THE ROLE OF INDIVIDUAL PATIENT CHARACTERISTICS AND PROVIDERS BEHAVIOUR FACTORS ON PATIENT SATISFACTION AT MBEYA ZONAL REFERRAL HOSPITAL

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By

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A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health of Muhimbili University of Health and Allied Sciences

October 2024

CERTIFICATION

The undersigned certify that they have read and because of this recommended for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation titled: **" The role of individual patient characteristics and providers behaviour factors on patient satisfaction at Mbeya Zonal Referral Hospital"** in (partial) fulfilment of the requirements for the Degree of Master of Public Health of Muhimbili University of Health and Allied Sciences.

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DECLARATION AND COPYRIGHT

I **Nahabonyeyo I Bgoya,** declare that this dissertation is my original work and has not been presented elsewhere for any degree award.

Signature…… **Date**……

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Finally, I extend my sincere thanks to all study participants for their cooperation in responding to the questions and providing information that contributed to the successful completion of this work."

DEDICATION

I dedicate this dissertation to my dear wife and family at large for their support and encouragement, which contributed to the completion of this work.

ABSTRACT

Background: Patient satisfaction is the fundamental component of the equitable quality of care among clients seeking healthcare services**.** In developed nations, patient satisfaction with healthcare services ranges from 90% to 95%; in underdeveloped nations, it is far lower, ranging from less than 50% to 95%. Many studies on various aspects of patient satisfaction have been conducted. However, a limited number of studies have focused on the role of individual patient characteristics and providers behaviour factors on patient satisfaction.

Objective: The aim of this study was to determine the role of individual patient characteristics and providers behaviour factors on patient satisfaction among patients attending laboratory and antenatal care services at Mbeya Zonal Refferal Hospital.

Methodology: A cross-sectional analytical study was conducted at Mbeya Zonal Hospital in Mbeya Region, Tanzania involving patients attending antenatal and laboratory units. The study seeks to measure the health care services, namely laboratory and antenatal care services, to patient satisfaction. By systematic sampling, a total of 384 participants were selected from the study population. Data were collected through pretested interview forms. The SPSS version 26 Windows program was used to clean, code, enter, and analyse the collected data.. The significance of the link between independent variables and dependent variables was assessed using descriptive statistics, binary and multi-variable regression analysis, and a p-value of less than 0.05

Findings: Results from this study validate that patient individual characteristics such as age and sex, and providers behavior such as good communication and empathy have a significant and positive effect on patient satisfaction. The overall patient satisfaction was relatively low for antenatal care services as compared to laboratory services.

Conclusion: Based on the findings from this study, individual patient characteristics has positive association with patient satisfaction where women's adult age and high level of education affect patient satisfaction negatively. Service providers' behaviour affects patient satisfaction where empathy and understanding of patient needs had more effect on patient satisfaction. Antenatal care services affects positively patient satisfaction

where more effect was observed on respecting waiting time and good provider's communication skills. Laboratory services affects positively patient satisfaction where more effect was observed in good communication skill of service provider in providing sufficient information about sample collection procedure.

TABLE OF CONTENTS

CERTIFICATION i
DECLARATION AND COPYRIGHT ii
ACKNOWLEDGEMENT iii
DEDICATION iv
ABSTRACT v
LIST OF TABLES x
LIST OF FIGURES xi
LIST OF ABBREVIATION xii
DEFINITIONS OF TERMS xiii
CHAPTER ONE 1
1.0 INTRODUCTION 1
1.1 Background 1
1.2 Problem Statement 3
1.3 Conceptual Framework 4
1.4 Rationale of the Study 5
1.5 Main Research Question 5
1.5.1 Sub-questions 5
1.6 Main Objective 5
1.6.1 Specific Objectives 6
CHAPTER TWO 7
2.0 LITERATURE REVIEW 7
2.1 Patient Satisfaction Level with Health Care Services 7
2.2 Individual patient characteristics on satisfaction with health care services 8
2.3 Healthcare Services on patient satisfaction 9
2.4 Healthcare provider's behavior effect on the patient satisfaction 11
CHAPTER THREE 12
3.0 METHODOLOGY 12
3.1 Study Design 12
3.2 Study Area 12
3.3 Study Population 12
3.3.1 Inclusion criteria 12

3.3.2 Exclusion criteria 12
3.4 Sample Size Calculation 12
3.5 Sampling Procedure and Technique 13
3.6 Data Collection Tools and Methods 14
3.7 Study Variables 14
3.7.1 Dependent Variables: 14
3.7.2 Independent Variables: 15
3.8 Training of Research Assistants 15
3.9 Pretesting of Data Collection Instruments 15
3.10 Reliability and Validity 16
3.11 Data Collection Procedure 16
3.12 Data Processing and Management 16
3.12.1 Data Analysis 17
3.13 Ethical Considerations 17
CHAPTER FOUR 18
4.0 RESULTS 18
4.1 Characteristics of the study participants 18
4.2 Proportion of satisfaction among women expressing patient satisfaction with antenatal care services 20
4.3 Proportion of patient satisfaction among patients receiving laboratory services 21
4.4 Individual characteristics of patients associated with patient satisfaction with antenatal care services 22
4.5 Individual characteristics of patients on the patient satisfaction of patients accessing laboratory services 23
4.6 Patient quality assessment associated with patient satisfaction among individuals attending antenatal clinics 25
4.7 Patient quality assessment associated with patient satisfaction among individuals attending laboratory services 27
4.8 Healthcare providers' behaviour on patient satisfaction with antenatal and laboratory services 29
4.9 Individual patient characteristics and provider behaviors associated with patient satisfaction with antenatal services 29
CHAPTER FIVE 33

5.0 DISCUSION 33
5.1 Discussion 33
5.1.1 Patient satisfaction with antenatal care services 33
5.1.2 Patient satisfaction with laboratory services 34
5.1.3 Effect of individual patient characteristics on patient satisfaction 34
5.1.4 Effect of providers behaviour on patient satisfaction 35
5.2 Strength and limitations 36
CHAPTER SIX 38
6.0 CONCLUSION AND RECOMMENDATION 38
6.1 Conclusion 38
6.2 Recommendations 38
7.0 APPENDICES 43
Appendix 1: English Interview Form 43
Appendix 2: Dodoso La Kiswahili 49
Appendix 3: Consent Form 54
Apendix 4: Fomu Ya Ukubali 55
Apendix 5: Approve for ethical clearance 56
Appendix 6: Introduction letter 58

LIST OF TABLES

Table 1: Individual characteristics of study participants.....18
Table 2: Overall proportion of patients expressing patient satisfaction with healthcare services in antenatal clinics (N=251).....20
Table 3: Overall proportion of patients expressing patient satisfaction with laboratory services (N=384).....21
Table 4: Individual characteristics of women associated with patient satisfaction with antenatal services (N=251) 23
Table 5: Individual characteristics of patients associated with patient satisfaction of patients accessing laboratory services (N=384).....25
Table 6: Patient quality assessment on antenatal care services associated with PATIENT satisfaction among individuals attending antenatal clinics (N=251).....27
Table 7: Patient quality assessment impacts on PATIENT satisfaction among individuals receiving laboratory services (N=384).....28
Table 8: Healthcare providers' behaviour on the patient satisfaction of patients receiving antenatal and laboratory services (N=384) 29

LIST OF FIGURES

Figure 1: Description of the Conceptual Framework 4

LIST OF ABBREVIATION

ANC Antenatal Care

HCP Health Care Providers

MUHAS Muhimbili University of Health and Allied Sciences

MZRH Mbeya Zonal Referral Hospital

SPSS Statistical Package for the Social Sciences

UHC Universal Health Coverage

DEFINITIONS OF TERMS

Antenatal Care- also known as prenatal care, refers to the medical and supportive services provided to pregnant women by healthcare professionals throughout their pregnancy. These services aim to monitor the health and well-being of both the mother and the developing foetus, as well as to promote a healthy pregnancy, delivery, and postnatal period.

Laboratory Services- refer to the range of diagnostic and testing procedures provided within the healthcare facility's laboratory setting.

Patient Satisfaction- refers to the extent to which the patient believes that their needs have been met.

Quality Health Care Services- the extent to which health services are in line with current professional knowledge and improve the likelihood of desired health outcomes for people and populations.

Health Care Provider's Behaviour- are the actions performed by HCPs when delivering healthcare to their patients including the aspects of communication, competence, and caring.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Patient satisfaction is both an outcome and an indicator of the patient-centeredness of quality health care. Patient satisfaction is a critical component of providing clients seeking healthcare services with equitable quality of care on a global scale. Generally, patient satisfaction can be defined as the fulfilment of the client's desires and needs through the delivery of quality healthcare(1). In order to increase accessibility and usage of healthcare services, the degree of patient satisfaction can be utilised as a measure of the performance of the health system(2). Improving patient satisfaction is undeniably paramount in attaining universal health coverage (UHC).

Evidence shows that poor quality of healthcare services leads to poor health outcomes and leads to the unwillingness of consumers to use the services in developing countries(10,11). If the patients fail to get satisfactory services in the formal private and public health facilities, they tend to seek them somewhere else(2). In turn, this influences poor health-seeking behaviour, which is translated into poor initial uptake of services, low client retention, and poor adherence to medical treatments, which can contribute to a higher level of morbidity and mortality.

Globally, the assessment of patients' satisfaction with healthcare service quality encompasses evaluations of its structure, process, and outcomes(2). The SERVQUAL model is the most commonly adopted model for assessment by researchers when it comes to the issues of quality of services. The model was proposed by Parasuraman, Zeithaml, and Berry in 1985 based on the expectation-perception gap theory of service quality. The SERVQUAL Model has five factors, including tangibles, reliability, responsiveness, assurance, and empathy (SERVQUAL model). Moreover, healthcare provider's behaviour plays a pivotal role in influencing patient satisfaction with the quality of healthcare services, as their interpersonal skills, communication, and empathy profoundly influence the overall healthcare experience of patients (12).

The level of patient satisfaction with the quality of health services ranges from 90% to 95% in developed countries, while it is considerably lower in developing countries, where it ranges from less than 50% to 95%(2). The level of patient satisfaction was found to be 84% in Nigeria and 70% in Ethiopia(2,3). Research conducted in Tanzania indicates that 90–95% of patients expressed high levels of satisfaction with the medical care provided at Muhimbili National Hospital(4). The level relatively drops in other hospitals. For instance, it was 70% at Kilosa District Hospital and less than 50% at Mwananyamala Hospital. In the northern parts of the country, the patient satisfaction level was reported to be 20%(2,5,6).

Tanzania has remarkably made progress in improving the quality of healthcare services for all people to achieve Sustainable Development Goal (SDG) 3.8 as part of the health sector reforms (7)(8). The government has strengthened the delivery of healthcare services by facilitating the construction of infrastructure and improving the availability of human resources for health, essential medicines, and medical equipment(7,9). Following the expansion of health services in Tanzania, the provision of quality health care has remained a serious for years(10). The health services offered must be of higher quality to improve the user's experience(10).

Antenatal care and laboratory services emerge as crucial components of healthcare systems, serving diverse populations with essential care. Antenatal care services are particularly important in promoting the health outcomes of pregnant women and reducing maternal and neonatal deaths(13). Thus, antenatal care services that are satisfactory increase the likelihood of desired maternal and neonatal outcomes(14). Conversely, diagnostic laboratory services are regarded as the foundation of the healthcare industry. The correlation between laboratory services, diagnostic treatment, and patient satisfaction is important in antenatal care services to examine expectant mothers and the health of the unborn child(12). Therefore, it is regarded as a crucial factor in determining patient satisfaction.

