(17, 23), type of service units, patients' illnesses type(24) were also evidenced as predictors of parental and or patients level of perception about quality in healthcare services.

It is not arguable to have no hesitation on the need for quality healthcare delivery to patients. A deficiency in the quality of pediatric healthcare services at health facilities is a major contributing factor to child mortality in low and middle income countries including Ethiopia(25). The problem in Ethiopian healthcare delivery system is limited evidences from health facilities whether the significant indicators of healthcare services quality are being addressed or not to bring desired healthcare outcomes and ultimately patient satisfaction. Although integrated pediatrics health care service initiatives have been established in most hospitals of Ethiopia,

assurance of the quality is still under question. From hospitals in Ethiopia observable consumer complaints and less level of parental satisfaction on pediatric healthcare services have been reported indicating the existence of gaps in ensuring and maintaining quality pediatric healthcare services(22). In conformance to this, the 2015 HSTP has given special attention in creating (building) high performing health institutions in response to driving quality healthcare services as its component of health transformation agendas(10).

To the best of investigator's knowledge, so far studies in the topic are very limited in Ethiopia particularly in the region. Our community increasingly demands for quality pediatric healthcare services and parental satisfaction on the process of childhood illness treatment services has not been adequately addressed. Therefore, this study was reasonably conducted to generate evidence on functional quality of pediatric healthcare services and its associated factors in Felege Hiwot Comprehensive Specialized hospital (FHCSH) on the basis of parental perception and hospital staffs perspective.

1.3. Significance of the Study

The results of the study are anticipated to bring changes on recommended findings. Healthcare policy makers, hospital managers and healthcare providers are expected to use the results of the present study that will alert them to focus on shortcomings and challenges undermining their capacity of driving quality in pediatric healthcare services. So, actionable measures will be taken and thereby patients and communities at large will be benefited. Future researchers will also be benefited by the study findings for their further similar and large scale studies. Driving quality in healthcare services delivery system is a priority focus of strategy as it is vital to result desired healthcare outcomes. Therefore, this study will contribute for economic growth and its continuity and wealth maintenance of communities and nation at large.

2. Literature Review

2.1. Healthcare Service Quality Concepts

Hospital healthcare services are often categorized as services with a technical outcome and a functional outcome. The technical outcome of a service refers to the “*what*” of the service that tells which service is delivered to patients. The functional outcome refers to the “*how*” of the services which tells the process of service delivery(13).

Today, the outside world’s expectation is demanding highest healthcare quality from health sector organizations at an affordable price which health facilities have to strive to supply this demand(19). High-quality for healthcare services could not be established with a single initiative approach rather integrated multidimensional areas have to be focused and prioritized. The most critical areas of priority for quality healthcare delivery system recommended by WHO include: health care workers, health care facilities, medicines, devices and other technologies, information system and financing(8). Minimum requirements in each prioritized area have to be met for quality healthcare services delivery in response to patients’ preferences and expectations. Most importantly interpersonal process is also required to be emphasized for the delivery of quality healthcare services as it is expected to add quality attributes like: privacy, confidentiality, informed choice, concern, empathy, honesty, tact, and sensitivity(26).

Out of many factors affecting patients’ attitude and intention, service quality perception is the most important(7). Healthcare quality perception refers to patients’ judgment about healthcare providers on what they observe and receive(27). Healthcare services quality perception by patients is an important element which is critical to determine their satisfaction and provides vital information to hospitals(17, 28)as patients perceived quality may change due to new technology, medicine and treatment innovation and advancement. This dynamic nature of patients’ service quality perception can be taken as valuable input for hospitals, managers and decision makers to take actions what and how to improve the healthcare service quality(29).

2.2. Measurement Dimensions for Healthcare Service Quality

Measuring service quality is not an easy concept; service quality is complex and multidimensional in its nature(30). Healthcare services have intangibility, inseparability, heterogeneity, and perishable characteristics in nature in which its quality could not be observed or perceived prior to its delivery. This makes service quality difficult to be measured easily(31, 32).

Traditionally healthcare quality was evaluated by professionally set out objectives of organizational stakeholder perspectives only, however, the pluralistic approach after a while recommended that evaluating healthcare services have to consider multiple perspectives(33) because service users (customers) are usually interested in perceived quality than objective quality measurements(34). Healthcare system stakeholders like healthcare providers, healthcare managers, policy makers, clients and payers usually do not understand and perceive the quality of service similarly; it(quality) has different meanings for each stakeholder. So, measuring approaches for healthcare service quality should incorporate the perspectives of all these stakeholders to develop dimensional measurements(35). Institute of medicine (IOM) has recommended a conceptual framework for healthcare quality evaluation by addressing the two principal components namely: *healthcare quality perspective* as one component including safety, effectiveness, patient-centeredness and timely; and *consumer perspective* as a second component which include health needs like staying healthy, getting better, living with illness or disability and coping with the end of life(36).

What we have captured from above explained concepts is that multiple perspectives in the healthcare organizations should be incorporated to measure service quality. Many authors and scholars have developed quality measurement models and conceptual frameworks through the incorporation of various dimensional areas. WHO(5) in 2006 has recommended seven dimensions for the evaluation of quality in healthcare service delivery system: effectiveness, efficiency, accessibility, patient-centeredness, equity, safety and timeliness. These are characteristically elements of quality in healthcare system(8). Zeithaml et al (1990) determined ten attributes: tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication, and understanding the consumer which were surveyed using 200-item

questionnaire. After they did factor analysis, the ten dimensions were merged in to five dimensions namely: tangibles, responsiveness, reliability, empathy and assurance (32, 37, 38). A service quality measurement model developed by Parasuraman et al(38) comprises of these five dimensions is called *SERVQUAL model*.

For healthcare organizations, the most recent model to measure healthcare services quality (HCSQ) is called *HEALTHQUAL* model which was proposed by DoneHe Lee in 2016 in South Korea. He identified five component dimensions after reviewing previous literatures and testing measurement items via principal component analysis by focusing on healthcare process and results. Empathy, tangibles, safety and efficiency were identified as dimensions of process measurement items and degree of improvements of care service as dimension of results measurement items(39).For this context, tangibility measures the visual/physical aspects of health facilities such as equipment, personnel and infrastructures. Empathy measures the personality of providers in response to reflecting and understanding the patients' needs. Efficiency refers to degree of processes and operational efficiency for effectiveness of services. Safety as a quality dimension measures patients' perception about the safeness of treatment options offered to them in response to consistently relevant skill and knowledge (38-40).

2.3. Related Research Findings

Parental satisfaction regarding to quality in pediatric healthcare services was studied at Black Lion Specialized teaching hospital in Addis Ababa by Tesfa G. in 2015. This study reported that the overall parental satisfaction in pediatric healthcare services quality was 59.8%(22). Another study from Kenya by Keiza EM et al (2017) about assessment of parents' perception of pediatric healthcare services quality for oncology patients also found the overall level of quality perception to be 57.9%(17). Another study conducted in Benin City at university of Benin teaching hospital by Israel-Aina YT (2017) to assess parental satisfaction regarding to quality of healthcare services revealed the level of perception with overall mean score of 4.35 ± 0.43 which was above the cut-off 3.00(21).A study from India by Goyal P et al (2017) also reported that the overall perceived level of hospital service quality as good was 88.9%(41). Syed Andaleeb in Bangladesh studied a model of healthcare services quality regarding to caring for children from which the mean score on tangibility-the physical evidence of quality was 3.49 ± 1.005 . Contrary,

he revealed that availability of drugs and equipments item factor scored a negative valence with a mean score of 2.36 ± 1.19 (40). A study conducted in Vietnam country by Dung Chu S (2017) revealed that tangibility and empathy as quality dimensions were assessed with mean scores of 3.95 ± 0.595 and 3.899 ± 0.583 respectively(42).

RMPM Baltussen et al in Burkina Faso conducted a study to assess perceived quality of healthcare services and revealed that availability of drugs, adequacy of rooms and equipments in the facilities and costs of care were scored poorly(43). Keiza et al also reported that drugs unavailability, delay in carrying out laboratory tests and availing results and lack of adequate space in wards as major barriers regarding to quality of pediatric healthcare services(17). Goyal P et al also revealed that poor availability of medicines, poor staff behavior and long queues at outpatient unit as reasons for customers' dissatisfaction regarding to quality in services delivered(41).

2.4. Factors of Perceived Level of Quality in Healthcare Services

Socio demographic variables such as age, sex, language, religion, place of residence, educational status etc are patient related factors which may affect HCSQ perception. A study conducted from Kenya reported that male parents had significantly ($p=0.041$) perceived higher level of overall service quality than their counterparts(17). Parents' educational level was evidenced to be statistically associated with the perception of quality in healthcare from Marshal University (2003). This study revealed that parents with high level of education had less level of satisfaction in services quality compared to those with low level of education ($P<0.05$) (44). Similarly, other studies by Tesf G. from Addis Ababa Black lion specialized hospital (2015), Waju. B et al from Jimma zone of Ethiopia (2011) and Israel-Aina from Benin evidenced those participants perception in healthcare services quality was affected by their respective level of education (20-22). A study from Kenya by Keiza et al also evidenced that rural residents were significantly more satisfied ($p=0.011$) with the overall perceived quality of healthcare services than urban residents(17).

Service delivering units (e.g. outpatient, inpatient, emergency etc) are also facility related factors of healthcare service quality(14). A study from Sweden, Uppsala University, revealed that parents of inpatients gave significantly ($p<0.01$) higher rating for overall quality perception than parents

of outpatients(23).It was also evidenced by a study in Black lion specialized hospital, Addis Ababa, that ward type (service units) was statistically significant ($p<0.01$) predictor of parental satisfaction regarding to quality of care services delivered(22). A study from Gondar referral hospital also revealed that the outpatient department service room was significantly ($p<0.0001$) associated with the level of patients perception on quality of emergency health care services(45). Types of illnesses the patient diagnosed for treatment service were also identified as factors associated with healthcare quality the patient receives for it(24).

History of hospitalization was statistically evidenced to have relationship with quality perception. A study from Kenya found that parents of children who did not have past history of hospital contact showed significantly higher level of quality perception compared with parents who had previous history of hospitalization(17). Conversely, it was evidenced that parents who had fewer previous contacts with the hospital showed significantly lower quality perception than other parents ($p<0.05$)(23). Studies also showed that patients' length of stay in hospital and parents occupational nature affect their perceptual judgment on received services(22).

Customers' intention of revisiting the same health facility for future utilization was also considered as predictor factor of quality perception on services. It was statistically evidenced($p<0.0001$) that patients who had intent to revisit the hospital showed greater score in perceived level of quality when compared to those who did not have intent to revisit the hospital(46).

To the knowledge of investigator, quality dimensions identified in the literatures above have not been adequately researched in the context of Ethiopian health system although most are prioritized by MOH as aspects of HCSQ delivery system. So, conducting this study is needed to evidence the implementation of quality insured healthcare in hospital pediatric service units against to selected quality dimensions through parental perception alongside with healthcare providers' perspective. For this study HEALTHQUAL model was used to identify dimensions to measure healthcare service quality regarding to pediatrics department. Based on this tangibility, empathy, efficiency and safety from HEALTHQUAL model(39) have been selected as dimensions of quality measurement for the present study. Therefore, tangibility, empathy, efficiency and safety were used to measure overall quality perception of hospital pediatrics

healthcare services as they are prioritized and highly recommended healthcare quality dimensions by IOM, WHO and FMOH(2, 3, 8). The measurement tool was adapted from this hospital healthcare services quality measuring validity tested model.

