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Determinants of Patient's Choice of Healthcare Providers in Zambia

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Research Article

Keywords: Choice, Healthcare Providers, Determinants

Posted Date: November 4th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11066723/v1

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Additional Declarations: No competing interests reported.

Abstract

Background

Universal health coverage (UHC) remains a critical objective for low- and middle-income countries, including Zambia. To promote UHC, Zambia has implemented National Health Insurance (NHI) schemes that aim to provide equitable access to essential health services, particularly for marginalized communities. Here, we investigate the determinants of patients' choices among public, private, and faith-based healthcare providers in Zambia, utilizing data from the 2014 Zambia Household Health Expenditure and Utilization Survey.

Methods

We applied Kroeger's theoretical model of healthcare utilization and performed multinomial logistic regression to assess the influence of patient characteristics, health system access factors, and illness types on healthcare provider choice.

Results

We found that wealthier patients were significantly more likely to choose private providers, while patients in urban areas and those with positive perceptions of drug availability and shorter waiting times also favored private providers. Conversely, faith-based providers were preferred by rural residents and those with chronic illnesses, with perceived availability of qualified staff serving as a strong determinant.

Conclusion

Our findings highlight the critical role of socioeconomic and health system factors in shaping healthcare choices. By addressing disparities in healthcare access and quality, particularly in public facilities, Zambia can enhance the equitable utilization of services under the NHI scheme and support the broader goal of UHC

BACKGROUND

Inequitable access to quality healthcare remains a persistent challenge in many low- and middle-income countries (LMICs), including Zambia, and poses significant barriers to achieving universal health coverage (UHC) [1]. Governments have attempted to address this by investing in public healthcare infrastructure, training healthcare workers, and introducing financial risk protection mechanisms such as National Health Insurance (NHI) schemes [2,3]. Zambia's NHI scheme, implemented in 2019, aims to provide equitable access to essential health services by accrediting both public and private healthcare providers [4].

The choice of healthcare providers among patients is influenced by a variety of factors, including socioeconomic status, quality of care, and geographic accessibility [5]. In Zambia, the public healthcare system operates at three levels: primary, secondary, and tertiary, and provides most healthcare services [6]. However, private for-profit healthcare providers (PPHP) and faith-based non-profit healthcare providers (FBNPHP) are increasingly prominent, particularly in urban and rural areas, respectively, offering diverse healthcare options [7,8].

Despite the expansion of healthcare options, disparities persist. Wealthier patients are more likely to bypass public facilities and opt for private providers due to perceived better quality of care, such as shorter waiting times and better drug availability [9]. Conversely, faith-based providers, which often serve marginalised and rural populations, are valued for their affordability and quality of staff [10]. However, the distribution of these providers is uneven, with urban areas hosting more private facilities and rural areas relying heavily on faith-based and public providers [6,11].

The implementation of Zambia's NHI scheme offers an opportunity to expand access to healthcare and reduce out-of-pocket expenditures, yet it also raises concerns about potential shifts in patient preferences between provider types. Understanding the determinants of healthcare provider choice is essential for ensuring equitable access and informing policies to improve service delivery under the NHI scheme [12,13].

In this study, we aim to investigate the factors influencing patients' choice of healthcare providers in Zambia, focusing on patient characteristics, health system access factors, and illness types. By addressing these determinants, we hope to provide insights into how the NHI scheme can optimise healthcare utilisation and support the broader goal of UHC.

Research in Zambia and other low- and middle-income countries (LMICs) reveals that mixed-provider health systems comprising public, private for-profit, and faith-based non-profit providers play a central role in service delivery and the pursuit of UHC [14]. However, the choice of the health care provider is dependent upon a number of factors. Some studies show that socio-demographic factors play an important role in determining patients' choice of healthcare provider. For instance, gender differences are evident in some contexts, with men and women showing varying preferences for public, or private, though findings are not always consistent [5,15]. Similarly, education and occupation strongly influence healthcare-seeking behaviour. Higher education and better occupations are associated with greater use of hospital or private care, although a few studies report no significant effect [16]. Place of residence also matters, with urban residents more likely to use hospital and private services [17]. Age further influences choice as well, as older individuals tend to seek care more frequently and show stronger preference for private facilities. Income level shapes access, with higher-income groups more likely to use private healthcare and lower-income groups relying on public or providers [18,19]. Additionally, family size may also affect choice, although study findings are inconsistent, indicating that household dynamics may vary across settings [20,10].

Patients also consider health system access factors crucial in making appropriate choices regarding the type of healthcare provider. Studies reveal that patients opted to seek care from healthcare providers which were affordable, accessible, reliable in drug supply, and quicker in service provision. In addition, respect, good quality care and condition of the facility also mattered [21, 22].

Furthermore, other studies have shown that type, severity and duration of illness largely affect the choice of healthcare provider [20]. Those with chronic, severe, or long-term conditions tend to seek care from hospitals or public facilities, while patients with mild or short-term illnesses prefer private providers [23].

To better understand these patterns, the study used Kroeger's empirical model of health care utilisation and adapted it to suit the local situation [24]. The model explains that healthcare utilisation is a function of three main types of the explanatory variable, which are: predisposing factors, characteristics of the disorder and their perception and enabling factors. For this study, the explanatory variables adapted in the model were patient factors, health system access factors and type of illness (Fig. 1). These elements collectively shape and interact to influence patterns of healthcare utilisation. Understanding these determinants is critical for Zambia, where the number of HCP, including the PrHP, continues to increase [25]. Given the inconsistent findings in previous studies, analysing these factors in the Zambian context will provide clearer insight into how they shape patients' choices among public, private for-profit, and non-profit providers. This study also aims to generate baseline data for the NHI system and support the standardisation of quality care across accredited providers.

Figure: 1 Kroeger's Health Care Utilisation Model adapted for this study.

Place Fig. 1 about here

METHODS

Data Source

The study used the Zambia household health expenditure and utilisation survey (ZHHEUS) which was conducted in all ten (10) provinces of Zambia in 2014 [26]. ZHHEUS was suitable for this study because it contained detailed data on healthcare provider characteristics and had a nationally representative number of outcome observations which made the survey most appropriate in addressing the objectives of the study. The survey targeted the population of all households residing in Zambia and excluded institutionalised population groups and diplomats accredited to Zambia [26]. The 2010 population census frame of 25,000 standard enumeration areas (SEAs) was used to select households for the survey. A two-stage cluster sampling was employed, where in the first stage, 600 households were selected using the probability proportional to estimated size (PPES) based on provincial population. In the second stage, 20 households were nominated from each SEA using the systematic random sampling method. This method ensured that each household had an equal chance of being selected. Out of a targeted sample of 12,000 households (i.e. 60,000 individuals), 11,927 were successfully interviewed

representing a 99.4 per cent response rate. Data were collected between January and February 2014 using structured questionnaires consisting of both closed and open-ended questions [26].

Study design

The study was a cross-sectional analysis of the ZHHEUS.

Description of Variables

Outcome variable

The categorical variable “choice of healthcare provider” with three main levels, namely, PrHP, PuHP and FBNPHP was an outcome variable which could be influenced by other factors.

Predicator Variable

In the study, the three main adapted predictor variables influencing the patient’s choice of the healthcare provider were patient’s specific factors, health system access factors and type of illness.

As shown in Table 1, the patient’s specific factors included gender, level of education of the household head, place of residence, age of the patient, family size, the type of occupation of household head and household income in which the household wealth was used as a proxy.

The healthcare access system actors encompassed distance from home to the health facility and quality of healthcare at the health facility. Quality of healthcare in this study was used as an umbrella term comprising attributes such as availability of drugs and qualified staff at the health facility, the attitude of health worker towards the patient and the patient’s waiting time before being attended to by the HCP. The measure of quality of care was based on the perceptions of all interviewed patients who sought healthcare at outpatient department in the last twelve months prior to the survey. The patients rated the quality of care received using an ordinal scale which ranged from ‘very good’ to ‘very poor’ [26].

The last predictor of choice of HCP was type of illness which was categorised into patients with chronic illness and those with non-chronic illness. The chronic illnesses included diabetes, hypertension, gout, ulcers, arthritis, cancer, HIV/AIDS, cardiac conditions and others [26].

Table 1

Table 1
Description of the Outcome and Predictor Variables

Outcome Variable	
Choice of healthcare provider. Healthcare provider options. 1. If public healthcare provider 2. If private healthcare provider 3. If faith-based healthcare provider	
Predictor Variables	
Specific factors	Gender of a person 1. if Male 2. if Female Level of education of household head 1. If no formal education 2. If primary level (1 to 7 grade of schooling) 3. If secondary level (8 to 12 grade of schooling) 4. If tertiary level (college, university, other) Age of a person in years Place of residence for a household 1. Rural 2. Urban Occupation of the household head 1. Self- employed 2. Paid Employed 3. Others (students, interns, seeking work) Income – household Wealth was used as a proxy to measure income Family size 1. < 6 household members 2. 6–10 household members 3. > 10 household members
Patient specific factors, health system factors, and type of illness associated with healthcare provider choice among respondents in Zambia.	

Outcome Variable	
Health systems access factors	Distance from home to the health facility and quality of care, such as availability of drugs and qualified staff, attitude of health worker and patient's waiting time
Type of illness	Patients without chronic illness Patients with chronic illness
Patient specific factors, health system factors, and type of illness associated with healthcare provider choice among respondents in Zambia.	

Description of the Outcome and Predictor Variables

Place Table 1 about here

Model Estimation and Data Analysis

In the context of this study, a healthcare consumer can choose among three alternatives of healthcare providers: public, private and faith-based healthcare providers. Several choice models have been used by different studies in analysing choices of health care providers involving more than two alternatives. Some studies have used the Nested Multinomial Logit (NMNL) model [27,28]. Borah and Bos used the Mixed Multinomial Logit (MMNL) and probit models, respectively [29,30]. The NMNL model assumes that the decisions to seek are nested but the nesting may be different from the nests decided a priori and the probit model is computationally complex. Other studies have used the Multinomial Logit Model (MNL) [31,32]. The main advantage of using the NMNL, MMNL and probit models is that they are not restricted by the independence of irrelevant alternatives (IIA) property while the MNL model has the IIA property restriction.

The IIA property states that the ratio of the probabilities of choosing any two alternatives is independent of the attributes of any other alternative in the choice set [33]. However, the Hausman-McFadden test can be used to test for the IIA property and ascertain the validity of the MNL model [33]. Moreover, the MNL model is also valid when all the regressors used do not vary across alternatives. This may be the case when only individual characteristics and not providers' characteristics are included in the model.

This study used the multinomial logistic regression, which employed 'PuHP' as the baseline category to identify predictor variables associated with the choice of PrHP and FBNPHP. This model is appropriate for discrete unordered multinomial outcomes like the choice of healthcare providers [34,35]. For the multivariate analysis, one model was used to run all the determinants.

Only variables of interest to the analysis were returned, cleaned and re-coded to a format that is suitable for the logistic regression model. Variables with missing data were excluded from the multinomial logistic regression analysis. To account for the complex survey design, all analyses incorporated

sampling weights, clustering, and stratification using the "svy" command in Stata version 14.2. Only the patient's first outpatient visit to HCP within the past 12 months was considered to avoid biases introduced by subsequent visits.

The Hausman McFadden test was estimated using suest and Wald test to determine the validity of the model. The suest version was used to obtain variance estimates for estimators that used svy prefix. Firstly, an estimation with all the three alternatives of HCP from Mlogit having PuHP as base category were stored. Later, the other two estimates were stored by running two subsequent regressions in which PPHP was dropped in one regression while maintaining FBNPHP and the last regression dropped FBNPHP while maintaining PPHP. The three estimates were then subjected to Wald test.

All descriptive statistics were presented using tables where necessary. For all the statistical analysis, the study used 95% confidence intervals, and predictor variables with p-value ≤ 0.05 considered statistically significant. The relative risk ratios (RRR) were reported for all the predictor variables.

RESULTS

This section presents results according to the general and specific objectives of the study. The presentation of findings has been organised into demographics and multinomial logistic regression results.

Table 2

Table 2

Descriptive Statistics of Proportions Per Category of Each Predictor Variable of HCP

Variable	Categories	Proportion (%)
Healthcare Provider	Public	82.7
	Faith-based	5.3
	Private	6.6
	Traditional	1.1
	Others	4.4
Age (years)	Below 15	41.7
	15 to 49	43.8
	50 and above	14.5
Median age	26 years	
Interquartile range	14 to 41 years	
Gender	Male	44.6
	Female	55.4
Family Size	6 members and below	61.1
	Above 6 members	38.9
Mean family size	6 members	
Standard deviation	6.1	
Residence	Rural	69.8
	Urban	30.2
Education status	No formal education	0.17
	Primary	54.1
	Secondary	38.4
	Tertiary	6.9

Values are presented as proportions (%) HCP, patient factors, health system access factors and type of illness. Continuous variables are summarised as median with interquartile range (IQR) or mean and standard deviation (SD) where appropriate. Healthcare system access factors (availability of qualified staff, waiting time, attitude of staff, and availability of drugs) were rated by participants as poor, average, or good; responses coded as 'Inapplicable' indicate participants for whom the item was not relevant. Proportions of chronic and non-chronic illness are also shown.

Abbreviations: Healthcare Provider (HCP), kilometres (km).

Variable	Categories	Proportion (%)
	Don’t know	0.43
Occupation	Self-employed	34.5
	Paid- employed	25.6
	Others	39.7
Wealth quintile	Poorest	19.9
	Poorer	22.0
	Middle	24.4
	Richer	20.9
	Richest	12.8
Distance to facility (Km)	< 5	71.6
	5-9.9	15.8
	10 and above	12.7
Median	2Km	
Interquartile range	1Km to 5Km	
Standard deviation	12.5Km	
Availability of qualified staff	Poor	15.0
	Average	23.0
	Good	61.2
	Inapplicable	0.8
Waiting time	Poor	29.8
	Average	22.5
	Good	45.9
	Inapplicable	1.8

Values are presented as proportions (%) HCP, patient factors, health system access factors and type of illness. Continuous variables are summarised as median with interquartile range (IQR) or mean and standard deviation (SD) where appropriate. Healthcare system access factors (availability of qualified staff, waiting time, attitude of staff, and availability of drugs) were rated by participants as poor, average, or good; responses coded as 'Inapplicable' indicate participants for whom the item was not relevant. Proportions of chronic and non-chronic illness are also shown.

Abbreviations: Healthcare Provider (HCP), kilometres (km).

Variable	Categories	Proportion (%)
Attitude of staff	Poor	13.1
	Average	20.2
	Good	65.9
	Inapplicable	0.9
Availability of drugs	Poor	15.9
	Average	22.6
	Good	60.4
	Inapplicable	1.1
Type of illness	Non-chronic	77.3
	Chronic	22.7

Values are presented as proportions (%) HCP, patient factors, health system access factors and type of illness. Continuous variables are summarised as median with interquartile range (IQR) or mean and standard deviation (SD) where appropriate. Healthcare system access factors (availability of qualified staff, waiting time, attitude of staff, and availability of drugs) were rated by participants as poor, average, or good; responses coded as 'Inapplicable' indicate participants for whom the item was not relevant. Proportions of chronic and non-chronic illness are also shown.

Abbreviations: Healthcare Provider (HCP), kilometres (km).

Descriptive Statistics of proportions per category of each predictor variable of HCP

Place Table 2 about here

Table 2 reveals that of patients visiting healthcare providers, the majority (82.7%) of them visited PuHP. Also, most of the patients were females (55.4%), and the mean family size was six members with a standard deviation of 6.1. The majority (43.8%) of patients were aged between 15 to 49 years with the median age being 26 years and interquartile range from 14 years to 41 years. A variation in place of residence was notable, with the rural area having the majority (69.8%) of patients seeking healthcare from healthcare providers.

Table 2 also illustrates that most patients who visited healthcare providers were neither self- employed nor paid employees (39.7%), had attained primary education (54.1%) and belonged to middle-class wealth quintile (24.4%). It further shows that 71.6% of the patients travelled less than five kilometres to get to the health facility, with the interquartile range of one to five kilometres. On an ordinal scale of “very good” to “very poor” quality of care, majority of patients who visited healthcare providers perceived the quality of care as “good”. Quality of care in this study was characterised by; availability of drugs, amount

of waiting time, the attitude of staff and availability of drugs at the facility. The majority (77.3%) of patients visiting healthcare providers had no chronic conditions.

Table 3

Table 3
Multinomial Logistic Regression Results of Choice of HCP

Faith-based Healthcare Provider			**Private for- Profit Healthcare Provider**	
Variable	**RRR**	**Std Error**	**RRR**	**Std Error**
Age group *(***years***)*	Ref			
Below 15				
15–49	.7695	.1099	.7161	.2211
Above 50	.9878	.1877	.6041	.1948
Gender				
Male Ref				
Female	1.0116	.1050	.8319	.1431
Family Size	Ref			
≤ 6 Members				
> 6 Members	1.182	.2462	.8356	.1565
Residence	Ref			
Rural				
Urban	.4625*(**)	.1835	3.816 *(**)	.9747
Wealth Quintile	Ref			
Poorest				
Poorer	.9350	.2043	.8357	.2843
Middle	.8462	.2343	.3923*(**)	.1767
Richer	.9695	.3013	.7902	.2656
Richest	.8300	.2968	5.502*(**)	1.495
Education	Ref			
No formal education				
Primary	.7704	.2954	.4839	.2480

The reference category for the outcome variable is Public Healthcare Provider. RRR values represent the risk of choosing the indicated healthcare provider relative to the public healthcare provider. All models were adjusted for the covariates listed in the table.

Abbreviations: HCP, Healthcare Provider; RRR, Relative Risk Ratio; Ref, Reference category; Km, Kilometres; Std Error, Standard Error. *Statistically significant at $p < 0.05$. (**) denotes significance at the $p < 0.05$ level as indicated in the table cells.

Faith-based Healthcare Provider			Private for- Profit Healthcare Provider	
Secondary	.8699	.3448	.7837	.4234
Tertiary	.9468	.4785	1.686	.8747
Distance (Km)	Ref			
< 5				
5-9.9	.7856	.2415	1.166	.2789
≥ 10	1.467	.4316	1.465	.4664
Qualified Staff	Ref			
Poor				
Average	2.398*(**)	.7645	.5540	.2367
Good	3.236* (**)	1.064	.6500	.1586
Waiting Time	Ref			
Poor				
Average	.9308	.2008	2.332* (**)	6.945
Good	1.190	.2246	4.634*(**)	1.317
Staff Attitude	Ref			
Poor				
Average	1.016	.2712	.9440	.4566
Good	1.055	.2399	1.608	.6450
Availability of drugs				
Poor Ref				
Average	1.093	.2659	1.210	.4169
Good	1.178	.2607	1.880* (**)	.5997
Type of Illness	Ref			
No chronic condition				

The reference category for the outcome variable is Public Healthcare Provider. RRR values represent the risk of choosing the indicated healthcare provider relative to the public healthcare provider. All models were adjusted for the covariates listed in the table.

Abbreviations: HCP, Healthcare Provider; RRR, Relative Risk Ratio; Ref, Reference category; Km, Kilometres; Std Error, Standard Error. *Statistically significant at $p < 0.05$. (**) denotes significance at the $p < 0.05$ level as indicated in the table cells.

Faith-based Healthcare Provider			Private for- Profit Healthcare Provider	
Chronic Condition	1.494*(**)	.2238	1.783* (**)	.3339
The reference category for the outcome variable is Public Healthcare Provider. RRR values represent the risk of choosing the indicated healthcare provider relative to the public healthcare provider. All models were adjusted for the covariates listed in the table.				
Abbreviations: HCP, Healthcare Provider; RRR, Relative Risk Ratio; Ref, Reference category; Km, Kilometres; Std Error, Standard Error. *Statistically significant at p < 0.05. (**) denotes significance at the p < 0.05 level as indicated in the table cells.				

Multinomial Logistic Regression Results of choice of HCP

Place Table 3 about here

Determinants Associated with the Choice of PPHP, FBNPHP and PUHP

Table 3 presents the results of the multinomial logistic regression model, with PuHP used as a base category. It revealed that the patient's ability to choose private healthcare providers was significantly associated with wealth quintile, place of residence, chronic illness and quality of care received such as patient's waiting-time and availability of drugs. The possibility of choosing private healthcare providers compared to public healthcare providers was 5.5 times higher for patients in the richest wealth quintile (P < 0.0001) and 0.39 times lower for those belonging to middle wealth quintile (P = 0.038) when all variables in the model were held constant. This could imply that patients with good socioeconomic status utilise private facilities more than public facilities.

Further, significant residential differences were observed with patients in urban areas (P < 0.0001) having 3.8 more chances of choosing private healthcare providers versus public healthcare providers when all variables in the model were held constant.

Patients who visited healthcare providers were asked to rate the attributes of quality of healthcare received at outpatient department in various facilities on the first visit, and the results revealed that the possibility of choosing private healthcare providers as opposed to choosing public healthcare providers was 1.9 times greater for those who rated the availability of drugs as good (P = 0.048). The results further revealed that the chances of choosing private healthcare providers compared to public healthcare providers was 2.3 times higher for those who rated patient waiting time as "average" (P = 0.005) and 4.6 times higher for those who rated it as "good" (P < 0.0001) when all other variables in the model were held constant.

In the case of choosing faith-based healthcare providers, the patient's place of residence, chronicity of illness and perceived quality of healthcare in terms of availability of qualified staff were significantly associated with the choice of healthcare providers. It was observed that patients in urban areas were less likely (0.46 times lower with P < 0.05) to choose faith-based healthcare providers compared to

public healthcare providers was when all other variables in the model were held constant. This association could be related to the premise that urban areas in Zambia have fewer faith-based healthcare providers than public and private healthcare providers and thus patients when faced with the decision to choose between private for profit and faith-based healthcare providers are more inclined to prefer private for-profit healthcare providers to faith-based healthcare providers.

The results also indicated that patients with chronic conditions (P = 0.008) had a 1.5 times higher possibility of choosing faith-based healthcare providers compared to public healthcare providers. Also, the chances of choosing faith-based healthcare providers compared to public healthcare providers was 3.2 times greater for those who rated the availability of qualified staff as good (P < 0.0001) and 2.4 times higher for those who rated it as “average” (P = 0.006). This denoted that patients with chronic conditions were more inclined to choose faith-based healthcare providers which were perceived to have the availability of drugs and qualified staff with the necessary skills to attend to patients.

DISCUSSION

This study examined the determinants of healthcare provider choice in Zambia, focusing on public, private for-profit, and faith-based non-profit providers. Our findings underscore the critical role of socioeconomic status, geographic location, health system attributes, and type of illness in shaping patients’ preferences. These insights are particularly relevant as Zambia implements its National Health Insurance (NHI) scheme, aiming to achieve UHC. Although the analysis is based on the 2014 ZHHEUS dataset, the findings remain highly policy relevant as they provide a critical pre-reform baseline against which the impact of the NHI can be assessed. Moreover, the structural determinants identified in this study such as socioeconomic inequalities, geographic disparities and access constraints have been shown to persist over time within Zambia’s health system, despite ongoing reforms, underscoring the continued relevance of these findings for current policy and planning [36].

Socioeconomic and Geographic Disparities

The results highlight significant socioeconomic disparities in provider choice. Patients in the richest wealth quintile were more likely to choose private for-profit providers (PPHP), while those in middle and lower quintiles predominantly utilised public providers (PuHP). These findings align with prior studies showing that wealthier individuals are more inclined to seek private care due to its perceived higher quality, including better drug availability and shorter waiting times [6,9].

Geographic disparities were also evident, with urban residents favouring PPHP and rural residents relying more on faith-based non-profit providers (FBNPHP) and PuHP. This reflects the uneven distribution of healthcare facilities in Zambia, where private providers are concentrated in urban areas and faith-based providers cater to underserved rural populations [37]. Addressing these geographic inequities will be critical for achieving equitable access under the NHI scheme. Policy responses could include targeted incentives to encourage private sector expansion into underserved areas, alongside

continued investment in strengthening rural public and faith-based facilities to ensure equitable service availability [38, 39].

Health System Access Factors

Health system attributes, including drug availability, waiting times, and staff qualifications, were significant determinants of provider choice. Patients perceived PPHP as offering better drug availability and shorter waiting times, which likely contributes to their preference despite the higher costs [40]. Similarly, the availability of qualified staff was a key factor driving the use of FBNPHP. These findings are consistent with studies from other LMICs, which report that patients value efficiency and quality of care when choosing providers [5, 37].

These results highlight important implications for the implementation of the NHI scheme. The accreditation process presents an opportunity to standardise quality across providers by ensuring consistent availability of essential medicines, reducing waiting times, and strengthening workforce capacity, particularly in public facilities [41]. Improving these attributes may enhance utilisation of public providers and reduce disparities in provider choice driven by perceived quality differences [42]. Importantly, strengthening and standardising quality of care across accredited providers is also likely to influence the sustainability of the NHI scheme by improving user satisfaction and trust [43].Evidence from other national health insurance systems suggests that poor service quality and unmet expectations can discourage enrolment and renewal, whereas improvements in service delivery and user experience are associated with higher retention of insured members [42,44,45].

Other studies demonstrate that incentivizing the quality of healthcare enhances provider responsiveness and accountability, while also improving patient satisfaction [42, 46–48]. This is particularly relevant for Zambia's NHI scheme, where embedding performance-based incentives within accreditation and reimbursement mechanisms could strengthen quality of care across HCP.

Additionally, ensuring consistent quality across public and private providers may not only improve access but also motivate individuals already enrolled in the NHI to remain active contributors to the scheme.

Type of Illness and Provider Choice

The type of illness played a pivotal role in provider choice. Patients with chronic illnesses, such as diabetes and hypertension, were more likely to choose FBNPHP and PPHP over PuHP. This finding supports previous research indicating that patients with chronic conditions often prioritise providers perceived as offering specialised or continuous care [20, 49,50]. In contrast, PuHP were more commonly used for non-chronic conditions, likely due to their accessibility and lower costs.

This pattern suggests the need for health system strengthening strategies that improve continuity and quality of care for chronic conditions within public facilities. Integrating chronic disease management into primary healthcare services under the NHI framework may help ensure that patients receive

consistent and high-quality care regardless of provider type, while also reducing the financial burden associated with seeking care from private providers.

STRENGTHS AND LIMITATIONS

This study utilised nationally representative data, providing robust insights into healthcare provider choice across Zambia. However, several limitations warrant consideration. First, the analysis relied on secondary data, limiting the variables available for analysis. For example, variables such as cultural beliefs and the influence of traditional healers were not explored. Second, provider quality attributes were based on patient perceptions, which may introduce bias. Finally, the cross-sectional design precludes causal inferences.

CONCLUSION

The study underscore the importance of addressing both demand-side and supply-side determinants of choice of HCP. While the expansion of accredited providers under the NHI scheme may increase patient choice, it also necessitates deliberate policy efforts to ensure that such choice translates into equitable access to quality care. Strengthening quality standards, reducing geographic inequities, and addressing socioeconomic barriers will be essential to achieving the goals of UHC in Zambia. Furthermore, improving the consistency and reliability of care across providers, regardless of illness type, may enhance healthcare utilisation while also sustaining enrolment and retention within the NHI scheme, thereby supporting its long-term financial and operational sustainability. It also highlights the need for future research to compare these findings with the most recent ZHHEUS dataset to assess changes over time.

ABBREVIATIONS

FBNPHP Faith-based Non-Profit Healthcare Provider

HCP Healthcare Provider

LMIC Low-and -Middle-Income Countries

MoH Ministry of Health

NHI National Health Insurance

PPHP Private for Profit Healthcare Provider

PrHP Private Healthcare provider

PuHP Public Healthcare Provider

SES Socioeconomic Status

UHC Universal Health Coverage

ZHHEUS Zambia Household Health Expenditure and Utilisation Survey

DECLARATIONS

Ethical Clearance

Ethical approval was granted by the University of Zambia Biomedical Research Ethics Committee (UNZABREC) and National Health Research Authority (NHRA). The consent to participate was not applicable to this study because it involved a secondary analysis of Zambia Household Health Expenditure and Utilisation Survey (ZHHEUS) dataset. This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the National Health Research Act No. 2 of 2013 of Zambia.

Consent for Publication

Not applicable

Availability of Data and Materials

Readily available online upon request

Competing Interests

Not applicable

Funding

No funding received

Authors' Contributions

CB designed the study. **CB** analysed and interpreted the data. **CB** drafted the manuscript. AM supervised the analysis**. AM and PH** critically reviewed the manuscript for important intellectual content. All authors read and approved the final manuscript.

Acknowledgements

None

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Figures

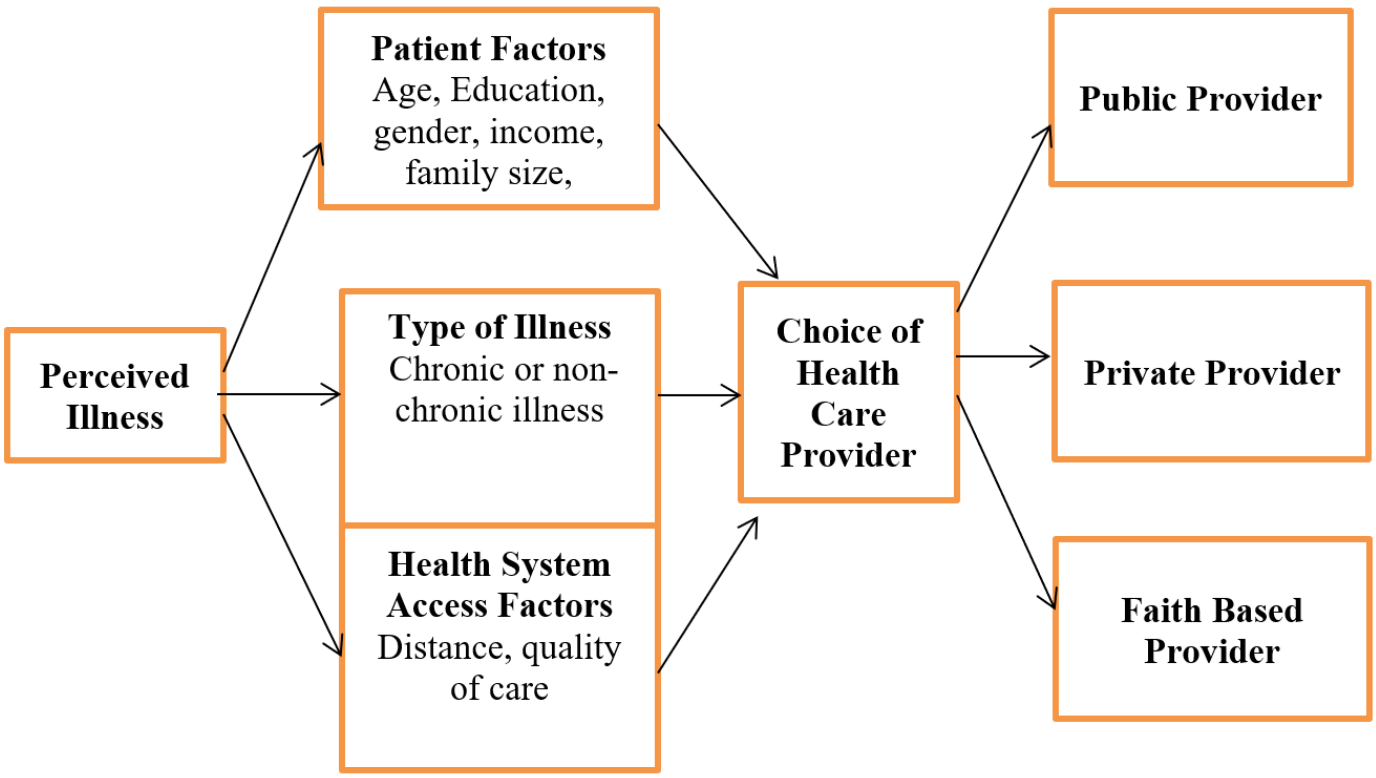


Figure 1

Kroeger's Health Care Utilisation Model adapted for this study.

The figure illustrates the conceptual framework guiding the analysis of health care provider choice, adapted from Kroeger's Health Care Utilisation Model (1983). The model depicts how individual patient factors (age, sex, educational attainment, household income, and family size), perceived illness characteristics (illness type, classified as chronic or non-chronic), and health system access factors

(distance to facility and quality of care) interact to influence a patient's choice of health care provider. Three provider categories are represented: public providers, private providers, and faith-based providers.

**Model adapted from Kroeger's Health Care Utilisation Model (1983).*

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