



Factors Shaping Patients Choice of Health Service at the Council-Designated Hospitals in the Lake Zone, Tanzania

Robert Maggo Alila¹, Paulin Paul Gahesherwa² & Nicodemus Mwakilema²

¹Tanzania Institute of Accountancy

²Moshi Co-operative University, Tanzania

Article History

Received: 2026-05-19

Revised: 2026-09-30

Accepted: 2026-10-02

Published: 2026-10-03

Keywords

Health

Hospitals

Patients

Public-private partnership

How to cite:

Alila, R. M., Gahesherwa, P. P., & Mwakilema, N. (2026). Factors Shaping Patients Choice of Health Service at the Council-Designated Hospitals in the Lake Zone, Tanzania. *Journal Science, Innovation and Creativity*, 5(2), 190-203.

Copyright © 2026



Abstract

This study was examined the behavioural factors influencing patients' health service choice (HSC) to inform strategies for improved health service utilisation. A pragmatic, cross-sectional quantitative approach was employed, grounded in Andersen's Behavioural Model of Health Service Use (ABMHSU). The study was conducted in Tanzania's Lake Zone, involving twelve remote Council-Designated Hospitals (CDHs) managed in partnership with Faith-Based Organisations (FBOs) and Local Government Authorities (LGAs), each operated over five years. The sample frame consisted of 587,639 patients aged 15 and above, each with two or more attendances, based on CDHs discharge registers from 2022 - 2023. Using stratified random sampling and Cochran's formula, a final sample of 384 participants was selected. Data were collected using structured questionnaires and analysed with Exploratory Factor Analysis (EFA) and Logistic Regression Analysis (LRA). The results showed that higher ratings for service quality and environment ($\text{Exp(B)} = 9.150$) and patients' conditions or relatives' recommendations ($\text{Exp(B)} = 3.484$, both $p < 0.001$) significantly increased the likelihood of HSC. In contrast, transportation infrastructure, distance, and service costs were not significant predictors. These findings suggest that CDHs should prioritise improvements in facility cleanliness, staff responsiveness, and patient comfort, while LGAs and FBOs should focus on engaging and educating both patients and family members about available healthcare options. The study's limited participant scope, single-zonal focus, and cross-sectional design highlighted the need for future research with broader, multi-zonal samples and longitudinal methods to enhance generalisability.

Introduction

Choice to high-quality health services remains a central priority for patients globally (URT, 2025; WHO, 2023). Nevertheless, decisions regarding where and how to seek care are frequently marked by complex dilemmas, shaped by numerous barriers and patients' perceived distinctions between public and private health service providers. Consequently, health service choice (HSC) persists as a topic of ongoing debate among patients and their families (Mbaka & Mwange, 2024; Iroz *et al.*, 2024). Patients' perceptions of HSC differ markedly across public, private, and faith-based health facilities, reflecting underlying disparities in infrastructure, staff professionalism, and responsiveness. As indicated by Olearczyk *et al.*, (2026) and Hashemi *et al.*, (2022), the integration of private sector organisational practices such as improved scheduling and patient-centred administration has enhanced responsiveness and overall satisfaction within public health systems. However, these improvements are not universally adopted, and organisational differences among facility types continue to produce substantial variability in service quality and patient experience.



As a result, patients face a persistent HSC dilemma, navigating a complex landscape shaped by financial barriers (including out-of-pocket costs and limited insurance coverage), geographic accessibility, cultural influences, and information gaps (Diyoka et al., 2025; Li et al., 2024; Getachew et al., 2023). This decision-making process is further complicated by systemic challenges such as inequitable resource allocation, inconsistent referral pathways, and varying degrees of trust in different providers. Thus, HSC remains both significant and inherently complex. To align patient needs with appropriate facility capabilities, the Tanzanian government, established a hierarchical framework for health service organisation (URT, 2007). This framework consists of progressively specialised tiers, beginning at the community level with dispensaries and health centres, advancing through district or Council-Designated Hospitals (CDHs), and culminating in regional, zonal, and national referral hospitals. Each tier is structured to deliver increasingly comprehensive care, facilitated by a coordinated referral system designed to match patient needs with facility expertise. A CDH is usually a faith-based hospital designated by a council to serve as the district hospital where no government district hospital exists, under a service agreement in which the government contributes staff, grants and/or medicines. That PPP arrangement is the whole reason these facilities are interesting, and it is also what makes 'choice' at a CDH different from choice at a purely public or purely private facility.

Despite the existence of a hierarchical framework, empirical evidence indicates frequent violations of the referral system by patients and their family members. Such violations often lead to service shortages and inefficiencies within the health system (Paichitrojjana & Paichitrojjana, 2025; Sulayao et al., 2025). These ongoing challenges highlighted persistent difficulties in the effective implementation and adherence to referral protocols. Study by Jia et al., (2025) identified predisposing and enabling factors as significant determinants, while Sahab et al., (2022) found the needs and access to free services significantly influenced dental service utilisation. Both studies utilised Andersen's Behavioural Model of Health Service Use (ABMHSU) to examine healthcare utilisation in China and dental service patterns among adults in Saudi Arabia, respectively. Nevertheless, there is still a paucity of research specifically addressing the choice of facilities operating under public-private partnership (PPP) arrangements.

In Tanzania's structured healthcare hierarchy, key challenges surrounding HSC remain unresolved. Recent studies in public hospitals indicate that factors such as expedited choice, staff responsiveness, and efficient scheduling often outweigh clinical performance and feedback mechanisms in shaping patient decisions (Kitole et al., 2025; Kengia et al., 2025). Facility accreditation to the National Health Insurance Fund (NHIF), technical efficiency, overall service quality, and staff attitudes are also critical determinants of where patients seek care (John et al., 2023; Bwana, 2021). These interrelated influences highlight the multifaceted and complex nature of HSC in Tanzania, underscoring the need for more context-specific research. Much of the scholarly work from the Lake Zone regions Kagera, Mwanza, Shinyanga, and Simiyu has focused on specific conditions like HIV and diabetes, as well as patient care pathways and emergency response scenarios (Rweyendera et al., 2025; Musyani et al., 2025; Reynolds et al., 2023; Okere et al., 2021). These studies have identified social relationships, trust in providers, and service availability as important contextual factors shaping health-seeking behaviour. However, most existing literature remains condition-specific and does not fully address the broader, multidimensional determinants influencing HSC, especially within CDHs and PPP facilities. Previous studies have primarily used bivariate analysis (Rweyendera et al., 2025) and descriptive statistics in Microsoft Excel (Musyani et al., 2025). There is a significant gap in research employing advanced quantitative methods like Exploratory Factor Analysis (EFA) and stepwise Logistic Regression Analysis (LRA) to systematically examine these determinants. This highlights the urgent need for more robust, theory-driven studies in this field.



The ABMHSU has primarily been applied to HIV-related research in Tanzania, focusing on knowledge, testing, and treatment outcomes using multilevel regression models and data from national surveys (TDHS) or clinical trials (Ayieko *et al.*, 2026; Bago *et al.*, 2025; Abebe *et al.*, 2024). By contrast, its application to HSC for general health within CDHs remains limited. The studies by Ayieko *et al.*, (2026), Bago *et al.*, (2025) and Abebe *et al.*, (2024) had relied on the perceptions of the general public, while the specific perspectives of patients accessing CDH services are notably absent. This lack of integrated, regionally focused, and methodologically robust research highlights the need for studies that are firmly anchored in established theoretical frameworks and that employ advanced quantitative methods to comprehensively elucidate the determinants of HSC in this setting. HSC in this study denotes the decision-making process through which individuals or families navigate the selection of healthcare providers. This process is frequently impeded by conflicting personal preferences, rigid institutional protocols, hierarchical structures, and the influence of familial expectations. Empirical evidence demonstrates that such complexities in choice contribute to the disproportionate overutilisation of specific healthcare providers (Li *et al.*, 2024; Hashemi *et al.*, 2022). Consequently, these providers experience congestion and a decline in care quality, while others remain persistently underutilised and neglected.

Statement of the Problem

Tanzania has made notable reforms in health sector such as expansion of PPPs, health insurance schemes, and decentralisation (URT, 2025; URT, 2020; URT, 2009). Despite significant reforms there remain persistent disparities in HSC particularly in the Lake Zone (Ayieko *et al.*, 2026; Bago *et al.*, 2025; Abebe *et al.*, 2024). The CDHs serve as critical points of care for underserved populations. However, utilisation rates at these facilities remain suboptimal comparable to government facilities (URT, 2025b; OECD, 2025). Empirical evidence from global and regional studies highlighted factors such as service quality, affordability, geographic accessibility, and provider trust as central to HSC (Diyoka *et al.*, 2025; Li *et al.*, 2024). Yet, in the Tanzanian context, particularly within the Lake Zone, the specific determinants influencing HSC are not well documented. Furthermore, the integration of CDHs in service delivery introduced new dynamics on altering cost structures, service modalities, and patient expectations which may further complicate HSC decision-making (Kayunze *et al.*, 2020; Sirili *et al.*, 2019). While existing literature acknowledges the potential of PPPs to enhance choice and efficiency. There is limited empirical evidence on how these arrangements affect HSC in the Lake Zone setting.

The absence of context-specific evidence limits the capacity of stakeholders involved in dual-owned facilities to design targeted interventions that are responsive to local realities. Addressing this gap is crucial to ensuring that investments in CDHs yield improved, equitable, and patient-centred healthcare for all residents of the Lake Zone. The primary objective of this study is to assess the factors influencing HSC at CDHs in the Lake Zone, Tanzania. Specifically, the study seeks to Identify and analyse the key determinants encompassing predisposing, enabling, and need factors as conceptualised by ABMHSU that shape HSC at CDHs. Examine the impact of service quality, accessibility, payment methods, and socio-demographic characteristics on HSC within the Lake Zone.

This lack of context-specific evidence constrains the ability of parties involved in dual-owned facility (CDH) to design targeted interventions responsible to local realities. Addressing this gap is essential for ensuring that investments in CDHs translate into improved, equitable, and patient-centred healthcare for all residents of the Lake Zone. The primary objective of this study is to assess the factors shaping HSC at CDHs in the Lake Zone, Tanzania. Specifically, the study aims to Identify and analyse the key determinants including predisposing, enabling, and need factors as on HSC within the Lake Zone.



Theoretical Framework

This study is informed by the ABMHSU, a widely recognised framework for analysing the determinants of individuals' HSC. The ABMHSU posits that HSC is shaped by three primary categories of factors: predisposing, enabling, and need factors (Andersen, 1995). The predisposing factors encompass demographic and social characteristics as well as health beliefs that influence an individual's propensity to seek care. In this study, these are operationalised through variables such as age group, sex, household size, and level of education. These indicators reflect both the social background and personal attributes that shape attitudes and beliefs about utilising health services. Enabling factors refer to the logistical and financial resources that either facilitate or impede choice to care. This category is measured by variables including payment methods (out-of-pocket versus insurance), distance to CDHs, availability and type of transport, quality of road infrastructure, and access to public amenities such as cafeterias and parking at CDHs. These factors collectively represent the means and organisational structures that determine an individual's ability to obtain health services. The need factors capture both the perceived and professionally evaluated requirements for healthcare. In this study, these are assessed through self-reported severity of illness, frequency of health facility visits, and perceived quality of services received. These variables provide insight into the health status and care needs that drive individuals to seek health services. Together, these adapted indicators allow for a nuanced analysis of the multifaceted determinants influencing HSC, grounded in a robust theoretical tradition.

Conceptual Framework

Each study variable is systematically mapped to a corresponding element of ABMHSU. This multidimensional approach allows for a thorough analysis of the barriers and facilitators of HSC, as depicted in Figure 1. The theoretical framework not only guides variable selection but also underpins policy recommendations to improve equitable choice and utilisation of health services.

Independent variable (IV)

Dependent variable (DV)

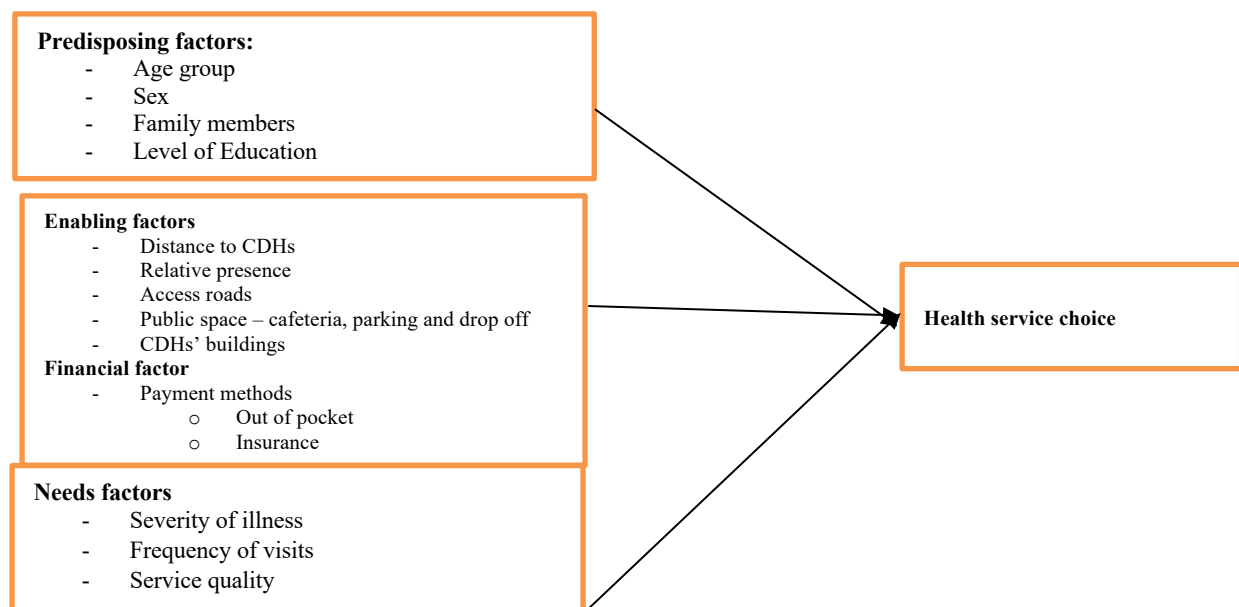


Figure 1: Conceptual Framework of Behavioural Determinants Influencing Patient Choice of Health Services

Source: Adapted from Andersen's Behavioural Model of Health Services Use (ABMHSU) (Andersen, 1995)



Methodology

Research Design

This study used a pragmatic, cross-sectional quantitative correlational design to examine the relationships between multiple behavioural determinants of HSC at a single point in time. This approach allowed for the identification of associations among variables without manipulating them, ensuring findings reflect real-world conditions (Myers *et al.*, 2010; Trochim and De Vaus, 2001).

Study Area

This study was conducted in the Lake Zone of northwestern Tanzania, a region bordering Lake Victoria consisted with regions Kagera, Mwanza, Mara, Simiyu, and Shinyanga. The Lake Zone was purposefully selected due to its high concentration of CDHs and the persistent challenges surrounding healthcare choice documented in recent reports (URT, 2024;URT, 2021). These characteristics made the region especially suitable for exploring determinants of HSC. To ensure the study's relevance and representativeness, twelve CDHs were chosen based on clearly defined criteria. Each selected facility had been operational for over five years, which ensured that they had established patterns of service delivery and patient utilisation. The CDHs were also required to be managed by FBOs, as such facilities play a prominent role in healthcare provision in remote Tanzanian settings. Additionally, all selected CDHs were located in remote areas, reflecting the study's focus on populations facing the greatest barriers to healthcare choice. Within each CDH, three wards were purposively selected as representative catchment areas. The selection was guided by the highest patient discharge numbers recorded in 2022–2023 CDH's list. This enables the study to capture areas with substantial service utilisation and to focus on communities most actively engaged with the CDHs' services. This approach ensured that the findings would be both contextually relevant and generalisable to similar settings facing comparable healthcare choice challenges.

Target Population

The target population for this study comprised patients aged 15 years and above who received health services from the 36 selected catchment wards associated with the 12 CDHs (Zeru *et al.*, 2023). The ages threshold is permitted by the Law of the Child Act, 2009 [Cap. 13 R.E. 2022]. The laws recognised adolescents' rights to access essential health services provided is in the best interest of the child without requiring parental consent. This approach ensures ethical compliance while upholding the principle of the child's best interest and aligned with national adolescent health priorities. Identification of service users was achieved through a thorough review of health facility records and patient registers maintained at each CDH. These records systematically document patients' demographic details, ward of residence, and frequency of visits, enabling the research team to reliably determine which individuals had utilised services from the catchment areas. To ensure the inclusion of regular service users, only those patients who had attended the CDHs at least twice between 2022 and 2023 were considered eligible. The total population figure was 587,639 individuals obtained by aggregating the attendance records from all 12 facilities over the specified two-year period. This comprehensive approach provided a robust and verifiable basis for determining both the identity and the total number of eligible service users within the study area.

Sampling and Sample Size

The sampling frame consisted of lists of patients who received CDH services at least twice between 2022 and 2023. To determine the appropriate sample size, the study employed the finite population formula by Cochran, (1977), which yielded a required sample of 384 participants. A stratified random sampling technique was used to ensure proportional representation from each of the 12 selected hospitals. Within each hospital stratum, simple random sampling was



applied to select eligible respondents from each ward. The wards' list was numbered in pieces of papers placed in box, and randomly selected sample from the wards list. The selection was meant to minimising selection bias and enhancing the representativeness of the sample.

The sampled (n) from discharged users from 36 wards were calculated by Cochran formula (Cochran, 1977).

$$n = \frac{N * Z^2 * P * (1 - P)}{e^2 * (N - 1) + Z^2 * P * (1 - P)} \dots\dots\dots (1)$$

Where: N=Population to 36 wards = 587,639, Z=1.96 is critical value, p= 0.5 sample proportion, and e =0.05 is margin of errors.

$$n = \frac{587,639 * 1.96^2 * 0.5 * (1 - 0.5)}{0.05^2 * (587,639 - 1) + 1.96^2 * 0.5 * (1 - 0.5)} = 384$$

Data Collection Instruments and Procedures

Data were collected used a structured questionnaire covering predisposing, enabling, financial, and need factors, aligned with ABMHSU. Trained research assistants administered the questionnaire in-person at each facility, ensuring informed consent and respondent confidentiality. Out of 407 distributed questionnaires, 384 were included in the final analysis after sufficed quality checks.

Data Analysis

Data were coded and entered into SPSS version 25 for analysis (IBM.Corp., 2017). The analytical approach included two steps: EFA was conducted to identify the underlying structures among the determinants of HSC, while Binary Logistic Regression was used to assess the influence of key common factors on the likelihood of HSC. Additionally, descriptive statistics were generated to summarise participants' demographic and baseline characteristics.

Ethical Considerations

Ethical clearance was obtained from Ethical Committee from Moshi Co-operative University (MoCU). The permission letter was submitted to the Ministry of President's Office – Regional Administration and Local Government Tanzania (PO-RALG), which subsequently instructed the Regional Administrative Secretaries (RASs) of the Lake Zone regions to coordinate the research approval process. Upon review, the RASs granted the necessary permissions to the District Executive Directors (DEDs) of the selected districts. The DEDs, in turn, authorised the Medical Officers in Charge (MOICs) of the CDHs to facilitate the research activities. The MOICs were instrumental in the implementation phase, providing access to respondent information and contact details, and assisting in arranging meetings between the research team and participants. Prior to data collection, the consent was obtained from all participants in accordance with ethical guidelines. Confidentiality was rigorously maintained: all personal identifiers were removed or anonymised, and participants were assured that their information would remain confidential and be used exclusively for research purposes.

Results

Demographic characteristics, mode of transport and payment methods for respondents

The study explored the key factors influencing HSC by analysing demographic characteristics, modes of transport, and payment methods among 384 respondents. Out of the total participants, 56% were female and 44% were male, with noteworthy regional differences. The Mwanza region exhibited the highest proportion of female respondents at 62%. Age distribution revealed that the vast majority (92%) of respondents were 25 years or older, indicating a predominantly adult sample. Educational attainment varied across regions, but overall, 70% of respondents had achieved at least a secondary level of education. This proportion was even higher in the Kagera



and Mara regions, each exceeding 75%. Household composition also showed regional variation; while 72% of all respondents lived in households with fewer than six members, only 37% in Simiyu reported similar household sizes, highlighting significant differences in family structure.

Regarding choice to healthcare facilities, motorcycles emerged as the dominant mode of transport, used by 77% of respondents across all regions. The dependence on motorcycles was particularly striking in Mara (91%) and Simiyu (89%). In contrast, alternative means such as bicycles and walking were rarely used, each accounting for less than 10% in most areas. Minorities relied on three-wheel motorcycles or public transport, with the latter being most notable in Kagera (11%). Payment methods for accessing services revealed a heavy reliance on out-of-pocket (non-insured) payments, reported by 86% of respondents. This reliance was most pronounced in Simiyu, where all respondents used non-insured payments. In contrast, the rate of insured users remained low throughout the surveyed regions, peaking at 24% in Kagera and nearly below 15% elsewhere.

Collectively, these findings demonstrate pronounced regional disparities in gender representation, educational attainment, and household size. They also reveal a widespread dependence on motorcycles as the primary mode of transport and on out-of-pocket payments for healthcare, underscoring persistent barriers to equitable choice and financial protection in health service coverage. Table 1 provides a detailed summary of these characteristics across the surveyed regions.

Table: 1 Summary Statistics of demographic characteristics, Mode of transport and payments methods to CDH's services (n=384)

Variables	Lake Zone		Kagera		Mwanza		Mara		Simiyu		Shinyanga	
	n	%	n	%	n	%	n	%	n	%	n	%
Sex of respondent												
Male	169	44%	52	47%	31	38%	32	42%	40	49%	14	40%
Female	215	56%	58	53%	50	62%	44	58%	42	51%	21	60%
Respondent age(yrs)												
15 - 24	32	8%	14	13%	9	11%	4	5%	1	1%	4	11%
25 - 34	173	45%	57	52%	52	64%	34	45%	18	22%	12	34%
Above 35	179	47%	39	35%	20	25%	38	50%	63	77%	19	54%
Number of family members												
6 or less	277	72%	87	79%	73	90%	62	82%	30	37%	25	71%
7 - 10	81	21%	19	17%	1	1%	11	14%	46	56%	4	11%
Above 10	26	7%	4	4%	7	9%	3	4%	6	7%	6	17%
Level of education												
Primary	114	30%	23	21%	29	36%	16	21%	30	37%	16	46%
Secondary	229	60%	72	65%	37	46%	57	75%	45	55%	18	51%
Diploma	32	8%	10	9%	15	19%	3	4%	3	4%	1	3%
Degree	8	2%	4	4%	0	0%	0	0%	4	5%	0	0%
Postgraduate	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%
Means of transport to CDH's												
Pedestrian	12	3%	2	2%	7	9%	0	0%	1	1%	2	6%
Bicycles	25	7%	6	5%	5	6%	2	3%	8	10%	4	11%
Motor cycles	294	77%	76	69%	49	60%	69	91%	73	89%	27	77%
Three-wheel motor cycles	26	7%	10	9%	11	14%	3	4%	0	0%	2	6%
Taxi	4	1%	3	3%	1	1%	0	0%	0	0%	0	0%
Public transport (commuter buses)	21	5%	12	11%	7	9%	2	3%	0	0%	0	0%
Others	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
Payment methods to CDH's services												
Non - insured	332	86%	84	76%	69	85%	65	86%	82	100%	32	91%
Insured	52	14%	26	24%	12	15%	11	14%	0	0%	3	9%

Source: Survey Data



Sample Adequacy and Data Suitability

The dataset was rigorously assessed for its adequacy and suitability prior to factor analysis. The Kaiser-Meyer-Olkin (KMO) measure yielded a value of 0.841, signifying strong sampling adequacy. Furthermore, Bartlett's test of sphericity ($\chi^2 = 5459.585$, $df = 528$, $p < 0.001$) substantiated the appropriateness of the correlation matrix for factor analysis.

To examine the presence of common method bias, Harman's single-factor test was conducted. The variance explained by a single-factor was 18.389%, which is well below the 50% threshold, indicating that common method bias is not a significant concern in this dataset.

Inferential Statistics and Exploratory Factor Analysis Results

Inferential Statistics Overview

To deepen the analysis of factors influencing patients' HSC, inferential statistical methods were utilised to identify patterns and relationships within the data. These analyses provided the foundation for the subsequent exploratory factor analysis (EFA) by highlighting the key enabling and needs-based variables that warranted further investigation.

Exploratory Factor Analysis

The exploratory factor analysis (EFA) was conducted on 33 items encompassing both enabling and needs factors associated with patients' HSC. This analysis led to the extraction of eight distinct factors, which together accounted for approximately 64% of the total variance in the dataset.

The identified factors are as follows: (1) Service quality and physical environment, (2) Access and convenience, (3) Patients' conditions and relatives' recommendations, (4) Service costs, (5) Demographics and service utilisation, (6) Transport infrastructure and distance, (7) Payment methods, and (8) Patients' gender. The findings presented the factor loadings and the percentage of variance explained by each factor. The clear separation of these domains highlights the multidimensional nature of the determinants impacting patients' HSC and provides a robust framework for subsequent analyses and policy recommendations.

The One-way ANOVA test was conducted to test whether the regional means are equal the results revealed that seventh out of eight factors scores namely: - factors 1, 2, 3, 4, 5, 6, and 7; differed significantly across the five regions. The service quality and physical environment ($F = 60.743$, $p < .001$), access and convenience ($F = 64.640$, $p < .001$), patient's condition and relatives' recommendations ($F = 58.286$, $p < .001$), service costs ($F = 11.680$, $p < .001$), demographics and service utilisation ($F = 3.130$, $p = .015$), transport infrastructure ($F = 5.152$, $p < .001$), and payment methods ($F = 3.182$, $p = .014$). The results indicating disparities in service quality, access, and relatives' recommendations, indicating these as priority areas for improvement. In contrast, gender ($F = 0.663$, $p = .618$) showed no significant variation across regions, indicating that the underlying perceptions on HSC are not uniform but are shaped by regional context.

The results showed that the model's fit and ability to explain variance in the dependent variable both improved as additional variables are included. The final model (Step 5) demonstrated the strongest performance, explaining approximately 72.3% of the variation in the HSC according to Nagelkerke R Square value. This suggests a robust logistic regression model with good predictive capacity for the dataset, as indicate in Table 2.

Table 2: Model Summary of Stepwise Logistic Regression for Determinants to CDH Service Choice

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	254.261 ^a	.381	.559
2	220.899 ^a	.432	.635
3	191.713 ^a	.474	.696
4	178.067 ^a	.492	.723



a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Source: Survey Data

The results in were confirmed the statistical suitability of the stepwise logistic regression model for identified behavioural determinants of HSC. All Variance Inflation Factor (VIF) values are well below the conventional threshold of 5, and Tolerance values exceed 0.6, indicated no problematic multicollinearity among predictors. Several variables, including service quality and environment, patient conditions and relatives' recommendations, payment methods, and regional differences, showed statistically significant associations with HSC ($p < 0.05$). The absence of high collinearity and the presence of significant predictors support the validity and interpretability of this multivariate model.

Factors significant to health service choice among patients

The final stepwise logistic regression (Table 3) identifies service quality and environment as the strongest determinant of CDH service choice ($\text{Exp}(B) = 9.15$, $p < .001$), followed by patient conditions and relatives' recommendations ($\text{Exp}(B) = 3.48$, $p < .001$), and payment methods ($\text{Exp}(B) = 2.90$, $p < .001$), underscoring the significant influence of these behavioural factors. Additionally, the inclusion of region as a variable ($p = .015$) reveals important geographic differences in service choice, although not all regions differ significantly from the reference, suggesting nuanced, area-specific effects after accounting for the main latent factors.

Table 3: Stepwise Logistic Regression Results for Determinants of CDH Service Choice

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)
Step 4 ^d	Service quality and environment	2.214	.304	52.922	1	.000	9.150
	Patient's conditions and relatives' recommendations	1.248	.293	18.153	1	.000	3.484
	Payment methods	1.063	.223	22.721	1	.000	2.895
	Region (Kagera, Mwanza, Mara, Simiyu, Shinyanga)			12.291	4	.015	
	Constant	1.442	1.040	1.922	1	.166	4.227

d. Variable(s) entered on step 4: Region (1-Kagera, 2-Mwanza, 3-Mara, 4-Simiyu, 5-Shinyanga).

Source: Survey Data

Discussions

Discussion

Service Quality and Environment

The study's found that service quality and the physical environment are the strongest determinants of CDH service choice in Tanzania's Lake Zone aligns with, yet also diverges from, prior regional research. For example, while both (Rweyendera *et al.*, 2025) and (Okere *et al.*, 2021) reported the infrastructural quality, staff attitudes, and facility conditions influenced patient experience and engagement, those studies focused respectively on diabetic patient management and HIV care pathways, and did not explicitly quantified the predictive strength of these factors in facility choice. The study resulted in demonstrated robust quantitative methods that improvements to service quality and environment may yield particularly pronounced increases in service utilisation. The results in the Lake Zone context, exceeded the strength of association reported in national and global studies (Li *et al.*, 2024; Amandus *et al.*, 2024). In doing so, the study provided empirical validation for the policy priority of infrastructure and patient-centred care as drivers of health service uptake.

Patients' Condition and Social Influence

Distinct from some global trends, the study revealed that need factors specifically, the patient's health condition and the influence of relatives also played a substantial, statistically significant role. This reinforced ABMHSU that social structure and cultural norms are integral to health-seeking behaviour. Notably, the findings resonate with, yet add new depth to, qualitative work



from Mbaka and Mwange, (2024) and Hashemi *et al.*, (2022), underscoring how family recommendations, cultural beliefs, and shared community practices exert a powerful effect on decision-making in the Lake Zone compared to more individual-driven determinants. Similarly, Reynolds *et al.*, (2023) in HIV care in Shinyanga, identified non-linear, socially mediated care pathways, emphasising the power of family and community support systems in shaping health-seeking behaviour. The findings complemented and extend these insights by quantified the magnitude of social recommendations and patient's condition in the context of CDHs, showing these influences are comparably or more important than individual-level determinants often emphasised elsewhere.

Financial Accessibility

The results further highlighted financial accessibility, specifically payment methods, as critical enabling factors. The overwhelming reliance on out-of-pocket payments especially marked in regions like Simiyu contrasted with the modest role of insurance. This pattern is consistent with findings from Ethiopia (Zeru *et al.*, 2023) and local Tanzanian studies (Rweyendera *et al.*, 2025; Okere *et al.*, 2021). and other low-resource settings, indicating that, despite ongoing policy reforms, financial barriers remain deeply entrenched (Iroz *et al.*, 2024; Getachew *et al.*, 2023). However, the analysis results suggested that in the Lake Zone, payment flexibility interacts synergistically with service quality, amplifying or mitigating utilisation barriers. This points to the necessity for regionally tailored financial solutions, rather than generic insurance expansion, and suggests a more nuanced policy focus on payment and affordability.

Regional and Geographic Disparities

The study detected significant regional differences, confirming that geography and local context are not simply background variables but active determinants of health service utilisation. This resonates with the Marburg virus response documented by Musyani *et al.*, (2025) in Kagera, where geographic and system-level factors shaped outbreak detection and care-seeking. Similarly, Okere *et al.*, (2021) identified that HIV testing and treatment choice varied substantially by facility density, rurality, and sector. These converging lines of evidence underscore the need for locally adapted interventions, as national-level "one-size-fits-all" policies are unlikely to address the nuanced barriers faced by patients in different Lake Zone regions.

Integrating Social Recommendation and Payment Flexibility: Expanding ABMHSU

What distinguished this study is the empirical identification of social recommendation and payment flexibility as actionable enabling factors, alongside the dominant effect of service quality and environment. These dimensions, while acknowledged in ABMHSU original framework, have rarely been simultaneously quantified and prioritised in regional analyses. The results therefore advocate for comprehensive interventions: policies must move beyond financial incentives alone, integrating improvements in care environment and leveraging the profound influence of family, community, and social networks.

The study not only validated ABMHSU in the Lake Zone context but also enriches it by exposing the exceptional importance of service quality, the nuanced power of social and cultural dynamics, the enduring challenge of financial access, and the necessity of regionally tailored approaches.

Factors insignificant to health service choice among patients

The analysis revealed that variables such as physical access, service costs, demographics, transport, and gender do not independently influence HSC among patients in this context. This suggests that perceived service quality and patient-related recommendations may play a more prominent role than logistical or demographic factors when selecting health services at CDHs. These findings align with those of Diyoka *et al.*, (2025) and Li *et al.*, (2024), who reported that out-of-pocket costs and geographic accessibility can constrain choice to health services. This



demonstrates that when patients perceive service costs, transportation, and physical access as unfavourable, their choices of healthcare services are limited.

Recommendations

The results highlighted the critical importance of service quality and environment, patient's conditions and relatives' recommendations, and payment methods in influencing the choice of CDHs. Given the strong association between service quality and service choice, it is recommended that CDHs' administrators and Ministry of Health (MoH) prioritise continuous improvements in both the physical environment and the quality of care provided. Investments should focus on enhancing patient comfort, cleanliness, and the responsiveness of healthcare staff, as these factors significantly increase the likelihood of CDH utilisation.

Furthermore, the significant role of patient's conditions and relatives' recommendations suggests that patient satisfaction and community trust are key drivers of hospital choice. CDHs should implement feedback mechanisms to capture patient experiences and proactively address concerns, thereby leveraging positive word-of-mouth within communities. Additionally, with payment method being a major determinant, MoH need to expand insurance coverage and explore alternative payment models to reduce out-of-pocket expenses, especially in regions like Simiyu where insured coverage is absent or low. Addressing regional disparities such as insurance uptake, and transportation will require targeted interventions, including community health education, strengthening transport infrastructure by Local government Authorities (LGAs), and designing region-specific support programmes to ensure equitable HSC across all zones.

Study limitations

Despite the methodological rigour, several limitations should be acknowledged. First, the study did not include certain groups such as community members outside the catchment area, legislators, Patients under 15 years, or individuals residing beyond the selected wards, potentially limiting the breadth of perspectives on health service choice determinants. Second, the focus was restricted to Patients' viewpoints, omitting insights from health staff, Patients' family members, and the broader public, which may have enriched the understanding of factors shaping health service choice. Third, the study was confined to the Lake Zone, so findings may not be generalisable to other regions with different demographic or cultural profiles. Additionally, the cross-sectional design precludes assessment of changes in patient's perceptions and health facility performance over time. Finally, reliance on self-reported data introduces the potential for recall bias, which may impact the accuracy of institutional assessments. Future research should address these gaps by including a wider range of stakeholders, expanding to other regions, and employing longitudinal designs to capture temporal dynamics in health service choice.

References

- Abebe, M., Asgedom, Y. S., Gebrekidan, A. Y., Wondimagegne, Y. A., Hareru, H. E., & Tebeje, T. M. (2024). Factors associated with HIV testing among young women in Tanzania: Insights from the 2022 Tanzanian Demographic and Health Survey using Anderson's Behavioral Model. *Frontiers in Public Health*, 12, Article1518314. <https://doi.org/10.3389/fpubh.2024.1518314>
- Amandus, H., Baedlawi, A., Handayani, V. W., Linda, E., Alina, T., & Maria, S. (2024). Determinants of maternal health-seeking behavior for stunted children in Indonesian community health centers: A cross-sectional study. *Population Medicine*, 6, 1-7. <https://doi.org/10.18332/popmed/195853>
- Andersen, R. M. (1995). Revisiting the behavioural model and access to medical care: does it matter? *Journal of Health and Social Behaviour*, 36(1), 1-10. <https://doi.org/https://doi.org/10.2307/2137284>
- Ayieko, P., Willkens, M., Issarow, B., Deogratias, D., Fitzgerald, D. W., Grosskurth, H., Kisigo, G.,



- Okello, E., Metsch, L. R., Peck, R. N., Kapiga, S., & Lee, M. H. (2026). Self-Efficacy and One-Year HIV Outcomes for Hospitalized People with HIV in Tanzania: A Mediation Analysis of the Daraja Clinical Trial. *AIDS and Behavior*, 30(4), 1022–1029. <https://doi.org/10.1007/s10461-025-04917-2>
- Bago, M. H., Stephano, E. E., Kessy, S. A., Tibenderana, J. R., Godfrey Majengo, V., Oguma, E. D., Mwalingo, T. P., Kessy, I. P., Nyundo, A. A., & Mtoro, M. J. (2025). Determinants of comprehensive HIV and AIDS knowledge among Tanzanian adolescent girls and young women: a multilevel application of Andersen’s behavioral model based on national survey. *Frontiers in Public Health*, 13, Article 1643422. <https://doi.org/10.3389/fpubh.2025.1643422>
- Bwana, K. M. (2021). Modeling Efficiency in the Presence of Volunteering Agency Hospitals and Council Designated Hospitals in Tanzania: An Application of Non Parametric Approach. *Sustainable Education and Development*, (pp.173-182) Springer. https://doi.org/10.1007/978-3-030-68836-3_16
- Cochran, W. G. (1977). *Sampling Techniques* (3rd Ed). John Wiley & Sons.
- Diyoka, K. C., Mwanvua, L. N., Kalempera, S. M., Mukanga, P. P., & Mjumbe, C. K. (2025). Financial Cost of Treating Polytrauma in a Public Tertiary Hospital in the South-Eastern Democratic Republic of Congo: A Case Series Study. *ClinicoEconomics and Outcomes Research*, 17, 45–54. <https://doi.org/10.2147/CEOR.S496402>
- Getachew, N., Shigut, H., Jeldu Edessa, G., & Yesuf, E. A. (2023). Catastrophic health expenditure and associated factors among households of non community based health insurance districts, Ilubabor zone, Oromia regional state, southwest Ethiopia. *International Journal for Equity in Health*, 22(1), Article 40. <https://doi.org/10.1186/s12939-023-01847-0>
- Hashemi, G., Wickenden, M., Bright, T., & Kuper, H. (2022). Barriers to accessing primary healthcare services for people with disabilities in low and middle-income countries, a Meta-synthesis of qualitative studies. *Disability and Rehabilitation*, 44(8), 1207–1220. <https://doi.org/10.1080/09638288.2020.1817984>
- IBM.Corp. (2017). *IBM SPSS Statistics for Windows* (Computer software Version 25). IBM Corp.
- Iroz, C. B., Ramaswamy, R., Bhutta, Z. A., & Barach, P. (2024). Quality improvement in public-private partnerships in low- and middle-income countries: a systematic review. *BMC Health Services Research*, 24(1), 1–16. <https://doi.org/10.1186/s12913-024-10802-w>
- Jia, H., Miao, C., Song, X., Feng, T., & Zhao, Y. (2025). Factors influencing intentional non-utilization of healthcare: a study using the Andersen model. *Frontiers in Public Health*, 13, Article 1503601. <https://doi.org/10.3389/fpubh.2025.1503601>
- John, J., Mseti, S., & Ngongzi, T. T. (2023). The Effect of Service Quality on Health Sector Customer Loyalty. A Case of NHIF-Certified Health Facilities in Mwanza City, Tanzania. *ISIR Journal of Business and Management Studies*, 54–69. <https://doi.org/10.5281/zenodo.14332914>
- Kayunze, K. A., Kimario, K. A., & Muhanga, M. I. (2020). Public-Private Partnerships in the Provision of Healthcare Services for Sustainable Development in Tanzania : a Systematic Literature Review. *East African Journal of Social and Applied Sciences*, 2(2), 182–195.
- Kengia, J. T., Kagoma, P., Kinyaga, A., Mutasingwa, H., Debere, S., Smith, R., Mzeru, M. R., Mbunda, R., Kumalija, C., Chaote, P., Sukums, F., Kabulwa, M., Eliakimu, E., Mfaume, R. S., Kapologwe, N. A., Ruggajo, P., Mahera, W. C., & Kalolo, A. (2025). Awareness and usability of community and facility-based health sector client feedback mechanism in Tanzania public health system. A mixed methods study. *SSM - Health Systems*, 5, Article 100133. <https://doi.org/10.1016/j.ssmhs.2025.100133>
- Kitole, F. A., Lihawa, R. M., & Kamugisha, P. P. (2025). Optimizing efficiency in Tanzanian public hospitals through improved productivity and resource utilization. *Discover Health Systems*, 4(1). <https://doi.org/10.1007/s44250-025-00219-5>
- Li, L., Fu, L., Li, H., Liu, T., & Sun, J. (2024). Emerging trends and patterns in healthcare-seeking behavior: A systematic review. *Medicine (United States)*, 103(8), Article e37272.



- <https://doi.org/10.1097/MD.00000000000037272>
- Mbaka, R., & Mwange, A. (2024). An exploration of the key success factors of public-private partnerships as alternative social infrastructure financing strategy: The case of the health sector in Lusaka, Zambia. *International Journal of Multidisciplinary Research and Growth Evaluation*, 5(2), 138–146. <https://doi.org/10.54660/ijmrge.2024.5.2.138-146>
- Musyani, A., Mwakapasa, E., Mponela, M., Ngailo, L., Rabel, I., Khama, M., Mmbaga, E., Sindato, C., Noah, M., Solomon, W., Mrema, G., Ngenzi, D., Kauki, G., Manasseh, G., Mahande, M., Sarakikya, E., Mauka, W., Machumi, L., McHaro, J., ... Magembe, G. (2025). Implementation of early warning, alert and response: An experience from the Marburg virus disease outbreak response in Kagera, Tanzania, March to May 2023. *Plos One*, 20(6), Article e0325823. <https://doi.org/10.1371/journal.pone.0325823>
- Myers, J. L., Well, A. D., & Lorch, Jr, R. F. (2010). *Research Design and statistical Analysis* (3rd Ed.). Routledge.
- OECD. (2025). Health at a Glance 2025, OECD Indicators. In *Health at a Glance*. OECD Publishing.
- Okere, N. E., Sambu, V., Ndungile, Y., van Praag, E., Hermans, S., Naniche, D., Rinke de Wit, T. F., Maokola, W., & Gomez, G. B. (2021). The shinyanga patient: A patient's journey through hiv treatment cascade in rural Tanzania. *International Journal of Environmental Research and Public Health*, 18(16), Article 8418. <https://doi.org/10.3390/ijerph18168418>
- Olearczyk, A., Sękowski, K., Jankowski, M., Kamińska, A., Winciunas, P., & Grudziąż-Sękowska, J. (2026). Perceptions of public and private health services in Poland: findings from a 2025 nationwide survey. *BMC Health Services Research*, 26(1). <https://doi.org/10.1186/s12913-026-14287-7>
- Organisation, W. H. (2023). *Public – private partnerships for health care infrastructure and services : policy considerations for middle-income countries in Europe*. <https://www.who.int/europe/publications/i/item/9789289058605>
- Paichitrojjana, A., & Paichitrojjana, A. (2025). Real-World Acne Treatment Patterns, Preferences, and Adherence in Thailand: A Cross-Sectional Analysis. *Patient Preference and Adherence*, 19, 3197–3210. <https://doi.org/10.2147/PPA.S555557>
- Reynolds, L., Moyer, E., Meta, J., Erio, T., & de Klerk, J. (2023). Mediating immediacy in the era of 'treat all': The (chrono)logics of HIV treatment initiation in Shinyanga, Tanzania. *Social Science and Medicine*, 338, Article 116317. <https://doi.org/10.1016/j.socscimed.2023.116317>
- Rweyendera, A., Gwahula, G., Alexander, F., Vedastus, Y., Maziku, R., Mukama, M., Silas, E., Kafumu, I., Ngerecha, A., Tuwa, A., Chilipweli, P., Jaka, H., & Kalluvya, S. (2025). Knowledge, attitude, and quality of life among newly diagnosed type 2 diabetic patients attending diabetic clinics at Bugando Medical Centre, Mwanza, Tanzania. *Frontiers in Clinical Diabetes and Healthcare*, 6, Article 1634244. <https://doi.org/10.3389/fcdhc.2025.1634244>
- Sahab, D. A., Bamashmous, M. S., Ranauta, A., & Muirhead, V. (2022). Socioeconomic inequalities in the utilization of dental services among adults in Saudi Arabia. *BMC Oral Health*, 22(1), 1–11. <https://doi.org/10.1186/s12903-022-02162-w>
- Sirili, N., Frumence, G., Kiwara, A., Mwangi, M., Goicolea, I., & Hurtig, A. K. (2019). Public private partnership in the training of doctors after the 1990s' health sector reforms: The case of Tanzania. *Human Resources for Health*, 17(1), 1–11. <https://doi.org/10.1186/s12960-019-0372-6>
- Sulayao, J. R. B., Nurdiana, A., & Hartiningrum, C. Y. (2025). Users' Perceptions of Mobile Health Apps: Usability, Communication Enhancement, and Healthcare Service Improvement. *International Journal of Nursing Information*, 4(1), 52–62. <https://doi.org/10.58418/ijni.v4i1.148>
- Trochim, W. M. K., & De Vaus, D. A. (2001). Types of Research Designs - Organizing Your Social Sciences Research Paper - Research Guides at University of Southern California. In *USC*



- Libraries*. <https://libguides.usc.edu/writingguide/researchdesigns>
- United Republic of Tanzania. (2007). *National Health Policy*. <https://www.eahealth.org/policy-publications/tanzania-national-health-policy-2017>
- United Republic of Tanzania. (2009). *National Public Private Partnership (PPP) Policy*. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Tanzania_PPP_Policy.pdf
- United Republic of Tanzania. (2020). *Health Sector Strategic Plan 2021-2026*. <https://mitu.or.tz/wp-content/uploads/2021/07/Tanzania-Health-Sector-Strategic-Plan-V-17-06-2021-Final-signed.pdf>
- United Republic of Tanzania. (2021). *Health Facility Registry*. Ministry of Health, Community Development, Gender, Elderly and Children. <http://hfrportal.moh.go.tz/index.php?r=facilities/OwnershipSummary>
- United Republic of Tanzania. (2024). *Ministry of Health Annual Health Statistical Tables and Figures 2023*. <https://www.moh.go.tz/resource>
- United Republic of Tanzania. (2025a). *Annual Health Sector Performance Profile 2024*. <https://www.moh.go.tz/storage/app/uploads/public/698/337/ef7/698337ef72583788742967.pdf>
- United Republic of Tanzania. (2025b). *Mid-Term Review (MTR) of the Health Sector Strategic Plan V (HSSP V) - Service Delivery Report*.
- Zeru, G. N., Tolessa, B. D., Fufa, A. J., & Fufa, G. B. (2023). Multilevel logistic regression analysis of factors associated with delivery care service utilization among childbearing women in Ethiopia. *Frontiers in Reproductive Health*, 5, Article 1045964. <https://doi.org/10.3389/frph.2023.1045964>