2.5. Conceptual Framework

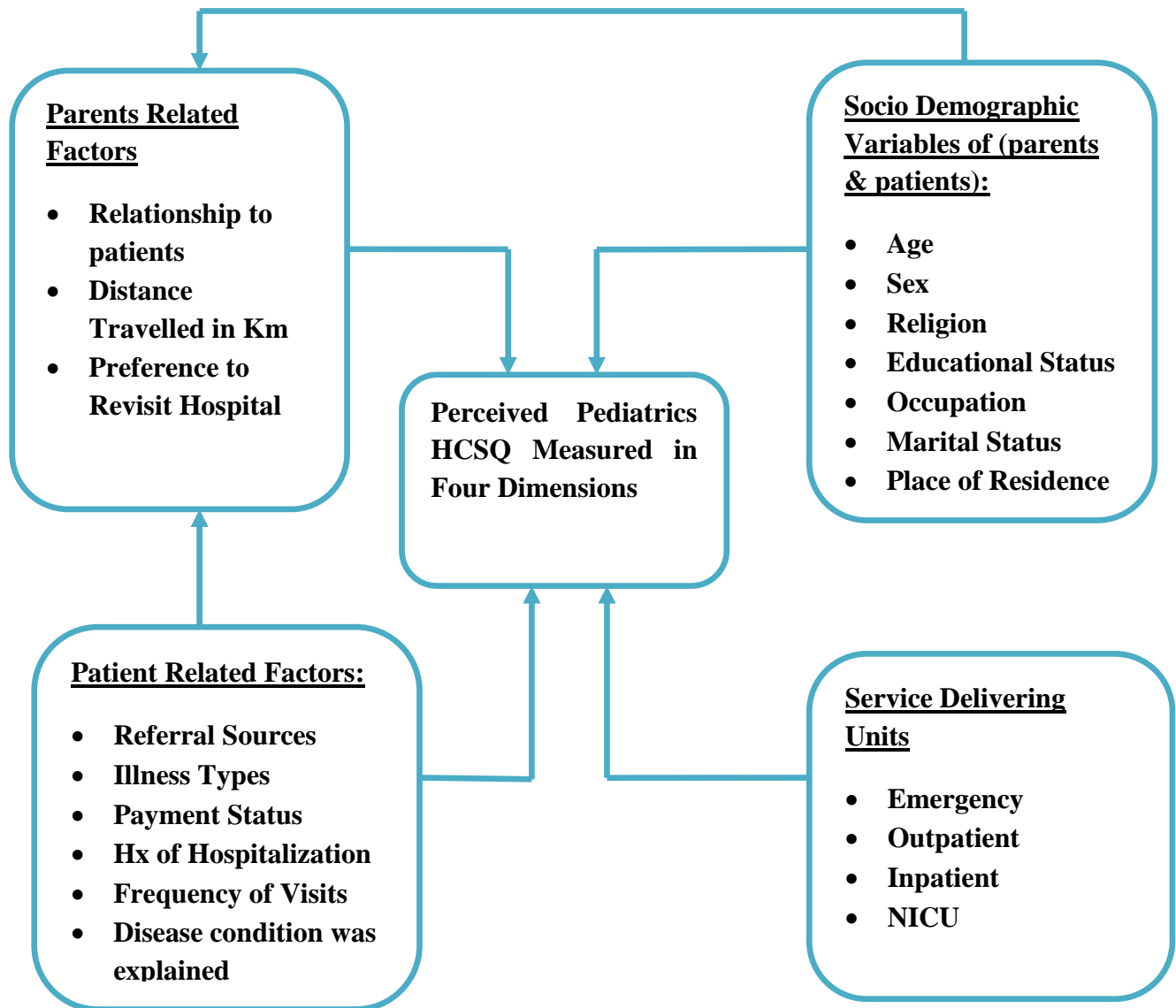


Figure 1: Conceptual Framework for factors associated with perceived level of quality in pediatrics healthcare services study in FHCSH, North-West Ethiopia, 2019.

3. Objectives

3.1. General Objective

The major objective was to assess the perceived quality and associated factors in pediatric healthcare services at Felege Hiwot Comprehensive Specialized Hospital, North-West Ethiopia, 2019.

3.2. Specific Objectives:

- To measure the perceived level of quality in pediatric healthcare services.
- To identify factors associated with perceived lower level of quality in pediatric healthcare services.
- To explore challenges for driving quality in pediatric healthcare services delivery system.

3.3. Hypothesis

The study was also aimed to answer the following research questions:

- There is no difference in quality perception among parents by their socio demographic characteristics.
- There is no difference in quality perception among parents by patients' related characteristics.
- There is no relationship between perceived level of quality and service delivering (receiving) units.
- There is no relationship between perceived level of quality and patients' diseases type (classification) diagnosed for.

4. Methods and Materials

4.1. Study Design and Period

A mixed method was employed to conduct this study. Quantitative study was conducted among parents of childhood patients through a facility-based cross-sectional study design. The study was supported by qualitative method among health professionals (nurses & doctors). Data collection period was from September 15 to October 15, 2019.

4.2. Study Area and Population

This study was conducted at FHCSH which is located in Bahir Dar town the capital city of Amhara regional state, which is 565 km far away from the capital city of Ethiopia, Addis Ababa. The hospital which was established 50 years back is currently providing comprehensively integrated healthcare services; it is serving for more than 7 million populations of the region. Among comprehensive healthcare services which the hospital is currently serving, pediatrics department is the main focus area having a total of 118 beds. It is providing integrated health care services to childhood patients of below 15 years which includes service units as: outpatient (OPD), emergency triaging assessment and treatment (ETAT), inpatient (IPD) and neonate's intensive care unit (NICU) for pediatric healthcare services. The pediatrics department of the hospital is currently staffed by 62 nurses, 14 general practitioners and 3 pediatricians and other supportive staffs.

4.3. Source and Study Population

The source (target) populations for quantitative part of this study were under 15 years of age childhood patients and study population were childhood patients of this age who were being served in FHCSH. The respondents (sample population) for the study survey were parents or caregivers as childhood patients are not enough able to perceive service quality and respond appropriately. The participants for qualitative parts of the study were healthcare providers (pediatricians, general practitioners and nurses) who were working in pediatrics department for the purpose of exploring their experiences and understanding to the functional quality of pediatric healthcare services against to the selected quality measuring dimensions.

4.4. Eligibility Criteria

Inclusion Criteria: The parents of all childhood patients who had fully completed their treatment and were being discharged were included as participants of the study to respond to exit survey questionnaire.

Exclusion Criteria: Parents of childhood patients who did not complete their treatment services and were still being treated and those who were exiting the hospital with referral slips to other institution for further treatment services were excluded from the study as they might not fully perceive service quality in partially received healthcare services. Parents who exited against to medical advices were also excluded.

4.5. Variables

Dependent Variable: Perceived Level of Quality in Pediatric Healthcare Services.

Independent Variables:

- **Socio demographic variables:** age, patients' age category (fewer than 5 & above 5), sex, marital status, educational background, occupation, religion and place of residence.
- **Service delivering units:** Emergency (ETAT), Outpatient (OPD), Inpatient (IPD) and neonatal (NICU).
- **Patient related factors:** Type of illness (medical, surgical, orthopedics & related and mental illnesses), payment status (paying and free), history of past hospitalization and frequency (number) of hospital visit.
- **Parents' related factors:** Relationship to patients, distance travelled in Km and preference to revisit the hospital.

4.6. Operational Definitions

Parents: Refers to caregivers who are the biological, adoptive or legal guardians (attendants) of pediatric patients presented to FHCSH.

Pediatrics Healthcare Services: Any of healthcare services desired to be received by childhood patients for curative and preventive purpose; for this study the services include integrated healthcare services provided at outpatient, emergency, inpatient and NICU units of hospital pediatric department.

Diseases category: Refers to the classification of illnesses under which diseases diagnosed for childhood patients are included. For the present study, a secondary data from patients' folder was used to know individual patients illness type. Then the specified disease type was recorded under four major categories as medical, surgical, orthopedic & related and mental illnesses accordingly.

Service delivering units: Refers to specific rooms where treatment services are delivered. The study specifically involved four service delivering units as outpatient, emergency, inpatient and neonates intensive care units based on hospital's set up.

Perceived Quality in Pediatric Healthcare Services: Refers to parents' perception about the functional quality of services delivered to childhood patients. It was measured by a total of 30-items five point Likert-scale under four dimensions namely: tangibility (8 items), empathy (7 items), efficiency (7 items) and safety (8 items). Respondents were allowed to score 1-5 for each item (1=poor, 5=excellent).

Perceived level of Quality: Responses of each item ranging from 1 to 5 were summed up to get the total scores for overall and subscale parental quality perceptions. The overall and subscale summed scores were categorized in to high and low levels by using cut-off values calculated by demarcation threshold formula (22, 47, 48):

$$\text{Cut-off Value} = \frac{[\text{Total Highest Score} - \text{Total Lowest Score}]}{2} + \text{Total Lowest Score}$$

4.7. Sample Size and Sampling Methods

The total sample size required for quantitative study was determined by using single population formula by the assumption of proportion $p= 59.8\%$ (by taking overall parental level of satisfaction in quality of pediatrics care at Black Lion Specialized Hospital, Addis Ababa, Ethiopia)(22), power(margin of error) 5% and α at confidence interval 95%. It was sample size for objective one of the study:

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

$$n = \frac{(1.96)^2 (0.598)(0.402)}{(0.05)^2} = 370 \text{ Participants}$$

For the second objective (associated factors) sample size was determined by taking significantly associated factors from a study conducted in Kenyatta Hospital (Kenya) by Keiza EM et al (17) as depicted in the table below:

Table 1: Sample size required for associated factors to be studied in the study.

Variable	% of outcome unexposed	% of outcome exposed	AOR	Total sample size	References
Sex/male	24.2	75.8	3.27	116	(17)
Residence/rural	32.8	67.2	2.85	134	(17)
History of hospitalization	50	50	2.75	152	(17)

Fortunately, the maximum sample size calculated for objective one (370 participants) was taken as the sample size for this study. By taking 10% for non-respondent rate the total sample size to be recruited were 407parentsof childhood patients as participants.

To calculate the sample size for each service unit, total patient flow of the previous year months of study period has been taken as baseline data from hospital report. The patients were stratified in to four groups based on service delivering units where they had received their respective healthcare services as emergency (ETAT), outpatient (OPD), inpatient (IPD) and neonatal (NICU). A total of 7356patients were being served in these service units of the hospital during

six consecutive months of previous years similar to study period and the average monthly patient flow was taken as total population (N=1226) for the present study. (See table 2)

Table 2: Average Patients flow of FHCSH in each service delivering units of the pediatric department from July 1, 2018 to December 30, 2019.

S.No	Service Delivering Units	Total Patients (six months)	Average monthly flow
1	ETAT	1682	280
2	OPD	3106	518
4	Inpatient	870	145
5	NICU	1698	283
6	Total	7356	1226

After stratified sampling procedure, study participants from each unit were selected through systematic random sampling technique every K value using discharging/exiting patients as a sampling frame among parents of childhood patients receiving healthcare services in FHCSH. $K=N/n=1226/407=3.01$ i.e. $K\sim 3$. So the data collection procedure was from parents of every three exiting/discharging patients from each service delivering units.

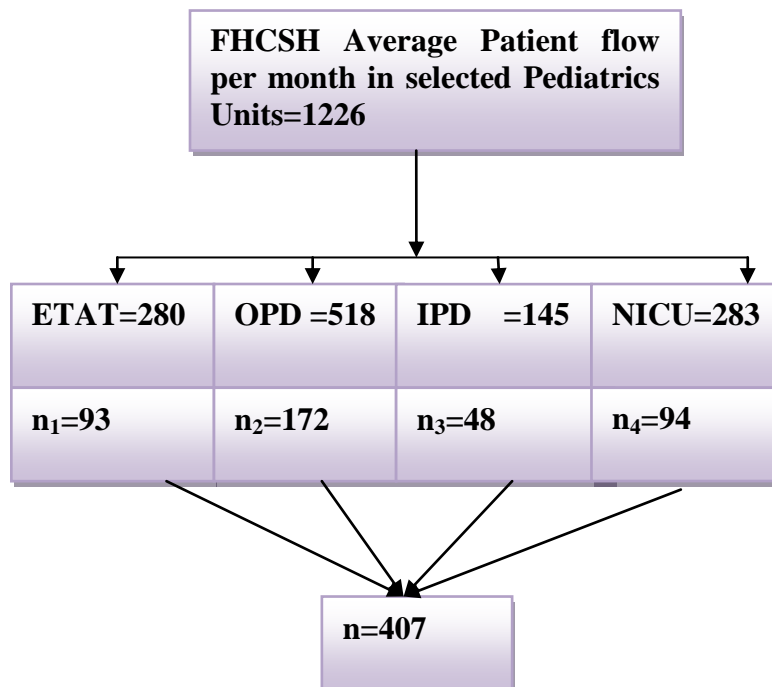


Figure 2: Schematic diagram of sample size allocation to service delivering units of pediatrics department, FHCSH, 2019.

For qualitative study healthcare providers (nurses & physicians) who were working in the department were selected to conduct focus group discussion on their feelings, experiences and opinions about pediatric healthcare services quality. A purposive sampling technique was used to select healthcare providers for the FGD by taking their profession as homogeneity criteria. A total of three FGDs were conducted with six participants in each and data saturation was used to limit number FGDs conducted.

4.8. Data Collection Tools

Quantitative data was collected using a structured exit interview questionnaire tool. English version quality measuring questionnaire tool comprised of four dimensions was adapted from validated tool of HEALTHQUAL model(39). The adapted and modified questionnaire tool was translated in to Amharic version and then re-translated back in to English to check for its consistency. The instrument has three parts; the first part is about socio demographic characteristics of the respondents and patients, part two of the tool is about constructs with a total of 30 measurement items and part three is about services related questions.

Inter-item correlation analysis was carried out to test whether each item statement (construct) measures unique characteristics of quality independently or not. Inter-item correlation coefficients among items were lower than 0.60 reflecting that each item independently measures unique characteristic of service quality. Qualitative data was collected by semi-structured FGD guiding questions among purposively recruited healthcare provider participants.

