sciendo DOI: 10.2478/ats-2023-0016 AGRICULTURA TROPICA ET SUBTROPICA, 56 OV, 143–152, 2023

Original Research Article

Factors influencing choice of healthcare facilities utilisation by rural households in Ogun State, Nigeria

Kazeem Oriyomi **Aboaba**[1], Akeem Adesina **Akamo**[1], Tohib Oyeyode **Obalola**[2], Omolola Abisola **Bankole**[3], Aisha Oyindamola **Oladele**[4], Olanrewaju Gazal **Yussuf**[5]

[1]*Department of Agricultural Economics and Farm Management, Federal University of Agriculture Abeokuta, Nigeria*
[2]*Department of Agricultural Economics, Usmanu Danfodiyo University, Nigeria*
[3]*Department of Agricultural Economics and Extension, Osun State University, Nigeria*
[4]*Department of Public Health Technician, Ogun State College of Health Technology, Nigeria*
[5]*Department of Economics, University of Ibadan, Nigeria*

Correspondence to:
T. O. Obalola, Department of Agricultural Economics, Usmanu Danfodiyo University, Nigeria.
E-mail: oyeyodeobalola@yahoo.com

Abstract

Understanding the choice of healthcare facility utilisation is essential to the provision of need-based healthcare services to the population. This study was carried out to estimate factors influencing the choice of healthcare facilities utilised by rural households. A multistage sampling procedure was used to select 240 rural households comprising 1440 persons. Data were collected with the use of a structured questionnaire and analysed with descriptive techniques and a multivariate probit (MVP) model. The MVP result showed that households supplement public healthcare facilities with private clinics, support traditional medical treatment with self-medication, and replace self-medication with public healthcare facilities and private clinics. Similarly, age, gender, household size, cost of drugs, distance to public healthcare facilities, travelling cost, contact with community health workers, total income, awareness of public health facilities, quality of health facilities, and terrain of health facilities influence the choice of healthcare facilities utilised. The study concluded that increased total income, contact with community health extension workers, awareness of health facilities, and perceived quality of services rendered positively influence the choice of healthcare facilities sorted after while the increase in the cost of drugs, distance to health facilities, travelling cost and difficult terrain of health facilities negatively impact the choice of healthcare facilities utilised. The study recommended that public healthcare facilities should be located within the reach of the people and equipped with essential drugs at a reduced cost. Households should also engage in activities that will increase their income so that they can use better healthcare facilities.

Keywords: health; choice; healthcare facilities; simultaneity; multivariate probit

INTRODUCTION

Health is a fundamental human right, a lack of which causes financial hardship for many households through direct spending on treatment and/or by indirect labour supply limitation and undermining people's income-generating activities (World Bank 1997; Barnett et al., 2001). The development of a nation is specifically anchored on the quality of its human capital resources, which in turn is very dependent on the well-being (nutritional and health-wise) of its population. This is evident from substantial agreement in the literature on the relationship between health and economic development through its relationship between capability and poverty (Awoyemi et al., 2011).

The need for healthcare facilities is the prerequisite for its utilisation. Most often healthcare need is initiated on identification of an ill-health situation by an individual or household member. According to Chauhan et al. (2015) healthcare-seeking behaviour is a decision or an action taken by an individual to maintain, attain, or regain good health or otherwise prevent illness, given all-encompassing available healthcare options. Notable healthcare options recorded in the literature include; a public or private and modern or traditional health facility, self-medication and use of home remedies or zero health services usage etc. (Chauhan et al., 2015). Healthcare-seeking behaviour is a result of a complex interaction of provider, patient, illness, and household characteristics. It is influenced by a variety of socio-economic variables, including gender, age, the social status of women, the type of illness, access to services, and perceived quality of the service (Webairand Bin-Gouth, 2013; Omeire, 2017). Healthcare-seeking behaviour has also been found to be associated with the type of illness and gender of the sick person, income group, and area of residence (rural or urban) (Pillai et al., 2003; Sudha et al., 2003; Webairand Bin-Gouth, 2013; Latunji and Akinyemi, 2018).

Healthcare utilisation is simply the use of healthcare facilities by people. Utilisation is an outcome of complex interacting factors of physical, socio-economic, cultural, and political contexts. Furthermore, factors, such as availability of health facilities, quality and cost of services, as well as social-economic structure, and personal characteristics of the users are relevant healthcare utilisation explanatory parameters (Manzoor et al., 2009; Onah et al., 2009; Omeire, 2017). The utilisation of healthcare facilities is related to visiting, upon the ill-health condition, the official channels in a formally recognised healthcare. The prevailing healthcare system in developing countries is the public and the private health facility. It is however a universal phenomenon that the public health services of almost all developing countries are underutilised (Zwi 2001; Awoyemi et al., 2011; Ofoli, 2019). Given that the distance between the locations of supply and demand adds further challenges to using the services, the unequal geographic distribution of healthcare facilities is a significant barrier to access to healthcare services. The location of current healthcare facilities and the limited resources consistently allocated to its provision by the government at all levels, particularly in Nigeria, were called into question by this alarming aspect of inequities in the distribution of healthcare services (Uwala, 2020). Private care providers are usually preferred all around due to easy accessibility and quality of healthcare services (Sudharsanam, 2007) though with high cost of care which could be unaffordable (Ameh et al., 2021). Whereas public facilities are synonymous with low-quality treatment, long waiting periods, long distances, inconvenient locations, and inadequate facilities. Further, some public health centers also charge money for free services (Vargese et al., 2013).

The rural households, however, are less privileged in terms of accessibility to both facilities than their urban household counterparts. Nearly 80% of the health facilities, both public and private are concentrated in urban areas and are widely utilised by the urban communities (Ahmed et al., 2003; WHO, 2015; Umeh, 2018). They also lack sufficient money to access care at private hospitals. This is owing to little or no documented evidence from available literature of savings culture in the rural area (Obalola et al., 2018). Further, the indirect costs like those associated with travel to the health facilities act as deterrents for the rural population (Chuma et al., 2007; Awoyemi et al., 2011; Ameh et al., 2021). This is in spite of the farming livelihood associated with these households which tends to expose them to varieties of ill-health conditions. In addition, health complaints and utilisation differ according to seasonal variations and weather conditions which have a strong implication on their agriculture-based livelihood productivity (Fleming et al., 2000; Drayna et al., 2010). These poor rural households hence resort to additional health facility options of self-treatment and bypass primary care providers (Gotsadze et al., 2005).

A good healthcare services provision planning depends on the health needs and healthcare-seeking behaviour of the population. Understanding the healthcare-seeking behaviour, as well as the choice of health facility utilisation, is essential to the provision of need-based healthcare services to the population. While medical data remain the main information source regarding illness patterns, community-based studies reflect better the preferences in seeking healthcare services (Chauhan et al., 2015). A volume of studies though had been carried out generally on the determining factors of healthcare service utilisation (Babar and Juanita, 2004; Chuma et al., 2007; Chauhan et al., 2015; Urama et al., 2020); little had been done with a specific focus on the choice of healthcare facility usage, especially from the rural household perspective. This study was thereby carried out to fill the gap. The study will help to understand the preference for healthcare facilities utilisation and

the factors (household, individual, illness, and provider characteristics) influencing such preference among rural households. Specifically, the study described the demographic characteristics of the households; assessed the choice of health facilities available to the households, and determined factors influencing the choice of health facilities utilised by the households.

THEORETICAL REVIEW

In order to achieve a higher return on investment in human capital and as a means to accumulate a larger stock of health capital, the demand for healthcare which is a derived demand is pertinent. Health demand is different from the demand for goods in the output market because economic agents make provisions to both consume and produce health simultaneously. This study employed the behavioural model of healthcare utilisation developed by Anderson (1968, 1995). The model focuses on healthcare behaviour of individuals and their outcomes resulting from a satisfaction of healthcare services. The model stressed that improving access to healthcare facilities is complemented by focusing on contextual and individual determinants (Phillips et al., 1998; Litaker et al., 2005). However, the major components of contextual characteristics are divided in the same way as individual characteristics determining healthcare access. Contextual determinants focused on circumstances and environment of healthcare access, the contextual and individual characteristics entail predisposing factors, enabling factors and need factors. Demographic characteristics such as age, gender, and marital status composition of the community, as well as social characteristics and belief, are the predisposing characteristics that determine healthcare access. Public policies pertaining to healthcare utilisation, resource availability to pay for healthcare services and organisation of healthcare facilities such as their amount and distribution, healthcare service facilities, structures of healthcare facilities to offer services, and personnel are the enabling factors that influence access to healthcare services (Longest, 1998). The need characteristics entail health-related measures of the physical environment and population health indices (Hulka and Wheat, 1985).

MATERIALS AND METHODS

The study area

The study was carried out in Ogun state, Nigeria. The state is bounded in the North by Oyo and Osun States, in the east by Ondo State, in the South by Lagos State and in the west by Republic of Benin. It lies within latitudes 6°N and 8°N and longitude 2°E and 5°E. The estimated population is 3,728,098 according to the Nigerian 2006 National Census (NPC, 2006). Agriculture is the main occupation of the people, providing income and employment for a large percentage of the population.

Sampling procedure

A multistage sampling procedure was used for the study; the first stage was a random selection of 6 Local Government Areas (LGAs) with the use of a random number card. The local governments selected were; Ewekoro, Obafemi Owode, Ijebu North-East, Yewa, Ikenne, and Odeda. The second stage involved a random selection of 4 villages from the selected LGAs namely; Ishopin, Kenta, Jagua, Asa Abule Egba, Sowunmi, Ajana, Oba, Wasimi, Ilupa, Isiwo, Oriwu, Eruwon, Iwoye, Itoro, Ajilete, Ilobi, Idenna, Irolu, Irepodun, Iditun, Abidogun, Kila, Awowo and Araromi.

The last stage entailed a purposive selection of 10 households from the selected villages making a total sample size of 240. However, only 225 observations were fit after data cleanup and used for the analysis. Primary data were collected from the households with the use of semi-structured interview guide. The pretest and retest procedure was used to determine the reliability of the research instrument. Prior to beginning the real data collection, the instrument underwent a pre-test to identify any ambiguities and rectify them. For the second test, the questionnaires were given to a certain group of people in the sample several days after the first round of administration, and the results were compared to look for discrepancies in the respondents' responses. The face (content) validity was used to assess the instrument's validity. This was accomplished with the aid of a specialist in agricultural economics, who verified whether or not they concurred that the statements accurately measure what was intended. Data collected were on socioeconomic characteristics, health facilities utilised by the households, and social and economic factors influencing the use of health facilities. The data collected were analysed with the use of descriptive statistics as well as inferential statistics.

Model specification

Multivariate probit (MVP) regression

MVP regression was used to estimate the choice of healthcare facilities utilised by the households. MVP model is a binary choice (yes/no) used for each healthcare facility category that is a function of the covariates specified through the different

equations. Multivariate Probit simultaneously models the influence of the set of explanatory variables on each of the health facilities utilised by the households, while allowing the unobserved factors (error terms) to be freely correlated (Liu et al., 2004). The MVP approach for the multivariate choice decision problems will be characterised into two systems of equations. Firstly; a system of equations with latent (unobservable) binary dependent variables that are described to be a linear combination of a set of observed household characteristics that determine the use of healthcare facilities and the stochastic error term, which are distributed as a multivariate normal distribution with zero means. The second set of equations describes the observable preferences of the choice variables. The MVP model is specified as:

$$C_j^* = \gamma K_j + \varepsilon \quad (1)$$

The second equation describing the observable preference choice variables of the households is given as:

$$C_j = \int_{0\ otherwise}^{1\ if c_j^* > 0} \quad (2)$$

Where:

C_j^* denotes the latent dependent variables which indicated whether a household use a particular healthcare facilities

C_j is the determinant of the j^{th} health facilities utilised by the households

K is a vector of explanatory variables

γ are the parameter vector to be estimated

j = 1, 2…4 denoting the health facilities utilised by the households

C_1 = use of public healthcare facilities (1 if yes, 0 otherwise)

C_2 = use of private healthcare facilities (1 if yes, 0 otherwise)

C_3 = use of traditional healthcare facilities (1 if yes, 0 otherwise)

C_4 = self-medication (1 if yes, 0 otherwise)

ε = error term

K_1 = age of household heads (years)

K_2 = gender (1 = male, 0 otherwise)

K_3 = household size (number of persons)

K_4 = marital status (1 = married, 0 otherwise)

K_5 = membership of farmers association (1 = member, 0 otherwise)

K_6 = health condition (1=good, 0 otherwise)

K_7 = cost of drugs/herbs (naira)

K_8 = distance to public health facilities (1 = >5 km, 0 otherwise)

K_9 = travelling cost (naira)

K_{10} = days forgone production (days)

K_{11} = community health extension worker (1 = had contact, 0 otherwise)

K_{12} = total income (naira)

K_{13} = level of education (years)

K_{14} = awareness of public healthcare facilities (1 = aware, 0 otherwise)

K_{15} = perceived quality of public healthcare facilities (1 = good, 0 otherwise)

K_{16} = terrain of healthcare facilities (1 = difficult, 0 = otherwise)

RESULTS AND DISCUSSION

Summary statistics of the study data

The mean age of 54 ± 14.10 years revealed that the majority of the household heads were old and not within their productive age, this may influence the choice of health facilities utilised by their households as older individuals are more likely to use traditional centers and self-medication practices than their younger counterparts considering the rural culture. A larger proportion (73 %) of the household heads were male implying that male-dominated farming in the study area and may be attributed to farming being tedious and thus, requiring a lot of strength which most females may not be able to provide (see Table 1). The implication is that men are more likely to demand for health services. This result supports the findings of Aina et al. (2015) and Aminu and Asogba (2020). The household size of 5.88 ± 2.44 persons revealed that the majority of the household heads had a fairly larger household size and accordingly, were likely to make use of their services on the farms. This suggests more illness due to frequent exposure to agricultural activities with a lesser likelihood of receiving healthcare services owing to the larger size of the household's demands on out-of-pocket expenditure on health. The result is consistent with the findings of Awoyemi et al. (2011) and Oluwatayo (2015). Married household heads are more likely to have more household members than their counterparts, thereby prompting their need to use healthcare facilities. It was revealed that more than half of the household heads were married. The result revealed that almost half (49 %) of the household heads were members of farmers' associations which may facilitate access to information on healthcare services and promote its usage. The cost of a drug of ₦8,253.48 ± 4,656.01 revealed that households spend a significant amount of money on healthcare when impaired by diseases. Consequently, large out-of-pocket expenditures

Table 1. Descriptive statistics of variables in the model

Variable	Mean	Standard deviation
Age	54.34	14.10
+Gender	0.73	0.44
Household size	5.88	2.44
+Marital status	0.58	0.49
+Farmers association	0.49	0.54
+Health condition	0.54	0.50
Cost of drug /herbs	8,253.48	4,656.01
+Distance to public healthcare facilities	0.84	0.36
Travelling cost	732.97	574.61
Days forgone production	52.37	29.22
+Community health worker	0.46	0.50
Total income	128,163.7	126,810.6
Level of education	5.52	4.85
+Awareness of healthcare facilities	0.52	0.50
+Quality of public healthcare facilities	0.58	0.49
+Terrain of health facilities	0.75	0.43

+ For dummy variables, proportions were used instead of means
1 US Dollar = 765 Nigerian Naira

may make the households seek cheaper healthcare services, though, more than half (54%) of household heads reported that they have good health and are able to carry out their daily activities without being impaired by ill-health. The proximity of the healthcare facility to their homes is a prerequisite to its usage (Awoyemi et al., 2011; Omomona et al., 2015). This was observed as almost all the households (84%) reported that public healthcare facilities were located more than 5 km away from their homes. Lesser use of public healthcare facilities is inevitable. The travelling cost of ₦732.97 ± 574.61 also points to a negative influence on the facilities used as healthcare facilities were not evenly distributed in the area. Also from Table 1, on average the households lose 52.37 ± 29.22 days when impaired with one or more diseases, therefore, lose a reasonable amount of time as a result of ill health and this will negatively affect their household income. This is also a determinant of the choice of healthcare usage. On average, an income of ₦128,163.7 ± 126,810.6 is realised monthly by the households. The households seem financially buoyant to seek better healthcare services. The household's decision of using a better healthcare service can be attached to their level of education and of course their exposure. The primary education attained by the majority of household heads, though formal, could limit their understanding of the dangers associated with various facilities available and thus, may influence their decision of choosing healthcare services. This is in tandem with the findings of Nnonyelu and Nwanko (2014) who reported that a low level of education limits the use of health facilities. The majority of households are not aware of public health facilities in the area though, it was observed that quality services are been delivered by public health centers. However, the bottleneck to its access rally rounds where they are located.

Choice of health facility utilised

The result of multiple choice response reported in Table 2 revealed that almost half (46.67%) of the households utilised public healthcare facilities; more than a quarter of the households utilised private healthcare facilities and traditional medical centers respectively. Using drugs without doctor's prescription was documented by the majority

Table 2. Distribution of choice of health facility utilised

Variable	*Number of observations	Percentage
Public health facilities	105	46.67
Private clinic	78	34.67
Traditional medical center	67	29.78
Self-medication	148	65.78

* indicated multiple responses

Table 3. Results of Wald test of simultaneity of choice of health facilities utilised

Binary correlation	Correlation Coefficient	Standard Error	t-value
/atrho21	0.408***	0.128	3.19
/atrho31	–0.048	0.127	–0.37
/atrho41	–0.275**	0.132	–2.08
/atrho32	–0.047	0.136	–0.35
/atrho42	–0.468***	0.172	–2.72
/atrho43	0.525***	0.128	4.12
rho21	0.387***	0.109	3.56
rho31	–0.048	0.127	–0.38
rho41	–0.268**	0.123	–2.18
rho32	–0.047	0.136	–0.35
rho42	–0.437***	0.139	–3.14
rho43	0.482***	0.098	4.92
$chi^2(6)$	37.6871***		
Prob > chi^2	0.0000***		

Likelihoodratio test of rho21 = rho31 = rho41= rho32 = rho42 = rho43 = 0
***, ** and * means $p < 0.01$, $p < 0.05$ and $p < 0.1$

(65.78 %) of the households. This is a pointer to self-medication practices, in spite of the availability of public health facilities and private clinics. This may be attributed to the cost of accessing both public and private health facilities by households. The result supports the findings of Adebayo et al. (2012), Oparinde et al. (2018) and Aboaba et al. (2019).

Factors influencing choice of healthcare facilities utilised by the households

Simultaneity test

The null hypothesis of no significant relationship between socioeconomic characteristics and choice of health facilities utilised by the households (Chi square (6) = 37.6871, Prob > chi^2 = 0.0000) was rejected considering the likelihood ratio test for overall error terms correlation (see Table 3). This indicates the correlated binary responses between different choices of health facilities and supports the choice of the correlated binary responses between different health facilities options; this supports the choice of the MVP model for the data. The result revealed the interdependence of different health facility options such that the probability of using one health facility is conditioned by whether another measure in the subset has been used or not. This is supported by the significance of some of the pairwise correlation coefficients between error terms of the choice of health facilities. A positive correlation implies a strong relationship while a negative correlation implies a weak relationship.

The result revealed that private clinic supplements public healthcare facilities, and self-medication supports traditional medical care. Households replace both public and private clinics with self-medication. The implication is that households that used private clinics at one point are more likely to support it with public healthcare facilities at another point. This corroborates the finding of Uzochukwu and Onwujekwe (2004). Those that used traditional medical centers are more likely to supplement it with self-medication measures at another point in time. Similarly, households are more likely to resolve to self-medication practices when public healthcare facilities and private clinic seems too expensive to them.

Estimates of determinants of the choice of health facilities utilised

The result of the estimated Multivariate Probit (MVP) regression analysis in Table 4 revealed that the Log pseudo-likelihood value of –439.455 with an associated Chi-square value of 400.72 is significant at $p < 0.01$ level. This suggests that the model has a good fit. For public healthcare facilities, age ($p < 0.05$), health extension worker contact ($p < 0.01$), awareness of public health facilities, and quality of services delivered ($p < 0.01$) significantly influenced the use of public healthcare facilities. The coefficient of age revealed that a unit increase in age will result to 0.035 (marginal effect) reductions in the use of public health facilities; occasioned by the likelihood of relying on traditional medical centers due to their beliefs and low level of education. This result supports the finding of Nnonyelu and Nwanko (2014) but is against that of Aminu and

Table 4. Multivariate probit estimates and the marginal effects of determinants of choice of health facilities utilised

Variable	Public health facilities			Private clinics			Traditional medical center			Self- medication		
	Coef.	P>z	dy/dx	Coef.	P>z	dy/dx	Coef.	P>z	dy/dx	Coef.	P>z	dy/dx
Age	–0.022**	0.052	0.035	0.003	0.768	0.005	0.023**	0.043	0.162	–0.024*	0.047	–0.083
Gender	–0.113	0.631	–0.018	–0.97***	0.000	–0.142	0.667***	0.007	–0.093	0.622**	0.010	0.039
Household size	0.063	0.330	0.026	–0.045	0.484	–0.001	–0.085	0.149	–0.025	0.167**	0.010	0.082
Marital status	0.047	0.843	0.051	0.159	0.502	0.010	–0.249	0.302	–0.043	–0.550**	0.019	–0.103
Farmers association	0.078	0.732	0.063	–0.275	0.295	–0.007	–0.333	0.178	–0.032	–0.302	0.192	–0.069
Health condition	–0.097	0.480	–0.024	0.227	0.116	0.021	–0.094	0.499	–0.064	0.046	0.740	0.094
Cost of drug / herbs	2.31e–05	0.396	0.3e–04	4.02e–05	0.182	2.4e–04	–4.7e–05*	0.077	–3.4e–04	1.2e–04***	0.000	1.8e–03
Distance to public health facilities	–0.272	0.324	0.022	–0.455	0.141	–0.028	0.723**	0.044	0.176	1.430***	0.000	0.091
Travelling cost	6.77e–05	0.543	0.2e–05	–2.65e–04*	0.062	0.8e–04	–1.7e–04	0.222	–0.062	4.8e–04***	0.001	3.9e–03
Days forgone production	–0.002	0.683	–0.028	–0.005	0.279	0.072	0.004	0.336	0.000	–0.005	0.318	–0.062
Community health worker	0.440*	0.059	0.182	0.851***	0.001	0.163	–0.292	0.216	–0.005	–0.284	0.213	–0.051
Total income	3.9e–08	0.705	0.4e–07	2.6e–07***	0.009	1.9e–06	–3.9e–08	0.704	2.8e–07	–1.3e–07	0.253	–0.9e–07
Level of education	0.001	0.981	0.001	0.006	0.782	0.003	–0.010	0.668	–0.002	–0.028	0.301	–0.128
Awareness of public healthcare facilities	0.753***	0.003	0.164	–0.036	0.896	–0.009	–0.225	0.353	–0.006	–0.567**	0.023	–0.147
Quality of public health services	0.896***	0.001	0.095	–0.474*	0.077	–0.019	–0.394*	0.094	–0.021	0.009	0.968	0.065
Terrain of health facilities	0.251	0.415	0.027	0.581	0.113	0.007	–0.291	0.369	–0.033	0.511**	0.093	0.095
Constant	0.538	0.488	0.263	–0.725	0.395	–0.031	–0.576	0.467	0.039	0.930	0.180	0.011
Diagnostic statistics												
Wald $chi^2(64)$400.72*** Prob > chi^2 0.000*** Log pseudo likelihood –439.455												

***, ** and * means $p < 0.01$, $p < 0.05$ and $p < 0.1$

Asogba (2020). The ability of the community health extension workers to diagnose disease symptoms could increase the use of public health facilities as the result depicts that contact with community health extension workers increases the likelihood of using public healthcare facilities. More so, an increase in the awareness of public health facilities and the quality of services rendered tends to increase the likelihood of its usage. Improvements in services such as waiting time, service time, and patient ratio per health personnel could possibly increase the use of public health facilities. This result is in line with the findings of (Awoyemi et al., 2011; Nnonyelu and Nwanko, 2014).

For private health facilities, gender ($p < 0.01$), travelling cost ($p < 0.1$), health extension worker contact ($p < 0.01$), total income ($p < 0.01$), and quality of services delivered ($p < 0.1$) significantly influenced the use of the facilities (see Table 4). Male-headed households are less likely to use private facilities. This is an indication that female utilise the facilities more due to several reasons not limited to their physiological, biological, and reproductive nature that requires regular visits to health facilities. This result is in line with the findings of Nnonyelu and Nwanko (2014). An increase in travelling costs to private facilities reduces its utilisation. Contact with community health extension worker increases the likelihood of using private clinics. This means that households that had contact with community health extension workers are more likely to utilise private clinics than their counterparts that did not have contact. A positive relationship was observed between income and private facilities usage. That is, an increase in household income increases the likelihood of using private facilities (see the marginal effect). An increase in services rendered by public health facilities reduces the likelihood of using private clinics. This was justified by its negative coefficient.

For traditional health facilities, age ($p < 0.05$), gender ($p < 0.01$), cost of drugs ($p < 0.1$), distance to public facilities ($p < 0.1$), and quality of services delivered

($p < 0.1$) significantly influenced the utilisation of traditional facilities. The coefficient of age revealed that advanced age increases the likelihood of using traditional health centers. This may be for the reason that older individuals are of the belief that their illnesses are not natural. This result supports the findings of Aminu and Asogba (2020). An increase in the cost of drugs/herbs reduces the likelihood of using traditional health facilities by 3.4e-04 unit, that is, households are more likely to resolve to alternative health facilities such as self-medication practices when the cost of drugs/herbs seems too expensive to them. The finding confirms the claim of Awoyemi et al. (2011) on household's preference for self-medication given the high cost of traditional medical centers. The farther the public health facilities are from the households, the more the likelihood of using traditional medical centers as an alternative, thus, supporting the claims of Omonona et al. (2015) and Aminu and Asogba (2020). Improvement in the quality of service delivered as perceived by the households in public health facilities reduces the search for an alternative method of treatment.

For self-medication, age ($p < 0.1$), gender ($p < 0.05$), household size ($p < 0.05$), marital status ($p < 0.05$), cost of drugs/herbs ($p < 0.01$), distance to public health facilities ($p < 0.01$), travelling cost ($p < 0.01$), awareness of public health facilities ($p < 0.05$) and terrain of health facilities ($p < 0.05$) significantly influenced the use of self-medication practices.

CONCLUSION AND RECOMMENDATIONS

The study was carried out to estimate the factors influencing the choice of healthcare facilities utilised by rural households premised on the theory of health demand. Findings showed that rural households' income, contact with community health extension workers, awareness of public healthcare facilities, and good quality of services enhance the use of better healthcare facilities. On the contrary, the high costs of drugs, distance to health facilities, travelling costs and difficult terrain of health facilities reduce the utilisation of better healthcare facilities. The study recommends increased awareness by community extension workers on the need to patronize better healthcare facilities and the danger of using self-medication practices among households. Public health facilities should be located within the reach of rural households and equipped with essential drugs at a reduced cost.

CONFLICT OF INTEREST

The authors declared no conflicts of interest with respect to the research, authorship, and publication of this article.

ETHICAL COMPLIANCE

The authors have followed ethical standards in conducting the research and preparing the manuscript.

REFERENCES

Aboaba K.O., Oyekale T.O., Adewuyi S.A., Adigbo S.O. (2019): Determinants of burden of disease among rice farming households in Ogun state, Nigeria. Asian Journal of Agriculture and Rural Development 9: 264–273.

Adebayo M.G., Shittu A.M., Obayelu A.E., Sam-Wobo S.O. (2012): Health and production efficiency of farm households in Ogun state, Nigeria. In: Idowu E.O., Ayanwale A.B., Bamire A.S., Adejobi A.O. (Editors). Agriculture in the National Transformation Agenda: The Policy Mix. Proceedings of Annual Conference of the Nigerian Association of Agricultural Economists, 25th–27th September, 2012, Obafemi Awolowo University, Ile-Ife, Nigeria: pp. 171–187.

Ahmed SM., Adams AM., Chowdhury M., Bhuiya A. (2003): Changing health seeking behaviour in Matlab, Bangladesh: do development interventions matter? Health Policy Planning 18: 306–315.

Aina O.S., Olowa O.W., Ibrahim I., Asana S.O. (2015): Determinant of demand for healthcare services among rural household in Ekiti State, Nigeria. Journal of Biology 5: 154–157.

Ameh S., Akeem B.O., Ochimana C., Oluwasanu A.O., Mohamed S.F., Okello S., Muhihi A., Danaei G. (2021): A qualitative inquiry of access to and quality of primary healthcare in seven communities in East and West Africa (Seven CEWA): perspectives of stakeholders, healthcare providers and users. BMC Family Practice 22: 45. https://doi.org/10.1186/s12875-021-01394-z.

Aminu F.O., Asogba E.O. (2020): Utilization of Healthcare Facilities among Farming Households in Yewa South Local Government Area, Ogun State, Nigeria. Journal of Tropical Agriculture, Food, Environment and Extension 19: 43–48.

Andersen R.M. (1968): A Behavioral Model of Families' Use of Health Services. Research Series no. 25. Chicago: Center for Health Administration Studies, University of Chicago.

Andersen R.M. (1995): Revisiting the Behavioral Model and Access to Medical Care: Does It Matter. Journal of Health and Social Behavior 36: 1–10.

Awoyemi T.T., Obayelu O.A., Opaluwa H.I. (2011): Effect of distance on utilization of health care services in rural Kogi State, Nigeria. Journal of Human Ecology 35: 1–9.

Babar T.S., Juanita H. (2004): Health seeking behavior and health service utilization in Pakistan: challenging the policy makers; Journal of Public Health 27: 49–54.

Barnett A., Whiteside A., Desmond C. (2001): The social and economic impact of HIV/AIDS in poor countries: a review of studies and lessons. Progress in Development Studies 1: 151–170.

Chauhan R.C., Purty A.J., Samuel A., Singh Z. (2015): Determinants of healthcare seeking behavior among rural population of a coastal area in South India. International Journal of Scientific Reports 1: 118–122.

Chuma J., Gilson L., Molyneux C. (2007): Treatment-seeking behavior, cost burdens and coping strategies among rural and urban households in Coastal Kenya: an equity analysis. Tropical Medicine and International 12: 673–686.

Drayna P., McLellan S.L., Simpson P., Li S.H., Gorelick M.H. (2010): Association between rainfall and pediatric emergency department visits for acute gastrointestinal illness. Environmental Health Perspectives 118: 1439–1443.

Fleming D.M., Cross K.W., Sunderland R., Ross A.M. (2000): Comparison of the seasonal patterns of asthma identified in general practitioner episodes, hospital admissions, and deaths. Thorax 55: 662–675.

Gotsadze G., Bennett S., Ranson K., Gzirishvili D. (2005): Healthcare seeking behaviour and out of pocket payments in Tbilisi. Georgia. Health Policy Planning 20: 232–242.

Hulka B.S., Wheat J.R. (1985): Patterns of Utilization: The Patient Perspective. Medical Care 23: 438–460.

Latunji O.O., Akinyemi O.O. (2018): Factors influencing health-seeking behavior among civil servants in Ibadan, Nigeria. Annals of Ibadan Postgraduate Medicine 16: 52–60.

Litaker D., Koroukian S.M., Love T.E. (2005): Context and Healthcare Access: Looking Beyond the Individual. Medical Care 43: 531–540.

Liu B., Xu M., Henderson M., Gong W. (2004): A spatial analysis of pan evaporation trends in China, 1995-2000. Journal of Geophysical Research: Atmosphere 109 (D15). https://doi.org/10.1029/2004JD004511

Longest B.B. (1998): Health Policymaking in the United States. (2nd Ed.) Chicago: Health Administration Press 1998.

Manzoor I., Hashmi N.R., Mukhtar F. (2009): Determinants and pattern of healthcare services utilisation in post graduate students. Journal of Ayub Medical College Abbottabad 21: 100–105.

Nnonyelu N.A., Nwankwo U.I. (2014): Social determinants of differential access to health services across five states of southeast Nigeria. European Scientific Journal 3: 286–296.

NPC (2006): National population commission report.

Obalola T.O., Audu R.O., Danilola S.T. (2018): Determinants of Savings among Smallholder Farmers in Sokoto South Local Government Area, Sokoto State, Nigeria. Acta agriculturae Slovenica 111: 341–347

Ofoli J. (2019): Rationalising Public Hospital Governance and the Quality of Care. A paper presented at the International Conference on Hospital Management and Administration (ICOHMA) Abuja.

Oluwatayo I.B. (2015): Healthcare service delivery system and households' welfare status in urban Southwest Nigeria. Journal of Human Ecology 50: 181–187.

Omeire E.U. (2017): Factors affecting health seeking behavior among rural dwellers in Nigeria and its implication on rural livelihood. European Journal of Social Sciences Studies 2: 74–86.

Omonona B.T., Obisesan A.A., Aromolaran O.A. (2015): Healthcare access and utilization among rural households in Nigeria. Journal of Development and Agricultural Economics 7: 195–203. https://doi.org/10.5897/JDAE2014.0620.

Onah H., Ikeako L., Iloabachie G. (2009): Factors associated with the use of maternity services in Enugu, southeastern Nigeria. Social Science and Medicine 6: 1870–1878. https://doi.org/10.1016/j.socscimed.2006.04.019.

Oparinde L.O., Ogunbusuyi O., Aturamu O.A., Oladipo C.O. (2018): Food crop farmers' health and poverty status nexus in Ondo state, Nigeria. Journal of Poverty, Investment and Development 43: 47–55.

Phillips K.A., Morrison K.R., Andersen R., Aday L.A. (1998): Understanding the context of healthcare utilization: assessing environmental and provider-elated variables in the behavioral

model of utilization. Health Services Research 33: 571–596.

Pillai R.K., WS, G.H., Polsky D., Berlin J.A., Lowe R.A. (2003): Factors affecting decisions to seek treatment for sick children in Kerala, India. Social Science and Medicine 57: 783–790.

Sudha G., Nirupa C., Rajasakthivel M., Sivasusbramanian S., Sundaram V., Bhatt S. (2003): Factors influencing the care seeking behaviour of chest symptomatic: a community-based study involving rural and urban population in Tamil Nadu, South India. Tropical Medicine and International Health 8: 336–341. https://doi.org/10.1046/j.1365-3156.2003.01010.x.

Sudharsanam M.B. (2007): Factors determining health seeking behaviour for sick children in a fishermen community in Pondicherry. Indian Journal of Community Medicine 32: 71–82.

Umeh C.A. (2018): Challenges toward achieving universal health coverage in Ghana, Kenya, Nigeria, and Tanzania. International Journal of Health Planning Management 33: 794–805. https://doi.org/10.1002/hpm.2610.

Urama C.E., Manasseh C.O., Ukwueze E.R., Ogbuabor J.E. (2020): Choices and determinants of malaria treatment seeking behaviour by rural households in Enugu State, South-East Nigeria. International Journal of Health Promotion and Education 59: 156–173. https://doi.org/10.1080/14635240.2020.1730703.

Uwala V.A. (2020): Spatial Distribution and Analysis of Public Health Care Facilities in Yewa South Local Government, Ogun State. International Journal of Scientific Research in Multidisciplinary Studies 6: 12–17.

Uzochukwu B.S.C., Onwujekwe O.E (2004): Socio-economic differences and health seeking behaviour for the diagnosis and treatment of malaria: A case study of four Local Government Areas operating the Bamako initiative programme in south-east Nigeria. International Journal for Equity in Health 3: 6. https://doi.org/10.1186/1475-9276-3-6.

Vargese S., Mathew P., Mathew E. (2013): Utilization of public health services in a rural area and an urban slum in Western Maharashtra, India. International Journal of Medical Science and Public Health 2: 646–649. https://doi.org/10.5455/IJMSPH.2013.220420135.

Webair, H.H., Bin-Gouth, A.S. (2013): Factors affecting health seeking behavior for common childhood illnesses in Yemen. Patient Prefer Adherence 7: 1129–1138. https://doi.org/10.2147/PPA.S51124.

World Bank (1997): Confronting AIDS: Public Priorities in Global Epidemic. The World Bank, Washington, DC.

World Health Organization (2015): World health statistics.

Zwi A.B., Brugha R., Smith E. (2001): Private healthcare in developing countries. BMJ 323 (7311): 463–474. https://doi.org/10.1136/bmj.323.7311.463.

Received: January 6, 2023
Accepted after revisions: August 19, 2023