

Assessing patient satisfaction with the services provided under the National Health Insurance at the Outpatient Department of the Levy Mwanawasa University Teaching Hospital in Lusaka, Zambia

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ABSTRACT: *Background:* Despite the introduction of the National Health Insurance Scheme (NHIS) in 2019 to improve healthcare financing and services, the healthcare system in Zambia still faces challenges that negatively affect patient satisfaction. *Aim:* Assess and investigate the factors influencing patient satisfaction with NHIS-provided services at a third-level tertiary public hospital. *Setting:* The study was conducted at the OPD of Levy Mwanawasa University Teaching Hospital (LMUTH) in Lusaka, Zambia. LMUTH was purposefully chosen because it was one of the first NHIS-accredited facilities and because of its importance as the second-largest publicly financed tertiary referral hospital. *Method:* This was a mixed method cross-sectional survey and data were collected from a systematically chosen sample of 270 respondents using an interviewer-administered modified SERVQUAL 5-point Likert scale questionnaire in May 2024. The data were analyzed using descriptive and inferential analysis. *Results:* 83 percent were satisfied with the NHIS-provided services. Education level, duration of NHIS enrollment, communication from NHIMA, drug availability, staff attitude, and waiting time were identified as significant factors. However, key predictors identified were employment status (OR = 0.237, p = 0.030), and communication and feedback from NHIMA (OR = 2.922, p = 0.001). *Conclusion:* Findings show a high NHIS satisfaction level identifying significant factors and key predictors. Future research should explore the long-term effects and satisfaction levels across various demographic groups and regions. *Contribution:* This study suggests improved NHIS communication, staff training, patient education, reduced waiting times, fostering courteous patient/staff interactions and enhancing diagnostic and pharmacy services.

KEYWORDS: 5-point Likert scale, bivariate analysis, logistic regression.

1 INTRODUCTION

1.1 BACKGROUND

Challenges in Zambia's healthcare system, such as inadequate financing, limited drug availability, and inadequate human resources, negatively impact service quality and patient satisfaction [1], [2]. The National Health Insurance Scheme (NHIS) was introduced in 2019 to improve healthcare financing and provide quality healthcare to all Zambians regardless of socioeconomic status [3]. While the NHIS has made substantial strides toward accomplishing its intended goals, there is still a considerable distance to cover as observed in the recent 2023 National Health Insurance Management Authority (NHIMA) Customer Satisfaction Survey [4]. The survey revealed a customer satisfaction rate of 43 percent underscoring various difficulties identified through customer feedback and experiences, including service delays, insufficient medication availability, unsatisfactory customer feedback, and a poor physical environment that needs attention [4].

Some NHIS members have claimed to have received subpar care from the NHIS, as evidenced by differing opinions expressed on various websites, particularly concerning services received from public hospitals. This contradicts the assurances

that the NHIS would offer its members high-quality healthcare services from approved healthcare providers without any expenses for the covered services.

Goodrich and Lazenby [5] acknowledged that the concept of patient satisfaction has over the years evolved but still lacks a commonly accepted definition. In their study, Goodrich and Lazenby found that most definitions characterize patient satisfaction as a response to or the result of, an interaction between patients and healthcare providers [5]. Brown’s [6] statement that a patient should be “viewed as an individual, not an anonymous member of a demographic” emphasized the need to consider a patient as a customer [p. 39]. Consequently, viewing patients as customers, rather than just part of a demographic, is a key principle by the World Health Organization in healthcare referred to as patient-centered care [7].

Researchers have identified factors impacting patient satisfaction with NHIS-provided services. Social demographic factors such as gender [8], [9], [10], age [11], [12], [13], employment status [14], education level [12], [15], [16], [17], [18], income status [12], [13], and marital status [10], [14], [19], [20] could impact patient satisfaction with NHIS-provided services. Other studies highlighted waiting time [9], [11], [16], [21], [22], [23], drug availability [21], [24], diagnostic services [13], [24], [25], staff attitude [21], [26], and out-of-pocket expenses [9], [21] as significant health provider factors. Knowledge of the NHIS [12], [20] and member duration on the NHIS [12], [16] were also cited by some in addition to communication and feedback from the health insurance provider by others [4], [12], [13].

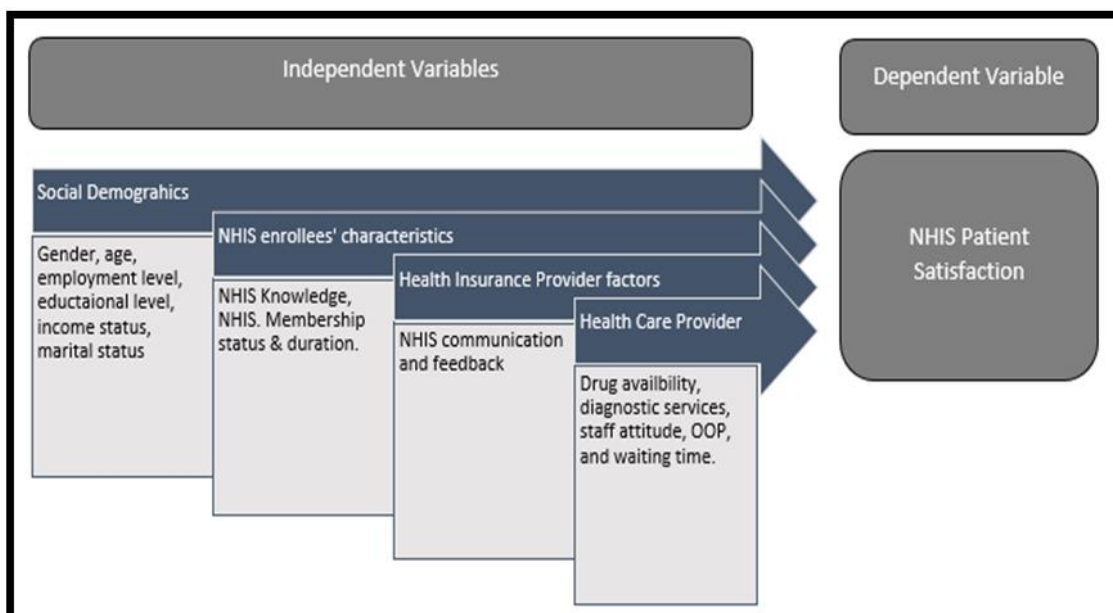


Fig. 1. Patient satisfaction with the NHIS-provided services conceptual framework

Fig.1. shows the concept of NHIS patient satisfaction which is a complex phenomenon shaped by various elements, including the social demographics of patients, the features of NHIS enrollees, the factors associated with health insurance providers, and the characteristics of healthcare providers.

1.2 PROBLEM STATEMENT

The literature in Zambia revealed deficiencies in understanding the various socioeconomic, individual, healthcare provider, and insurance provider aspects that influence patient satisfaction with NHIS services since its establishment in 2019. Most of the existing research on patient satisfaction in Zambia has focused on general patient satisfaction with health programs or interventions [27], [28], [29], [30], [31], [32], [33], rather than specifically assessing patient satisfaction with NHIS-provided services in public tertiary hospital outpatient departments (OPDs). The National Health Insurance Management Authority (NHIMA) Customer Satisfaction Survey [4] primarily summarized quantitative data through proportions and absolute values but did not utilize regression or correlation analysis. This omission limited the survey’s ability to analyze the complex correlations between various factors and customer satisfaction, which are crucial for making informed decisions to improve customer satisfaction.

1.3 RESEARCH AIM

This study aimed to fill the gap in empirical research by investigating the factors influencing patient satisfaction with NHIS services at the outpatient department (OPD) of a third-level tertiary public hospital in Lusaka, Zambia. It also provided evidence-based suggestions for effective intervention strategies to increase NHIS patient satisfaction.

1.4 RESEARCH OBJECTIVES AND QUESTIONS

The following research objectives guided the study's direction: (i) to assess patient satisfaction with the NHIS-provided services at the OPD of a third-level tertiary public hospital in Lusaka, Zambia, and (ii) to identify key factors that impact patient satisfaction with the NHIS-provided services at the OPD of a third-level tertiary public hospital in Lusaka, Zambia.

The primary inquiries for the investigation were: (i) what was the level of patient satisfaction with the NHIS-provided services at the OPD, and (ii) what factors significantly impact the level of patient satisfaction with the NHIS-provided services at the OPD?

1.5 SIGNIFICANCE OF THE STUDY

Using the bivariate analysis and logistic regression models, this research assesses the impact of various predictors on patient satisfaction with NHIS-provided services at the OPD. These insights provide valuable guidance for policymakers and healthcare providers aiming to enhance service delivery and lay the groundwork for future research on patient satisfaction with NHIS-provided services.

2 MATERIAL AND METHOD

2.1 STUDY DESIGN

This mixed method cross-sectional survey utilized logistic regression [13], [21], [22] to examine the relations between NHIS patient satisfaction and other factors such as age, gender, marital status, employment status, education level, income level, drug availability, staff attitude, diagnostic services, waiting time, knowledge of the NHIS, NHIS membership duration, and NHIS communication and feedback.

2.2 STUDY SETTING

The study was conducted at the OPD of Levy Mwanawasa University Teaching Hospital (LMUTH) in Lusaka, Zambia. LMUTH was chosen for this study because of its importance as the second-largest publicly financed tertiary referral and teaching hospital that provides comprehensive medical care to NHIS enrollees and non-NHIS enrollees. LMUTH was among the first public healthcare providers accredited by the National Health Insurance Management Authority (NHIMA) to serve NHIS enrollees since 2019.

2.3 SAMPLING AND SAMPLE SIZE

The minimum sample size for the study was determined using Araoye's [34] formula for estimating proportions in a population, adjusted by De Vaus and de Vaus's [35] method to account for the specific study population LMUTH. Given a total monthly population of 4,700 NHIS patients, a 95% confidence level, an estimated population proportion of 75%, and a margin of error of 0.5, the minimum sample size was calculated to be 272. After adjustment for a population below 10,000 and a 5% non-response rate, the final sample size was determined to be 270 respondents. Participants were selected using a sampling interval of 17, derived from dividing the total population by the sample size. The first participant was chosen randomly from the first seventeen patients, with every seventeenth patient included in the study. Inclusion criteria were NHIS enrollees aged 18 or older who accessed services in the OPD and could provide informed consent. Exclusion criteria included guardians of NHIS beneficiaries under 18, NHIS enrollees in the inpatient department, those requiring emergency care, and those previously interviewed.

2.4 DATA COLLECTION INSTRUMENT AND PROCEDURES

Quantitative data from modified SERVQUAL 5-point Likert scale responses provided numerical measurements of satisfaction levels [16], [24]. The 5-point Likert scale often consists of items that participants are asked to rate based on their level of agreement or disagreement (36) focusing on registration, vital capturing, consultation, diagnostic, and pharmacy. The questionnaire uploaded on Kobo Toolbox Collect comprised ten sections and was administered to the selected sample of NHIS enrollees (n=270) at the OPD of LMUTH in May 2024. It gathered participants' demographic data, NHIS membership status, NHIS knowledge, and satisfaction with NHIS communication and feedback. Further, the level of satisfaction with specific healthcare facility services such as registration, consultations, diagnostics, and pharmacy services were probed. The questionnaire also scrutinized the availability of drugs and diagnostic services, satisfaction with waiting time, and staff attitudes including professionalism, communication, and empathy.

The data collection process involved three research assistants working under the direct supervision of the principal researcher. Before participation, all individuals provided written informed consent, ensuring their voluntary involvement and understanding of the study's purpose and procedures.

2.5 VALIDITY AND RELIABILITY

Quality control measures included an expert assessment of the questionnaire and the training for data collectors. The electronic data-collecting tool facilitated efficient data gathering, mitigated inconsistencies, and reduced errors during data entry. A pilot test survey was conducted with ten clients from the target demographic to refine the methodology, though their responses were not included in the final dataset.

2.6 DATA ANALYSIS

The data was organized, managed, and analyzed using Statistical Package for Social Sciences (SPSS) version 23 and Microsoft Excel, in line with the defined outcome and explanatory variables (see Table 1). The demographic profile of the respondents was ascertained by examining the mean, frequency distribution, and percentage in the descriptive statistics. The mean scores for each item or scale on the Likert scale were calculated for central tendency [16], [24], [37]. The association between outcome and explanatory variables was examined using a Chi-square test with $P < 0.05$. Social demographic variables were analyzed for their correlation with NHIS patient satisfaction.

Table 1. Description and measurement of outcome (dependent) and explanatory (independent) variables

Variable	Description and coding parameter
NHIS Patient Satisfaction	Satisfaction with the NHIS-provided services in the OPD. Not satisfied = 0, Satisfied = 1
Gender	The gender of the respondent. Male = 0, Female = 1
Age	The age group (in years) to which the respondents belong. ≤ 35 years = 0, ≥ 36 years = 1
Marital Status	Marital status of respondent. Unmarried (single, divorced, widowed) = 0, Married = 1
Educational Level	Highest level of education attained by the respondent. $<$ Tertiary = 0, \geq Tertiary = 1
Employment Status	Employment status of the respondent. Unemployed = 0, Employed = 1
Income Status	Monthly income of the respondent. \leq K20,000 = 0, \geq K20,001 = 1
Waiting time	Overall waiting period at the hospital. Long = 0, Short = 1
Staff Attitude	Staff attitude as perceived by the respondent. Poor = 0, Good = 1
Drug Availability	Availability of prescribed drugs at the hospital pharmacy. Unavailable = 0, available = 1
Diagnostic Services	Availability of diagnostic services at the hospital. Unavailable = 0, Available = 1
OOP Expenses	Payment for services at any service point at the hospital. Not paid = 0, Paid = 1
NHIS Knowledge	Knowledge of the NHIS. Not knowledgeable = 0, Knowledgeable = 1
NHIMA Comm. & Feedback	Communication & Feedback received from NHIMA. Poor = 0, Good = 1

Note: Author's construction from the literature review.

The outcome variable (NHIS Patient Satisfaction) was a composite variable constituting 5 items that measured satisfaction at various service points. A mean score between 1 and 3 was considered as "not satisfied" = 0 and above 3 was considered

“satisfied” = 1. For the composite variables (waiting time, staff attitude, NHIS Knowledge, and NHIMA Communication and Feedback), a mean score between 1 and 3 was considered as coded “0”, and above 3 was coded “1”. These represented the outcomes “short” or “long” for waiting time, “poor” or “good” for staff attitude, “Not knowledgeable” or “Knowledgeable” for NHIS knowledge, and “poor” or “good” for NHIMA communication and information.

Composite variables were created for each respondent based on the scores of the 5-point Likert scale items chosen to measure: overall NHIS patient satisfaction, waiting time, staff attitude, and NHIMA Communication and information as seen in Table 2. The grading and scoring definitions for Likert scale responses were established with two categorical scales ("not satisfied" or "satisfied," "short" or "long", "poor" or "good", "not knowledgeable" or "knowledgeable") informed by existing literature and common interpretations of Likert data [37]. The operational range of the Likert scale was determined using a formula [(highest Likert scale point - lowest Likert scale point) / 2], resulting in a constant value of 2. The constant categorized responses into scores 1-3 and scores > 3, aiming for clarity and simplicity in interpretation. The lower scores (1-3) were denoted “0” indicating a negative response, while the higher scores (>3) were denoted “1” indicating a positive response [26].

Table 2. Composite variables and their various dimensions

Composite Variable	Description and Coding Parameter	Dimensions
Patient satisfaction with NHIS-provided services	The level of satisfaction with the overall services offered under the NHIS. Not satisfied = 0, Satisfied = 1	Satisfaction with the Registration process
		Satisfaction with the Vitals-taking process
		Satisfaction with the Consultation process
		Satisfaction with the Diagnostic process
		Satisfaction with the process at the Pharmacy
Waiting time	Overall waiting period at the hospital. Long = 0, Short = 1	Satisfaction with the waiting time for Registration.
		Satisfaction with the waiting time for capturing of vitals.
		Satisfaction with the waiting time for consultation.
		Satisfaction with the waiting time for diagnostics.
		Satisfaction with the waiting time at the Pharmacy.
Staff Attitude	Staff attitude as perceived by the respondent. Poor = 0, Good = 1	The professionalism of the healthcare staff
		The communication skills of the healthcare staff
		The empathy demonstrated by staff towards patients
		Satisfaction with the overall attitude of healthcare staff
NHIS Knowledge	Knowledge of the NHIS. Not knowledgeable = 0, Knowledgeable = 1	Level of awareness of the NHIS benefits & coverage
		Level of understanding of the NHIS enrolment process
		Level of confidence to explain NHIS to others
NHIMA Communication and information	Communication & Feedback received. Poor = 0, Good = 1	Clarity of information provided by NHIMA
		Promptness and effectiveness of responses
		The way NHIMA explains policy changes or updates and
		Feedback by NHIMA

Note: Author’s construction from the literature review.

2.7 ESTIMATION TECHNIQUE

Several studies [13], [21], [22], [32] have utilized logistic regression to analyze factors influencing patient satisfaction and service quality in healthcare settings. This study employed both bivariate analysis and logistic regression models to assess the impact of independent variables on the dependent variable an approach modified from the works of Kurfi and Aliero [20] and Mohammed et al [12].

The ordered logistic regression was expressed as follows:

$$NHISpsat = \beta_0 + \beta_1gen + \beta_2age + \beta_3mar + \beta_4edu + \beta_5emp + \beta_6income + \beta_7wai + \beta_8staff + \beta_9drug + \beta_{10}diag + \beta_{11}know + \beta_{12}cominfor + \mu.$$

Where:

NHISpsat = NHIS patient satisfaction,

β_0 = coefficient,

β_1 gen = gender of the respondent,

β_2 age = age category of the respondent,

β_3 mar = marital status of the respondent,

β_4 educ = educational level of the respondent,

β_5 emp = employment status of the respondent,

β_6 income = income category of the respondent,

β_7 wait = waiting time,

β_8 staff = staff attitude,

β_9 drug = drug availability,

β_{10} diag = availability of diagnostic services,

β_{11} cominfor = communication and information from NHIMA, and

μ = error term

2.8 ETHICAL CONSIDERATION

The study adhered to strict ethical guidelines, receiving approvals from the University of Zambia Biomedical Research Ethics Committee (UNZABREC), the National Health Research Authority (NHRA), and the Levy Mwanawasa University Teaching Hospital Ethics Committee. It excluded vulnerable individuals from the study. Regular progress and final reports were submitted to ensure transparency. Participant confidentiality was maintained by de-identifying data and securing materials, ensuring only authorized personnel had access. These measures protected participant privacy and upheld ethical standards throughout the study.

3 RESULTS

3.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The survey data in Table 3. revealed a nearly equal gender distribution among respondents, with 53.7% males and 46.3% females, and a mean age of 45.77 years, with significant representation from the 25-54 age range. Marital status varied, with the majority being married (58.9%), followed by those who never married (22.6%) and widows (13.7%). Educational levels showed diversity, with the largest groups holding certificates or diplomas (26.7%), senior secondary education (25.6%), and bachelor's degrees (24.1%). Employment status indicated that 30.7% were public sector employees, 20% were private sector employees, 18.1% were self-employed, 11.9% were unemployed, and 17% were retirees or pensioners. Monthly household income data revealed that most respondents (31.5%) earned between K5,001 and K10,000, with a mean income of K7,791.20, indicating a middle-income bracket predominance with moderate income disparity among NHIS enrollees.

Further, Table 3. illustrates the NHIS membership status and duration among respondents, highlighting that a significant majority (77.8%) were contributing members, with smaller portions being spouses (11.1%) and retirees/pensioners (7.8%). This indicates a high level of engagement with the NHIS, either through direct contributions or as beneficiaries. The average membership duration was 2.78 years, showing moderate variation in enrollment length. Notably, 31.1% of respondents had been members for more than four years, signifying substantial long-term engagement. Membership duration was distributed as follows: 29.6% for 1-2 years, 17.8% for 2-3 years, 13% for 3-4 years, and 8.5% for less than one year, indicating a mix of new and experienced members within the NHIS.

Table 3. Socio-demographics of the Respondents

	Respondents Characteristics	Frequency (%)	Cumulative Total
Gender	Male	145 (53.7)	145
	Female	125 (46.3)	270
Age	18-24 years old	11 (4.1)	11
	25-34 years old	63 (23.3)	74
	35-44 years old	60 (22.2)	134
	45-54 years old	65 (24.1)	199
	55-64 years old	35 (13)	234
	65 years old and above	36 (13.3)	270
	Mean age \pm SD (45.77 \pm 0.8855)		
Marital Status	Married	159 (58.9)	159
	Separated	6 (2.2)	165
	Divorced	7 (2.6)	172
	Widowed	37 (13.7)	209
	Cohabiting	0 (0)	209
	Never married	61 (22.6)	270
Highest level of Education attended	Primary School	8 (3)	8
	Junior Secondary School	35 (13)	43
	Senior Secondary School	69 (25.6)	112
	Certificate or Diploma	72 (26.7)	184
	Bachelor's Degree	65 (24.1)	249
	Master's Degree or Higher	20 (7.4)	269
	Never attended school	1 (0.4)	270
Employment status	Paid Public Sector Employee	83 (30.7)	83
	Paid Private Sector Employee	54 (20)	137
	Paid intern	1 (0.4)	138
	Self-employed	49 (18.1)	187
	Unemployed	32 (11.9)	219
	Volunteer (unpaid)	5 (1.9)	224
	Retiree / Pensioner	46 (17)	270
Monthly Household Income	K1,000 or less	24 (8.9)	24
	K1,001 to K3,000	51 (18.9)	75
	K3,001 to K5,000	53 (19.6)	128
	K5,001 to K10,000	85 (31.5)	213
	K10,001 to K20,000	38 (14.1)	251
	Above K20,001	19 (7)	270
	Mean Income \pm SD (K7,791.20 \pm 1.45)		
NHIS Membership status	Contributing Member	210 (77.8)	210
	Beneficiary (spouse)	30 (11.1)	240
	Beneficiary (child)	4 (1.5)	244
	Beneficiary (defendant)	4 (1.5)	248
	Retiree / Pensioner	21(7.8)	269
	Vulnerable	1 (0.4)	270
Years as a registered member of NHIMA	<1 year	23 (8.5)	23
	1-2 years	80 (29.6)	103
	2-3 years	48 (17.8)	151
	3-4 years	35 (13)	186
	>4 years	84 (31.1)	270
	Mean years \pm SD (2.78 \pm 1.39)		

Note: Study results (2024)

3.2 OVERALL NHIS SATISFACTION LEVEL

Out of 270 total respondents, 46 (20 females and 26 males) representing (17%) were not satisfied with the NHIS-provided services, whereas 224 (105 females and 119 males) representing (83%) expressed satisfaction (see Table 4).

3.3 BIVARIATE ANALYSIS RESULTS

Table 4 also presents a bivariate analysis examining the relationship between various social demographics, other factors, and NHIS patient satisfaction. The study found no significant differences in satisfaction levels between genders, with males and females reporting similar satisfaction ($p = 0.674$). Age and marital status also did not significantly impact satisfaction, suggesting a consistent perception of NHIS services across these demographics. In contrast, education level and duration of NHIS enrollment were significant factors. Respondents with tertiary education were less satisfied ($p = 0.017$), and those with longer membership durations showed higher satisfaction ($p = 0.029$). Furthermore, communication and feedback from NHIMA, drug availability, staff attitude, and waiting time were significant determinants of patient satisfaction ($p < 0.05$).

Table 4. Bivariate Analysis of Social Demographics, Other Factors, and NHIS Patient Satisfaction

Variable	Level of Satisfaction			P-value
	Not Satisfied Freq. (%)	Satisfied Freq. (%)	Total Freq. (%)	
Gender				0.674
Female	20 (43.5)	105 (46.9)	125 (46.3)	
Male	26 (56.5)	119 (53.1)	145 (53.7)	
Age				0.560
≤ 35	11 (23.9)	63 (28.1)	74 (27.4)	
> 35	35 (76.1)	161 (71.9)	196 (72.6)	
Marital Status				0.932
Unmarried	19 (41.3)	91 (40.6)	110 (40.7)	
Married	27 (58.7)	133 (59.4)	160 (59.3)	
Level of Education				0.017*
Secondary and below	12 (26.1)	101 (45.1)	113 (41.9)	
Tertiary and above	34 (73.1)	123 (54.1)	157 (58.1)	
Employment status				0.132
Unemployed	10 (21.7)	74 (33.0)	84 (31.1)	
Employed	36 (78.3)	150 (67.0)	186 (68.9)	
Monthly income status				0.080
≤ K20,000	40 (87.0)	211 (94.2)	251 (93.0)	
> K20,000	6 (13.0)	13 (5.8)	19 (7.0)	
Duration of NHIS enrolment				0.029*
≤ 2 years	11 (23.9)	92 (41.1)	103 (38.2)	
>2 years	35 (76.1)	132 (58.9)	167 (61.8)	
NHIS membership status				0.710
Non- contributing Member	11 (23.9)	48 (21.4)	59 (21.9)	
Contributing Member	35 (76.1)	176 (78.6)	211 (78.1)	
NHIS Knowledge				0.588
Not Knowledgeable	10 (21.7)	41(18.3)	51(18.9)	
Knowledgeable	36 (78.3)	183 (81.7)	219 (81.1)	
Comm. & Feedback from NHIMA				0.002*
Poor	31 (67.4)	96 (42.9)	127 (47.0)	
Good	15 (32.6)	128 (57.1)	143 (53.0)	

OOP Expenses				0.670
Did not Pay Anything	45 (97.8)	221 (98.3)	266 (98.5)	
Paid Something	1 (2.2)	3 (1.3)	4 (1.5)	
Drug Availability				0.001*
Got All Drugs	30 (76.9)	89 (47.3)	119 (52.4)	
Didn't Get All Drugs	9 (23.1)	99 (52.7)	108 (47.6)	
Staff Attitude				0.001*
Poor	23 (50.0)	51 (22.8)	74 (27.4)	
Good	23 (50.0)	173 (77.2)	196 (72.6)	
Waiting Time				0.001*
Short	42 (91.3)	17 (7.6)	59 (21.9)	
Long	4 (8.7)	207 (92.4)	211 (78.1)	

Note: Percentages in parenthesis. * Denotes $p < 0.05$ significance level. Study results, (2024).

3.4 MULTIVARIATE ANALYSIS RESULTS

In Table 5, the logistic regression model, both unadjusted and adjusted, identified key predictors of NHIS patient satisfaction. In the unadjusted model, significant variables included education level (OR = 0.430, $p = 0.020$), communication and feedback (OR = 2.756, $p = 0.003$), staff attitude (OR = 3.392, $p = 0.0001$), and waiting time (OR = 127.85, $p = 0.0001$). The Pearson chi-square test was used in this study instead of the Fisher exact test because the sample size was sufficiently large, making the chi-square test appropriate for analyzing relationships between categorical variables.

Table 5. Logistic Regression Model (Unadjusted and Adjusted)

Variables	Unadjusted		p-value*	Adjusted		p-value*
	OR	95% CI		OR	95% CI	
Gender	0.872	0.460-1.652	0.674	2.063	0.64 - 6.67	0.266
Age	0.803	0.384-1.680	0.560	1.328	0.32 - 5.48	0.695
Marital Status	1.028	0.540-1.960	0.932	0.915	0.28 - 3.02	0.884
Education Level	0.430	0.212-0.873	0.020*	0.823	0.19 - 3.53	0.793
Employment Status	0.563	0.265-1.197	0.135	0.259	0.05 - 1.26	0.093
Income Level	0.411	1.147-1.144	0.089	0.465	0.07 - 3.32	0.445
Membership Status	1.152	0.545-2.437	0.710	4.613	0.93 - 22.93	0.062
Membership Duration	0.451	0.218-0.934	0.032*	0.380	0.11 - 1.31	0.126
NHIS Knowledge	1.240	0.570-2.700	0.588	1.614	0.38 - 6.86	0.517
Comm. & Feedback	2.756	1.409-5.390	0.003*	2.729	0.84 - 8.92	0.096
Staff Attitude	3.392	1.758-6.543	0.001*	0.874	0.25- 3.04	0.832
Waiting Time	127.85	40.948-399.197	0.001*	242.201	54.27 - 1080.74	0.001*

Note: OR denotes the odds ratio. CI denotes Confidence Interval. * Denotes $p < 0.05$ significance level. Study results, (2024).

The final multivariable model in Table 6 further refined these findings, emphasizing the importance of employment status, communication and feedback, and waiting time. Employment status was a significant protective factor (OR = 0.237, $p = 0.030$), indicating that employment status reduces dissatisfaction with NHIS services. Communication and feedback continued to be a strong positive predictor of satisfaction (OR = 2.922, $p = 0.001$).

Table 6. Final Multivariable Model

Variables	OR	95% C I	p-value*
Employment Status	0.237	0.642-0.872	0.030*
Membership Status	3.982	0.936-16.939	0.061
Membership Duration	4.333	0.139-1.353	0.150
Communication & Feedback	2.922	0.977-8.740	0.001*
Waiting Time	175.201	48.100-638.197	0.221

Note: OR denotes the odds ratio. CI denotes Confidence Interval. * Denotes $p < 0.05$ significance level. Study results (2024).

4 DISCUSSION

This study revealed that NHIS-provided services at the OPD of LMUTH received positive feedback. 83 percent of respondents expressed satisfaction, while 17 percent reported dissatisfaction. Similar high satisfaction rates were reported in studies conducted in Nigeria [25], [15], and in Ghana [38], with rates of 80.6 percent, 82.7 percent, and 88.5 percent, respectively. A study in Ghana recorded the lowest satisfaction rate of 36 percent [22].

The results indicated no significant differences in satisfaction levels between genders, with males and females reporting similar satisfaction levels. These findings were similar to those in a study in Nigeria [10] but contradict other studies in Nigeria [9], Turkey [39], and Pakistan [40], where women indicated greater satisfaction than men. However, in one study in Sri Lanka [41], women were significantly less satisfied with overall OPD services.

Age and marital status also did not significantly impact satisfaction, suggesting consistent perceptions of NHIS services across these demographic groups. As for the age factor, the results contradict the findings of Mohammed et al. [12] in Nigeria and Jadoo et al. [42] in Turkey but agree with Appiah [43] in Ghana. However, as for marital status, the findings contradict Abuosi et al. [11] who identified marital status as a significant factor affecting patient satisfaction but agree with Appiah [43].

However, education level and duration of NHIS enrollment were significant factors. Respondents with tertiary education were less satisfied ($p = 0.017$). These findings were also observed by Oladipupo et al. [14] who observed that education statistically affected patient satisfaction levels contrary to the findings of a study by Appiah [43] in Ghana who found no correlation. In this study, those with longer membership durations exhibited higher satisfaction ($p = 0.029$) agreeing with studies in Nigeria by Mohammed et al. [12] and Osungbade et al. [16] who also found a favorable association between NHIS enrollment duration and patient satisfaction.

Other significant determinants of patient satisfaction included communication and feedback from NHIMA, drug availability, staff attitude, and waiting time ($p < 0.05$). Communication and feedback from NHIS as a significant factor influencing patient satisfaction was also observed in the study conducted by Okyere-Mensah et al [26]. The findings on drugs were similar to what was observed in the research conducted in Nigeria by Daramola et al. [24] and Akande et al [15]. Similar findings from the literature also indicated that staff attitude influenced patient satisfaction [21], [44], [45], and further, a study by Fenny et al. [21] also identified waiting time as a significant factor affecting patient satisfaction with NHIS services.

The logistic regression model provided a more detailed analysis by identifying key predictors of NHIS patient satisfaction. The unadjusted model revealed significant variables such as education level (OR = 0.430, $p = 0.020$), communication and feedback (OR = 2.756, $p = 0.003$), staff attitude (OR = 3.392, $p = 0.001$), and waiting time (OR = 127.85, $p = 0.001$). This model highlighted the importance of these factors in influencing patient satisfaction, suggesting that patients with tertiary education are less likely to be satisfied, while effective communication, positive staff attitude, and shorter waiting times are crucial for higher satisfaction levels.

From the literature, Fenny et al. [21] identified critical factors such as waiting times, staff friendliness, and consultation processing times as significant determinants of patient satisfaction, whereas Twum et al. [38] discovered that positive healthcare provider attitudes significantly influenced overall service satisfaction. Abuosi et al. [11], on the other hand, observed that financial concerns and shortages of medical supplies were common grievances. Nketiah-Amponsah et al. [13] identified factors like age, out-of-pocket costs, and geographic location as predictors of NHIS service quality perceptions, and Kodom et al. [22] highlighted dissatisfaction with long wait times, out-of-pocket expenses, and medication shortages as key factors influencing patient dissatisfaction.

The final multivariate model further refined these findings, emphasizing the significance of employment status, communication and feedback, and waiting time as predictors of patient satisfaction. Employment status emerged as a significant protective factor against dissatisfaction (OR = 0.237, $p = 0.030$), indicating that those employed are less likely to be dissatisfied with NHIS services. Communication and feedback remained a strong positive predictor of satisfaction (OR = 2.922, $p = 0.001$), highlighting the critical role of effective communication and feedback mechanisms in enhancing patient satisfaction. The significance of waiting time (OR = 175.201, $p = 0.001$) underscored the importance of timely service delivery in patient satisfaction.

This study, like others, identified critical factors influencing NHIS patient satisfaction, including communication and feedback from NHIMA, staff attitude, waiting times, and membership duration. These findings align with other studies [11], [13], [21], [38], which also emphasized similar determinants of NHIS patient satisfaction such as effective communication, positive healthcare provider attitudes, and timely service delivery.

Furthermore, disparities based on demographic factors like education level were noted, with this study showing that respondents with tertiary education were less satisfied, a trend observed by others as well. This suggests that educational background may influence expectations and perceptions of healthcare quality within the NHIS framework. Additionally, employment status emerged as a significant predictor in our final multivariate model, echoing the importance of socioeconomic factors in shaping patient satisfaction. These results suggest that to improve patient satisfaction, NHIMA should focus on enhancing communication channels, ensuring timely service delivery, and maintaining a positive staff attitude. Additionally, addressing the specific needs and expectations of educated and long-term members can further enhance overall satisfaction with NHIS services.

4.1 STUDY LIMITATIONS

The study identified several limitations, including patient complexity, self-report bias, and the absence of a universally accepted method for measuring patient satisfaction, which could affect the reliability of its findings. Furthermore, its single-site design, small sample size, and potential influence of external factors during data collection may restrict the generalizability of the results.

5 CONCLUSION

The analysis of NHIS patient satisfaction through chi-square, logistic regression, and multivariate models has revealed several key insights. The study has shown that several factors influence patient satisfaction, although in the final multivariate model only education level, effective communication, and information from NHIMA emerged as significant protective factors. Employment likely provides financial stability and access to information, while good communication enhances patient understanding and trust. From an economic perspective, the employment status finding suggests that economic factors may play a role in patient perceptions of healthcare services, indicating a need for targeted interventions for unemployed or underemployed populations. Additionally, NHIMA should enhance its communication strategies, particularly regarding policy changes and updates. Improving the clarity and accessibility of information can help patients better understand their benefits and coverage, leading to higher satisfaction levels. Additionally, NHIMA should explore increasing its digital engagement to make it easier for patients to access information and services online.

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COMPETING INTEREST

The authors have no competing interests to declare.

AUTHOR'S CONTRIBUTION

Wesley Kapaya Mwambazi conceptualized the study and conducted the data collection, analysis, and writing. Professor Mubanga Mpundu reviewed and edited the manuscript prior to submission.

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DATA AVAILABILITY

The data is available upon request from the corresponding author, Wesley Kapaya Mwambazi.

DISCLAIMER

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated institutions. The authors are solely responsible for the content and accuracy of the information presented. Any errors or omissions are the responsibility of the authors.

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