4.9. Data Management and Analysis

After data collection, quantitative data was entered and cleaned using Epi-Data version3.1 and was exported to SPSS version 23 for further analysis. Descriptive analysis (frequency, sums, mean and standard deviation) was used for presenting results. Simple and multiple binary logistic regression analysis were employed to assess associations between dependent and independent variables. Variables which had p value of less than 0.25 in simple logistic regression were taken as candidates for multivariable binary logistic regression. Model fitness was checked by Hosmer and Lemshow test ($p=0.84$). The assumption of multi co-linearity problem was checked by calculated variance inflation factor ($VIF<10$). Odds ratio (OR) output, a 95% confidence interval (CI) at 0.05 p value were used to interpret degree (strengths) of associations. For qualitative

study, data was coded, transcribed and interpreted on daily basis. Content analysis was employed for whole data analysis based on thematically framework approach.

4.10. Data Quality Assurance

A pre-test survey was conducted using 5% of the sample determined for parental participants in other health facility (Tibebe Gion teaching specialized hospital) for the purpose of testing questionnaires simplicity and appropriateness. A little bit of modification on items of survey instrument, retranslating some inconsistent words, was done based on results. Data collectors and supervisor were given one day training before conducting study. Data was checked on daily basis for its completeness and consistency by supervisor and investigator. A total of three BSc Nurses who were not working in FHCSH were recruited as data collectors for quantitative study. The investigator was data collector of qualitative study with an assistant of experienced health professional. Audio recording was used for the purpose of capturing full ranges of data based on participants consent.

Scale reliability analysis was performed by calculated Cronbach's alpha value for overall and each subscale for internal consistency testing. The calculated Cronbach's alpha value for overall scale was 0.93 reflecting an excellent internal consistency(49). (See Table 3)

Table 3: Reliability statistics of quality measurement tool for perceived quality in FHCSH, September 2019.

Dimensions	Number of Items	Likert mean score(SD)	Cronbach's alpha
Tangibility	8	2.77(±0.66)	0.838
Empathy	7	3.23(±0.68)	0.842
Efficiency	7	3.05(±0.58)	0.705
Safety	8	3.23(±0.64)	0.820
Overall Quality	30	3.06(±0.55)	0.930

4.11. Ethical Considerations

Ethical clearance was obtained from Bahir Dar University, college of medicine and health sciences a research review board before conducting the study and Support letter was also obtained from Ethiopian public health institute of Bahir Dar branch. Letter of permission was received from chief executive officer (CEO) of FHCSH. Oral consent was obtained from study participants during data collection and each participant was informed about the right to refuse and withdraw from interview at any time. Confidentiality was maintained throughout the study. Participants of qualitative study were identified by their respective codes given prior to study to avoid personality disclosure.

4.12. Dissemination Plan

After thesis approval of the school, the document of this research will be kept in Bahir Dar University College of medicine and health sciences that may be used as reference for future researchers. The copies of the document will be distributed to regional health bureau, FHCSH and Ethiopian public health institute of Bahir Dar branch to encourage them for using information investigated for their further planning and decision making purposes. The thesis paper will also be requested for publication by known international journals.

5. Results

5.1. Socio Demographic Characteristics

A total of 401 parents (with 98.52% response rate) participated as respondents of the study. Out of the total participants 155(38.7%) and 246(61.3%) were male and female respondents respectively. The participants had mean age of 33.76 ± 8.69 in years. Two hundred twenty eight (56.7%) and 152(37.9%) respondents had maternal and paternal relationships to patients respectively. Educational status of participants was also assessed by which majority (32.2%) of them were found to have no formal educational status. Majority (40.9%) of the respondents were farmers while minorities of the respondents were physical labors who accounted only 6.2% of the total participants. Meanwhile, most (88%) parents were married, 27(6.7%) of them were single in their marital status. Most participants (91.5%) were Orthodox Christian followers while the least (0.7%) were Protestant followers. Two hundred twelve (52.9%) and 189(47.1%) respondents were rural and urban dwellers respectively. The mean distance travelled in Km from home to hospital was 69.65 ± 72.96 . (See table 4).

For qualitative study, a total of 18 healthcare providers (12 nurses and 6 medical doctors) participated through a total of three focus group discussions (six participants in each group). Among participants, 11 and 7 were female and male discussants respectively. (See Table 5)

Table 4: Socio-demographic characteristics of respondents in perceived quality assessment at FHCSH, September 2019.

Characteristics		Frequency (n=401)	%
Sex	Male	155	38.7
	Female	246	61.3
Age (in years)	Mean	33.76±8.69	
Relationship to child	Mother	228	56.9
	Father	152	37.9
	Others	21	5.2
Educational Status	No formal education	129	32.2
	1-6 Grade	77	19.2
	Primary completed	56	14.0
	Secondary completed	60	15.0
	College/university graduated	79	19.7
Occupation	Farmer	164	40.9
	House wife	81	20.2
	Merchant	56	14.0
	Employee	75	18.7
	Labor	25	6.2
Marital Status	Single	27	6.7
	Married	353	88.0
	Divorced	12	3.0
	Widowed	9	2.2
Religion	Orthodox Christian	367	91.5
	Muslim	31	7.7
	Protestant	3	0.7
Place of residence	Rural	212	52.9
	Urban	189	47.1

Note: Others for relationship include: brother/sister, grand maternal/paternal, legal adopters & guardians etc relatives.

Table 5 Participants of qualitative study in perceived quality assessment of pediatric healthcare services, 2019.

Characteristics		Frequency		
		Male	Female	Total
Profession	Nurses	2	10	12
	Physicians	5	1	6
Working Unit	ETAT	1	2	3
	OPD	2	2	4
	IPD	3	5	8
	NICU	1	2	3
Total		7	11	18

5.2. Patients' Characteristics

Out of 401 patients involved in this study, 208(51.9%) were male patients. Majority of patients were under five age category accounting 64.6% of total patients studied. One hundred ninety six (48.9%) patients had previous contact to the hospital. Among patients who had past history of hospitalization, majority (28.1%) had last hospital visit before six months back while the least (5.7%) had last visit within a month prior to the study period. Similarly, frequency (number) of hospital visit was assessed and 109(27.2%) parents reported that patients had twice frequency of hospital visit and 87(21.7%) parents reported that patients had three times and or more frequency of visit to the hospital.

Diseases type was assessed based on four major classification of illness. Accordingly, majority (64.8%) of patients had diagnosis of diseases under the classification of medical illnesses followed by those having diseases classification of surgical illnesses accounted 18.2% of total patients.

Assessment of service payment status revealed that 269(67.1%) patients were being served free of charge while the rest 132(32.9%) patients were paying for the services they received. Out of total patients 342(85.3%) were referred from other institutions while the rest 59(14.7%) patients did not have referral sources i.e. they were self referred patients. Among patients with referral sources, majority were referred from health centers accounting 54.1%. (See Table 6)

Table 6: Patient related characteristics in perceived quality study at FHCSH, September 2019.

Variables		Frequency (N=401)	%
Gender	Male	208	51.9
	Female	193	48.1
Age category	Under 5	259	64.6
	Above 5	142	35.4
Service receiving unit	Outpatient (OPD)	168	41.9
	Emergency (OPD)	93	23.2
	Neonatal (NICU)	92	22.9
	Inpatient (IPD)	48	12.0
History of hospital contact	Yes	196	48.9
	No	205	51.1
When was last hospital visit?	Within a month	23	5.7
	Within 2-3 months	54	13.5
	Within 3-6 months	64	16.0
	Before 6 months back	55	28.1
Frequency of hospital visit	Once	205	51.1
	Twice	109	27.2
	Three times and or more	87	21.7
Diseases type	Medical	260	64.8
	Surgical	73	18.2
	Orthopedics & related	33	8.3
	Mental & related	35	8.7
Payment status	Free	269	67.1
	Paying	132	32.9
Referral Sources	Health Centers	206	51.4
	Public Hospital	101	25.2
	Self referrals	59	14.7
	Private Facilities	35	8.7

Note:Free of charge includes: CBHI users, exempted service users, and kebele free users.
Private facilities include: Private clinics and hospitals.

5.3. Service Characteristics

Respondents were asked to assess whether the diseases condition of their children was explained or not by physicians. Out of total parents, 256(63.8%) responded that the physician explained what their child's health condition was. The parents were also asked to assess their level of satisfaction on the services that their children received for. Accordingly, 212(52.9%) parents reported that they were satisfied for overall services provided to their children. A total of 311(77.6%) parents reported that they intended to prefer the hospital (FHCSH) to revisit it for the future consumption of pediatrics healthcare services.

Table 7: Services related characteristics at FHCSH, September 2019.

Variables		Frequency (N=401)	%
Child's illness condition was explained.	Yes	256	63.8
	No	145	36.2
Parent's overall satisfaction level	Not satisfied	62	15.5
	Fairly satisfied.	127	31.7
	Satisfied	212	52.9
Parents' preference to revisit hospital.	Yes	311	77.6
	No	90	22.4

5.4. Perceived Quality of Pediatrics Healthcare Services

The mean Likert-scale score of overall items was 3.06 with a standard deviation of ± 0.55 .

Tangibility: The subscales Likert mean score for this dimension was 2.77 ± 0.66 . Parental perception in the item of medical equipments availability showed negative valence (below a cut-off value 3.0) with mean score of 2.93 ± 1.02 . Qualitative finding also revealed that shortage in medical equipments as barriers regarding to pediatric healthcare services delivery. A 31 years old male nurse participant said that: *“There are inadequacies of medical equipments in our hospital particularly to pediatrics department. We frequently face shortage in equipments like CPAP for critically ill patients, pediatrics sized face mask, oxygen gauge, pediatrics BP apparatus”* (NFGD1, Participant 6).

Parents also perceived negatively about availability of comfortable facilities (mean score 2.91 ± 0.95). Participants of qualitative study similarly reported that lack and or inadequacy of facilities was a challenge of the department. The big issue regarding to facilities which most discussants raised was absence of ICU facility for pediatric patients. Patients who are critically ill and deserving for ICU care are often referred to other institutions unnecessarily. It was stated that: *“...As a comprehensive hospital it is a must to have pediatrics unit owned ICU facilities, however, still the hospital has no functional ICU unit in pediatrics department. There are critical patients who are dying in the sight of our eye without receiving ICU care services even though they were deserved for it. They might have probability of survival if they had got ICU services”* (NFGD1, Participant 1). A 36 years old female medical doctor also explained that: *“I had a tearful experience of referring a patient having RDS because our hospital does not have*

pediatrics ICU unit, unfortunately the parents do not afford, so patient could not be transferred to Gondar hospital for ICU care and finally the patient was dead. We could not do any things more except providing supportive management. There were also other patients that we lost despite that they could probably have chance of being survived provided that they received ICU care”(PFGD3, participant 3).

The physical appealing of hospital compound was scored negatively with mean score of 2.55 ± 1.03 . It was also stated that *“The department units are not generally attractive and glitz to pediatric patients. Especially inpatient ward building was constructed inappropriately as per standard; there are no glitz things like joyful and puppet to enjoy and psychologically treat children”* (NFGD2, Participant 2).

Although parents perceived positively (above cut-off value 3.0) on availability of staffs secured with knowledge and skill with mean score of 3.68 ± 0.96 , the qualitative finding showed that manpower shortage is a concern. A male medical doctor said that: *“...Manpower shortage is also another challenge. The number of doctors assigned to pediatrics department is not proportional to patient flow as per standard. Absence of sub-specialist physicians like for example, neurosurgeon is also a challenge that we are unnecessarily enforced to refer our patients to other institution even that our hospital has been ranked as comprehensive specialized”*(PFGD3, Participant 1).

The most negatively perceived items of tangibility dimension were availability of water sources and well-functioning clean toilets with mean scores of 1.76 ± 0.93 and 2.01 ± 0.98 respectively. This finding was very supported by qualitative study. A nurse discussant working in inpatient ward stated that: *“There are no water sources, attendants have to fetch water by stepping down floors or they may have to buy for drinking and even for washing. We often order the parents of children having malnutrition for example, to buy highland water for formula milk preparation. Actually it ought not to be happened”* (NFGD2, Participant 1). A female nurse discussant stated that: *“There is a persistently unsolved problem of not well functioning toilets in our department. There is only one functional toilet in ETAT unit and even it is not separated as for patients and staffs. Everybody from hospital community is using it freely, So it is frequently deformed and is dirty”* (NFGD1, Participant 4). Another discussant also explained that *“Sewerages of toilets often*

blow out and so are out of using; they are ugly, dirty and may be risks for communicable diseases” (PFGD3, Participant 6).

Table 8: Item scores of tangibility subscale quality dimension on pediatric healthcare services, FHCSH, 2019.