However, little is known about what influences patient satisfaction with these services, especially in the Mbeya region. This study aimed to examine patient satisfaction with quality healthcare services (laboratory services and antenatal care) with the moderator role of healthcare provider's behaviour in hospitals.

1.2 Problem Statement

In Tanzania, the rate of patient dissatisfaction with healthcare services ranges from 4% to 80%(1,2,4,15). The level of patient dissatisfaction varies in different settings and the level of the health care facilities where it is lower in most primary health facilities and higher in tertiary hospitals(2,4,5). Literature indicates that patients who express lower levels of satisfaction are less inclined to adhere to their medical treatment, attend follow-up appointments, and exhibit sub-optimal health-seeking behavior (4, 11, 15). These tendencies may lead to unintended health consequences, including heightened morbidity and mortality rates (11, 12). Several factors such as distorted patient-provider relationships, high waiting times, unavailability of equipment, and unsatisfactory appearance of facilities have been implicated in causing patient dissatisfaction (5,12).

The government of Tanzania have put in place policies to promote customer satisfaction including promoting the use of the Service Charter as a tool to achieve sustainable changes towards a more customer-focused approach in the provision of health services (5). However, there are still complaints from both public and private health facilities about less patient satisfaction with provided healthcare services.

Many studies have been conducted to assess the general level of patient satisfaction and factors influencing healthcare facilities in different regions across the country. (1,2,4,). However, there is limited knowledge of the influence of healthcare provider's behaviour and individual patient characteristics on patient satisfaction with healthcare services. This study aimed to examine the role of individual patient characteristics and providers behaviour factors on patient satisfaction with healthcare services among patients attending laboratory services and antenatal care services at Mbeya zonal referral hospital.

1.3 Conceptual Framework

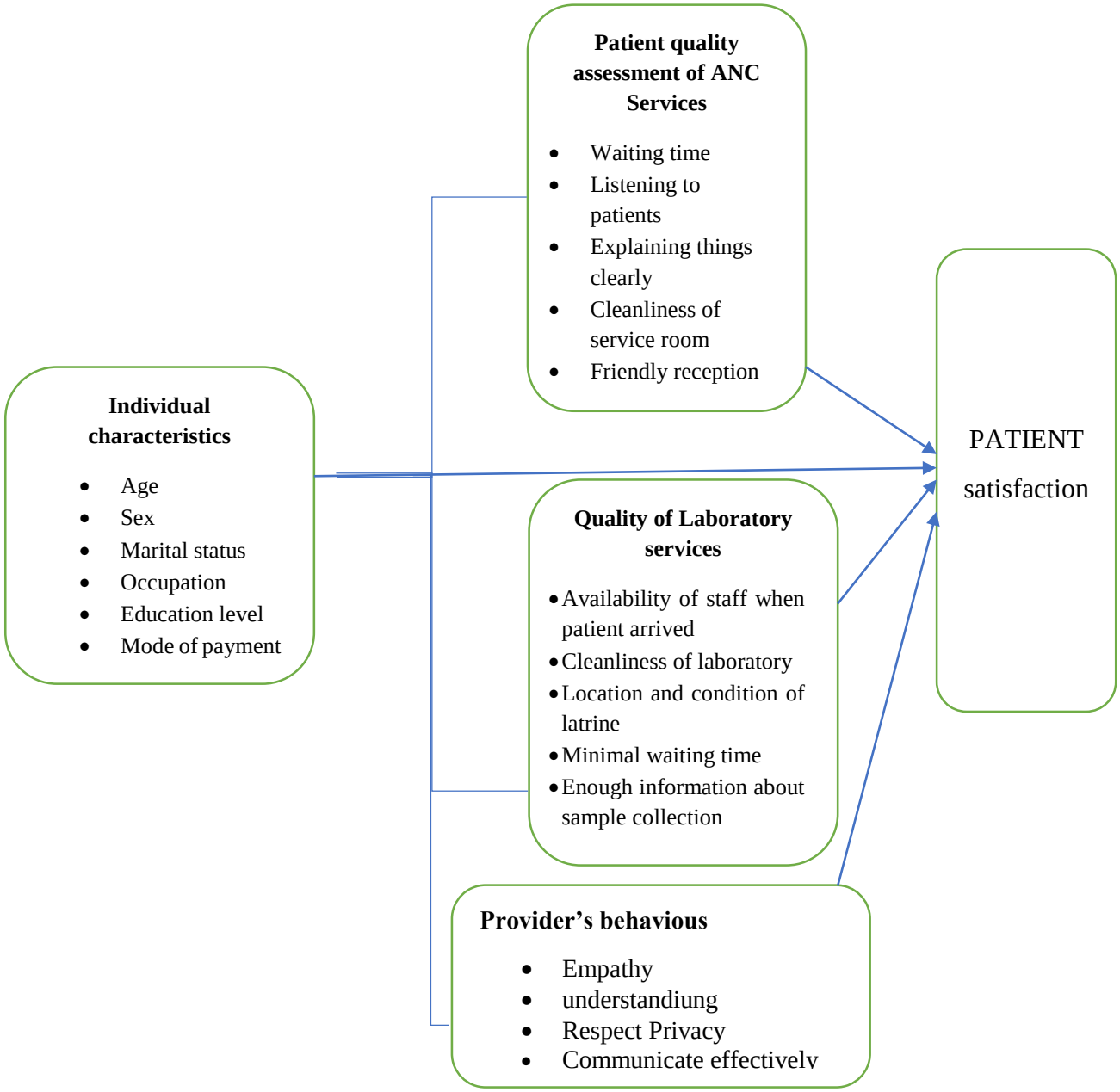


Figure 1: A Conceptual Framework of Effects of quality of antenatal care and laboratory services on PATIENT satisfaction

The relationship between a dependent variable and independent variables is depicted in the conceptual framework above. The dependent variable is the outcome variable that is predicted by the independent factors, whereas independent variables are the variables that predict the occurrence of the dependent variable. In this instance, the independent variables are patient individual characteristics, quality of antenatal and laboratory services and providers behaviour. The dependent variable is patient satisfaction. This model demonstrates that better healthcare services improve patient satisfaction and that good and friendly health worker's behaviour has a positive link to patient satisfaction

1.4 Rationale of the Study

The study increased awareness and knowledge about the role of service provider behaviour and patient characteristics on patient satisfaction at Mbeya zonal Referral Hospital. Results from this study will help Mbeya Zonal Hospital to increase customer satisfaction by planning to minimize patient waiting time, promoting service providers empathy and good communication skills which have significant association with patient satisfaction.

1.5 Main Research Question

What is the role of the individual patient characteristics and provider behaviour factors on patient satisfaction with healthcare services at Mbeya zonal referral hospital?

1.5.1 Sub-questions

i. What is the proportion of patients with satisfaction with antenatal care and laboratory services in Mbeya region?
ii. How do individual patient characteristics affect satisfaction with antenatal and laboratory services at Mbeya zonal referral hospital?
iii. How does patient quality assessment affect satisfaction with antenatal care and labpratory services at Mbeya zonal referral hospital?
iv. What is the effect of healthcare providers' behavior on patient's satisfaction with antenatal and laboratory services provided in Mbeya Region?

1.6 Main Objective

To assess the role of individual patient characteristics and provider behaviour factors on patient satisfaction with healthcare services at Mbeya zonal referral hospital?

1.6.1 Specific Objectives

1. To determine the proportion of patients expressing patient satisfaction with healthcare services in antenatal clinics and laboratory services at Mbeya zonal hospital,
2. To assess the effect of individual patient characteristics on the patient satisfaction with antenatal and laboratory services at Mbeya zonal hospital
3. To assess how patient quality assessment impacts satisfaction among individuals attending antenatal clinics and laboratory services at Mbeya zonal hospital, in Mbeya Region
4. To assess the effect of healthcare providers' behaviour on the patient satisfaction with antenatal and laboratory services at Mbeya zonal hospital, in Mbeya Region

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Patient Satisfaction Level with Health Care Services

There are wide variations among the patient satisfaction levels with healthcare services in various regions of the world with lower levels of satisfaction being reported in low- and middle-income areas. Patient satisfaction can reach 90–95% in developed nations, but it can drop to fewer than 30% in developing nations(16,17). Based on the objectives of this study, the review of the literature has focused on the patient satisfaction with the quality of antenatal care and laboratory services.

In a cross-sectional study conducted in Zambia to examine pregnant women's satisfaction with the quality of services given during antenatal care visits, the overall satisfaction was 58.9%(14). Further analysis showed that the participants'' satisfaction with the physical aspects of antenatal care ranges from 40.9 to 58.3%, on the technical aspects ranged from 46.9 to 58.7%, and ranged from 54.3 to 57.9% on the interpersonal aspects (14). Nwaeze et al(18) established the overall level of satisfaction with the quality of antenatal care services was high(18). In the study by Amare Wudu and Bekalu(19), it was found that 70% of the study participants were satisfied with the quality of ANC services.

A review of another facility-based cross-sectional study conducted in Ethiopia revealed that the quality of antenatal care was 30% meanwhile the patient's satisfaction level was 55%(20). In the same line, Emiru et al(17) found that only 30.3% of women in the study were highly satisfied with the ANC. In a study conducted in Myanmar, the overall satisfaction of women with ANC services was 48%(21). Moreover, cross-sectional study conducted in Northern Ethiopia to determine the level of satisfaction with clinical laboratory services found the overall level of satisfaction to be 48.8%(22). However, Hailu et al(19) found the level of satisfaction to be 78.6% in public hospitals in Ethiopia, the same as established by Abebe(23). A similar study conducted in Nigeria shows that 52.3% of patients were satisfied with the quality of laboratory services(24).

Kamanda et al conducted a cross-sectional study in healthcare facilities in Kilimanjaro region, Tanzania to determine level of pregnant women's satisfaction on the level of reproductive and child health clinics. The study found the overall level of satisfaction was 48.5%, while the overall mean score for the level of satisfaction was -0.53 implying dissatisfaction with the quality of the healthcare (25). Another study, conducted in semi-urban areas of Kibaha and Bagamoyo, found that overall satisfaction was 74.9%(26).

In Tanzania, there is a scarcity of research focusing on patients' patient satisfaction with the quality of laboratory services. Among the few studies conducted is the one led by Mfinanga et al, which aimed to assess the extent of client dissatisfaction with laboratory services in both public and private hospitals. The study found that the percentage of dissatisfaction with both public and private laboratory services ranged from 4.3% to 34.8%(15). Another study conducted in Tanzania established that more than 90% of patients or caretakers were highly satisfied with the quality of diagnostic laboratory services(27).

2.2 Individual patient characteristics on satisfaction with health care services

Several studies have established the positive or negative correlation between individual characteristics such as age, sex, occupation, residence, the highest level of education, type and severity of the disease, mode of payment, and other socioeconomic indicators with the level of patient satisfaction.

Age and sex were found to strongly influence the level of satisfaction among patients in a study conducted by Liu et al (28) in Beijing. The study moreover found that elderly patients with poor health status generally were dissatisfied with the healthcare services. Moreover, the female participants in the study showed a higher level of satisfaction with the quality of healthcare services as compared to their male counterparts (28). Bergh et al(13) reported a negative correlation between the age of a woman and with satisfaction the quality of ANC services.

Mfinanga et al(15) established that higher educated patients were more likely to be unhappy with waiting times and privacy in both public and private settings. Compared to patients with less education, individuals with secondary schooling were more likely to be unhappy with the waiting period and outcome communication. Similarly,

Nwaeze(18) found more advanced educational level was positively associated with overall patient satisfaction with the quality of antenatal care services. However, Bergh(13) found a negative correlation between education and the level of satisfaction with the overall quality of ANC services, as the women with secondary and tertiary education were more likely to be dissatisfied.

According to a study done in Nigeria by Anikwe, being married and multiparous had a substantial impact on how satisfied one was with the calibre of pregnant care services(29). The same finding was also reported in a study by Oladapo. Besides marital status, studies have also shown the influence of ethnicity and area of residence on the patient satisfaction with the quality of health services. Similarly, results from a Malaysian study showed that Bidayuh people were less likely to express high levels of satisfaction with antenatal care services(30). Bogale et al, on the same line, established that ethnicity significantly influences the perception of the quality of laboratory services in malaria diagnosis in Ethiopia. Area of residence (urban or rural) and distance were substantially correlated with the degree of total client satisfaction(19).

Mode of payment for antenatal care and laboratory services is another significant individual characteristic that influences the level of satisfaction with the quality of healthcare. Rahman et al(31) revealed that the likelihood of being extremely satisfied with antenatal care was twice as high (two times) for those who had no out-of-pocket expenses for healthcare services. Unfair payment of service of laboratory services is linked to patient dissatisfaction(19).

2.3 Healthcare Services on patient satisfaction

The influence of different aspects of the quality of health services has been studied and evaluated in several studies. Such aspects include the technical, non-technical and interpersonal domains as suggested by different models of assessing the quality of health services. The literature analysis on how various components of the quality of healthcare services affect the perception of patient satisfaction is provided below in the context of this study;

In a hospital-based cross-sectional study carried out by Birhanu et al(32) in Ethiopia, it was found that less waiting time, adequate and well-ventilated waiting areas,

accessibility to the antenatal clinic and other hospital buildings, privacy, and availability of quality drugs and medicines are the aspects of quality health care services that improved the level of satisfaction among pregnant women's attending the antenatal care services in both public and private health hospitals.

The hospital's supply of drugs and medical equipment, the ANC clinic's cleanliness, the ANC procedure itself, the waiting area's ventilation and lighting, the length of time patients must wait to see doctors, and the clinic's operating hours (the availability of services) were significantly correlated with patient satisfaction overall(21). Moreover, Seyoum(33) established that a waiting time of less than 60 minutes was associated with a higher level of patient satisfaction with the quality of antenatal care services. Mwanja and Kazonga(34) insisted that the availability of skilled health personnel, modern equipment, and drugs has a positive correlation with patient satisfaction.

In Tanzania, a cross-sectional study conducted to examine the participants' expectations and their satisfaction with antenatal care services in surb-urban settings found several institutional factors that influence the patient satisfaction. Factors such as prolonged waiting times, disorganized scheduling, poor quality of facilities, and improper tests and examinations negatively influenced their perceptions of satisfaction with ANC services(26).

According to a study by Hailu et al (19), patients were not happy with the latrine's cleanliness (47%), the lengthy wait (30%), the clear and understandable advisory service provided during specimen collection (26%), the adequateness of the waiting area (25%), the laboratory's easy accessibility (19%), the location of the latrine (20%), or the availability of the requested service(19). In a study conducted by Bekele et al. (35), it was discovered that 240 out of the total study participants, constituting 63.3%, expressed satisfaction with the medical laboratory services offered at Shenengibe Public Hospital. Key factors contributing to overall patient satisfaction with these services included the provision of sufficient information regarding specimen collection procedures, the timing and process for obtaining laboratory results, as well as waiting times of less than 30 minutes for result retrieval(35).

2.4 Healthcare provider's behavior effect on the patient satisfaction

A cross-sectional study was carried out in Pakistan to determine the relationship between diagnostic laboratory services with patient satisfaction with the moderating effect of the healthcare provider's behaviour. The study found that there is a positive relationship between the provision of laboratory services and patient satisfaction. Moreover, the physician's behaviour including professionalism, attitude, competence, and communication moderates the positive correlation between healthcare services and satisfaction with diagnostic services and antenatal care (12).

Patient satisfaction is significantly influenced by how patients perceive the attitudes of healthcare providers. More than 85% of respondents to a cross-sectional research done in Nigeria said they were satisfied with the antenatal services and the clinic's nurses' attitude(18). On the other hand, 57 respondents, or 72.2%, were satisfied with the antenatal care service out of the 79 respondents who thought the nurses' attitude was poor, which was significant ($p<0.05$). Of the respondents, 57.1% were still satisfied with ANC services despite having a negative assessment of the doctors' approach; this difference was similarly significant ($p<0.05$). Of those who expressed satisfaction with ANC services, 84.4% said the doctors had a favourable attitude towards them(18).

Seyoum(33) found that women whose privacy was maintained and women treated respectfully were significantly associated with antenatal care service satisfaction. Similar findings were established by Mfinanga et al(15) Bekele(35), and Hailu(19) on maintaining respect and ensuring privacy and confidentiality while attending to clients in the context of a laboratory setting.

In their study carried out in Tanzania, Heri et al. (26) found that full care from the healthcare personnel, including being attended to promptly, getting great treatment, and getting information without being asked, linked to a higher degree of satisfaction. Women expressed high levels of satisfaction with the treatment they received from providers on the sub-scale measuring satisfaction (being treated with dignity, receiving healthcare, feeling taken care of, and having the opportunity to ask questions)(26).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

The study design of this research was a cross-sectional analytical study. The justification for employing a cross-sectional analytical study design in this research was based on its ability to efficiently assess and analyse the factors affecting patient satisfaction with healthcare quality at a single point in time. Furthermore, the cross-sectional design was cost-effective and time-efficient.

3.2 Study Area

The study was conducted at Mbeya Zonal Referral Hospital located in Mbeya City. The facility was a public and academic centre with an average of 13,000 patient visits per month. The hospital was selected for convenience and its high number of patient visits to ensure a desirable sample size with heterogeneous participants was obtained within the specified period of the study.

3.3 Study Population

The study population comprised patients receiving laboratory services and antenatal care at Mbeya Zonal Referral in Mbeya for the period of two months, from June to July 2024.

3.3.1 Inclusion criteria

All patients received laboratory and antenatal services at Mbeya Zonal Referral Hospital

3.3.2 Exclusion criteria

This study did not include individuals who were critically ill, cognitively challenged, incompetent, or comatose, and who were not conversant with the interviewing language.

3.4 Sample Size Calculation

Two sample sizes were calculated using the formula adopted from Kirkwood

$$N = \frac{z^2 p\,(1-p)}{d^2}$$

Where: N= total number of participants required in the sample

z= a standardized normal deviate value that corresponds to a level of statistical significance of p-value ≤ 0.05 which is 1.96

p_1= proportion of women attending antenatal clinic services in Tanzania (90% from 2022 THDS- MIS)

p_2 =Proportion of patients who receive Laboratory Tests (69% from THDS-MIS)

d=margin of error on p which is taken to be 0.05

1. Sample size estimation for women attending Antenatal care services

   $N = \frac{1.96^2 \times 0.9(1-0.9)}{0.05^2} = 135$

   Sample size for antenatal care services was 135

2. Sample size estimation for patients attending Laboratory Services

   $N = \frac{1.96^2 \times 0.69(1-0.69)}{0.05^2} = 328$

   Sample size for Laboratory service was 328

3.5 Sampling Procedure and Technique

The sampling procedure used in this study was systematic sampling. For participant selection in the exit interviews, a systematic sampling approach was employed based on their daily attendance at the antenatal care unit and laboratory department, and a list of patients in attendance was retrieved from patient records. The sampling interval was established using the formula N/n, where N represented the total number of patients attending the laboratory and antenatal care clinics per day, and n denoted the projected size of the sample in this study. This method ensured a representative sample was obtained systematically, facilitating a comprehensive understanding of patient perspectives regarding healthcare services.

3.6 Data Collection Tools and Methods

The quantitative data in this study were collected through interview forms, which involved conducting interview with individuals immediately after they interacted with a service or facility, in this case, after they received antenatal care services or laboratory services. Data were collected using interview forms with structured questions covering all variables of the study. The interview forms consisted of five major sections: individual characteristics of the patient, assessment of the quality of antenatal care services, assessment of the quality of laboratory services, assessment of healthcare providers' behaviour, and overall satisfaction.

The individual characteristics or socio-demographic questions comprised eight questions on age, sex, marital status, occupation, mode of payment, and the reason for attending the healthcare facility that day. The assessments of satisfaction with antenatal and laboratory services comprised 5-point Likert scale questions, with responses ranging from "Strongly Disagree" to "Strongly Agree." An assessment of the healthcare providers' behaviour was conducted using three questions focused on communication, competence, and care aspects, also rated on a 5-point Likert scale. Lastly, overall satisfaction was determined using one general question and two additional questions measuring the likelihood of patients returning to the same facility and recommending the facility to other patients, rated from "Strongly Disagree" to "Strongly Agree."

For the purpose of gathering data, the English-language Questions form was translated into Kiswahili. After that, a second translation from Kiswahili to English was conducted to ensure that there was no meaning distortion or inconsistency.

3.7 Study Variables

Variables that were measured in this study included:

3.7.1 Dependent Variables:

Patient satisfaction was the outcome or response measured to assess the level of fulfillment that patients experienced with the healthcare services they received. Patient satisfaction reflected patients' subjective evaluations of their experiences, including the quality of antenatal care and laboratory services, interactions with healthcare providers, and overall satisfaction with the services received. It served as an indicator of the

effectiveness and adequacy of healthcare delivery from the patient's perspective. The level of patient satisfaction was classified as **satisfied or dissatisfied.**

3.7.2 Independent Variables:

- **Individual characteristics** of the patient (age, sex, occupation, education level, marital status, mode of payment, type of health problem or disease).
- **Satisfaction with healthcare services** focused on patients' subjective evaluations of the quality of the antenatal and laboratory services they received
    - **Antenatal care services;** It encompassed various aspects Waiting time, listening to patients, Explaining things clearly, Cleanliness of service room, Friendly reception, Overall experience of the ANC service
    - **Laboratory Services** accessibility, cleanliness, waiting times, availability of staff when patient arrived, Enough information about sample collection and overall experience of the healthcare services.
- Patient satisfaction with laboratory and antenatal care services was Classified as Satisfied and Dissatisfied. Assessment was done by Likert scale which had 5 responses per each question ranging from Strongly disagree to Strongly agree. Those who responded *Strongly disagree* and *Disagree* were termed as ***Dissatisfied***. Those who responded *Strongly agree* and *agree* were termed as ***Satisfied***."

3.8 Training of Research Assistants

Research assistants underwent a two-day orientation and training session to familiarize themselves with the meticulous data collection process. The principal investigator diligently oversaw all daily activities to guarantee the thoroughness of interview form completion. He also provided continuous guidance and supervision to ensure accuracy and adherence to protocol throughout the study.

3.9 Pretesting of Data Collection Instruments

The data collection instrument was pretested on 5% of the sample size at Ruanda Health Centre in Mbeya City Council before the start of the data collection on the study population. At this stage, each of the interview form's five components was tested. The principal investigator double-checked the completed questionnaires for consistency and completeness to guarantee the quality of the data. Each of the pre-testing data sets underwent analysis and presentation. Necessary alterations and changes were performed following the pretesting of the interview form.

3.10 Reliability and Validity

In this study, the reliability and validity of the findings were ensured through several key strategies. Firstly, established and validated measurement tools or survey instruments were utilized to assess patient satisfaction with healthcare services, guaranteeing the reliability of data collection. Secondly, rigorous and standardized data collection procedures were implemented, including training interviewers or research assistants on proper techniques and minimizing biases. Additionally, pre-testing was conducted to refine instruments and procedures, enhancing reliability.

3.11 Data Collection Procedure

A research assistant, who had completed orientation and training on the study's objectives and the proper administration of interview forms, was responsible for data collection. To ensure comprehensive data collection, participants were systematically randomly selected from both laboratory and antenatal clinic settings using daily attendance registration forms. Prior to this, approval had been obtained from relevant authorities and ethical committees.

Participants were recruited from the laboratory and antenatal clinics through systematic random sampling, based on projected daily attendance and lists of attending patients from medical registers. Upon recruitment, participants were approached respectfully, and informed consent was obtained before data collection. Interviews were conducted in a private and conducive environment within the hospital to ensure confidentiality and participant comfort.

Each interview lasted approximately 15-20 minutes, allowing for a thorough exploration of patient experiences and perceptions. The interview questions addressed participant characteristics, satisfaction with healthcare services, perceptions of service quality, and interactions with healthcare providers. Data was collected from consenting clients after they had received their respective health services, such as diagnostic tests or antenatal care services.

3.12 Data Processing and Management

The data were coded and input into SPSS version 26 software after being carefully reviewed for completeness. Necessary corrections and cleaning were made based on

the original data. The physical interview forms and the soft copy of the data were kept in proper places with multiple backups. Incomplete data were discarded.

3.12.1 Data Analysis

Data analysis was conducted using SPSS version 26 software, employing frequency tables, Chi-square cross-tabulations, and regression with a significance level of $P<0.05$. Descriptive statistics, specifically frequency analysis, were used to analyse demographic data and provide an overview of study participant characteristics. Findings were reported in percentages and frequencies. Participants indicating "strongly agree" or "agree" were categorized as satisfied with care, whereas those indicating "disagree" or "strongly disagree" were classified as dissatisfied.

To assess the individual characteristics associated with patient satisfaction, a Chi-square test was performed. Patient satisfaction with quality of antenatal care and laboratory services was estimated using univariable and multivariable regression. patient satisfaction was classified as Satisfied (agree and strongly agree response) or Dissatisfied(strongly disagree, disagree, neutral responses). Satisfaction with providers' behaviour was expressed in percentages of satisfied vs dissatisfied.

3.13 Ethical Considerations

Ethical clearance was obtained from the MUHAS Institutional Review Board **(REF.No.DAA.282/298/01.C/2341**), and authorization to conduct the study was secured from the research, training, and consultancy directorate at Mbeya Zonal Referral Hospital. Before participating, respondents were provided with comprehensive information about the study and its benefits, and their informed consent was sought. Confidentiality of participant information was strictly maintained throughout the study.

CHAPTER FOUR

4.0 RESULTS

This study involved 384 participants from laboratory and 251 women from ANC section. The overall proportion of patient satisfaction among ANC women was 56% while the proportion of satisfaction among laboratory patients was 80% . patient characteristics that were significantly associated with satisfaction among ANC women were age, occupation, education and marital status. Individual characteristics associated with satisfaction among laboratory patients were age, occupation, education and marital status. Aspects of patient quality assessment that were associated with satisfaction were waiting time, cleanliness and provisenough information about medical procedures. Providers' b;ehviors that significantly associated with patient satisfaction were empathy and understanding, effective communication and respect for patient's privacy.
Following is a detailed presentation of the study results

4.1 Characteristics of the study participants

A total of 384 patients were studied to access laboratory services quality. More than half (52.1%) were aged 20-29 years and were female (65.4%). Most patients were unemployed (33.6%), had no formal/primary education (38.5%) and were married (49.0%). Majority of patients (65.4%) paid for treatment out of pocket and 65.9% were treated for acute illness (Table **1**).

A total of 251 female who attended the ANC visit were included in this study to access on the quality of antenatal care services. More than half (52.6%) were aged 20-29 years. Most women were farmers (38.3%) and had no formal/primary education (43.8%). 53.4% of the women were married, 70.1% paid out of pocket and 55.4% had acute illness (Table **1**).

Table 1: Individual characteristics of study participants

Variable	Laboratory services (N=384)		Antenatal care services (N=251)	
	Frequency (n)	**Percentage (%)**	**Frequency (n)**	**Percentage (%)**
Age				
20-29	200	52.1	132	52.6
30-39	155	40.4	109	43.4
40-49	10	2.6	10	4.0
≥50	19	4.9		
Sex				
Male	133	34.6		
Female	251	65.4		
Occupation				
Unemployed	129	33.6	49	19.5
Employed	51	13.3	51	20.3
Self employed	89	23.2	55	21.9
Farmers	115	29.9	96	38.3
Education level				
No formal education/primary	148	38.5	110	43.8
Secondary	117	30.5	89	35.5
College and above	119	31.0	52	20.7
Marital status				
Single	136	35.4	79	31.4
Married	188	49.0	134	53.4
Divorced	39	10.1	17	6.8
Widowed	21	5.5	21	8.4
Model of payment				
Out of pocket	251	65.4	176	70.1
Insurance	102	26.5	44	17.5
Exemption	31	8.1	31	12.4
Reason for treatment				
Acute illness	253	65.9	139	55.4
Chronic illness	131	34.1	112	44.6

4.2 Proportion of satisfaction among women expressing patient satisfaction with antenatal care services

The overall proportion of satisfaction among women expressing patient satisfaction with healthcare services in antenatal clinics was 55.4%. The proportion of satisfaction was significantly higher among women who were aged 20-29 (64.4%), were self-employed (69.1%), had secondary education (76.4%), and were divorced (82.3%) (Table **2).**

Table 2: Overall proportion of patients expressing patient satisfaction with healthcare services in antenatal clinics (N=251)

Variable	n(%)	Satisfaction		p-value (χ2)
		Satisfied	Dissatisfied	
Age				
20-29	132 (52.6)	85 (64.4)	47 (35.6)	**0.006**
30-39	109 (43.4)	48 (44.0)	61 (56.0)	
40-49	10 (4.0)	6 (60.0)	4 (40.0)	
Occupation				
Unemployed	49 (19.5)	7 (14.3)	42 (85.7)	**<0.001**
Employed	51 (20.3)	27 (52.9)	24 (47.1)	
Self employed	55 (21.9)	38 (69.1)	17 (30.9)	
Farmers	96 (38.3)	40 (41.7)	56 (58.3)	
Education level				
No formal education/primary	110 (43.8)	56 (50.9)	54 (49.1)	**<0.001**
Secondary	89 (35.5)	68 (76.4)	21 (23.6)	
College and above	52 (20.7)	15 (28.8)	37 (71.2)	
Marital status				
Single	79 (31.5)	51 (64.6)	28 (35.4)	**<0.001**
Married	134 (53.4)	70 (52.2)	64 (47.8)	
Divorced	17 (6.8)	14 (82.3)	3 (17.7)	
Widowed	21 (8.3)	4 (19.1)	17 (80.9)	
Model of payment				
Out of pocket	176 (70.1)	96 (54.5)	80 (45.5)	0.073
Insurance	44 (17.5)	30 (68.2)	14 (31.8)	
Exemption	31 (12.4)	13 (41.9)	18 (58.1)	
Reason for treatment				
Acute illness	139 (55.4)	79 (56.8)	60 (43.2)	0.605
Chronic illness	112 (44.6)	60 (53.6)	52 (46.4)	

4.3 Proportion of patient satisfaction among patients receiving laboratory services

The overall proportion of satisfaction among patients expressing patient satisfaction with laboratory services was 80.5 %. The proportion of satisfaction was significantly higher among patients who were aged 20-29 (91.0%), were unemployed (92.2%), had secondary education (92.3%), were single (89.0%), payed out of pocket (83.7%) and were treated for acute illness (83.8%) (Table **3).**

Table 3: Overall proportion of patients expressing patient satisfaction with laboratory services (N=384)

Variable	n(%)	Satisfaction		p-value (χ2)
		Satisfied	Dissatisfied	
Age				
20-29	200 (52.1)	182 (91.0)	18 (9.0)	**<0.001**
30-39	155 (40.4)	116 (74.8)	39 (25.2)	
40-49	10 (2.6)	6 (60.0)	4 (40.0)	
≥50	19 (4.9)	5 (26.3)	14 (73.7)	
Sex				
Male	133 (34.6)	114 (85.7)	19 (14.3)	0.059
Female	251 (65.4)	195 (77.7)	56 (22.3)	
Occupation				
Unemployed	129 (33.6)	119 (92.2)	10 (7.8)	**<0.001**
Employed	51 (13.3)	30 (58.8)	21 (41.2)	
Self employed	89 (23.1)	76 (85.4)	13 (14.6)	
Farmers	115 (30.0)	84 (73.0)	31 (27.0)	
Education level				
No formal education/primary	148 (38.5)	110 (74.3)	38 (25.7)	**0.001**
Secondary	117 (30.5)	108 (92.3)	9 (7.7)	
College and above	119 (31.0)	91 (76.5)	28 (23.5)	
Marital status				
Single	136 (35.4)	121 (89.0)	15 (11.0)	**0.004**
Married	188 (49.0)	138 (73.4)	50 (26.6)	
Divorced	39 (10.1)	34 (87.2)	5 (12.8)	
Widowed	21 (5.5)	16 (76.2)	5 (23.8)	
Model of payment				
Out of pocket	251 (65.4)	210 (83.7)	41 (16.3)	**<0.001**
Insurance	102 (26.6)	85 (83.3)	17 (16.7)	
Exemption	31 (8.0)	14 (45.2)	17 (54.8)	
Reason for treatment				
Acute illness	253 (65.9)	212 (83.8)	41 (16.2)	**0.022**
Chronic illness	131 (34.1)	97 (74.1)	34 (25.9)	

4.4 Individual characteristics of patients associated with patient satisfaction with antenatal care services

The Univariable and multivariable analysis for individual characteristics of patients associated with patient satisfaction of patients accessing antenatal services are shown in Table **4.** In Univariable analysis, satisfaction was less prevalent among patients who were aged 30-39 (PrR = 0.68, 95% CI 0.53, 0.88), patients who were employed (PrR = 0.55, 95% CI 0.40,0.75), self-employed (PrR = 0.36, 95% CI 0.24,0.54) and farmers (PrR = 0.68, 95% CI 0.55, 0.83) compared to those unemployed, patients who had college and above (PrR = 0.57, 95% CI 0.36,0.90), patients who were widowed (PrR = 0.29, 95% CI 0.12,0.72) compared to those who were single. Satisfaction was more prevalent in patients who had secondary education (PrR = 1.50, 95% CI 1.21,1.86) compared to those with no formal/primary education.

In multivariable analysis, age, occupation, education and marital status were significantly associated with patient satisfaction of patients accessing antenatal services. Patients who were aged 40-49 had lower prevalence of satisfaction compared to those aged 20-29 (PrR = 0.44, 95% CI 0.19, 0.97). Patients who were self-employed (PrR = 0.54, 95% CI 0.35, 0.84) and farmers (PrR = 0.69, 95% CI 0.54, 0.89) had lower satisfaction compared to those unemployed. Patients who had college and above education had lower prevalence of satisfaction compared to those with no formal/primary education (PrR = 0.46, 95% CI 0.27, 0.79). Patients who were divorced (PrR = 1.89, 95% CI 1.34, 2.67) had higher prevalence of satisfaction compared to those who were single.

Women who were widowed (PrR = 0.29, 95% CI 0.12, 0.72) had lower prevalence of satisfaction compared to those who were single.

Table 4: Individual characteristics of women associated with patient satisfaction with antenatal services (N=251)

Variable	Univariable analysis		Multivariable analysis	
	PrR	**P-value**	**PrR**	**P-value**
Age				
20-29	1			
30-39	0.68 (0.53-0.88)	0.003	0.81 (0.62-1.05)	0.116
40-49	0.93 (0.55-1.57)	0.791	0.44 (0.19-0.97)	**0.043**
Occupation				
Unemployed	1			
Employed	0.55 (0.40-0.75)	<0.001	0.95 (0.69-1.28)	0.720
Self employed	0.36 (0.24-0.54)	<0.001	0.54 (0.35-0.84)	**0.006**
Farmers	0.68 (0.55-0.83)	<0.001	0.69 (0.54-0.89)	**0.005**
Education level				
No formal education/primary	1			
Secondary	1.50 (1.21-1.86)	<0.001	1.17 (0.91-1.51)	0.226
College and above	0.57 (0.36-0.90)	0.017	0.46 (0.27-0.79)	**0.006**
Marital status				
Single	1			
Married	0.81 (0.64-1.02)	0.072	0.86 (0.68-1.09)	0.212
Divorced	1.28 (0.97-1.68)	0.082	1.89 (1.34-2.67)	**<0.001**
Widowed	0.29 (0.12-0.72)	0.008	0.34 (0.14-0.86)	**0.023**
Model of payment				
Out of pocket	1			
Insurance	1.25 (0.98-1.59)	0.072		
Exemption	0.77 (0.49-1.19)	0.238		
Reason for treatment				
Acute illness	1			
Chronic illness	0.94 (0.75-1.18)	0.608		

4.5 Individual characteristics of patients on the patient satisfaction of patients accessing laboratory services

The Univariable and multivariable analysis for individual characteristics of patients associated with patient satisfaction of patients accessing laboratory services are shown in Table **5.** In Univariable analysis, satisfaction was less prevalent among patients who were aged 30-39 (PrR = 0.82, 95% CI 0.74, 0.91) and ≥50 (PrR = 0.29, 95% CI 0.14, 0.62), female patients 39 (PrR = 0.91, 95% CI 0.82, 0.99), patients who were employed

(PrR = 0.64, 95% CI 0.50, 0.81) and farmers (PrR = 0.79, 95% CI 0.71, 0.89), patients who were married (PrR = 0.83, 95% CI 0.74, 0.92), patients who were exempted from payment (PrR = 0.54, 95% CI 0.36, 0.79) and patients treated for chronic illness (PrR = 0.88, 95% CI 0.79, 0.99). Satisfaction was more prevalent among patients who had secondary education (PrR = 1.24, 95% CI 1.11, 1.38).

In multi-variable analysis, age, education level, marital status, mode of payment and reason for treatment were significantly associated with patient satisfaction of patients accessing laboratory services. Patients who were aged ≥50 had lower prevalence of satisfaction compared to those aged 20-29 (PrR = 0.26, 95% CI 0.12, 0.54). Patients who had college and above education had lower prevalence of satisfaction compared to those with no formal/primary education (PrR = 0.73, 95% CI 0.62, 0.87). Patients who were married (PrR = 0.76, 95% CI 0.66, 0.87), divorced (PrR = 0.80, 95% CI 0.65, 0.98) and widowed (PrR = 0.72, 95% CI 0.52, 0.99) had lower prevalence of satisfaction compared to those who were single. patients who were exempted from payment had lower prevalence of satisfaction compared to those who pay out of pocket (PrR = 0.53, 95% CI 0.39, 0.72). Patients who were treated for chronic illness had lower prevalence of satisfaction compared to those treated for acute illness (PrR = 0.77, 95% CI 0.67, 0.88).

Table 5: Individual characteristics of patients associated with patient satisfaction of patients accessing laboratory services (N=384)

Variable	Univariable analysis		Multivariable analysis	
	PrR	**P-value**	**PrR**	**P-value**
Age				
20-29	1			
30-39	0.82 (0.74-0.91)	<0.001	0.94 (0.85-1.04)	0.252
40-49	0.66 (0.39-1.09)	0.108	0.72 (0.43-1.19)	0.207
≥50	0.29 (0.14-0.62)	0.001	0.26 (0.12-0.54)	**<0.001**
Sex				
Male	1			
Female	0.91 (0.82-0.99)	0.045	0.95 (0.83-1.09)	0.499
Occupation				
Unemployed	1			
Employed	0.64 (0.50-0.81)	<0.001	0.84 (0.69-1.02)	0.075
Self employed	0.93 (0.84-1.02)	0.128	1.07 (0.92-1.25)	0.394
Farmers	0.79 (0.71-0.89)	<0.001	0.90 (0.79-1.04)	0.156
Education level				
No formal education/primary	1			
Secondary	1.24 (1.11-1.38)	<0.001	0.95 (0.81-1.12)	0.523
College and above	1.03 (0.89-1.18)	0.685	0.73 (0.62-0.87)	**<0.001**
Marital status				
Single	1			
Married	0.83 (0.74-0.92)	<0.001	0.76 (0.66-0.87)	**<0.001**
Divorced	0.98 (0.86-1.12)	0.767	0.80 (0.65-0.98)	**0.034**
Widowed	0.86 (0.67-1.09)	0.218	0.72 (0.52-0.99)	**0.045**
Model of payment				
Out of pocket	1			
Insurance	0.99 (0.89-1.10)	0.940	1.02 (0.91-1.15)	0.692
Exemption	0.54 (0.36-0.79)	0.002	0.53 (0.39-0.72)	**<0.001**
Reason for treatment				
Acute illness	1			
Chronic illness	0.88 (0.79-0.99)	0.035	0.77 (0.67-0.88)	**<0.001**

4.6 Patient quality assessment associated with patient satisfaction among individuals attending antenatal clinics

The Univariable and multivariable analysis are shown in Table **6.** In Univariable analysis, satisfaction was less prevalent among women who reported that healthcare

providers respected their time and minimized waiting times for services (PrR = 0.75, 95% CI 0.59, 0.94). Also, satisfaction was more prevalent among women among would recommend the hospital they attended for ANC services to other patients based on their overall experience (PrR = 1.91, 95% CI 1.41, 2.59).

In multivariable analysis, waiting time and recommendation of patients based on overall experience were significant impacts of patient satisfaction among individuals attending antenatal clinics. satisfaction was less prevalent among women who reported that healthcare providers respected their time and minimized waiting times for services (PrR = 0.89, 95% CI 0.71, 1.13). Also, Satisfaction was more prevalent among patients who would recommend the hospital they attended for ANC services to other patients based on their overall experience (PrR = 1.86, 95% CI 1.36, 2.55).

Table 6: Patient quality assessment on antenatal care services associated with PATIENT satisfaction among individuals attending antenatal clinics (N=251)

Variable	Univariable analysis		Multivariable analysis	
	PrR	P-value	PrR	P-value
Waiting time				
Dissatisfied	1			
Satisfied	0.75 (0.59-0.94)	0.013	0.89 (0.71-1.13)	**0.003**
Listening to patients				
Dissatisfied	1			
Satisfied	1.31 (0.71-2.43)	0.391		
provider explaining things clearly				
Dissatisfied	1			
Satisfied	0.97 (0.69-1.36)	0.879		
cleanliness of the service room				
Dissatisfied	1			
Satisfied	1.12 (0.72-1.73)	0.615		
Drugs given				
Dissatisfied	1			
Satisfied	0.99 (0.68-0.43)	0.947		
Reception at the antenatal clinic				
Dissatisfied	1			
Satisfied	1.11 (0.41-2.98)	0.837		
Experience				
Dissatisfied	1			
Satisfied	1.91 (1.41-2.59)	<0.001	1.86 (1.36-2.55)	**<0.001**

4.7 Patient quality assessment associated with patient satisfaction among individuals attending laboratory services

The Univariable and multivariable analysis are shown in Table 7**.** In Univariable analysis, satisfaction was more prevalent among patients who reported that the cleanliness and attractiveness of the laboratory were maintained at a high standard (PrR = 1.39, 95% CI 0;93, 2.07). Also, among patients who received enough information during sample collection at the laboratory (PrR = 1.52, 95% CI 1.05, 2.20).

In multivariable analysis, cleanliness of the laboratory and enough information about sample collection given to patients were significant associations. satisfaction was more prevalent among patients who reported that the cleanliness and attractiveness of the laboratory were maintained at a high standard (PrR = 1.21, 95% CI0.89, 2.11). Satisfaction was more prevalent among patients who received enough information during sample collection at the laboratory (PrR = 1.54, 95% CI 1.06, 2.23).

Table 7: Patient quality assessment impacts on ptient satisfaction among individuals receiving laboratory services (N=384)

Variable	**Univariable analysis**		**Multivariable analysis**	
	PrR	**P-value**	**PrR**	**P-value**
Location and condition of latrines				
Dissatisfied	1			
Satisfied	1.28 (0.93-1.76)	0.130		
Cleanliness of the laboratory				
Dissatisfied	1			
Satisfied	1.39 (0.93-2.07)	0.012	1.21 (0.89-2.11)	**0.009**
Availability of staff when patients arrives				
Dissatisfied	1			
Satisfied	0.97 (0.67-1.39)	0.847		
Enough information about sample collection				
Dissatisfied	1			
Satisfied	1.52 (1.05-2.20)	0.028	1.54 (1.06-2.23)	**0.023**
Recommendation				
Dissatisfied	1			
Satisfied	1.26 (0.85-1.87)	0.248		

4.8 Healthcare providers' behaviour on patient satisfaction with antenatal and laboratory services

Among 384 patients studied, 99.2% reported that healthcare providers showed empathy and understanding, 96.4% reported that nurses showed empathy and understanding, 98.2% reported that receptionists showed empathy and understanding, 80.0% reported that laboratory staff showed empathy and understanding, 97.9% reported that healthcare providers communicated effectively and 93.2% reported that healthcare providers respected privacy (Table **8).**

Table 8: Healthcare providers' behaviour on the patient satisfaction of patients receiving antenatal and laboratory services (N=384)

Variable	Satisfaction (%)	
	Satisfied	**Dissatisfied**
Doctor empathy and understanding	381 (99.2)	3 (0.8)
Nurses empathy and understanding	370 (96.4)	14 (3.7)
Receptionists empathy and understanding	377 (98.2)	7 (1.8)
Laboratory staff empathy and understanding	307 (80.0)	77 (20.0)
Effective communication	376 (97.9)	8 (2.1)
Respecting patient privacy	358 (93.2)	26 (6.8)

4.9 Individual patient characteristics and provider behaviors associated with patient satisfaction with antenatal services

The Uni variable and multi-variable analysis for both individual patient characteristics and provider behavior associated with patient satisfaction in antenatal care services are dsiplayed in **Table 9.**

In multi-variable analysis, age, occupation, and level of education were significantly associated with satisfaction of patients accessing antenatal services. Patients who were aged 40-49 had lower prevalence of satisfaction compared to those aged 20-29 (PrR = 0.44, 95% CI 0.19, 0.97). Patients who were self-employed (PrR = 0.54, 95% CI 0.35, 0.84) had lower satisfaction compared to those unemployed. Patients who had college

and above education had lower prevalence of satisfaction compared to those with no formal/primary education (PrR = 0.46, 95% CI 0.27, 0.79). In provider's behavior, patient satisfaction was significantly associated with Healthcare provider's empathy and understanding (PrR=1.21, 95% CI 0.89-2.11) and effective provider's communication (PrR=1.54, 95% CI 1.06-2.23)

Table 9: Individual patient characteristics and provider behavior associated with patient satisfaction with antenatal services (N=251)

Variable	Uni-variable analysis		Multi-variable analysis	
	PrR	**P-value**	**PrR**	**P-value**
Age				
20-29	1			
30-39	0.68 (0.53-0.88)	0.003	0.81 (0.62-1.05)	0.116
40-49	0.93 (0.55-1.57)	0.791	0.44 (0.19-0.97)	**0.043**
Occupation				
Unemployed	1			
Employed	0.55 (0.40-0.75)	<0.001	0.95 (0.69-1.28)	0.720
Self employed	0.36 (0.24-0.54)	<0.001	0.54 (0.35-0.84)	**0.006**
Education level				
No formal education/primary	1			
Secondary	1.50 (1.21-1.86)	<0.001	1.17 (0.91-1.51)	0.226
College and above	0.57 (0.36-0.90)	0.017	0.46 (0.27-0.79)	**0.006**
HPE				
Dissatisfied	1			
Satisfied	1.39 (0.93-2.07)	0.012	1.21 (0.89-2.11)	**0.009**
REMP				
Dissatisfied	1			
Satisfied	0.55 (0.50-0.60)	<0.001	0.64 (0.52-0.70)	0.316
HCEFF				
Dissatisfied	1			
Satisfied	1.52 (1.05-2.20)	0.028	1.54 (1.06-2.23)	**0.023**
RESP				
Dissatisfied	1			
Satisfied	0.55 (0.50-0.60)	<0.001	0.64 (0.52-0.70)	0.316

Key:

HCPE = Healthcare provider's Empathy and Understanding

REMP = Receptionist's empathy and understanding

HCEFF = Healthcare provider's effective communication

RESP = Respecting patients privacy

4.10 Individual patient characteristics and providers' behaviour associated with patient satisfaction with laboratory services

The Univariable and multivariable analysis for individual patient characteristics and providers behavior associated with patient satisfaction among individuals accessing laboratory services are shown in **Table 10.**

In multivariable analysis, age, education level,, mode of payment and reason for treatment were significantly associated with patient satisfaction with laboratory services. Patients aged ≥50 had lower prevalence of satisfaction compared to those aged 20-29 (PrR = 0.26, 95% CI 0.12, 0.54). Patients who had college and above education had lower prevalence of satisfaction compared to those with no formal/primary education (PrR = 0.73, 95% CI 0.62, 0.87). Patients who were exempted from payment had lower prevalence of satisfaction compared to those who pay out of pocket (PrR = 0.53, 95% CI 0.39, 0.72). Patients who were treated for chronic illness had lower prevalence of satisfaction compared to those treated for acute illness (PrR = 0.77, 95% CI 0.67, 0.88). In providers behaviors, effective communication, sympathy and understanding, and respecting patient privacy had significant association with patient satisfaction

Table 10: Individual patient characteristics and providers' behaviour associated with patient satisfaction with laboratory services (N=384)

Variable	Univariable analysis		Multivariable analysis	
	PrR	**P-value**	**PrR**	**P-value**
Age				
20-29	1			
30-39	0.82 (0.74-0.91)	<0.001	0.94 (0.85-1.04)	0.252
40-49	0.66 (0.39-1.09)	0.108	0.72 (0.43-1.19)	0.207
≥50	0.29 (0.14-0.62)	0.001	0.26 (0.12-0.54)	**<0.001**
Education level				
No formal education/ primary	1			
Secondary	1.24 (1.11-1.38)	<0.001	0.95 (0.81-1.12)	0.523
College and above	1.03 (0.89-1.18)	0.685	0.73 (0.62-0.87)	**<0.001**
Model of payment				
Out of pocket	1			
Insurance	0.99 (0.89-1.10)	0.940	1.02 (0.91-1.15)	0.692
Exemption	0.54 (0.36-0.79)	0.002	0.53 (0.39-0.72)	**<0.001**
Reason for treatment				
Acute illness	1			
Chronic illness	0.88 (0.79-0.99)	0.035	0.77 (0.67-0.88)	**<0.001**
HCPE				
Dissatisfied	1			
Satisfied	0.80 (0.76-0.84)	<0.001	0.59 (0.49-0.73)	**<0.001**
REMP				
Dissatisfied	1			
Satisfied	0.55 (0.50-0.60)	<0.001	0.64 (0.52-0.70)	0.316
HCEFF				
Dissatisfied	1			
Satisfied	1.39 (0.93-2.07)	0.012	1.21 (0.89-2.11)	**0.009**
RESP				
Dissatisfied	1			
Satisfied	0.75 (0.59-0.94)	0.013	0.89 (0.71-1.13)	**0.003**

Key:

HCPE = Healthcare provider's Empathy and Understanding

REMP = Receptionist's empathy and understanding

HCEFF = Healthcare provider's effective communication

RESP = Respecting patients privacy

CHAPTER FIVE

5.0 DISCUSION

5.1 Discussion

The study aimed to determine the role of providers behaviour and individual patient characteristics on satisfaction with antenatal care and laboratory services. The overall proportion of satisfaction among women expressing patient satisfaction with healthcare services in antenatal clinics was 55.4%. The overall proportion of satisfaction among patients expressing patient satisfaction with laboratory services was 80.5%. Age, occupation, education and marital status were significantly associated with patient satisfaction of patients accessing antenatal services. Age, education level, marital status, mode of payment and reason for treatment were significantly associated with patient satisfaction of patients accessing laboratory services. Waiting time and recommendation of patients based on overall experience were significant impacts of patient satisfaction among individuals attending antenatal clinics. Cleanliness of the laboratory and enough information about sample collection given to patients were significant associations.

5.1.1 Patient satisfaction with antenatal care services

The current study demonstrated more than half of the pregnant women were satisfied with the overall quality of services in the antenatal clinics. Our findings vary to those reported in Zambia (14) but slightly higher to that reported in Tanzania (25). The results could be explained by the fact that most health facilities do their best to provide women with appropriate care during antenatal visits to minimize maternal morbidity and mortality. Satisfactory ANC services that are acceptable to all pregnant women will improve overall health and pregnancy women. More interventions should be introduced to ensure the level of satisfaction increases among all pregnant women.

In this study, waiting time and recommendation of patients based on overall experience were significant impacts of patient satisfaction among individuals attending antenatal clinics. Healthcare providers respecting their time and minimized waiting times for services was associated with satisfaction which is in line to a study in Ethiopia that showed that patients waiting for no more than 30 minutes in the health facility to get services was associated with their satisfaction(32). Also, studies in Myanmar, Ethiopia

and Tanzania reported the same findings (21,26,33). Patients waiting longer for services to be given tend to be less satisfied compared to those who receive services within a short period of time.

5.1.2 Patient satisfaction with laboratory services

This study showed that patients satisfaction with laboratory services was relatively high. This is in line with findings in Tanzania that showed that more that 90% of patients were highly satisfied with the quality of laboratory services (27). The satisfaction of laboratory services varies with the quality of services provided thus high level of satisfaction indicates that patients receive quality healthcare services. These findings are contrary to those reported by another study in Tanzania that showed that higher percentage of the patients were dissatisfied with the laboratory services provided (15). This difference with the current findings could be explained by the difference in study locations as health facilities differ on the quality of services provided. Also, the discrepancy might be due to differences in the sample size and number of health facilities included in previous studies.

This study demonstrated that cleanliness of the laboratory and enough information about sample collection given to patients were significant associations. Satisfaction was more prevalent among patients who reported that the cleanliness and attractiveness of the laboratory which is similar to findings reported in Ethiopia (19,35). Patients are satisfied with clean laboratory as it ensures them of their safety against other infections from the laboratory environment.

Satisfaction was more prevalent among patients who received enough information during sample collection at the laboratory which is similar to findings in Ethiopia (19,35). Enough information assures the patient on the importance of sample collected and gives willingness to give the required samples without hesitating. Also, information helps the patients to make appropriate decisions regarding treatment.

5.1.3 Effect of individual patient characteristics on patient satisfaction

In the current study we found that age, occupation, education and marital status were significantly associated with patient satisfaction of antenatal services. This is similar to findings from a study conducted in Kenya, Tanzania and Malawi that showed that women's age and education were associated with satisfaction in Kenya (13). Women

aged 40-49 were less satisfied with antenatal care services, this could be explained by the fact that older women have more experience attending ANC visits and therefore may have higher expectations as compared to their last visits and therefore may be less satisfied with the current services given. A study in Beijing also showed that elder patients were less satisfied with hospital environment shower that elder women are less likely to be satisfied with the services given in general (28).

Patients who had college and above education were less satisfied with antenatal care services compared to those with no formal/primary education this could be explained the fact that more educated women have higher expectations for ANC from being better informed. These findings are similar to those reported in Nigeria (18). This is contrary to findings in Beijing that showed that patients with higher educational level were more satisfied (28). Also a study in Ethiopia showed that not attending formal education was associated with satisfaction (32).

Also, findings in the current study show that patients who were divorced were more satisfied with antenatal care services and those who were widowed were less satisfied with antenatal care services. This is contrary to a reported in Nigeria that showed that being married affected satisfaction with quality of antenatal care services (29). Divorced women could be more satisfied with antenatal care

Patients who were exempted from payment were less satisfied with laboratory services. This is contrary to a report in Malaysia that showed those who had no out-of-pocket expenses for healthcare services were more satisfied with the services given(31). In our study those who were exempted from payment were less satisfied with laboratory services may be due to the fact that their expectations could be too high as all the expenses are paid for them so they perceive that they deserve the best services.

5.1.4 Effect of providers behaviour on patient satisfaction

This study showed that healthcare providers behaviour influences patient satisfaction just as reported in a study by Manzoor F in Pakistan (12). The findings reveal that 96.4% of the patients reported that the healthcare providers showed empathy. Also, nurse's attitude influence patient's attitude where 98.2% of the patients reported that receptionists showed empathy and understanding while providing services which is

similar to a report in Nigeria (18) that showed that patients were satisfied with nurses attitude. In addition, our study reported that healthcare providers respecting privacy influenced the satisfaction of patients which is consistent to findings in Ethiopia and Tanzania (15,19,33,35).

The current study shows that good and effective healthcare provider communication is significantly associated with patient satisfaction . This finding is similar to the study by Stewart which found that patient satisfaction is strongly related to the physician's ability to listen, explain medical conditions, and involve patients in decision-making (36).

Also, findings from this study suggest that providers showing empathy and understanding to patients has strong association with patient satisfaction. These findings are similar to a study by Hojat which explained that physicians who demonstrate high levels of empathy achieve better patient satisfaction ratings (37). Providers who express genuine empathy can reduce patients' anxiety and increase their level of satisfaction.

Generally, patient satisfaction is significantly influenced by provider-patient interaction and how patients perceive the attitudes of healthcare providers. This study has found that patients who felt that their privacy was respected were significantly associated with satisfaction. These findings are consistent to those reported in Tanzania that showed full care from the healthcare personnel, including being attended to promptly, getting great treatment, being attended with privacy, and getting information without being asked, linked to a higher degree of satisfaction (26).

5.2 Strength and limitations

This study assessed satisfaction among patients based on the quality of ANC services and laboratory services unlike other studies that focus only on either of the two.

Despite the strength, there are numbered limitations that need to be considered when interpreting our findings;

i. Social desirability bias; instead of providing the whole truth, respondents could have provided answers they found acceptable. This was minimized by using

non-influential questions (avoiding leading questions) and standardizing and structuring the questions to reduce bias.

ii. The inference was limited since the findings were collected from one selected hospital in the Mbeya region. To address this limitation, the study acknowledged the scope of the findings and provided appropriate context. Furthermore, future research was recommended to replicate the study in different regions or healthcare settings to enhance the generalization of the findings.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Based on the findings from this study, individual patient characteristics has positive association with patient satisfaction where women's adult age and high level of education affect patient satisfaction negatively. Service providers' behaviour affects patient satisfaction where empathy and understanding of patient needs had more effect on patient satisfaction. Antenatal care services affects positively patient satisfaction where more effect observed on respecting waiting time and good provider's communication skills. quality of laboratory services affects positively patient satisfaction where more effect was observed in good communication skill of service provider in providing sufficient information about sample collection procedure.

6.2 Recommendations

Based on the study findings, following are recommendations;

- Health facility should optimize workflow and scheduling processes to minimize waiting times and enhance efficiency in ANC services. Implement effective queue management systems and ensure adequate staffing levels during peak hours can help to increase patient satisfaction
- The health facility should formulate strategies to to educate laboratory personnel on how to provide care to patients during sample collection as in their attitudes toward patients
- The health facility should prepare tailor mechanism to provide ANC and laboratory services with consideration of various patient characteristics such as age and level of education to best meet patient's expectations.
- Further research should be conducted to replicate the study in different multiple regions or healthcare settings to enhance the generalization of the findings. Furthermore, studies on the moderating role of healthcare provider's behaviour on healthcare services needs to be studied

REFERENCES

1. Naburi H, Mujinja P, Kilewo C, Bärnighausen T, Orsini N, Manji K, et al. Predictors of patient dissatisfaction with services for prevention of mother-to-child transmission of HIV in Dar es Salaam, Tanzania. PLoS One. 2016;11(10):1–15.
2. GA O, IB M, RN M. Patients' Level of Satisfaction with the Health Care Services Received at Outpatient Departments in Kilimanjaro Region, Tanzania. J Patient Care. 2017;03(01).
3. Ogunfowokan O, Mora M. Time, expectation and satisfaction: Patients' experience at National Hospital Abuja, Nigeria. African J Prim Heal Care Fam Med. 2012;4(1):6–11.
4. Leshabari MT, Mwangu M, Mbembati N, Ezekiel MJ, Hospital MN. East African Journal of Public Health Volume 5 Number 2 August 2008 67. J Public Health (Bangkok). 2008;5(2):67–73.
5. Khamis K, Njau B. Patients' level of satisfaction on quality of health care at Mwananyamala hospital in Dar es Salaam, Tanzania. BMC Health Serv Res. 2014;14(1):1–8.
6. Juma D, Manongi R, Christian K, College M, Box PO. Juma and Manongi. Tanzan J Health Res. 2009;11(4):196–204.
7. Government of Tanzania. Health Sector Strategic Plan 2012/13-2016/17. 2013;2020(July):53.
8. Jande M, Liwa A, Kongola G, Justin-Temu M. Assessment of Patient Satisfaction with Pharmaceutical ServicDar es Salaam, Tanzania. J Pharm Sci. 2003;6:52–6.
9. Ntuli.pdf.
10. Renggli S, Mayumana I, Mboya D, Charles C, Mshana C, Kessy F, et al. Towards improved health service quality in Tanzania: Contribution of a supportive supervision approach to increased quality of primary healthcare. BMC Health Serv Res. 2019;19(1):1–16.

11. Aarons GA, Tarp F, Kelley E, Addison T, Kruk ME. Measuring quality-of-care in the context of sustainable development goal 3: A call for papers. Bull World Health Organ. 2016;94(3):160-160A.

12. Manzoor F, Wei L, Hussain A, Asif M, Shah SIA. Patient satisfaction with health care services; an application of physician's behavior as a moderator. Int J Environ Res Public Health. 2019;16(18):1–16.

13. Bergh K, Bishu S, Taddese HB. Identifying the determinants of patient satisfaction in the context of antenatal care in Kenya, Tanzania, and Malawi using service provision assessment data. BMC Health Serv Res. 2022;22(1):1–12.

14. Hibusu L, Sumankuuro J, Gwelo NB, Akintola O. Pregnant women's satisfaction with the quality of antenatal care and the continued willingness to use health facility care in Lusaka district, Zambia. BMC Pregnancy Childbirth. 2024;24(1):1–16.

15. Mfinanga SG, Kahwa A, Kimaro G, Kilale A, Kivuyo S, Senkoro M, et al. Patient's dissatisfaction with the public and private laboratory services in conducting HIV related testing in Tanzania. BMC Health Serv Res. 2008;8:1–5.

16. Wiegers TA. The quality of maternity care services as experienced by women in the Netherlands. BMC Pregnancy Childbirth. 2009;9:1–8.

17. Emiru AA, Alene GD, Debelew GT. Women's satisfaction with the quality of antenatal care services rendered at public health facilities in Northwest Ethiopia: The application of partial proportional odds model. BMJ Open. 2020;10(9):1–11.

18. Nwaeze IL, Enabor OO, Oluwasola TAO, Aimakhu CO. Perception and satisfaction with quality of antenatal care services among pregnant women at the university college hospital, ibadan, Nigeria. Ann Ibadan Postgrad Med. 2013;11(1):22–8.

19. Hailu HA, Yalew A, Desale A, Asrat H, Kebede S, Dejene D, et al. Physicians' satisfaction with clinical laboratory services at public hospitals in Ethiopia: A

national survey. PLoS One. 2020;15(4):1–9.

20. Hussen MA, Worku BT. Quality of Antenatal Care Service and Factors Associated with Client Satisfaction at Public Health Facilities of Bele Gasgar District. J Patient Exp. 2022;9:1–9.

21. Hsai NM, Matsui M, Ng CFS, Khaing CT, Imoto A, Sayed AM, et al. Satisfaction of pregnant women with antenatal care services at women and children hospital in South Okkalapa, Myanmar: A facility-based cross-sectional study triangulated with qualitative study. Patient Prefer Adherence. 2020;14:2489–99.

22. Alelign A, Belay YA. Patient satisfaction with clinical laboratory services and associated factors among adult patients attending outpatient departments at Debre Markos referral hospital, Northwest Ethiopia. BMC Res Notes. 2019;12(1):1–6.

23. Abebe DD, Temesgen MM, Abozin AT. Patient s ' satisfaction and quality of clinical laboratory services. MedRchive. 2022;1–19.

24. Nawi AM, Ismail R, Ibrahim F, Hassan MR, Manaf MRA, Amit N, et al. Risk and protective factors of drug abuse among adolescents: a systematic review. BMC Public Health. 2021 Dec;21(1).

25. Kamanda S, Majaliwa J, Shehe R, Muro F, Njau B. Pregnant Women Level of Satisfaction on Quality of Care in Reproductive and Child Health clinic at Huruma Designated District Hospital in Rombo District, Kilimanjaro Region, Tanzania. East African Heal Res J. 2020;4(1):51–7.

26. Heri R, Yahya-Malima KI, Malqvist M, Mselle LT. Women's Expectations of and Satisfaction with Antenatal Care Services in a Semi-Urban Setting in Tanzania and Associated Factors: A Cross-Sectional Survey. Healthc. 2023;11(16).

27. Derua YA, Ishengoma DRS, Tenu F, Massaga JJ, Mboera LEG, Magesa SM. Users' and health service providers' perception on quality of laboratory malaria diagnosis in Tanzania. Malar J. 2011;10:1–7.

28. Liu M, Hu L, Guo R, Wang H, Cao M, Chen X, et al. The influence of patient and hospital characteristics on inpatient satisfaction at beijing district-level hospitals. Patient Prefer Adherence. 2021;15:1451–60.

29. Anikwe CC, Ifemelumma CC, Ekwedigwe KC, Ikeoha CC, Onwe OE, Nnadozie UU. Correlates of patients' satisfaction with antenatal care services in a tertiary hospital in Abakaliki, Ebonyi State, Nigeria. Pan Afr Med J. 2020;37(342):342.

30. Sultana P, Rahman M, Akter J. Correlates of stunting among under-five children in Bangladesh : a multilevel approach. 2019;1–12.

31. Rahman MM, Ngadan DP, Arif MT. Factors affecting satisfaction on antenatal care services in Sarawak, Malaysia: evidence from a cross sectional study. Springerplus. 2016;5(1).

32. Birhanu S, Demena M, Baye Y, Desalew A, Dawud B, Egata G. Pregnant women's satisfaction with antenatal care services and its associated factors at public health facilities in the Harari region, Eastern Ethiopia. SAGE Open Med. 2020;8.

33. Seyoum K. Determinants of Antenatal Care Service Satisfaction among Women in Ethiopia: A Systematic Review and Meta-Analysis. Obstet Gynecol Int. 2022;2022.

34. Mwanja MM, Kazonga E. Factors influencing satisfaction of the quality of antenatal care services in health facilities in Lusaka district: a cross-sectional study. Int J Community Med Public Heal. 2022;10(1):70.

35. Teresa M, Bekele S. Assessment of Patients ' Satisfaction Towards General Medical Laboratory Services at Shenen Gibe Public Hospital , Jimma. J Heal Med Nurs. 2016;31:78–84.

36. Stewart, M. The impact of patient-centered care on patient satisfaction and outcomes. Journal of Family Practice, 49(7), 674-679.

37. Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C, Gonnella JS. Physicians' empathy and clinical outcomes for diabetic patients. Acad Med. 2011 Mar;86(3):359-64. doi: 10.1097/ACM.0b013e3182086fe1. PMID: 21248604.

7.0 APPENDICES

Appendix 1: English Interview Form

SECTION A: INDIVIDUAL CHARACTERISTICS

Please mark your response by making a tick (V) in the appropriate box in each question.

S/N	QUESTIONS	RESPONSE	MARK
1	Sex of the respondent	1. Male	
		2. Female	
2	Age of the respondent	_____ years	
3	Highest level of education you attained	1. No education	
		2. Primary school	
		3. Secondary school	
		4. College and above	
4	Occupation	1. Farming	
		2. Employment	
		3. Self-employed	
		4. Unemployed	
		5. Housewife	
		6. Other(specify-------)	
5	Marital status	1. Single	
		2. Married	
		3. Divorced	
		4. Widowed	
6	Religion	1. Christian	
		2. Muslim	

		3. Other (specify----------)	
7	Mode of Payment	Out of Pocket Insurance Exemption	
8	What are the home symptoms that made you visit the hospital?	Fever, Pain, Injury, (Mention)……..	
9	What is the diagnosis that the doctor told you?	Infection,(fungal/ parasitic,	

SECTION B: ASSESSMENT OF THE QUALITY OF ANTENATAL CARE SERVICES

INSTRUCTIONS: Please mark your response by making a tick (V) in the appropriate box for each question.

Scale: 1= very dissatisfied 2= dissatisfied, 3= neutral, 4= satisfied, 5= very satisfied,

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	During my antenatal care visit today, I felt that healthcare providers respected my time and minimized waiting times for services.					
	The healthcare providers listened to me and attended me in a professional manner such in measuring blood pressure and physical examination.					
	During my antenatal care visits, healthcare providers explained things to me clearly.					
	The cleanliness of the rooms inside the facility where I visited					

	during my antenatal care visits was satisfactory.					
	I am satisfied with the quality of drugs I received during my Antenatal Visit					
	I felt that I was given adequate privacy during my antenatal care visits.					
	I am satisfied with the reception at the Antenatal Clinic					

SECTION C: ASSESSMENT OF THE QUALITY OF LABORATORY SERVICES

INSTRUCTIONS: Please mark your response by making a tick (V) in the appropriate box for each question.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	The location and condition of latrines for sample collection were appropriate.					
	The cleanliness and attractiveness of the laboratory were maintained at a high standard.					
	I found laboratory staff during available when I arrived at the laboratory.					

	The availability of laboratory staff during working hours was satisfactory.					
	I received enough information during sample collection at the laboratory.					
	I was satisfied with the information I received					
	It took me a short time to get laboratory services.					

SECTION D: ASSESSMENT OF HEALTHCARE PROVIDERS' BEHAVIOUR

INSTRUCTIONS: Please mark your response by making a tick (V) in the appropriate box for each question.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	I felt that healthcare providers showed empathy and understanding towards me.					
	I felt that nurses showed empathy and understanding towards me.					
	I felt that receptionists showed empathy and understanding towards me.					
	I felt that laboratory staff showed empathy and understanding towards me.					

	Healthcare providers communicated effectively with me during my visit to the hospital.					
	Healthcare providers respected my privacy at the ANC and laboratory.					

SECTION E: OVERALL SATISFACTION

Please rate your overall satisfaction with the healthcare services you received today making a tick (V) in the appropriate box

		Strongly Disagree	Disagree	Neutral	Agree	Disagree
	On average I am satisfied with the quality of healthcare services I received at the laboratory today					
	On average I am satisfied with the quality of healthcare services I received at the anc clinic today.					
	I would recommend this hospital for laboratory services to other patients					

	based on my overall experience.					
	I would recommend this hospital for ANC services to other patients based on my overall experience.					
3	I would consider returning to this hospital for future antenatal care services and laboratory services based on my current experience					

Appendix 2: Dodoso La Kiswahili

SECTION A: TAARIFA BINAFSI ZA MHUSIKA

Tafadhali weka alama ya vema (V) mahali panapohusika.

S/N	SWALI	JIBU	ALAMA
1	Jinsia	1. Kiume	
		2. Kike	
2	Umri	_____ miaka	
3	Kiwango cha juu cha elimu	1. Sikusoma	
		2. Elimu ya msingi	
		3. Elimu ya Sekondari	
		4. Elimu ya chuo na kuendelea	
4	Kazi	1. Mkulima	
		2. Mwajiriwa wa serikali	
		3. Mwajiriwa wa sekita binafsi	
		4. Nimejiajiri	
		5. Mama wa nyumbani	
		6. Nyingine (Taja…….)	
5	Hali ya ndoa	1. Sijaoa/kuolewa	
		2. Nimeoa/kuolewa	
		3. Nimetalakiana	
		4. Mjane au Mgane	
6	Dini	1. Mkiristo	
		2. Muislamu	
		3. Nyingine (Taja……)	
7	Malipo kwa ajili ya matibabu	1. Ninalipa pesa taslimu 2. Ninatumia bima ya afya 3. Bure/msamaha	

8	Sababu ya kuja hospitalini kupata matibabu	Taja ……..	

SEHEMU B: TATHMINI YA UBORA WA HUDUMA ZA AFYA KWA WAJAWAZITO

MAELEKEZO: Tafadhali weka alama ya vema (V) mahali panapohusika.

		Ninakata kabisa	Ninakataa	Sina uhakika	Ninakubali	Ninakubali Kabisa
1.	Ninatumia muda mfupi kusubiri kupata huduma katika kliniki ya wajawazito.					
2	Huduma ninazozipata katika hospitali hii zinazingatia weledi na uelewa juu ya huduma za wajawazito.					
3	Watoa huduma wamenipatia maelekezo ya kutosha na kina juu ya hali yangu					
4	Hali ya usafi ya mazingira ndani ya hospitali Pamoja na vyoo inaridhisha.					
5	Hospitali inatoa dawa zenye ubora wa hali juu ya juu na matitabu kwa kutumia vifaa vya kisasa.					
6	Nimeridhishwa na faragha wakati nilipokuwa nikihudumiwa.					

SEHEMU C: TATHMINI YA UBORA WA HUDUMA ZA MAABRA

MAELEKEZO: Tafadhali weka alama ya vema (V) mahali panapohusika.

		Ninakataa Kabisa	Ninakataa	Sina Uhakika	Ninakubali	Ninakubali Kabisa
1	Maabara inafikika kwa urahisi bila usumbufu					
2	Vyoo kwa ajili ya kuchukulia sampuli vipo katika hali inayoridhisha					
3	Usafi na umaridadi ya maabara unazingaitwa wakati wote.					
4	Watoa huduma wa maabara wanapatikana muda wote ndani ya masaa ya kazi.					
5	Nilipatiwa maelekezo ya kutosha juu ya namna ya kukusanya sampuli kwa ajili ya uchunguzi					

	wa magonjwa.					
6.	Muda wa kusubiri majibu ya vipimo vya maabara unaridhisha					

SEHEMU D: TATHMINI YA TABIA ZA WATOA HUDUMA ZA AFYA

MAELEKEZO: Tafadhali weka alama ya vema (V) mahali panapohusika.

		Ninakataa Kabisa	Ninakataa	Sina Uhakika	Ninakubali	Ninakubali Kabisa
1	Nilihisi kwamba watoa huduma za afya walionyesha huruma na uelewa kwangu.					
2	Watoa huduma za afya walionyesha uweledi katika kunipatia huduma.					
3	Nilisikilizwa na kueleshwa kwa ufanisi wakati ninapata					

	huduma hospitalini					
5	Watoa huduma za afya waliheshimu faragha yangu wakati nikihudumiwa hospitalini.					
6	Niliamini uwezo na maarifa ya watoa huduma za afya.					

SEHEMU E: KURIDHIKA KWA UJUMLA

MAELEKEZO: Tafadhali weka alama ya vema (V) mahali panapohusika.

		Ninakataa Kabisa	Ninakataa	Sina Uhakika	Ninakubali	Ninakubali Kabisa
1	Kwa ujumla nimeridhika na hali ya ubora wa huduma nilizopita siku ya leo.					
2	Ningependekeza hospitali hii kwa wagonjwa wengine kulingana na uzoefu wangu wa jumla.					
3	Ningefikiria kurudi kwenye hospitali hii kwa huduma za afya za baadaye kulingana na uzoefu wangu wa sasa					

Appendix 3: Consent Form

Introduction

I'm **Dr. Nahabonyeyo Isaac Bgoya**, a student from Muhimbili University of Health and Allied Science (MUHAS) pursuing a Master of Public Health. I'm conducting research titled **THE ROLE OF INDIVIDUAL PATIENT CHARACTERISTICS AND PROVIDERS BEHAVIOUR FACTORS ON PATIENT SATISFACTION AT MBEYA ZONAL REFERRAL HOSPITAL**

Participation in the study

You are kindly requested to participate in this study and if you participate, the information provided by you will only be used for the study mentioned above and not otherwise.

Confidentiality

You are highly assured that the confidentiality of your information will be observed when collecting data and using them. Any information which identifies you e.g.names, will not be included in the study and hence will not appear in the questionnaires.

Risk to participant

No anticipated risk or harm that may result from participating in this study.

Right of participation in the study

Your participation in the study is voluntary and nothing bad may result from refusal. You are free to ask questions or stop to participate in the study at any time.

Contact of the researcher

The researcher, **Dr. Nahabonyeyo Isaac Bgoya (0742090090)** is the person to contact at any time when queries about this study arise. If you have any further concerns about the study, you may contact Prof. PHARES MUJINJA, member of staff, MUHAS P.O BOX 65001 Dar es Salaam.

Signing of the consent form

I have read and understood the content of this form and hereby I agree to participate in this study.

Signature of the interviewee …….. Date ……

Signature of the interviewer ……. Date ……..

Apendix 4: Fomu Ya Ukubali

Utangulizi

Mimi **Dr. Nahabonyeyo Isaac Bgoya**, mwanafunzi wa utabibu chuo kikuuu cha afya na sayansi shirikishi Muhimbili (MUHAS). Ninafanya utafiti juu ya **SABABU ZINAZOCHANGIA WAGONJWA KURIDHISHWA NA HUDUMA ZA MAABARA PAMOJA NA KLINIKI YA WAJAWAZITO KATIKA HOSPITALI ZA MKOA WA MBEYA.**

Ushiriki wa utafiti

Unaombwa kushiriki kwenye utafiti huu. Na taarifa utakazozitoa zitatumika kwenye utafiti huu na sio Zaidi ya hapo.

Usiri wa taarifa.

Mshiriki Unahakikishiwa usiri wa taarifa utakazozitoa zitoa utazingatiwa wakati wa ukusanyaji wa taarifa na kuzitumia. Taarifa yoyote inayomtambulisha na kukufahamu mtu kama jina haita hitajika katika utafiti huu kwenye dodoso utakalopewa.

Madhara kwa muhusika

Hakuna madhara yoyote atakayoyapata muhusika kwa kushiriki kwenye huu utafiti.

Haki ya kushiriki kwenye utafiti huu.

Ushiriki wako kwenye utafiti huu ni wa hiyari kabisa na hakuna matokeo mabaya yatapatikana kwa kutokushiriki kwako. Uko huru kuuliza swali na kuacha kufanya utafiti huu muda wowote.

Mawasiliano ya mtafiti.

Mtafiti, **Dr. Nahabonyeyo Isaac Bgoya (0742090090)** ndiye muhusika wa kumtafuta muda wowote tatizo lolote litakapo jitokeza .kama utakuwa na shida Zaidi kuhusu utafitihuu unaweza kuwasiliana na Prof. PHARES MUJINJA mhadhiri chuo kikuu cha MUHAS, S.L.P. 65001 Dar es Salaaam

Kusaini fomu ya utayari wa ushiriki

Nimesoma na kuelewa nini kilichopo kwenye hii fomu na nipo tayari kushirikikwenye utafiti huu

Sahihi ya mhojiwa……tarehe…….

Sahihi ya mhojaji……..

tarehe……

……

……

Apendix 5: Approve for ethical clearance

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR – RESEARCH, PUBLICATIONS AND INNOVATIONS

Ref. No.DA.282/298/01.C/2341 Date: 21/06/2024

MUHAS-REC-06-2024-2341
DR NAHABONYEYO ISAAC BGOYA
SCHOOL OF PUBLIC HEALTH AND SOCIAL SCIENCES
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: FACTORS INFLUENCING PERCEIVED PATIENT SATISFACTION AMONG PATIENTS ATTENDING DIAGNOSTIC AND ANTENATAL CARE SERVICES IN SELECTED HOSPITALS IN MBEYA REGION, TANZANIA

Reference is made to the above heading,

I am pleased to inform you that the Chairperson has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 21/06/2024
EXPIRATION DATE OF APPROVAL: 21/06/2025

STUDY DESCRIPTION:

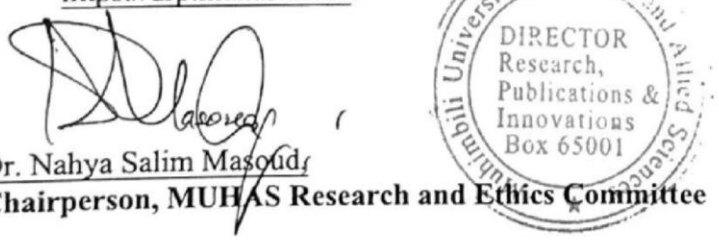
Purpose:

The purpose of this cross-sectional analytical study is to assess the factors that influence perceived patient satisfaction among patients attending laboratory and antenatal care services in selected hospitals in the Mbeya region.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2015699.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain Data Transfer Agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain Material Transfer Agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country.
8. Apply for and obtain permission to publish the results from National Institute for Medical Research. The application should be before submitting to a publisher and not concurrently through the email publications@nimr.or.tz.
9. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
10. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
11. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.



Dr. Nahya Salim Masoud,
Chairperson, MUHAS Research and Ethics Committee

Appendix 6: Introduction letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/T.310/2019

25TH June, 2024

Director,
Mbeya Zonal Referral Hospital
P.O. Box 419,
MBEYA

Re: INTRODUCTION LETTER NAHABONYEYO ISAAC BGOYA

We would like to inform you that the bearer of this letter is Nahabonyeyo Isaac Bgoya with Reg. No. **HD/MUH/T.310/2019** is a student at Muhimbili University of Health and Allied Sciences (MUHAS) "pursuing **Master. MPH Distance Learning.**

As part of his studies, he will be doing an elective research titled: "**Factors Influencing Perceived Patient Satisfaction Among Patients Attending Diagnostic And Antenatal Care Services In Selected Hospitals In Mbeya Region, Tanzania".**

The research has been approved by the Chairman of University Senate.

Kindly provide him the necessary assistance to facilitate the conduct of his research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

c.c Nahabonyeyo Isaac Bgoya

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz