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Factors Associated with Patient Satisfaction in Disease Prevention Control among Patients Attending Outpatient Services at Muhima Referral Hospital-Rwanda, 2025

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Abstract: **Patient satisfaction in disease prevention and control reflects the quality of healthcare delivery, especially in developing countries like Rwanda. This study assessed factors influencing patient satisfaction among 220 outpatients at Muhima Referral Hospital using a cross-sectional design and structured questionnaires. Data were analyzed using SPSS version 26, with descriptive and chi-square tests applied. Results revealed that 69.8% of patients were satisfied with overall services, and 69.7% rated them as effective. Interpersonal relations were highly rated (80.7%), professionalism (84.8%), and communication clarity (81.7%). Accessibility (77%) and affordability (69.7%) also contributed to satisfaction, though 17.4% expressed dissatisfaction with access and 15.6% with waiting time. Significant predictors included waiting time (AOR = 2.94, p = 0.026), education level (p < 0.05), staff attitude (p = 0.004), and communication clarity. The study concludes that while satisfaction is high, improving affordability, access, and timeliness can further strengthen patient-centered care in Rwanda.**

Keywords: **Accessibility of Services, Curative and Follow-up Services, Disease Prevention and Control, Health Security Factors, Patient Satisfaction, Personal Relationships and Staff Etiquette, Prevalence of Patient Satisfaction, Turnaround Time in Service Delivery.**

1. INTRODUCTION

Patient satisfaction is a critical indicator of healthcare quality, particularly concerning disease prevention and control services. Globally, satisfaction levels vary significantly due to differences in healthcare systems, service accessibility, and communication practices (Xesfingi & Vozikis, 2018). According to the World Health Organization (WHO, 2019), 84% of patients in Switzerland expressed high satisfaction with preventive services, compared to only 56% in the United States, despite its high healthcare spending. These disparities highlight how factors beyond financial investment—such as interpersonal communication and service efficiency—shape patient perceptions of care (WHO, 2023). In many developed countries, dissatisfaction often arises from long waiting times, insufficient communication, and limited personalized care (Kruk et al., 2018). In the United Kingdom, 40% of patients reported dissatisfaction due to delays in appointments and poor follow-up (NHS England, 2022). Similarly, in Germany, while most patients were satisfied with medical treatment, only half rated preventive care positively, citing accessibility concerns (WHO, 2021). Across Africa, satisfaction with disease prevention and control services remains low due to inadequate infrastructure, limited healthcare personnel, and high disease burdens (Vermeir et al., 2015). Studies across six African countries reported that only 55% of patients were satisfied with preventive care, citing poor communication and delays (Kadarpeta et al., 2024). In Nigeria, long waiting times and poor provider–patient communication reduce satisfaction (Federal Ministry of Health, 2022), while in Kenya and Tanzania,

overcrowding and limited medical resources pose persistent challenges (Nyongesa, 2014; Msacky, 2024). In Rwanda, patient satisfaction with outpatient preventive services faces similar challenges. Although major progress has been achieved in maternal and child health, issues such as overcrowding, extended waiting times, and resource shortages persist (Nduwayezu et al., 2023; Shyaka et al., 2024). At Muhima Referral Hospital, these factors continue to affect patient experiences, making satisfaction in disease prevention and control a vital focus for healthcare improvement (Sebera & Twagirumukiza, 2024).

1.1 Problem Statement

Patient satisfaction in disease prevention and control within outpatient services remains a growing concern in Rwanda. Challenges such as long waiting times, inadequate patient–provider communication, and limited resources in public hospitals continue to undermine satisfaction and overall healthcare outcomes (Sebera & Twagirumukiza, 2024; NISR, 2021). Most existing studies have focused on inpatient settings, overlooking outpatient-specific factors like accessibility, responsiveness, and efficiency. This gap is critical since outpatient satisfaction strongly influences healthcare utilization and adherence to preventive care (Shyaka et al., 2024). Therefore, this study examines key factors affecting patient satisfaction in disease prevention and control at Muhima Referral Hospital, Rwanda.

1.2 Objective of the Study

i. To determine the prevalence of patient satisfaction on disease prevention and control services among outpatients in Muhima Referral Hospital

ii. To evaluate personal relationships and staff etiquette of health providers and turnaround time in service delivery to prevent and control diseases in Muhima Referral Hospital.

iii. To identify curative and follow-up services associated with patient satisfaction in diseases prevention and control services in Muhima Referral Hospital.

iv. To assess accessibility and health security factors associated with patient satisfaction in disease prevention and control services in Muhima Referral Hospital

2. REVIEW OF RELATED LITERATURE

2.1 Empirical Literature

2.1.1 Prevalence of Patient Satisfaction on Disease Prevention and Control Services among Outpatients

Globally, patient satisfaction in disease prevention and control services has emerged as a critical metric for assessing healthcare quality, especially within outpatient settings. According to the World Health Organization (2021), satisfaction levels vary widely across nations depending on healthcare access, quality of communication, and waiting time. In the United States, the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey revealed that 77% of outpatients reported satisfaction, largely due to effective communication and timely service delivery (Stephens et al., 2022). Similarly, across European Union countries, average satisfaction stood at 74%, with patient-centered communication and short wait times being the strongest determinants (Salisbury et al., 2021). In Asia, findings are mixed. In India, Bandhu et al. (2023) reported a satisfaction rate of 65% in urban outpatient departments, with dissatisfaction stemming from overcrowding and limited doctor–patient interaction. Conversely, in China, digital health innovations such as online consultations have raised satisfaction rates to 80%, especially in urban hospitals (Li et al., 2021). However, rural Chinese patients continue to face barriers related to accessibility and availability of healthcare staff (Manzoor et al., 2019).

Across Africa, satisfaction levels are typically lower due to systemic challenges. In Nigeria, Olumegbon (2023) found only 54% of patients satisfied with outpatient care, citing long wait times and inadequate provider communication. In Kenya, public hospitals recorded lower satisfaction than private facilities, with patients expressing frustration over congestion and shortages of essential supplies (Waithaka, 2023). In South Africa, patient satisfaction reached 68% after health system reforms improved staff–patient communication and reduced waiting times (Tateke et al., 2020). In Rwanda, the Ministry of Health has implemented health reforms aimed at improving infrastructure and service delivery. Sebera and Twagirumukiza (2024) found that 62% of outpatients at Kigali University Teaching Hospital were satisfied, emphasizing strong provider communication but identifying cleanliness and waiting times as persistent challenges. Another study by Nsengimana et al. (2020) showed satisfaction levels of up to 70% in hospitals equipped with electronic medical record systems that improved service flow and patient tracking. However, rural hospitals still face issues of limited staffing and long travel distances, resulting in lower satisfaction levels.

2.1.2 Personal Relationships, Staff Etiquette, and Turnaround Time in Service Delivery

Positive interpersonal relationships between healthcare providers and patients have consistently been linked to higher satisfaction levels. Agha et al. (2021) in the United States found that empathy, respect, and effective communication significantly improved patients' trust and satisfaction in disease prevention services. Similarly, Lunt et al. (2014) in the UK reported that courteous and professional staff behavior enhanced patients' sense of being valued, contributing to improved satisfaction and adherence to preventive care. Turnaround time also plays a critical role. Hoh et al. (2018) in Canada established that shorter wait times for consultations and test results strongly predicted higher patient satisfaction. A UK study found similar results, emphasizing that elderly patients particularly valued empathy and prompt care (Nunu & Munyewende, 2017). Across Africa, demographic factors and resource limitations mediate satisfaction outcomes. In Nigeria, younger and educated patients expressed lower satisfaction with public facilities due to perceived inefficiencies (Olumegbon, 2023). In South Africa, Moyo et al. (2020) found higher satisfaction among low-income patients who appreciated the efforts of overstretched health workers. Likewise, Nyambuya et al. (2017) in Kenya showed that professional and empathetic staff relationships increased satisfaction and adherence to disease prevention measures. In Uganda, Birungi et al. (2015) noted that long waiting times and poor communication reduced satisfaction even when technical care quality was high. In Rwanda, Uwimana et al. (2020) found that empathetic, respectful healthcare workers significantly improved patient adherence to preventive measures like immunization. Despite improvements in turnaround time through digitized patient flow systems, Muhima Referral Hospital still faces service delays averaging two to three hours (Rwanda MoH, 2021). The National Institute of Statistics of Rwanda (NISR, 2020) also reported that 70% of patients in Kigali expressed high satisfaction when services were timely and delivered with courtesy.

2.1.3 Curative and Follow-Up Services Associated with Patient Satisfaction

Curative and follow-up services have been identified globally as key determinants of satisfaction in disease prevention and control. In the U.S., patients receiving continuous care from the same provider demonstrated improved outcomes and trust (Lautamatti et al., 2020). In the UK, Barriga-Chambi et al. (2022) found that timely follow-up consultations increased adherence to disease prevention advice and raised satisfaction levels.In Sub-Saharan Africa, Olayemi et al. (2019) reported that Nigerian tuberculosis patients who received regular follow-up visits showed better treatment adherence and higher satisfaction. In South Africa, Du Plessis et al. (2021) found that consistent follow-up care for diabetes and hypertension patients fostered long-term trust and better disease control. In Kenya, Were et al. (2019) confirmed that continuous outpatient follow-up improved understanding of chronic disease management, leading to better prevention outcomes.In Rwanda, the Ministry of Health (2020) reported that patients receiving follow-up care for HIV, TB, and malaria exhibited higher treatment adherence and satisfaction—about 80% felt confident in healthcare services. Uwimana et al. (2020) found that effective follow-up care, especially for immunization and screening programs, correlated strongly with patient satisfaction. At Muhima Referral Hospital, regular follow-up for HIV patients improved retention and reduced preventable disease incidences (Muhima Referral Hospital, 2021).

2.1.4 Accessibility and Health Security Factors

Globally, patient satisfaction depends on accessibility defined by affordability, proximity, and timeliness and on health security, encompassing infection control and safety standards (WHO, 2020). High-income countries have improved satisfaction through telemedicine and robust safety measures (Smith et al., 2019; CDC, 2021). In Africa, accessibility challenges persist due to infrastructure and financial barriers (Okungu et al., 2020). Poor hygiene and inadequate infection control also reduce satisfaction (Tessema et al., 2021). In East Africa, Kenya, Uganda, and Tanzania have expanded insurance coverage, yet rural populations still face travel barriers and inconsistent policy implementation (Ong'ayo et al., 2019). Rwanda's Community-Based Health Insurance (CBHI) has substantially increased healthcare access and affordability (Lu et al., 2012). Investments in infrastructure and infection control have enhanced patient confidence (Nsanzimana et al., 2020). Habimana et al. (2021) confirmed that satisfaction is strongly linked to affordable, safe, and accessible healthcare services, while digital health innovations and universal coverage initiatives continue to strengthen disease prevention and control outcomes (MoH Rwanda, 2022).

2.2 Theoretical Framework

In examining the factors influencing patient satisfaction in disease prevention and control services, two theoretical models provide valuable analytical lenses: Donabedian's Model of Healthcare Quality and Andersen's Behavioral Model of Health Services Use. Together, these theories offer a multidimensional understanding of healthcare quality, utilization, and satisfaction.

2.2.1 Donabedian's Model of Healthcare Quality Theory

Developed by Avedis Donabedian in 1988, this model evaluates healthcare quality through three interrelated dimensions: *structure*, *process*, and *outcome*. The *structure* refers to the physical and organizational settings of care delivery, including facilities, equipment, and human resources. The *process* involves the interactions and methods through which healthcare is provided, such as diagnosis, communication, and professional conduct. The *outcome* represents the impact of care on patients' health status and satisfaction. In this study, Donabedian's model supports the evaluation of how resource availability, staff behavior, and procedural efficiency collectively shape patient satisfaction in disease prevention and control (Berwick & Fox, 2016).

2.2.2 Andersen's Behavioral Model

Introduced by Ronald Andersen in 1968 and later refined, this model explains healthcare utilization through *predisposing*, *enabling*, and *need* factors. Predisposing factors include demographic and social characteristics, enabling factors involve accessibility and affordability, while need factors relate to perceived health status. This model is relevant to understanding how socio-demographic characteristics and accessibility influence patients' satisfaction and engagement with disease prevention and control services (Babitsch et al., 2012).

2.3 Conceptual Framework

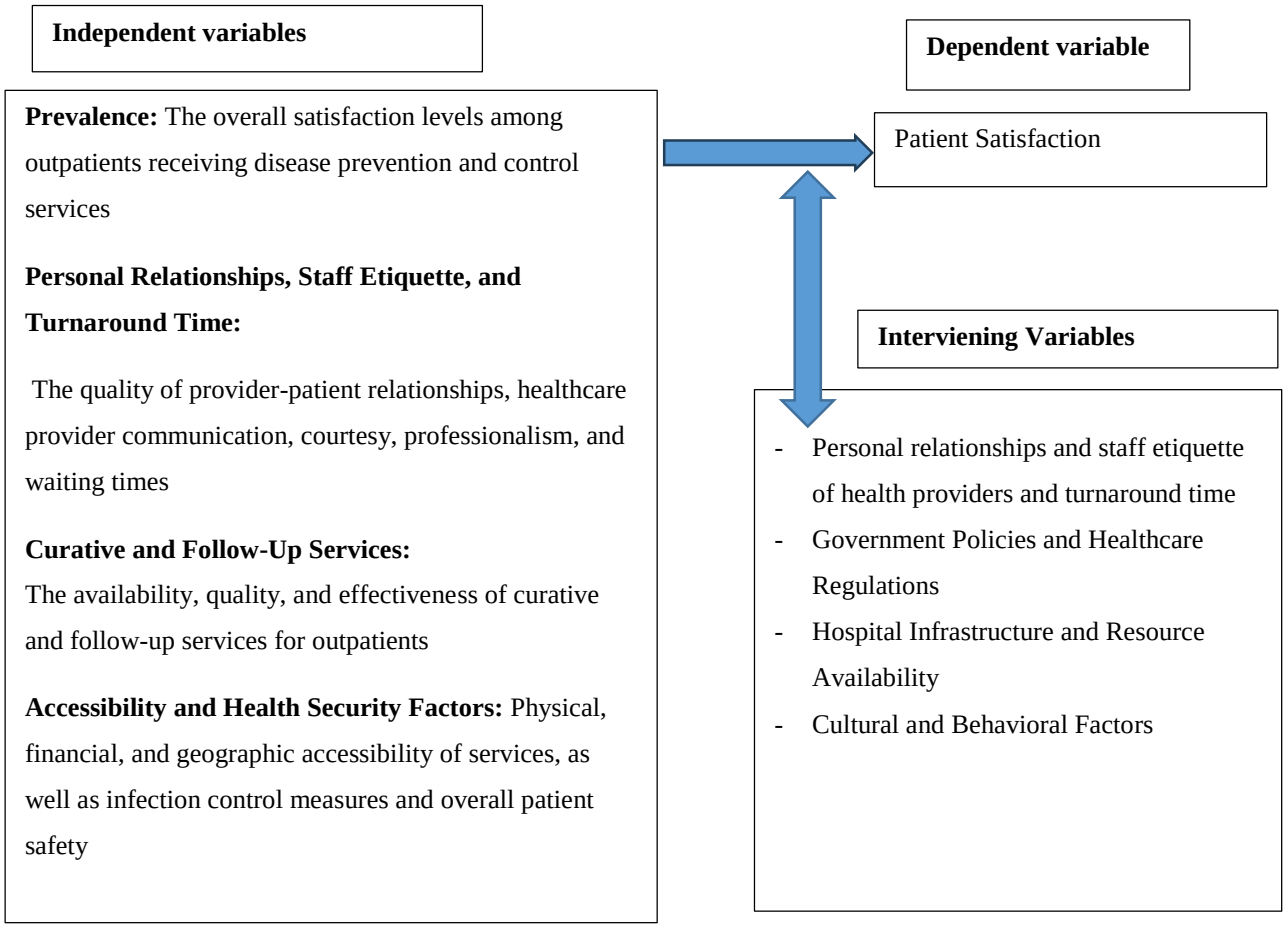

Figure 1: Conceptual Framework

The independent variables (prevalence of satisfaction, staff etiquette, follow-up services, and accessibility) directly impact the dependent variable (patient satisfaction). However, the extent of their influence is moderated by intervening variables such as government policies, hospital resources, and patient demographics. For example, even if healthcare providers demonstrate professionalism and good communication, patient satisfaction may remain low if accessibility barriers persist due to financial or geographic constraints. Likewise, effective follow-up care may improve patient satisfaction, but limited hospital resources could hinder the provision of continuous care.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study adopted a descriptive cross-sectional design, which is widely applied in health research to examine the characteristics, behaviors, and attitudes of a specific population at a single point in time. This design enables the collection of data simultaneously from participants, providing a comprehensive snapshot of their satisfaction and experiences. The descriptive nature of the design helps identify factors associated with patient satisfaction in disease prevention and control services at Muhima Referral Hospital, including patient–provider relationships, waiting time, accessibility, and quality of preventive care. Muhima District, located in Kigali City within Nyarugenge District, is a densely populated urban area with approximately 150,000 residents (NISR, 2020). The population is relatively young, with a median age of 25 years and high literacy levels. Most residents are engaged in non-agricultural employment such as business, commerce, and services due to the district's proximity to Kigali's central business area. According to the Rwanda Demographic and Health Survey (2023), Muhima has a high urbanization rate, leading to health challenges such as increased exposure to non-communicable diseases (NCDs) alongside persistent infectious diseases like HIV, malaria, and tuberculosis. Muhima Referral Hospital plays a pivotal role in disease prevention and control in this setting. It provides services including immunization, maternal health, HIV/AIDS management, and tuberculosis care. The hospital also supports Rwanda's Community-Based Health Insurance (CBHI) program, which enhances access to preventive healthcare for the urban population. Additionally, during and after the COVID-19 pandemic, infection prevention and control have become major priorities, with the Ministry of Health promoting public health education, hygiene campaigns, and service accessibility improvements (Rwanda Ministry of Health, 2022). A map of Muhima District illustrating key health facilities and population density is included in the Appendix for spatial reference.

3.2 Target Population and Sampling Technique

The study's target population comprised all outpatients receiving disease prevention and control services at Muhima Referral Hospital. These included adults aged 18 years and above who accessed preventive services such as immunization, health education, screening, and follow-up for chronic and infectious diseases. Based on the Muhima Referral Hospital Annual Report (2024), an estimated 560 patients seek these services monthly, translating to 6,720 outpatients annually.Using Fisher's formula for sample size determination, the initial sample (n) was 362. However, after applying the finite population correction for a population (N) of 560, the adjusted sample size was calculated Thus, the final sample size was 220 respondents. The study employed a systematic sampling technique, where every second patient ($k = 2$) was selected from a patient list after choosing a random starting point. This approach ensured that all eligible patients had an equal chance of selection, minimized bias, and enhanced sample representativeness.

3.3 Data Collection Methods

Data were collected using structured questionnaires, which are efficient for gathering standardized quantitative data from large groups. The questionnaires contained closed-ended questions designed to measure patient satisfaction, socio-demographic characteristics, and healthcare provider attributes such as attitude, communication, and professionalism. Trained data collectors administered the questionnaires in Kinyarwanda or English, depending on the respondent's preference, ensuring clarity and inclusiveness. To ensure reliability, the instrument was pre-tested with 15 outpatients not included in the main study. A Cronbach's alpha coefficient of ≥ 0.70 was considered acceptable for internal consistency. Test–retest reliability was also assessed by re-administering the tool after a short interval to ensure stability over time. Validity was established through expert review, construct validation (factor analysis), and criterion-related validity by comparing responses with existing patient satisfaction indicators. All completed questionnaires were stored securely and later coded and entered into SPSS Version 26 for analysis. Ethical principles of confidentiality, anonymity, and voluntary participation were strictly upheld throughout the process.

3.4 Data Analysis Procedures

Data analysis began with cleaning and coding responses in SPSS Version 26. Descriptive statistics such as means, frequencies, and percentages summarize respondent characteristics and satisfaction levels. Chi-square tests were used to determine associations between socio-demographic variables and patient satisfaction. Furthermore, bivariate and multivariate logistic regression analyses were conducted to identify key predictors of satisfaction. Adjusted Odds Ratios (AOR) with a significance threshold of $p < 0.05$ were used to determine the strength of associations. The results were presented in tables, charts, and graphs to facilitate interpretation and discussion.

3.5 Ethical Considerations

Ethical clearance was obtained from Mount Kenya University's Institutional Review Board (IRB) and the administration of Muhima Referral Hospital before commencing data collection. Participants were informed about the study's objectives, procedures, benefits, and potential risks. Written informed consent was obtained prior to participation, and respondents were assured of their right to withdraw at any time without penalty. Confidentiality was maintained through the use of anonymous codes rather than names, and data were stored securely with access restricted to the research team. All ethical procedures adhered to the standards of the Rwanda National Health Research Ethics Committee.

4. PRESENTATION OF FINDINGS

4.1 Socio-Demographic Characteristics of Patients

This section presents the socio-demographic and economic characteristics of the 218 respondents who participated in the study on factors associated with patient satisfaction in disease prevention and control among patients attending outpatient services at Muhima Referral Hospital.

Table 1: Socio-Demographic Characteristics of Respondents (n = 218)

Characteristic	Category	Frequency	Percentage (%)
Age Group	Below 25	48	22.0
	25–34	92	42.2
	35–44	50	22.9
	45 and above	28	12.8
Gender	Male	94	43.1
	Female	124	56.9
Marital Status	Single	70	32.1
	Married	118	54.1
	Divorced	16	7.3
	Widowed	14	6.4
Education Level	Primary education or below	39	17.9
	Secondary education	86	39.4
	Bachelor education	68	31.2
	Postgraduate education	25	11.5
Occupation	Unemployed	41	18.8
	Self-employed	73	33.5
	Government employee	39	17.9
	Private sector	46	21.1
	Student	19	8.7
Monthly Income (RWF)	Less than 50,000	54	24.8
	50,000–100,000	70	32.1
	100,001–200,000	57	26.1
	Above 200,000	37	17.0
Religion	Christian	188	86.2
	Muslim	16	7.3
	Traditional	7	3.2
	Other	7	3.2
Health Insurance Type	Community-Based Health Insurance (CBHI)	141	64.7
	Private Insurance	32	14.7
	Government Insurance	30	13.8
	None	15	6.9

Source: Primary Data (2025)

The demographic profile of respondents reveals that 42.2% were aged 25–34 years, indicating that most outpatients at Muhima Referral Hospital are young adults in their productive years who actively seek preventive and follow-up healthcare. Females (56.9%) outnumbered males (43.1%), reflecting gendered patterns in health-seeking behavior, where women are generally more engaged in preventive care. The majority were married (54.1%), suggesting that social and family support may influence health decisions and satisfaction. Regarding education, 39.4% had completed secondary school, and 31.2% held bachelor's degrees, implying that higher education enhances understanding and satisfaction with healthcare services. Most respondents were self-employed (33.5%) or privately employed (21.1%), with income levels between RWF 50,000 and 100,000 (32.1%). Economic factors thus play a key role in healthcare access and satisfaction. The majority (86.2%) were Christians, and 64.7% were enrolled in CBHI, showing strong insurance coverage and accessibility to public health services.

4.2 Prevalence of Patient Satisfaction on Disease Prevention and Control Services

The first objective of the study was to determine the prevalence of patient satisfaction on disease prevention and control services among outpatients in Muhima Referral Hospital.

Table 2: Prevalence of Patient Satisfaction on Disease Prevention and Control Services (n = 218)

Statement	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Satisfaction with prevention and control services	9 (4.1)	19 (8.7)	38 (17.4)	93 (42.7)	59 (27.1)
Effectiveness of services	7 (3.2)	14 (6.4)	45 (20.6)	101 (46.3)	51 (23.4)
Communication and counseling	11 (5.0)	20 (9.2)	46 (21.1)	95 (43.6)	46 (21.1)
Ease of access to services	13 (6.0)	21 (9.6)	42 (19.3)	99 (45.4)	43 (19.7)
Timeliness of service delivery	12 (5.5%)	22 (10.1%)	47 (21.6)	91 (41.7)	46 (21.1)
Barriers encountered during access to services	14 (6.4)	24 (11.0)	44 (20.2)	89 (40.8)	47 (21.6)

Source: Primary Data (2025)

Findings reveal a generally high level of patient satisfaction with disease prevention and control services at Muhima Referral Hospital. Across all six indicators, over 60% of respondents were "Satisfied" or "Very Satisfied," reflecting strong positive perceptions. Overall satisfaction was highest at 69.8%, while 69.7% rated service effectiveness positively. However, 12–16% expressed dissatisfaction, especially concerning access barriers (17.4%) and service timeliness (15.6%). Neutral responses (17–22%) suggest mixed experiences possibly linked to waiting times or communication gaps. Overall, the findings demonstrate strong satisfaction but highlight the need for improvements in service accessibility, counseling, and efficiency to further enhance patient experiences.

4.3 Personal Relationships, Staff Etiquette, and Turnaround Time in Service Delivery

The objective aims to assess how interpersonal interactions between patients and healthcare providers, the professional conduct of staff, and the speed of service delivery influence patient satisfaction with disease prevention and control services.

Table 3: Personal Relationships, Staff Etiquette, and Turnaround Time in Service Delivery (n = 218)

Item	Response Category	Frequency (n)	Percentage (%)
Relationship with healthcare providers	Very Poor	5	2.3
	Poor	11	5.0
	Neutral	26	11.9
	Good	102	46.8
	Very Good	74	33.9
Satisfaction with professionalism of staff	Very Dissatisfied	3	1.4
	Dissatisfied	9	4.1
	Neutral	21	9.6
	Satisfied	108	49.5
	Very Satisfied	77	35.3

Item	Response Category	Frequency (n)	Percentage (%)
Attitude of healthcare staff	Very Poor	4	1.8
	Poor	14	6.4
	Neutral	31	14.2
	Good	101	46.3
	Very Good	68	31.2
Time taken to receive services	< 30 minutes	54	24.8
	30 mins – 1 hour	93	42.7
	1–2 hours	49	22.5
	> 2 hours	22	10.1
Clarity of information provided	Very Poor	3	1.4
	Poor	10	4.6
	Neutral	27	12.4
	Good	107	49.1
	Very Good	71	32.6

Source: Primary Data (2025)

The results show that 80.7% of respondents rated their relationship with healthcare providers as Good (46.8%) or Very Good (33.9%), indicating strong interpersonal engagement. Professionalism received high approval, with 84.8% satisfied or very satisfied, reflecting strong trust in staff conduct, 77.5% rated staff attitude positively, while 67.5% reported being served within an hour, suggesting efficient service delivery. Furthermore, 81.7% found communication clear and informative, demonstrating effective health education efforts. These findings highlight that staff professionalism, respectful interaction, clear communication, and timely service are critical determinants of patient satisfaction with disease prevention and control services at Muhima Referral Hospital.

4.4 Curative and Follow-Up Services Associated with Patient Satisfaction

Curative and follow-up care are essential components of disease prevention and control. The quality of treatment, the professionalism and attitude of healthcare providers, timeliness of services, and the clarity of communication all directly influence patient satisfaction.

Table 4: Responses on Curative and Follow-Up Services and Their Association with Patient Satisfaction (n = 218)

Item	Response Category	Frequency (n)	Percentage (%)
Relationship with healthcare providers	Very Poor	4	1.8
	Poor	11	5.0
	Neutral	32	14.7
	Good	104	47.7
	Very Good	67	30.7
Satisfaction with professionalism of healthcare staff	Very Dissatisfied	5	2.3
	Dissatisfied	8	3.7
	Neutral	26	11.9
	Satisfied	111	50.9
	Very Satisfied	68	31.2
Attitude of healthcare staff	Very Poor	6	2.8
	Poor	13	6.0
	Neutral	28	12.8
	Good	109	50.0
	Very Good	62	28.4
Time taken to receive services	Less than 30 minutes	49	22.5

Item	Response Category	Frequency (n)	Percentage (%)
	30 minutes – 1 hour	96	44.0
	1 – 2 hours	54	24.8
	More than 2 hours	19	8.7
Clarity of information provided by staff	Very Poor	3	1.4
	Poor	10	4.6
	Neutral	33	15.1
	Good	112	51.4
	Very Good	60	27.5

Source: Primary Data (2025)

Findings reveal that 78.4% of respondents rated their relationship with healthcare providers as Good or Very Good, demonstrating strong interpersonal satisfaction. Professionalism was rated positively by 82.1%, indicating trust in staff competence and conduct. Similarly, 78.4% described staff attitude as Good or Very Good, reflecting respectful and empathetic care. Waiting time was moderate, with 66.5% receiving services within one hour. Additionally, 78.9% of respondents rated information clarity as Good or Very Good, emphasizing effective communication in health education. Overall, the results highlight that interpersonal relations, professionalism, timely service, and clear communication significantly influence patient satisfaction in disease prevention and control services.

4.2.4 Accessibility and Health Security Factors Associated with Patient Satisfaction in Disease Prevention and Control Services in Muhima Referral Hospital

Access to healthcare and perceived safety within the health facility are essential elements of quality service delivery. In the context of disease prevention and control, the ease of reaching health services, the availability of timely care, and patients' perception of physical and data security are important determinants of their satisfaction.

Table 5: Respondents' Views on Accessibility and Health Security Factors (n = 218)

Item	Response Category	Frequency (n)	Percentage (%)
Ease of accessing services	Very Poor	5	2.3
	Poor	14	6.4
	Neutral	31	14.2
	Good	111	50.9
	Very Good	57	26.1
Physical accessibility of hospital facility	Very Poor	3	1.4
	Poor	12	5.5
	Neutral	35	16.1
	Good	108	49.5
	Very Good	60	27.5
Affordability of services	Very Poor	6	2.8
	Poor	18	8.3
	Neutral	42	19.3
	Good	101	46.3
	Very Good	51	23.4
Waiting area safety and cleanliness	Very Poor	4	1.8
	Poor	10	4.6
	Neutral	33	15.1
	Good	113	51.8
	Very Good	58	26.6
Perceived confidentiality of health information	Very Poor	7	3.2

Item	Response Category	Frequency (n)	Percentage (%)
	Poor	11	5.0
	Neutral	28	12.8
	Good	108	49.5
	Very Good	64	29.4

Source: Primary Data (2025)

A total of 77% of respondents rated service accessibility as Good or Very Good, indicating satisfactory geographical and logistical access. Similarly, 77% positively evaluated the hospital's physical infrastructure for patient convenience. Affordability was rated positively by 69.7%, though 11.1% expressed dissatisfaction, highlighting some economic barriers. Safety and cleanliness in waiting areas received 78.4% approval, reflecting effective hygiene and infection control measures. Confidentiality of patient information was rated positively by 78.9%, demonstrating trust in privacy and data protection.

4.5 Multivariate Analysis of Factors Associated with Patient Satisfaction

A multivariate logistic regression analysis was conducted to identify independent predictors of patient satisfaction with disease prevention and control services at Muhima Referral Hospital. Adjusted Odds Ratios (AORs), 95% Confidence Intervals (CIs), and p-values are presented to show the strength and significance of the associations while controlling for potential confounders.

Table 6: Multivariable Logistic Regression of Factors Associated with Patient Satisfaction (n = 218)

Variables	AOR	95% CI (Lower–Upper)	p-value
Age Group			
25–34	1.42	0.61 – 3.30	0.410
35–44	1.75	0.71 – 4.30	0.223
45 and above	2.03	0.72 – 5.74	0.177
Below 25 (Ref)	Ref	–	–
Education Level			
Secondary	1.88	0.78 – 4.51	0.157
Bachelor	2.75	1.03 – 7.34	0.043 **
Postgraduate	3.21	1.12 – 9.16	0.030 **
Primary or below (Ref)	Ref	–	–
Waiting Time			
<30 minutes	2.94	1.14 – 7.60	0.026 **
30 min – 1 hour	2.15	0.89 – 5.18	0.088
1 – 2 hours	1.36	0.54 – 3.42	0.512
>2 hours (Ref)	Ref	–	–
Staff Attitude			
Good	2.12	0.89 – 5.05	0.088
Very Good	4.03	1.56 – 10.40	0.004 **
Poor/Neutral (Ref)	Ref	–	–
Clarity of Information			
Good	1.75	0.71 – 4.30	0.224
Very Good	3.40	1.34 – 8.64	0.010 **
Poor/Neutral (Ref)	Ref	–	–

Source: Primary Data (2025)

Multivariable logistic regression analysis revealed that education level, waiting time, staff attitude, and clarity of communication were significant predictors of patient satisfaction. Patients with bachelor's or postgraduate education were more likely to be satisfied compared to those with primary education or below ($p < 0.05$). Those who waited less than 30 minutes were nearly three times more likely to be satisfied than patients waiting over two hours (AOR = 2.94, $p = 0.026$). Very good staff attitude and clear communication also substantially increased satisfaction ($p = 0.004$).

4.3 Discussion of Findings

The findings of this study provide valuable insights into patient satisfaction with disease prevention and control services at Muhima Referral Hospital, contextualized within regional and global literature. The predominance of young adults aged 25–34 among outpatients aligns with Adebayo et al. (2022), who reported that younger individuals are more likely to seek preventive healthcare due to increased health awareness and mobility. Similarly, the higher proportion of female respondents corroborates WHO (2021), indicating that women are generally more proactive in utilizing preventive and outpatient services. Marital status also appears influential, with 54.1% of patients being married. Consistent with Nwosu et al. (2023), married individuals may engage more frequently in healthcare due to spousal support and family responsibilities. Education emerges as a strong determinant, with 70.6% of patients having at least secondary education, supporting evidence that higher education levels enhance health literacy, adherence to preventive measures, and satisfaction (Abdullahi & Yusuf, 2022). Employment and income levels similarly shape satisfaction, particularly when combined with access to insurance schemes like CBHI, which 64.7% of respondents utilized, reinforcing national data on improved affordability and access (Rwanda Ministry of Health, 2022; Murekatete et al., 2023).

High satisfaction levels (>69%) across multiple indicators reflect strong interpersonal engagement, professionalism, and effective communication, echoing findings in sub-Saharan Africa (Banda et al., 2021). Dissatisfaction relating to waiting times and accessibility (12–17%) highlights ongoing operational challenges, consistent with Okeke et al. (2021). Logistic regression confirmed that education, waiting time, staff attitude, and clarity of information significantly predicted satisfaction, aligning with global evidence that respectful, timely, and well-communicated services enhance patient trust and engagement (Akinwale et al., 2021; Osei & Boateng, 2022; WHO, 2023). Structural factors such as facility accessibility, affordability, and cleanliness, rated positively by over 69% of respondents, further support the hospital's capacity to deliver quality care (Habimana & Mutabazi, 2022). Overall, these findings underscore the multifactorial nature of patient satisfaction, influenced by socio-demographic characteristics, service quality, and institutional accessibility, emphasizing the need for continuous improvement in communication, staff conduct, and timely service delivery.

5. CONCLUSION AND RECOMMENDATIONS

This study assessed patient satisfaction with disease prevention and control services at Muhima Referral Hospital, revealing generally high satisfaction levels across service quality, staff professionalism, interpersonal conduct, communication clarity, and timeliness. Key determinants of satisfaction included staff attitude, personal interactions, curative and follow-up services, and accessibility factors such as physical access, safety, affordability, and confidentiality. However, challenges were noted in waiting times, service barriers, and affordability for low-income patients, indicating inconsistencies in service delivery that require targeted improvement.

To enhance patient-centered care, hospital management should optimize staff schedules, implement digital appointment systems, and streamline outpatient processes to reduce waiting times. Regular patient satisfaction assessments and a quality improvement committee are recommended. Healthcare providers should engage in continuous professional development focusing on empathy, communication, and respectful care, while simplifying health messages for better patient comprehension. Expanding CBHI coverage and improving infrastructure will enhance access and equity. Local government and community leaders should promote preventive care awareness, facilitate transportation, and support outreach programs. Development partners and donors should strengthen healthcare worker capacity and provide technological support for efficient service delivery. Patients and civil society groups should actively participate in feedback mechanisms and community health education. Future research should explore urban-rural disparities in patient satisfaction, longitudinal changes following service improvements, and healthcare provider perspectives. Additional studies could investigate CBHI's influence, the impact of digital health technologies, and the role of cultural, social, and gender factors in shaping satisfaction with preventive healthcare services.

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