S.no	Item statements	Responses (Scores) N =401(%)					Mean	SD
		Poor	Fair	Good	V.good	Excellent		
1	Availability of medical equipments	34 (8.5)	103 (25.7)	138 (34.4)	108 (26.9)	18 (4.5)	2.93	1.02
2	Availability of Staffs with knowledge & skill	10 (2.5)	24 (6.0)	135 (33.7)	147 (36.7)	85 (21.2)	3.68	0.96
3	Availability of comfortable facilities	32 (8.0)	95 (23.7)	160 (39.9)	104 (25.9)	10 (2.5)	2.91	0.95
4	Professional dressing & neatness	10 (2.5)	17 (4.2)	72 (18.0)	194 (48.4)	108 (26.9)	3.93	0.92
5	Physical appealing is attractive & clean	76 (19.0)	102 (25.4)	161 (40.1)	49 (12.2)	13 (3.2)	2.55	1.03
6	Service units are well indicated by clear signs	71 (17.7)	165 (41.1)	120 (29.9)	33 (8.2)	12 (3.0)	2.38	0.97
7	Availability of clean & functional toilets	154 (38.4)	121 (30.2)	96 (23.9)	26 (6.5)	4 (1.0)	2.01	0.98
8	Water availability	209 (52.1)	102 (25.4)	70 (17.5)	18 (4.5)	2 (0.5)	1.76	0.93
9	Subscale mean score						2.77	0.66

Empathy: The subscale’s mean score of this dimension was 3.23±0.68. The item-scale that was scored with the highest mean score was providers’ intention of understanding and considering patients’ situation accounting 3.72±0.91 observed mean score. Conformance to this, it was also stated that: “*Individual and personal attention is provided to patients because pediatric populations are sensitive who must not be ignored and or neglected; their pain is our pain, everybody feels child’s situation and try to respond accordingly, but because of high patient flow it may not be practiced as expected*” (NFGD1, Participant 2).

Parents perception on the item statement ‘sense of showing closeness and friendliness’ showed minimally positive valence (mean score =3.06). This finding was supported by qualitative study. A male medical doctor participant stated that: “*We attempt to show sense of friendly relationship to our patients, but work overload because of high patient flow affects us not to practice it as*

parents wanted. We can't spend long time to one patient; we have to give time to others" (PFGD3, Participant 4).

Table 9: Empathy items and their respective response scores on pediatric healthcare service quality in FHCSH, September 2019.

S.no	Item Statements	Responses (Likert Scores) N =401(%)					Mean	SDs
		Poor	Fair	Good	V. good	Excellent		
1	Individual attention was given to patients.	23 (5.7)	55 (13.7)	165 (41.1)	128 (31.9)	30 (7.5)	3.22	0.97
2	Providers act politely and are giving personal attentions.	9 (2.2)	51 (12.7)	155 (38.7)	149 (37.2)	37 (9.2)	3.38	0.90
3	Providers listen to you & know what your needs are.	13 (3.2)	46 (11.5)	162 (40.4)	144 (35.9)	36 (9.0)	3.36	0.91
4	Providers understand & consider patients' situation.	7 (1.7)	28 (7.0)	111 (27.7)	178 (44.4)	77 (19.2)	3.72	0.91
5	Providers show a sense of closeness and friendliness.	14 (3.5)	94 (23.4)	165 (41.1)	109 (27.2)	19 (4.7)	3.06	0.91
6	The hospital has your best interests at heart.	29 (7.2)	110 (27.4)	159 (39.7)	88 (21.9)	15 (3.7)	2.88	0.96
7	Operating hours are convenient to the patients	53 (13.2)	72 (18.0)	127 (31.7)	136 (33.9)	13 (3.2)	2.96	1.08
8	Subscale mean score						3.23	0.68

Efficiency: Its observed mean Likert-scale score was 3.05 ± 0.58 . Under this dimension, the most negatively perceived item scale was about 'availability of drugs and medical goods' with 1.99 ± 0.99 observed mean score. It was strongly supported by qualitative finding. A participant from physicians group stated that: "The problem is lack of, drugs and supplies; even that emergency drugs like ant pain, supplies like IV canula are frequently stocked out in hospital's pharmacy units. Parents are often enforced to collect such like medical goods outside hospital pharmacy unit thereby being exposed to incur high costs unnecessarily" (PFGD3, Participant 5). It was also discussed that customers are often sent to private sectors for simple to advanced laboratory tests and imaging investigations due to reagents unavailability and machines degeneration. A female nurse participant said: "There is also frequent degeneration of operating machines for laboratory and radiologic examinations" (NFGD2, Participant 6). A male physician

discussant also stated that: *“Most laboratory reagents are usually stocked-out; CBC machines degenerated, so essential laboratory requests to make clinical decisions to our patients are collected from private institutions for those who are affording; but those who can’t afford usually interrupt the treatment; they go to home against to medical advice”*(PFGD3, Participant 1).

Parental perception also showed negative valence in the item scale of ‘short waiting time’ which was scored with mean score of 2.68 ± 1.12 . Conformance to this finding, qualitative study from providers’ perspective revealed that patients’ service is usually delayed in collecting investigation results due to queue and lack of communication between different service units. A discussant from physician side explained that: *“The critical problem regarding to efficiency is unnecessary time wastage because we are often challenged to decide about our patients as soon as possible; laboratory results are usually reached lately, so our patients who came by crossing many kilometers could not leave hospital in appropriate time and spend their night time in hospital unnecessarily”* (PFGD3, Participant 4). It was also explained that: *“Patients are experiencing wastage in time because there is no formal communication and coordination between different service units”* (NFGD1, Participant 5).

Regarding to this issue, participants of qualitative study also discussed that patients with surgical and orthopedic related cases do not usually receive prompt service due to delaying in consultation process. A 34 years old female nurse participant explained that: *“...Another currently painful problem of our department is unavailability of surgical side healthcare providers in pediatrics units. Patients with surgical cases usually receive prompt first aid services like resuscitation as needed in the emergency unit, but their further evaluation is always delayed because surgical side care providers [surgeons] must come from adult patients surgical unit after being consulted from pediatric units; they usually do not come soon”*(NFGD1, Participant 4). It was also stated that: *“Surgical and orthopedics side patients are usually referred to Tibebe Gion teaching specialized hospital unnecessarily because there is a trend of delaying in consultation by surgeons and orthopedists”* (PFGD3, Participant 6).

Lack of separated laboratory and pharmacy units located near to pediatrics department was also explained as challenging issue undermining the quality in pediatrics service delivery system in this hospital. Most discussants explained that the service users (attendants) are waiting long time

in laboratory and pharmacy units because of queue due to high patient flow. A female nurse participant stated that: “...*The department has no its owned laboratory and pharmacy units thereby attendants have to go far for laboratory investigation and for drugs and supply buying services. They face to wait for queue and lose their time* (NFGD2, Participant 2).

Table 10: Efficiency and item statements with response scores on perceived quality of pediatrics healthcare services, FHCSH, September 2019.

S.no	Item Statements	Response (Likert scale scores), N =401(%)					Mean	SD
		Poor	Fair	Good	V. good	Excellent		
1	Attitudes about not using unnecessary medications	15 (3.7)	29 (7.2)	147 (36.7)	161 (40.1)	49 (12.2)	3.50	0.93
2	Efforts for proving appropriate treatment methods.	7 (1.7)	27 (6.7)	147 (36.7)	174 (43.4)	46 (11.5)	3.56	0.85
3	Convenient facility for treatment procedures.	35 (8.7)	85 (21.2)	181 (45.1)	88 (21.9)	12 (3.0)	2.89	0.94
4	Efforts for reducing unnecessary procedures.	10 (2.5)	32 (8.0)	161 (40.1)	166 (41.4)	32 (8.0)	3.44	0.85
5	Costs are reasonably appropriate and fair.	27 (6.7)	58 (14.5)	133 (33.2)	142 (35.4)	41 (10.2)	3.28	1.05
6	Drugs, services and medical goods availability.	148 (36.9)	153 (38.2)	66 (16.5)	25 (6.2)	9 (2.2)	1.99	0.99
7	Short waiting time (no time wastage)	81 (20.2)	87 (21.7)	121 (30.2)	105 (26.2)	7 (1.7)	2.68	1.12
8	Subscale mean score						3.05	0.58

Safety: The mean Likert-scale score measured for this dimension was $3.2.3 \pm 0.64$. Specifically to item statements, the highest mean score was observed for doctors’ competency of not making misdiagnosis followed by nurses’ competency of not making mistakes with 3.65 and 3.55 mean scores respectively. Similar to this, participants of qualitative study stated that because of daily senior rounds and case consultation, misdiagnosis and mistreatments could be corrected immediately if occurred. A male medical doctor said: “*Sometimes misdiagnosis may be made because child patients do not explain their real problem to other. Such like mistakes are usually corrected by consulting every case to our senior pediatricians*” (PFGD3, Participant 5). A nurse participant also stated that: “*Unnecessary medication is not our issue; daily patient round by*

senior pediatricians and other respective teams is our mechanism of avoiding unnecessary medication because in each day every patient's medication order sheets are revised" (NFGD1, Participant 2).

Parental perception scored minimal positive valence for item scale of 'keeping patients' privacy and confidentiality' (mean score =3.05). It was also explained that: *"Service providing rooms are not appropriate to provide care to our patients. For example, we are enforced to examine two or more patients in one room with numbers of attendants, so we are challenged to keep privacy and confidentiality of our patients"* (PFGD3, Participant 6).

Item scales of 'safe and comfortable environment' and 'facilities safely free from infection' were observed negatively by parents with 2.85 ± 0.95 and 2.96 ± 0.99 mean scores respectively. Qualitative finding also revealed unsafe working environment as barrier of delivering pediatric healthcare services. It was explained that: *"Buildings are inappropriately settled; there is failure of keeping general compound cleanliness, so I am afraid to conclude that working environment is safe and comfortable"* (PFGD3, Participant 2). It was also stated that: *"In NICU unit rooms are very suffocated and offensive because attendants are drench mothers with lochia of their post natal period. The reason for this is that rooms are not well ventilated....a building of inpatient unit is not appropriate; it reflects sound, has 'echo' which is disturbing patients to sleep safely; rooms are not quite; it is noisy"*(PFGD3, Participant 3). Another participant explained that: *"The rooms are not in good hygienic condition; beds of inpatient service are closely placed; there is no adequate space, rooms are suffocated, so patients have high risk of developing hospital acquired infections"* (NFGD2, Participant 4).

Table 11: safety and item statements response scores on perceived quality of pediatrics healthcare service in FCSH, September 2019.

S.no	Item Statements	Responses (Likert scale scores), N=401(%)					Mean	SDs
		Poor	Fair	Good	V. good	Excellent		
1	Comfortable environment for receiving services.	34 (8.5)	96 (23.9)	184 (45.9)	71 (17.7)	16 (4.0)	2.85	0.95
2	Safe environment to wait for services.	34 (8.5)	77 (19.2)	157 (39.2)	110 (27.4)	23 (5.7)	3.03	1.02
3	Keeping patients' privacy and confidentiality.	22 (5.5)	94 (23.4)	151 (37.7)	110 (27.4)	24 (6.0)	3.05	0.98
4	Facilities are safely free from infection.	40 (10.0)	76 (19.0)	159 (39.7)	144 (28.4)	12 (3.0)	2.96	0.99
5	Doctors are able not making misdiagnosis.	6 (1.5)	33 (8.5)	131 (32.7)	156 (38.9)	75 (18.7)	3.65	0.93
6	Nurses are able not making mistakes while caring.	5 (1.2)	34 (8.5)	147 (36.7)	164 (40.9)	51 (12.7)	3.55	0.87
7	Dispensers appropriately tell how to take medication	18 (4.5)	50 (12.5)	138 (34.4)	144 (35.9)	51 (12.7)	3.40	1.01
8	We are confident about the medical proficiency of the hospital.	12 (3.0)	47 (11.7)	163 (40.6)	147 (36.7)	32 (8.0)	3.35	0.89
9	Subscale mean score						3.23	0.64

Level of perceived quality: Overall quality level was assessed by categorizing the total (30-items) score as high quality level and low quality level by using cut-off value (threshold value) calculated by demarcation threshold formula (See operational definition). Accordingly, it was observed that 231(57.6%) respondents [95% CI: (52.6%-62.3%)] perceived high level of quality while the remaining 170(42.4%) respondents [95% CI: (37.7%-47.4%)] perceived low level of quality in pediatric healthcare services.

The perceived quality level was also assessed for quality dimensions based on their subscale totals and respective cut point values. The least and the greatest high level of quality was shown in tangibility and safety dimensions having 33.4% and 63.6% quality perceptions respectively. (See Table 12)

Table 12: Subscale and overall level of perceived quality in pediatrics healthcare service at FHCSH, September 2019.

Components	No. of Items	Score ranges	Mean score	Cut-off point	Quality level, N =401(%)	
					High Q	Low Q
Tangibility	8	8-40	22.16	24	134(33.4)	267(66.6)
Empathy	7	7-35	22.58	21	247(61.6)	154(38.4)
Efficiency	7	7-35	21.34	21	199(49.6)	202(50.4)
Safety	8	8-40	25.83	24	255(63.6)	146(36.4)
Overall PQ	30	30-150	91.91	90	230(57.6)	171(42.4)

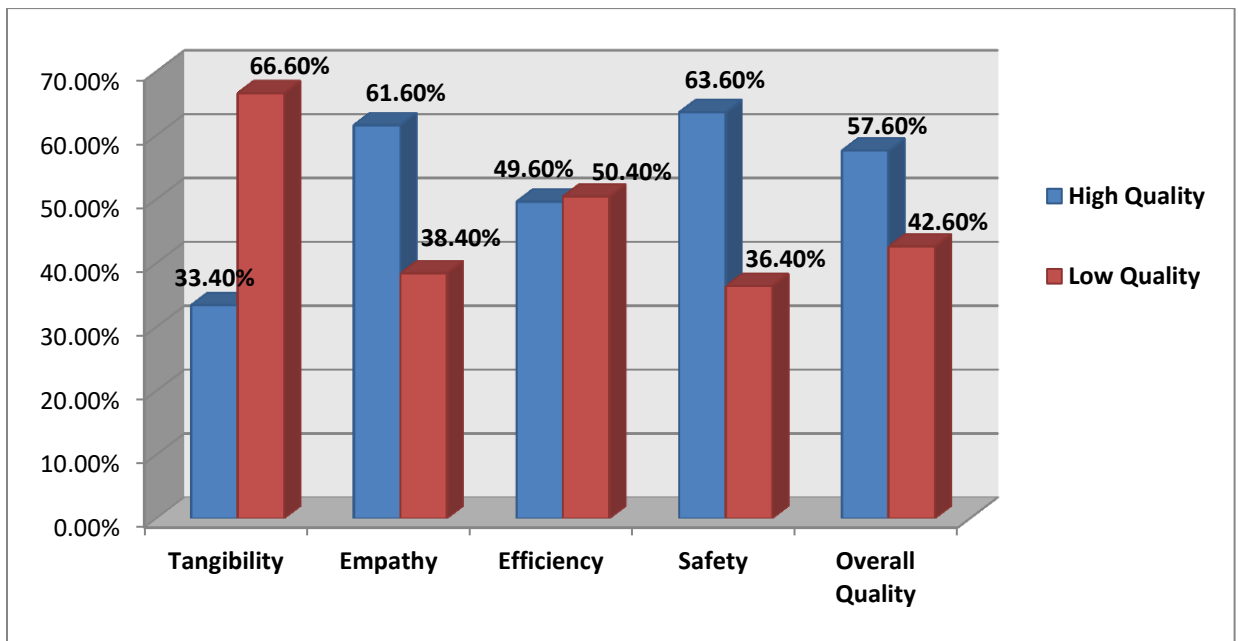


Figure 3: Overall and component level of perceived quality in pediatrics healthcare services in FHCSH, 2019.

5.5. Proportion of Overall Perceived Quality by Service Delivering Units

For overall quality perception, the greatest proportion of high level of perceived quality was seen among parents of patients from NICU and IPD with 67.70% and 66.70% of high level of perceived quality respectively. ETAT and OPD were service delivering units where the greatest proportion of low level of perceived quality was observed having 47.80% and 47.60% of low level of quality perception respectively as compared to others. (See figure 4)

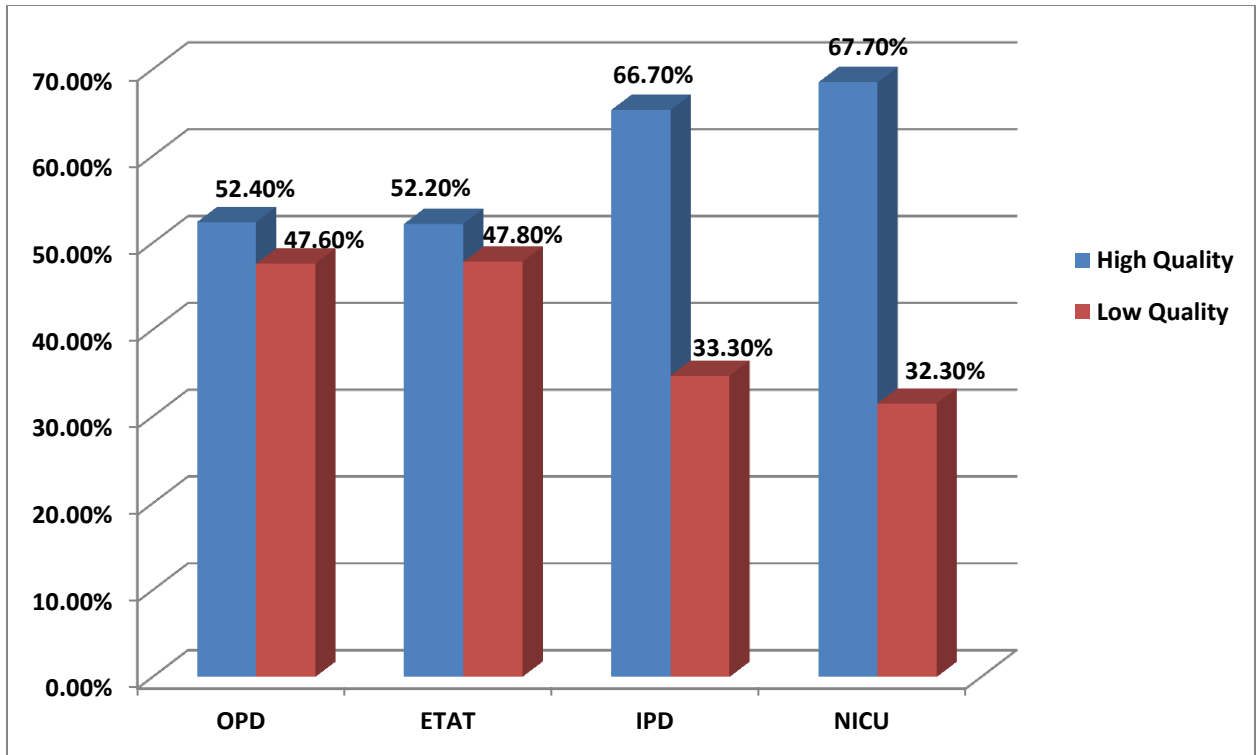


Figure 4: The proportion of overall perceived quality of pediatrics healthcare service in FHCSH by service delivering units, 2019.

5.6. Factors Associated with Perceived Lower Level of Quality in Pediatrics Healthcare Services

Simple binary logistic regression was employed to assess the relationship between the dependent variable and each independent factor. Accordingly, educational status, occupation, place of residence, distance travelled in Km, service delivering units, diseases types (category), service payment status, child's diseases condition explained and hospital preference to revisit were candidates of multivariable regression analysis and entered to multiple logistic regression model. After multiple binary logistic regression analysis by backward stepwise method, occupation, distance travelled in Km, diseases condition explained and payment status for services were not found from the final model. (See table 14)

The final multivariable analysis evidenced that parents' educational status was significantly associated with the overall perceived level of quality in pediatric healthcare services. Parents who had college and or university graduated educational level were found to have 5.22 times more likely to have low perceived quality when compared to those who did not have formal education [AOR=5.22, 95% C.I. (2.39-11.38)]. Likewise, it was evidenced that respondents with secondary level of education had a probability of 3.27 times more likely to perceive low level of quality than those with no formal education [AOR=3.27, 95% C.I. (1.52-7.04)].

Place of residence was also revealed as a factor associated with perceived level of quality among parents. Accordingly, urban residents had 3.35 times more likely to have low perceived level of quality than rural dwellers [AOR=3.35, 95% C.I. (1.97-5.72)].

Regarding to service delivery units, OPD and ETAT were revealed to be statistically associated with the parental overall perceived quality level ($p=0.026$). Parents of patients from OPD had a probability of 2.52 times more likely to perceive low quality level when compared to parents of patients from NICU [AOR=2.52, 95% C.I. (1.35-4.71)]. Similarly parents of patients from ETAT had 2.33 times more likely to perceive low quality level when compared to those who were from NICU [AOR=2.33, 95% C.I. (1.15-4.74)]. However, inpatient service unit was not statistically associated with the overall level of perceived quality.

Diseases category of childhood patients was also found to be statistically associated with overall perceived quality level ($p=0.004$). Parents of patients with surgical and related illnesses showed 2.18 times more likely to have low perceived quality level when compared to parents of patients with medical and related illnesses given that other factors kept constant [(AOR=2.18, 95% CI (1.28-3.73)].

It was also evidenced that parents who did not prefer to revisit hospital had a probability of 2.42 times more likely to perceive low quality level than those parents who intended to prefer hospital revisiting [AOR=2.42, 95% CI (1.36-4.30)].

Table 13: Results of multiple binary logistic regression analysis for factors associated with parental lower perception of quality in pediatrics healthcare services in FHCSH, September 2019.

Characters	Perceived quality		OR (95% C.I.)		P value
	High	Low	COR	AOR	
Educational Status					<u>0.000</u>
1-6 Grade	49	28	2.06(1.10-3.85)	1.53(0.78-2.99)	0.22
Primary Completed	35	21	2.16(1.09-4.30)	1.37(0.63-2.95)	0.42
Secondary Completed	25	35	5.05(2.60-9.80)	3.27(1.52-7.04)	0.003
College/University	21	58	9.96(5.19-19.10)	5.22(2.39-11.38)	0.000
No formal education	101	28	1*		
Place of residence					<u>0.000</u>
Urban	72	117	4.87(3.18-7.48)	3.35(1.97-5.72)	0.000
Rural	159	53	1*		
Service Units					<u>0.026</u>
OPD	88	80	1.91(1.12-3.50)	2.52(1.35-4.71)	0.004
ETAT	48	44	1.92(1.06-3.24)	2.33(1.15-4.74)	0.019
IPD	32	16	1.60(0.67-3.79)	1.75(0.74-4.14)	0.29
NICU	63	30	1*		
Diseases category					<u>0.004</u>
Surgical & related	50	56	1.78(1.14-2.78)	2.18(1.28-3.73)	0.004
Medical & related	181	114	1*		
Preference to revisit					<u>0.003</u>
No	32	58	3.22(1.97-5.26)	2.42(1.36-4.30)	0.003
Yes	199	112	1*		
Distance travelled (Km)	-	-	0.99(0.99-0.999)	0.99(0.99-1.00)	0.85
Payment status					
Free	139	130	2.15(1.38-3.35)	1.37(0.76-2.47)	0.30
Paying	92	40	1*		
Total	231	170			

NB: COR=Crude odds ratio; AOR=Adjusted odds ratio; 1*=reference category; underlined figures are overall p -values.

However, socio demographic variables like age, sex, religion, occupation and relationship to patients; patients' characteristics such as age category, history of hospitalization, status of payment, referral sources and frequency of hospital visit were not statistically significant to the overall perceived level of quality in pediatric healthcare services.

6. Discussion

The primary objective of this study was measuring the overall level of perceived quality regarding to pediatric healthcare services delivery process. The study revealed the overall level of perceived quality to be 57.6% [95% CI (52.6%-62.3%)]. This finding is very in line with other studies conducted at Black Lion Specialized Hospital (Addis Ababa, Ethiopia) and Kenyatta Hospital (Kenya) that investigated the overall level of parental perception in quality of pediatric care as 59.8% and 57.9% respectively(17, 22). However, it is lower when compared to the finding studied from India which reported the overall level of healthcare service quality to be 88.9%(41). The mean score of overall scale for perceived quality, 3.06 ± 0.55 , is also comparably lower than a finding by Israel-Aina et al from Benin City hospital which reported 4.35 ± 0.43 overall mean score of parental perception(21). The reason for this discrepancy might probably be due to difference in organizational culture and underlying economic issues of hospitals. The overall level of perceived quality in present study generally indicates that quality is not adequately addressed in response to delivering optimal healthcare services to childhood patients against to a recommendation of striving consistently for high quality of care to patients as launched by MOH in its health sectors transformation plan(10).

Tangibility as quality dimension had overall mean score of 2.77 ± 0.66 which is in a negative valence (below cut-off value 3.0) indicating that gaps in physical evidence of quality. This finding is low when compared to other study findings from Bangladesh and Vietnam country which reported overall mean score of tangibility as 3.49 ± 1.005 and 3.95 ± 0.595 respectively(40, 42). The reason for this difference might probably be due to infrastructural and facilities difference between hospitals.

Furthermore, the study critically has revealed that drugs and medical equipments availability having negative valences with mean scores of 1.99 ± 0.99 and 2.93 ± 1.021 respectively. It was also stated that: “...most essential drugs and supplies are usually stocked out in our hospital, our patients are often collecting their ordered drugs and requested lab results outside hospital units and hence they incur cost and loss their time” (PFGD3, Participant 3). This implies consistent unavailability of drugs and medical goods in hospital. The finding is quite comparable with the study from Bangladesh conducted by Andaleeb S et al which assessed drugs and medical

availability in children's hospital with a negative valence of mean score as $2.36 \pm 1.19(40)$. Other studies by Keiza EM et al from Kenya, Goyal P et al from India and Baltussen et al from Burkina Faso also reported that poor drugs and medical equipments availability were barriers of quality regarding to healthcare services delivery of hospitals (17, 41, 43).

The convenient facilities for treatments and procedures was also scored below the threshold value (mean= 2.89 ± 0.944). This was strongly supported by qualitative finding from which unsuitable working rooms and lack of facilities particularly pediatrics ICU unit were revealed as facility related barriers of maintaining quality in healthcare services despite the fact that it might not be expected from the hospital having comprehensive specialized rank. Similar findings like lack of adequate facilities and unsuitable providers' offices were reported as barriers of delivering quality services by other studies (17, 18, 43).

'Short waiting time' as item scale was also assessed negatively with mean score of 2.68 ± 1.12 reflecting that patients are suffering for exaggerated time wastage experience. The qualitative finding also revealed that patients are often waiting long time for queues due to high patient flow and most often laboratory tests are not reached timely thereby patients stay long time without promptly made clinical decisions. This finding is comparably congruent with study findings conducted from Kenya and India(17, 41).

Above all, quality assessment in all dimensions showed moderate to poor findings (from 63.6% for safety to 33.4% for tangibility) and this reflects that less effort has been exhibited for quality improvement initiatives. This has an implication that those health system quality indicators, effectiveness, safety, people-centeredness, timeliness, equity, accessibility and efficiency, were not adequately emphasized and addressed. It is far away from theoretical frameworks which have recommended that health facilities have to strive to achieve high performance by driving quality for healthcare services(3, 8).

Assessment of factors associated with parental quality perception was the another objective of this study. As the result indicated, parents who have higher educational status perceived more low level of service quality than those who have no formal education. The explanation for this difference might probably be due to the difference in their insight of expectation towards the healthcare services they are receiving. This finding is very congruent with findings conducted

from Kenyatta hospital, Benin teaching hospital and Marshal University hospital (17, 21, 44). Likewise, studies conducted in Ethiopia at Black lion specialized hospital and Jimma zone had also reported similar finding(20, 22). Significance difference in quality perception among parents was also observed by their place of residence. Parents who are urban dwellers showed lower level of perceived quality than those who are rural dwellers. This was similarly evidenced by other studies from Kenya by Keiza et al ($p=0.011$) and from Jimma zone of Ethiopia by Waju. B et al ($p=0.01$)(17, 20).

Difference in quality perception among parents was also contributed by service units where their children received the intended treatments. The study has revealed that OPD and ETAT service units were significantly associated with overall perceived lower level of quality reflecting that less effort exhibition for outpatient and emergency services regarding to quality. The explanation for difference might be attributed by lack of prompt service, long waiting time for test results, queues due to high patient flow etc as it was explored by qualitative finding of the present study. *“...Particular to outpatient and emergency rooms, services are not provided timely, patients are often waiting long time, there is queues, and also laboratory results are not reached as soon as it is needed for clinical decisions”*(NFGD2, Participant 5). This finding agrees with other study conducted in Sweden which evidenced that parents of inpatients significantly ($p<0.01$) showed higher quality perception than parents of outpatients(23).

Significance difference among parents in quality perception was also attributed by type of illnesses diagnosed for their children. Specifically, parents of patients having surgical and related illnesses showed highly significant association with perceived level of quality having 2.18 times more likely lower perception when compared to parents of patients with medical and related illnesses. The qualitative study also conforms this finding as it has clearly revealed that patients with surgical illnesses are usually delayed in receiving services due to lack of separated units and undesirable bureaucracy in consultation process. It is an implication that the hospital in general neglects patients with surgical cases despite the fact that it negatively impacts service quality against to hospital's rank. In general this finding agrees with the study conducted in Iran from which the investigator postulated that type of patients' illnesses as one factor for hospital healthcare services quality perception in his qualitative study(24).

The result showed that majority of respondents (77.6%) intended to prefer the hospital for future visit despite the fact that only half (52.9%) of respondents reported that they were satisfied on the treatments provided to their children. This controversial result might be implying the fact that our community lacks alternative public hospitals providing comprehensively advanced healthcare services. Perhaps, the parents' intention of hospital preference for future visit was also identified as contributing factor affecting the perceived level of quality among parents. Parents who never preferred the hospital to revisit showed significantly lower rating in perceived quality than those who intended to prefer. This finding agrees with results reported from a study conducted by Al-Hussami M (2017) in Jordan hospitals(46).

7. Strength and Limitation

Strengths:

- To the knowledge of investigator, the thematic area of the topic is new for the study area.
- Both service users and service providers were incorporated to measure quality.

Limitations:

- As the survey was conducted in hospital compound, parents may respond favorable to staffs leading to social desirability bias.
- The study particularly focused on functional aspect of healthcare services, technical aspects were not addressed at all.
- Some of the respondents especially those who were illiterate might not understand the five point-Likert scaling nature of questions and might misreport favorable or unfavorable to the topic matter.

8. Conclusion

The overall perceived level of quality in the present study was found to be 57.6% which is not adequate. Shortage in required resources, unsafe working environment, lack and or inadequacy of facilities and service process related gaps like undesirable bureaucracy in consultation were explored as major barriers of driving quality in pediatric healthcare services. Furthermore, it was also investigated that lack of coordination and communication between service delivering units as management related shortcomings. The finding in the present study generally indicates that the childhood patients did not receive optimal care as expected.

Parental level of perceived quality was majorly affected by characteristics like educational status, place of residence, service delivering units, illness types and intention of hospital preference.

9. Recommendations

1. Healthcare providers who are taking responsibility of serving childhood patients in the hospital have to attempt to exert their maximal efforts in providing services in an accelerated speed manner. They are also recommended to give emphasis in their communication culture within and between teams of service units concerned in order to avoid unnecessary bureaucracy in consultation and to bring optimal waiting time for patients.
2. The results of this study are anticipated to bring changes in regard to the care provided to childhood patients. So, the hospital management is strongly recommended to provide the required resources, to improve infrastructural and facility related gaps and to make working environment comfortable and safe. It is needed to provide especial attention for outpatient and emergency services. The hospital is also expected to access services equally to all childhood patients regardless of their illness types; a convenient access to surgeons for childhood patients of surgical illnesses should be considered.
3. Hospital public relations and mass media agencies are expected to create awareness on service standards to customers regardless of their educational status and place of residence.
4. Hospital research and quality assurance department is strongly recommended to receive continuous and periodic parental feedback to assess their satisfaction which will enhance to determine areas for quality improvement.
5. Regional health bureau and ministry of health are expected to support hospital management to enhance its effort in quality improvement areas particularly regarding to infrastructural gaps. Expansion of higher level hospitals providing comprehensive healthcare have to be considered.
6. Future researchers are recommended to focus on technical aspects of service quality, and similar surveys are expected to establish the level of quality improvement.

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11. Annexes

11.1. Annex I: Information Sheet and Consent Form (for Quantitative study)

Study Title: Perceived Quality of Pediatric Healthcare Services and Associated Factors in FHCSH, Bahir Dar town, North-West Ethiopia 2019.

You are invited to participate in a research study by Ayenew Takele, MPH candidate from Bahir Dar University College of Medicine and Health Sciences. You must be the parents or guardians of children who have been served in the hospital to participate in the study. Your participation is voluntary.

I am asking you to take part in a research study because I am trying to learn more about quality of pediatrics healthcare service delivery in FHCSH.

You will be asked to be interviewed as one of the parents or caregivers of children in FHCSH. The interview will take approximately 30 minutes. There are no anticipated risks to your participation. When you feel some discomfort at responding some questions, please feel free to ask to skip the question. You will not receive any payment for your participation in this research study.

Any information in this study that can be identified with you will be remained confidential and your name will not be disclosed. Please remember that you can choose whether to be part of this study or not. You will also have the right to withdraw from participating in this study and you will also refuse to answer any questions you are reluctant to answer and still remain in the study. You may withdraw your consent at any time and discontinue participation without penalty.

If you have any questions or concerns about the research, please feel free to raise your question using the address stated below.

I understand the information stated above and I am fully voluntary to participate in this study.

Signed: ----- Date: -----/-----/-----

Name of Investigator: Ayenew Takele Tele: +251-931-77-99-61.

11.2. Annex II: Questionnaire tools for Quantitative Study

Part 1: Socio-demographic characteristics of patients and respondents

Directions: The questions below are dealt with the socio-demographic characteristics of you as respondent and your child as healthcare services receiver in Felegehiwot comprehensive specialized referral hospital. Hopefully, you will respond truly what you know about you and your child realities as the responses far apart from fact may dispose false research results.

S.No	Questions	Answers	Skip to
101	What is your age?	-----years.	
102	What is your sex?	1. Male 2. Female	
103	What is your relation to the patient?	1. Mother 2. Father 3. Others specify-----	
104	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic	
105	What is your level of education?	1. Has no formal education 2. Primary education 3. High school completed 4. College/University graduated	
106	What is your occupation?	1. Farmer 2. House wife 3. Merchant 4. Employer 5. Labor	
107	What is your marital status?	1. Single 2. Married 3. Divorced 4. Widowed	
108	What is your ethnicity?	1. Amhara 3. Oromo 2. Agew 4. Gumuz	
109	Where is your place of residence?	1. Rural 2. Urban	
110	Distance travelled in Km from home to hospital		
111	How much is your family monthly income in Ethiopian birr?		

Questions related to patients characteristics			
201	What is the sex of your child?	1. Male 2. Female	
202	How old is your child?	-----months.	
203	Child's age category?	1. Under 5 2. Above 5	
204	From which service unit has your child been treated	1. ETAT 3. IPD 2. OPD 4. NICU	
205	Did your child have past hospitalization in this institution?	1. Yes 2. No	
206	If your answer is "yes" for question number 205, when was he/she hospitalized (treated)?	1. Within a month 2. 3 months back 3. Six months back 4. Before 1 year back	
207	What type of disease did your child treated for?(see patients medical card)	1. Medical 2. Surgical 3. Orthopedic 4. Mental	
208	Status of service payment	1. Paying 2. free	
209	Number or frequency of hospital visit?	1. Onces 2. Twice 3. Three times 4. above 3 times	
210	Hospital stays in hours?		
211	Referral sources?	1. Public hospitals 2. Health centers 3. Private institutions 4. Self referral	

Part 2: Questions related to perception in quality of pediatrics healthcare service delivery in Felegehiwot comprehensive specialized hospital.

Directions: This survey deals with your opinions of quality on pediatrics healthcare service delivery of the hospital. The following set of statements relate to your feelings about hospital pediatrics healthcare service quality. For each statement, please show the extent to which you believe hospital pediatrics health care service quality has the feature described by the statement. If you believe that the service quality your child received is 'excellent', you are requested to circle number 5 and if you believe that it is 'very good' please circle number 4. If you believe that it is 'good', 'fair' and 'poor', please circle numbers 3, 2 and 1 respectively. There is no right

or wrong answers- all we are interested in is a number that best shows your perceptions about FCSH pediatrics healthcare service quality.

S.no	Item Measurement	Rating Scores (Measurement Scales)				
		Poor	Fair	Good	Very good	Excellent
Tangibility						
301	Hospital is well resourced by advanced medical equipments.	1	2	3	4	5
302	The hospital has Medical staffs of secured with advanced skills and knowledge.	1	2	3	4	5
303	Hospital has comfortable facilities.	1	2	3	4	5
304	Hospital staffs are well dressing their uniforms with cleanliness of visual appealing	1	2	3	4	5
305	The physical appealing of hospital is attractive and clean	1	2	3	4	5
306	Hospital service delivering units are well indicated directionally and hence customers have no difficulty to find there.	1	2	3	4	5
307	The hospital has well cleaned and functional toilets.	1	2	3	4	5
308	There is running water for drinking, washing and showering.	1	2	3	4	5
Empathy						
309	Hospital gives you individual attention.	1	2	3	4	5
310	Employees of hospital give personal attention and act politely.	1	2	3	4	5
311	Employees of hospital listen to you and know what your needs are.	1	2	3	4	5
312	Health care providers clearly understand and consider patients' situation.	1	2	3	4	5
313	Employees of hospital show a sense of closeness and friendliness to the patients.	1	2	3	4	5
314	The hospital has your best interests at heart.	1	2	3	4	5
315	The hospital has operating hours convenient to all its customers.	1	2	3	4	5
Efficiency						
316	Hospital employees have attitudes about not using unnecessary medications.	1	2	3	4	5
317	Healthcare providers exert effort fully for proving appropriate treatment methods.	1	2	3	4	5
318	Hospital has a convenient facility for treatment	1	2	3	4	5

	procedures.					
319	Healthcare providers exert efforts for reducing unnecessary procedures.	1	2	3	4	5
320	The hospital provides services and medical goods with reasonably appropriate and fair costs.	1	2	3	4	5
321	All treatments and services are always available in hospitals and hence patients are not exposed to extra costs from private institutions.	1	2	3	4	5
322	The hospital has short period of waiting for services and hence no time wastage.	1	2	3	4	5
Safety						
323	The hospital has comfortable environment for receiving treatments.	1	2	3	4	5
324	Hospital customers are access to comfortable and safe environment for receiving services and waiting for services.	1	2	3	4	5
325	Hospital healthcare providers keep their patients privacy and confidentiality.	1	2	3	4	5
326	The hospital has physical facilities that are safe from infection.	1	2	3	4	5
327	Hospital doctors are able not making misdiagnosis.	1	2	3	4	5
328	Hospital nurses are enough able not making mistakes while caring for patients.	1	2	3	4	5
329	The hospital pharmacists appropriately tell how to take prescribed medications.	1	2	3	4	5
330	We are comfortably confident about the medical proficiency of this hospital.	1	2	3	4	5
Service related questions						
401	Did the doctor explain your child's diseases condition?	1. Yes 2. No				
402	My child was appropriately treated so I am satisfied.	1. Not satisfied 2. fairly satisfied 3. satisfied				
403	Do you prefer and recommend revisiting this hospital?	1. Yes 2. No				

11.3. Annex III: Consent and Information Sheet for FGD Participants

Hello! I am.....I am a post graduate student at Bahir Dar University college of medicine and health sciences in the department of health system and project management. I am here today to discuss with you about your experiences on the quality of pediatrics healthcare service delivery in your hospital. The purpose of this discussion is to assess the quality of pediatrics healthcare service delivery and associated factors and exploring of your experiences in FHCSH. Please note that this discussion will be recorded or I will be taking notes to ensure that I adequately capture your ideas during the discussion. The information you will give will be used to solve problems related with quality of pediatrics healthcare service. You can choose whether to participate or stop at any time. Although the discussion will be tape recorded, your responses will remain confidential and no names will be mentioned in report writing rather codes will be used. The discussion will take 30-45 minutes. If you have any doubt or question you can contact us by the address stated below.

I understand this information and agree to participate fully under the conditions stated above.

Signed: -----, Date: -----.

Contact address: Name of the Investigator: Ayenew Takele

Tele: +251-931-77-99-61. E.mail: ayetake21@gmail.com

Date, -----/-----/-----.

11.4. Annex IV: Focus Group Discussion Guiding Questions

1. What is your overview on the quality of pediatrics healthcare service delivery in FHCSH?
2. How do you see the physical appealing of pediatrics department of the hospital? (Probing: availability of comfortable facilities, general cleanness, functionality of toilets, and availability of clean running water, professional dressing, and adequacy of knowledgeable manpower...).
3. What is your exploration in the process of pediatrics healthcare service delivery?
 - a. Empathy (Probing: giving individual attention and act politely, understanding patients needs and act based on their situation, showing sense of closeness and friendliness...).
 - b. Efficiency (Probing: not providing unnecessary services e.g. medications and procedures, proving appropriate treatment methods, appropriate and fair service cost, no time wastage...).
 - c. Safety (Probing: safe environment for receiving service and waiting, keeping privacy and confidentiality, facilities safe from infection, professional proficiency not to make misdiagnosis and mistreatment (note that for all professions...)).
4. What challenges can you explain that undermine the delivery of quality pediatrics healthcare service in this hospital?

11.5. Annex V: Amharic Version Information Sheet and Consent Form
የ መረጃ መከፋፈልና ስምምነት ቅጽ (ወል)

በፈለጉ-ህይወት አጠቃላይ ስፔሽያላይዝድ ሆስፒታል በሚሰጡ የህጻናት ጤና ክብካቤ አገልግሎት ላይ ያለውን የጥራት መጠን ለመመዘን እና ጥራቱ ላይ ተፅዕኖ የሚያሳድሩ ነገሮችን ለመለየት የተዘጋጀ መጠይቅ።

የጥናቱ ባለቤት፡- አየነው ታክለ

የጥናቱ ርዕስ፡- በፈለጉ-ህይወት አጠቃላይ ስፔሽያላይዝድ ሆስፒታል የህጻናት ጤና ክብካቤ አገልግሎት ጥራት እና ተዛማጅ ተግዳሮቶች።

ጥናቱን የሚያሰራው፡- ባህር ዳር ዩኒቨርሲቲ

ጤና ይስጥልኝ! ስሜይባላል። እኔ የመረጃ ሰብሳቢ ስሆን፤ ይህንን መረጃ የምሰበስበው አየነው ታክለ (በባህር ዳር ዩኒቨርሲቲ፤ የህክምና እና ጤና ሳይንስ ኮሌጅ፤ የሄልዝ ሲስተም እና ፕሮጀክት ማናጅመንት ትምህርት ክፍል፤ የድህረ ምረቃ ተማሪ) የማስተርስ ዲግሪያቸውን ለማጠናቀቅ የመመረቂያ ጽሑፋቸውን ለማዘጋጀት እንዲረዳቸው ሲሆን የጥናቱ አላማ በሆስፒታሉ የሚሰጡ የህጻናት ጤና ክብካቤ አገልግሎት ጥራት መጠንን ለመመዘን እና የጥራቱን ተግዳሮቶች ለመለየት ነው። ስለሆነም እርስዎ የህጻን/ኗ ወላጅ ወይም አሳካሚ እንደመሆንዎ መጠን የዚህ ጥናት ተሳታፊ እንዲሆኑ ተጋብዘዋል። የዚህ ጥናት ተሳታፊ በመሆንዎ የሚደርስቦት ጉዳት ወይም የተለየ ጥቅም አይኖርም። ጥያቄዎችን ለመጠየቅ እስከ 30 ደቂቃ ሊወስድ ይችላል። በጥናቱ ላይ የእርስዎ ስም እና አድራሻ አይጠቀስም፤ የሚሰጡትም መረጃ ከዚህ ጥናት ዓላማ ውጭ ለሌላ አካል ተላልፎ አይሰጥም፤ ምስጢራዊነቱም የተጠበቀ ነው። በዚህ ጥናት መሳተፍ ፈቃደኛ ካልሆኑ፤ በመጠይቁ መሃል መቋረጥ ከፈለጉ ወይንም መመለስ የማይፈልጉት ጥያቄ ሲኖር የማቋረጥ ሙሉ መብት እንዳለዎት ልገልፅልዎት እወዳለሁ። በጥናቱ ላይ ለመሳተፍ የእርስዎ ትብብር እና ፈቃደኝነት በጉዳዩ ላይ የሚነሱ ችግሮችን ለመለየት እጅግ ጠቃሚ ስለሆነ በፈቃደኝነት እንዲሳተፉ በትህትና እንጠይቃለን።

ከላይ በተሰጠኝ መረጃ መሰረት በዚህ ጥናት ላይ ለመሳተፍ ፈቃደኛ ነኝ።

ፊርማ.....።

መጠየቅ የሚፈልጉት ወይም ግልፅ ያልሆነ ነገር ካለ ከታች በተጠቀሰው አድራሻ ማግኘት ይችላሉ።

የጥናት አድራጊው ስም፡- አየነው ታከለ

ስልክ ቁጥር፡- 0931779961ኢ.ሜይል፡- ayetake21@gmail

11.6. Annex VI: Amharic Version Questionnaire Tools

ክፍል 1: የተጠያቂው/ዋ ማህበራዊእናዲሞግራፊያዊነባራዊሁኔታ

ተ.ቁ	ጥያቄ	መልስ	ማለፊያ
101	የርስዎዕድሜስንትነው?	-----ዓመት።	
102	ጾታ	1. ወንድ 2. ሴት	
103	ከታካሚው ጋር ያለውትዝምድናምን ድነው?	1. እናት 3. ወንድም/አህት 2. አባት 4. ሌላይገለፅ.....	
104	የትምህርት ደረጃ	1. ያልተማረ/ች 2. የመጀመሪያ ደረጃ የጨረሰ/ች 3. ሁለተኛ ደረጃ የጨረሰ/ች 4. ኮሌጅ/ዩኒቨርሲቲ ተመራቂ	
105	የስራ ሁኔታ	1. ግብርና 2. የቤት እመቤት 3. ነጋዴ 4. የመንግስት ስራ 5. የቀንስራ	
106	የጋብቻ ሁኔታ	1. ያላገባ/ች 2. ያገባ/ች 3. የፈታ/ች 4. በሞት የተለያት/ችው	
107	ሀይማኖት	1. ኦርቶዶክስ 3. ካቶሊክ 2. ሙስሊም 4. ፕሮቴስታንት	
108	መኖሪያ ቦታ	1. ገጠር 2. ከተማ	
109	ብሔር	1. አማራ 3. አሮሞ 5. ሌላ..... 2. አገው 4. ጉሙዝ	
110	ከቤት እስከ ሆስፒታል ስንት ኪ.ሎሜትር ነው	-----ኪ.ሎሜትር።	
111	አማካኝ ወርሃ ዊየቤተሰቡ የገቢ መጠን ብር		
ስለ ታካሚው/ዋ የቀረበ መጠይቅ			
201	የልጅዎ ጾታ ምን ድንገት ነው?	1. ወንድ 2. ሴት	
202	የልጅዎ ዕድሜ በወር ስንት ነው?	-----ወር።	
203	የታካሚው/ዋ የዕድሜ ምድብ	1. ከ5 ዓመት በታች 2. ከ5 ዓመት በላይ	
204	ልጅዎ የታከመበት ክፍል የትነው?	1. ድንገተኛ 3. ተኝቶ ህክምና 2. ተመመላላሽ 4. ጨቅላ ህጻናት	
205	ልጅዎ ከአሁን በፊት ከዚህ ሆስፒታል ታክሞ ያውቃል?	1. አዎ 2. የለም	

206	በተራቁጥር205መልስዎአዎከሆነ መቸነበርየታከመው/ችው?	1. ከ1ወርበፊት 3. ከ6 ወርበፊት 2. ከ3ወርበፊት 4. ከ1 ዓመትበፊት	
207	ልጅዎየታከመበትየህመምአይነት/ምድብ (የታካሚው/ዋ የህክምናካርድይታይ)	1. የውስጥደዌ 3. የአጥንትናተያያዥ 2. የቀዶጥገና 4. የአዕምሮናተያያዥ	
208	ታካሚው/ዋ የህክምና ክፍያ ሁኔታ	1. ከፋይ 2. ነፃ ታካሚ	
209	ታካሚው/ዋ ከዚህሆስፒታልለስንተኛጊዜነውየ መጣው/ችው?	1 ለመጀመሪያጊዜ 3 ለ3ኛ ጊዜ 2 ለ2ኛ ጊዜ 4 ከ3ኛ ጊዜበላይ	
210	በሆስፒታልየቆዩበትጊዜበለፀጉትስዓት::	
211	ልጅዎ ሪፈር የተባለበት ተቋም	1. የመንግስት ሆስፒታል 3. የግል ተቋም 2. ጤና ጣቢያ 4. ሪፈር የለውም	

ክፍል 2: የህጻናት ህክምና ክፍል የጥራት ሁኔታን ለመለካት የከረበ መጠይቅ

መመሪያ:- ከዚህ ቀጥሎ የቀረቡ መጠይቆች በሆስፒታሉ ህጻናት ህክምና ክፍል ስላለው የአገልግሎት ጥራት ላይ ያጠነጥናሉ። በአገልግሎት ጥራቱ ላይ የእርስዎን አስተያየት ለመውሰድ 5 አማራጮች ተቀምጠዋል። በአገልግሎት ጥራቱ ላይ ያለዎት ትዝብት እጅግ በጣም ጥሩ ከሆነ «5» ን ያክብቡ፤ በጣም ጥሩ ከሆነ «4» ን ይምረጡ፤ ጥሩ ከሆነ «3» ን ይምረጡ፤ እንዲሁም መጠነኛ ከሆነ «2» ን እና ደካማ ነው ብለው ከታዘቡ ደግሞ «1» ን ይምረጡ። በሚሰጡት መልስ ላይ ትክክል ወይም ስህተት የሚሆን መልስ አይኖርም፤ እርስዎ የመረጡት መልስ ወይም ቁጥር በትክክል እርስዎ በአገልግሎት ጥራቱ ላይ የነበረዎትን አረዳድ ወይም ትዝብት የሚያሳይ ይሆናል።

ተ. ቁ	ጥያቄዎች	የጥራትደረጃዎች				
		ደካማ	መጠነኛ	ጥሩ	በጣምጥሩ	እጅግበጣምጥሩ
ስለህክምናክፍሉአካላዊእይታናገፅታየቀረበመጠይቅ						
301	ሆስፒታሉበቂናየዘመነየህክምናቁሳቁስአለው።	1	2	3	4	5
302	የህክምናክፍሉባለሙያዎችበእውቀትናክህሎትየዳበሩናቸው።	1	2	3	4	5
303	ሆስፒታሉምቹየስራክፍሎችአሉት።	1	2	3	4	5
304	የስራክፍሉባለሙያዎችንፅግናውንየጠበቀናለእይታማራኪያ ሆነየደንብልብስወይምጋወንይለብሳሉ።	1	2	3	4	5
305	የሆስፒታሉአካላዊእይታውብ፣ ማራኪናንፁህነው።	1	2	3	4	5

306	በሆስፒታሉውስጥ ሁሉም የአገልግሎት መስጫ ክፍሎች አቅጣጫ ጠቋሚ አላቸው፤ ስለሆነም ፈልጎ ለማግኘት አያስቸግርም።	1	2	3	4	5
307	የሆስፒታሉ ህጻናት ህክምና ክፍል በጣም ዕድገት እና ምቹ መፀዳጃ ትክክለኛው።	1	2	3	4	5
308	የሆስፒታሉ ህጻናት ህክምና ክፍል ለመጠጥ፤ ለመታጠቢያና ሻወር የሚሆንን ጽሁፍ ህውሃ አለው።	1	2	3	4	5
የህመም ማንን ማረጋገጥ እንደራስ ስለማየት						
309	ሆስፒታሉ ለእያንዳንዱ ህመም ገልጻት ከረት ይሠጣል።	1	2	3	4	5
310	የክፍሉ ባለሙያዎች ለግለሰቦች ከረት ይሰጣሉ፤ በትህትና ይሠራሉ።	1	2	3	4	5
311	የክፍሉ ባለሙያዎች ህመም ማንን ያዳምጣሉ፤ የሚያስፈልገንንም ይረዳሉ።	1	2	3	4	5
312	የጤና ክብካቤ አገልግሎት ሰጭ ባለሙያዎች የህመም ማንን ነባራዊ ሁኔታ መሰረት ያደረገ አረዳድ አላቸው።	1	2	3	4	5
313	የክፍሉ ባለሙያዎች ህመም ማንን ያቀርባሉ፤ የጓደኝነት መንፈስ ምእንዲናር ያደርጋሉ።	1	2	3	4	5
314	ሆስፒታሉ የእናንተን ፍላጎቶች ይጠብቃል።	1	2	3	4	5
315	ሆስፒታሉ ለህፃናት ታካሚዎች ምቹ የሆነ የስራ ሰዓት አለው።	1	2	3	4	5
የአገልግሎት አሰጣጥ ቅልጥፍ እና ብቁነትን የተመለከተ መጠይቅ						
316	የክፍሉ ባለሙያዎች ለህመም ማን አላስፈላጊ የሆኑ መድሃኒቶች እንዳይታዘዙ እና እንዳይጠቀሙ ያደርጋሉ።	1	2	3	4	5
317	የጤና ክብካቤ አገልግሎት ሰጭ ባለሙያዎች ክብርና ጥቅም ላይ የሚውሉ ህክምና አሰጣጥ ዘዴ ለመከተል ጥረት የሚያደርጉናቸው።	1	2	3	4	5
318	ሆስፒታሉ ለሁሉም የህክምና ቅደም ተከተሎች/ሃይማኖቶች ክፍሎች አሉት።	1	2	3	4	5
319	የጤና ክብካቤ አገልግሎት ሰጭ ባለሙያዎች አላስፈላጊ የሆኑ የህክምና ሃይማኖቶችን ለማስቀረት/ለመቀነስ ይጥራሉ።	1	2	3	4	5
320	የሆስፒታሉ የአገልግሎት እና የህክምና ግብአቶች ክፍያ መጠን ተገቢና ፍትሃዊ ነው።	1	2	3	4	5
321	ሁሉንም ህክምና መድሃኒትና አገልግሎቶች በሆስፒታሉ ግቢ ውስጥ ማግኘት ችለናል፤ ስለሆነም ወደ ግል የህክምና ተቋማት ስለመላክ ለተጨማሪ ወጭ አልተጋለጥንም።	1	2	3	4	5
322	በሆስፒታሉ አገልግሎት ለማግኘት የምንቆየው ጊዜ በጣም አጭር ነው፤ ስለሆነም የባክነብን ጊዜ የለም።	1	2	3	4	5
ስለ ደህንነት የቀረበ መጠይቅ						
323	የሆስፒታሉ ግቢ የህክምና አገልግሎት ለማግኘት ምቹ የሆነ ከባቢ አለው።	1	2	3	4	5
324	የህፃናት ህክምና ክፍል ተገልጋዮች የህክምና አገልግሎት ለመቀበል ምቹ እና ደህንነቱ የተጠበቀ የሚረፈው ደንብ መጠበቂያ ቦታ	1	2	3	4	5

	ያገኛሉ።					
325	የሆስፒታሉ ህፃናት ህክምና ክፍል ባለሙያዎች በምርመራ ጊዜ የህመም ማንን ያሰው ነት ተጋላጭነት እና ስጦታ ለመስጠት ተቃራኒ ነው።	1	2	3	4	5
326	የሆስፒታሉ የስራ ክፍሎች ለብክለት የተጋለጡ አይደሉም።	1	2	3	4	5
327	የህፃናት ክፍል ሀኪሞች የህመም ማንን ያሰበች ታዘዘች አይደለም።	1	2	3	4	5
328	የስራ ክፍሉ ነገሮች ለህመም ማንን ያሰቡ ናቸው ብዙ ለሚሰጡት ጊዜ ምንም ዓይነት ስህተት አይሰሩም።	1	2	3	4	5
329	የሆስፒታሉ መድሃኒት ቤት ባለሙያዎች በሃኪም የታዘዘን መድሃኒት እንዴት፣ መቸና ምን ያህል መውሰድ እንዳለብን በትክክል ለማብራሪያ ያደሰጣሉ።	1	2	3	4	5
330	እንደ አጠቃላይ በሆስፒታሉ የህክምና አገልግሎት አሰጣጥ ብቁ ነት ላይሙሉ እምነት አለኝ።	1	2	3	4	5
ከክፍሉ አገልግሎት ጋር ተያያዥ የሆኑ መጠይቆች						
401	የልጅዎ የህመም ሁኔታ በሃኪም ተነግሮ ይታወቃል?	1. አዎ 2. የለም				
402	ለልጅ ተገቢው እና ትክክለኛ ህክምና ተደርጎለታል፤ ስለሆነም እረክቸብታለሁ።	1. እረክቻለሁ 2. በመጠኑ እረክቻለሁ 3. አልረካሁም				
403	ይህን ሆስፒታል ለወደፊት በሚገጥመኝ የጤና ችግር ለህክምና አገልግሎት እመርጠዋለሁ።	1. እመርጠዋለሁ 2. አልመርጠውም				

11.7. Annex VII: Amharic Version Information Sheet and Consent Form for Qualitative study

የመረጃ እና ስምምነት ቅጽ

ጤና ይስጥልኝ! ስሜ-----ይባላል። እኔ በባህር ዳር ዩኒቨርሲቲ ህክምና እና ጤና ሳይንስ ኮሌጅ የሄልዝ ሲስተም እና ፕሮጀክት አስተዳደር ትምህርት ክፍል ድህረ ምረቃ ተማሪ ስሆን ዛሬ ከዚህ የተገኘሁት በፈለጉ-ህይወት አጠቃላይ ስፔሻላይዜድ ሆስፒታል ህጻናት ህክምና ክፍል ስላለው አገልግሎት ጥራት ከእናንተ ጋር ለመወያየት ነው። የዚህ ጥናት አላማ በሆስፒታሉ የሚሰጠውን የህጻናት ጤና ክብካቤ አገልግሎት ጥራት ለመመዘን እና ተዛማጅ ችግሮችን ለመለየት እንዲሁም ለጥራቱ ማነቆ የሆኑ ተግዳሮቶችን ለመግለፅ ነው። ፈቃዳችሁ ከሆነ በውይይት ጊዜ መቅረፅ ድመፅ መጠቀም ይጠበቅብኛል፤ ምክንያቱም በውይይቱ የሚነሳ መረጃን በበቂ እና በትክክል ለመውሰድ እንዲያስችለኝ ነው። በውይይቱ የምትሰጡት መረጃ በህጻናት ጤና ክብካቤ አገልግሎት ጥራት ለይ ያሉ ችግሮችን ለመፍታት ያስችላል። በውይይቱ አለመሳተፍ ወይም በፈለጉ ጊዜ ማቆም ይችላሉ። ምንም እንኳን መቅረጻ ድምፅ ብጠቀምም በውይይቱ የምትሰጡት መልስ (መረጃ) ምስጢራዊነቱ የተጠበቀ እና በሪፖርት አጻጻፍ ላይ የማናችሁም ስም የማይጠቀስ መሆኑን ላስገንዝባችሁ እወዳለሁ፤ በስም ፈንታ ኮድ የምጠቀም ይሆናል። ውይይቱ ከ30-45 ደቂቃ ሊወስድ ይችላል።

ማንያውም ብዥታ ወይም ጥያቄ ካላችሁ ቀጥሎ ታች ላይ በተቀመጠው አድራሻዎ ልታገኙኝ ትችላላችሁ።

የጥናቱ ባለቤት፡- አየነው ታክለ

ስልክ፡- +251-931-77-99-61

ኢ.ሜይል፡- ayetake21@gmail.com

ጥናቱን የሚያሰራው፡- ባህር ዳር ዩኒቨርሲቲ

11.8. Annex VIII: Amharic Version for Focus Group Discussion Guiding Questions

የውይይት መነሻ ነጥቦች

1. በፈለገ-ህይወት አጠቃላይ ስፔሽያላይዝድ ሆስፒታል ህጻናት ህክምና ክፍል የጤና ክብካቤ አገልግሎት ጥራት ላይ ያለውን አጠቃላይ ግንዛቤ ምንድን ነው?
2. የሆስፒታሉን ህጻናት ህክምና ክፍል አካላዊ መስህብ እንዴት አዩት? (ማብራሪያ፡- የስራ ክፍሎች ምቹነት፣ አጠቃላይ ንፅህናት፣ መጠቀም የሚያስችሉ መፀዳጃ ቤት፣ የንጹህ ውሃ መኖር፣ የባለሙያዎች አላባባስና ሳቢነት፣ በእውቀት እና ክህሎት የዳበረ የሰው ሃይል፣ ወዘተ)።
3. የህጻናት ህክምና ጤና ክብካቤ አገልግሎት አሰጣጥ ሂደትን እንዴት ይረዱታል?
 - የህሙማንን ችግር እንደራስ ስለማየት (ማብራሪያ፡- ለህሙማን ትኩረት መስጠትና በትህትና ስለማገልገል፣ የህሙማንን ሁኔታ መረዳትና በዚህም ልክ ተግባራዊ ማድረግ፣ ህሙማንን ስለማቅረብና እንደገና ስለማየት ወዘተ)።
 - ስለብቁነት (ማብራሪያ፡- አላስፈላጊ አገልግሎትን ስለማስቀረት ለምሳሌ፡- መድሃኒትና ልዩ ልዩ የህክምና ሂደቶች፣ ስለህክምና ዘዴዎች ተገቢነት፣ ስለአገልግሎት ክፍያ ተገቢነትና ፍትሃዊነት፣ የጊዜ ብክነትን ስለማስወገድ ወዘተ)።
 - ስለደህንነት (መመርመሪያ፡- ደህንነቱ የተጠበቀ የአገልግሎት መጠባበቂያና መቀበያ ቦታ፣ ከብክለት የጸዱ የስራ ክፍሎች፣ የምርመራና ህክምና ስህተት ላለመፍጠር ያለው የሙያ ብቃት ወዘተ)።
4. በሆስፒታሉ ህጻናት ህክምና ክፍል ጥራቱ ተጠመቀ የጤና ክብካቤ አገልግሎት ለመስጠት ምን ምን ተግዳሮቶችን መጥቀስ ይችላሉ?

11.9. Annex IX: Declaration

I, the under signed, declared that this is my original work, has never been presented in this or any other University, and that all the resources and materials used for the research, have been fully acknowledged.

Principal investigator

Name: Ayenew Takele (BSc, MPH Candidate)

Signature & Date.....

Advisors: First

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Signature& Date:

Advisors: Second

Name: Mr. Desta Debalkie (BSc, MPH, Assistant Professor)

Signature:

Examiners: Internal

Name: Mr. Gebeyehu Tsega (BSc, MPH, Assistant Professor)

Signature &Date:

Examiners: External:

Name: Mr. Shimelis Ololo

Signature & Date: