

Determinants Of Demand For Health Care Services In Rural Households Of Liberia: Case Study Of Montserrado County

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Abstract

This study seeks to find the factors that influence households' demand for health care services when any household member falls ill. The study employs use of primary data that was collected from some selected six rural communities in Montserrado County of Liberia. A total of 267 households were sampled through systematic sampling technique. The data collected include household socioeconomic data such as age, sex, education, marital status, occupation, and occupation of the household head. Others are household income, medical expenses, household size, distance of residence to nearest health facility, and number of days lost due to illness. Binary logit model was used for analyzing the data. There are three categories of health care behaviours displayed by households, these are: self-treatment (58.6%), health care services in hospitals or clinics (21.7%), and traditional health care services (18.7%). The factors that have influence of seeking self-treatment include sex, marital status and occupation status of the household head, as well as proximity to the nearest health care center, waiting time at health care centers, number of days lost to illness, and medical expenses. On the other hand, household choices of hospitals or clinics as health care service providers are influenced by marital status of household head, household size and amount of medical expenses. Also, household choices of traditional medical services as health care service providers are influenced by household income, proximity to the nearest health care center, and number of days lost to illness. It was concluded that households should patronize appropriate health care service providers as against administering treatment by themselves. Also, government should devise mechanisms that would

encourage subsidies on medical cost, improve the input system towards enhanced service delivery at the approved health care service providers.

Keywords: Demand; health care services; rural households; Liberia.

Background

Health is a major target of all households and governments in all countries. In addition to its direct importance to individual welfare, health indirectly affects the development of a country through its influence on the efficiency of human capital and on the productivity of work. In Zweifel and Breyer (1997), the dual property of health is stated as: "Health is not everything in life, but without health, life is nothing". According to these authors, health is a highly valued asset; in other words, other values and goals do exist in life, yet compared to health, they ranked lower on the preference scale of most people. It is also stated that health is a prerequisite for success in other activities; in other words, poor health limits the production capabilities of the affected person, including his or her ability to enjoy the good things of life.

Demand for health care is characterized by the level of actual consumption of an individual in case of facing illness/ injury. This consumption could differ in accordance with demand factors such as income, cost of care, education, social norms and traditions, and the quality and appropriateness of the services provided (Asteraye, 2002; Bello, 2005). It is multidimensional perspective that an individual making a decision in case of illness/injury as far as health care is concerned (Andersen and Newman, 1973).

Developing countries have been focusing on promoting health care utilization as an important policy to improve health outcomes and to meet international obligations to make health services broadly accessible. However, many policy and research initiatives focused on improving physical access rather than focusing on the

pattern of health care service utilization related to demand side (Bolduc et al. 1996).

The nature and level of a country's economic development are believed to be the major determinants of the health status of its inhabitants. But at the same time, the health of the population can also influence economic progress (Mills, et al, 1988). Hence, the two are interdependent as people are both the driving forces and final targets of socioeconomic development. Consequently, the provision of health services becomes an important aspect of the socio-economic development of a country. In low-income countries, there is a clear direction to allocate scarce fiscal resources based on a clear understanding of how investments in the health sector are going to affect demand. Likewise, to understand how changes in the pricing of public services, and investments in quality improvements, are going to affect consumer decisions about whether and where to seek health care (Sahn et al. 2003; Valongueiro and Campineiro, 2002). In developed countries due to the existence of insurance, many health care services has been provided at zero or low monetary prices, and the demand should be infinite or at least extremely high. However, in developing countries context under-utilization is generally more of a concern and lack of supply is considered as the main cause for under-utilization. But even when health facilities are available utilization rate has been low due different barriers from demand side which are related to financial cost of treatment, travelling cost and quality of services (Grossman, 1972). Health, at the individual level, is mainly influenced by a variety of factors such as unobservable biological determinants, lifestyle choices, non-medical purchased inputs,

purchased medical inputs (health care), and various socio-economic factors (Grossman, 1972; Fuchs, 2004; Mwabu, 2008). It is crucial to understand patients' perceptions and expectations of the quality of care, because the perceived quality of health care services often influence the consumption behavior and patterns of health service (Z DWSR., 2012). Study conducted in Kenya shows that quality of service offered at health facility significantly affects the demand for health care 6 times increase the likelihood of visiting modern health care service relative to self treatment (Gertler and Jvd, 1990). The role of income in health is buttressed by the fact that poverty is generally associated with poor health (Abel-Smith and Leiserson, 1978). Health status is a direct product of economic power (Propper, 2000). Andy and Cassels (2004) emphasize that ill health can cause poverty via loss of income, catastrophic health expenditures and orphan hood. A number of socio-demographic characteristics of the individual affect the underlying tendency to seek health care (Addai, 2000; Celik and Hotchkiss, 2000; Adekunle et al, 1990; Gertler et al, 1988). Poor health conditions can have a debilitating impact on the economy in terms of lower investment flows and reduced tourist traffic. Over two billion people do not have adequate health care to meet their basic needs (Poppov Research Network 2009).

As the policy priority area is to improving the health status of the population, there should be investigation in different factors that directly and indirectly affects the demand of the health care services. That is, it is necessary to analyze the demand for health care services by identifying the factors that affect individuals' decisions to seek health care services and to choose among different providers.

Therefore, assessing the determinants of demand for health care services would enable to introduce and implement appropriate incentive schemes to encourage better utilization of health care services in Liberia. This will be helpful in

identifying specific barriers in seeking health institution conditionally being sick/injury. In addition, to have information on sick individual preferences to different health care service providers in case of visiting modern health institutions. Since health is an important component of human capital, good health can substantially increase the capabilities of individuals to perform various activities, including income-generating ones, as a result, individuals demand good health (Becker, 2007; Schultz, 2010).

Due to its low per capita income, food insecurity, huge overseas aid, high mortality, and low life expectancy, Liberia is one of the poorest countries of the LDCs. The latter indicates that not only the health status of the population is very low but also diseases are widespread in the country, as evident in the recent outbreak of Ebola. The low health status of the population is characterized by vulnerability to largely preventable infectious diseases and nutritional deficiencies, low per capita income, low education level and high rates of illiteracy, inadequate access to clean water and sanitation facilities, and poor access to health services.

For instance, the recent health statistics by Statistica (2022) states Liberia infant mortality, child mortality and maternal mortality to be 49.752, 78.3 and 661 respectively, compared to African data of 43.934, 71.0 and 533 respectively. This shows that Liberia health status ranks below continental average. Therefore, it is necessary that policies and programs that would enhance national health status should be made paramount.

One aspect which guarantees the effectiveness and sustainability of the programs and policies in the health sector would be the involvement of households. For instance, identifying the factors that determine households' demands for health care services could be of paramount importance in assisting the formulation of rational strategies. To this end, an econometric analysis is a tool at

our disposal that allows making inferences, with known statistical confidence, how demand is affected by each of its multiple determinants.

The study is concerned with determining empirically the factors that are associated with the decision of seeking medical treatment and the choice of health service providers in times of illness. It also tries to indicate the implications of these demand determinants on health care financing in a rural area setting. Hence, the study was conducted in rural areas of Montserrado County. Therefore, the broad objective of this study is to conduct demand analysis for health care services and show the implications on health care financing. More specifically, the study tries to assess the utilization patterns of the sample households using a series of variables; to identify the determinants of demand for health care services being provided by different providers; and to look into the policy implications of the results obtained, including the implications on health care financing.

Theoretical background

Demand for health care service manufactured by a particular health service supplier could be considered as the quantity of the health service that the users are disposed to acquire as a function of the attributes qualifying the users and the health service suppliers. According to Grossman (1972), the users contemplate their demand for health care services both as consumption and investment commodity.

Considering health care as a consumable product, it gives satisfaction to its users. Hence, it is straightway considered as part of the preference function. If health care service is considered as investment commodity, then individual health status would define the magnitude of time for work and leisure that is available to health service users. In other words, the lesser the extent of sick days the more the available time for work and leisure. Therefore, Asteraye (2002) terms the health investment return as the economic value of

the decline in the number of sick days. Grossman (1972) concludes that demand for medical services is the demand for good health.

Hence, examining health care service demand as a derivative of individuals' demand for good health offers a comprehensive foundation for defining the elements that should be incorporated into the model that specifies health care service demand, as well as postulating their influences.

Thus, Deaton and Muelbauer (1980) and Varian (1984) employ a utility maximization problem in the form of an indirect utility function or minimization of expenditure function. This was used as a tool for demand analysis. Gertler and Van der Gaag (1990) study the usual utility function in demonstrating the health service users' behavioral patterns. They contemplate an individual i that seeks health care service from a service provider j .

The resultant direct utility by the individual might be expressed as a function of improvement in health status achieved by i after health service delivery and consumption of the services produced by j . This could be expressed as:

$$U = U_{ij}(H_{ij}, C_{ij})$$

(equation 1)

where U_{ij} = expected utility that individual i derives by receiving health care services from provider j ;

H_{ij} = expected improvement in health status of individual i after receiving treatment from provider j ; and

C_{ij} = consumption of all other goods and services other than the health care services. C_{ij} implicitly depend on the choice of provider j because of the associated monetary and non-monetary costs of health services.

Meanwhile, H_{ij} and C_{ij} are only indirectly evident, hence Asteraye (2002) states that introduction of new functions that would relate H_{ij} and C_{ij} with visible variables is essential. Subsequently, modifications of the study of

Behrman and Deolaikar (1988) and Senauer and Garcia (1991) express the health care production function for the i^{th} individual as:

$$H_{ij} = H(I_i, F_{ij}) \quad (\text{equation 2})$$

where I_i = vector of observable socio-economic characteristics of individual i and his household (such as age, gender, education, household size, etc); and

F_{ij} = vector of features that individual i faces at the facility of health care service provider j (e.g., the quality of service acquired, service costs, etc.).

Besides, accompanying this production function the individual is constrained by full-income constraint that pools both time and income into one total resource constraint:

$$Y_i = P_h H_{ij} + P_c C_{ij} + W_i T_H \quad (\text{equation 3})$$

where Y_i = total monthly income of individual i ; P_h and P_c = prices associated with health care services consumption and other goods and services, respectively; W_i = opportunity cost of time for individual i ; T_H = total time spent for treatment by individual i (i.e., in travelling to and waiting for treatment) at the health care service provider j .

Maximizing utility function (equation 1) subject to health care production function (equation 2) and full-budget constraint (equation 3) would result in a system of demand equations for health care services that can be expressed as a function of the health care service prices, income and other exogenous variables.

In general, the demand functions for health care services that is derivable as established by this theoretical framework, considering all other factors that are projected to influence demand. Hence, the following functional form involving individual household specific and choice specific variables:

$$D_{ij} = f(Z_i, X_{ij}) \quad (\text{equation 4})$$

where D_{ij} = individual i 's health care service demand of type j ; Z_i = vector of individual and household specific variables, (e.g. education, age, income, etc.); and X_{ij} = vector of choice specific variables individual i faces when choosing provider j , (e.g. treatment cost, waiting and travel time for treatment, distance, perceived quality, etc.)

2. METHODOLOGY OF THE STUDY

2.1 The study area

Montserrado County is located in the northwestern part of Liberia. Monrovia is the capital of Liberia, is located in this county. Montserrado County comprises of 17 sub political districts, with a population of about 1.2 million considering 2008 Census. Montserrado is the most populous (Liberia Institute of Statistics and Geo-Information Services, 2017) but smallest county in Liberia with an area of 1,912.7 square kilometres (738.5 sq mi) (Liberia Institute of Statistics and Geo-Information Services, 2017). It has a population density of 599.7 inhabitants per square kilometre (1,553/sq mi), which is the highest in the country (Liberia Institute of Statistics and Geo-Information Services, 2017). This county is bordered to the west by Bomi County, to the north by Bong County, to the east by Margibi County, and to the south by the Atlantic Ocean. The county comprises of Careysburg, Todee, Commonwealth, Greater Monrovia and St. Paul River Districts (Republic of Liberia, 2008). These districts consist of twenty one townships, seven cities, one borough, and two chiefdoms. The major ethnic groups in the county are Kpelle, Bassa, Mano, Kissi, Loma, and Gola (Republic of Liberia, 2008). Todee District largely contains agrarian populace, having

agriculture as their main source of income (Liberia Institute of Statistics and Geo-Information Services, 2017). The district is administered by chiefdoms and clan systems. The most populous among these districts is the Greater Monrovia District with a population of about 1.0 million people (Liberia Institute of Statistics and Geo-Information Services, 2017). Liberia Ministry of Health and Social Welfare (2008) reports that the county has eight hospitals, nine health centers, and approximately 93 medical clinics.

2.2 Sampling techniques

Montserrado county consist of of the following rural communities: Walker, Royal, Pepper, Kpanwen, Gavlehn, Neekly, Kpelleh, Lee, Lorma, Zermu, Thinker, Zalamu, Zopi, Pleemu and Yeagba. For the purpose of this study, five of these communities were randomly selected for data collection. The selected rural communities were Kpelleh, Lorma, Pepper, Pleemu, Walker and Zopi. An average community among the selected ones comprised of about 200 households. Hence, every 4th household was selected for the study. Data were collected from households through interview and well-constructed questionnaire. The data collected include the demographic and socioeconomic characteristics of the households, as well as types of health delivery services patronized by households. A total of 300 questionnaire were distributed, but 267 were successfully administered. This gave a success rate of 89.0%.

Specification of the empirical model

When individual members of a household requires medical attention as a result of illnesses, injuries, or any other medical issues, there is need to take decision on seeking for medical attention. The household would also resolve on what type of health care service to use, whether modern, traditional, or self-help. From the available health care services, the household users make choice(s)

that would facilitate utility maximization. Therefore, in order to define the probability of households seeking health services in times of need, the logit model is used as follows:

$$P_r(D = 1) = P_i = F(\beta X) = \frac{\exp(\beta X)}{1 + \exp(\beta X)} = \lambda(\beta X) \quad (\text{equation 5})$$

Hence,

$$P_r(D = 0) = 1 - P_i = 1 - F(\beta X) = \frac{\exp(-\beta X)}{1 + \exp(-\beta X)} = 1 - \lambda(\beta X) \quad (\text{equation 6})$$

where $P_r(D_i = 1) = P_i$ is the probability of household choosing a particular health care service when medical attention is needed
 β 's = vector of parameters to be estimated,
 X_i 's = vector of explanatory variables,
 $\lambda(\cdot)$ denotes the logistic distribution function.

For this study, the explanatory variables include Sex of household head: a dummy variable (male = 1; female = 0)

Age of household head: measured in years

Education: a dummy variable (if the household head has minimum of secondary education = 1; otherwise =0)

Marital status: a dummy variable (if the household head is married = 1; otherwise = 0)

Household size: number of people living together in a household

Religion: Christian, Muslim and Traditional religion. Each is measured as dummy variable.

Occupation: a dummy variable (if the household head is employed = 1; otherwise = 0)

Household monthly income: measured in USD

Proximity to health center: Distance: Distance to reach the nearest health facility in kilometer

Waiting time: time spent waiting for health personnel, and health service delivery (measured in hours)

Lost Days: measured as total number of productive days that household head wasted due to illness by members of household in previous year

Medical cost: average monetary expenses incurred per month (in USD)

RESULTS AND DISCUSSION

Table 1 presents the characteristics of the selected households in the area of study.

Table 1: Demographic characteristics of the selected households in the study area

Variable	Frequency	Average
Sex of household head		
Male	229 (85.8%)	
Female	38 (14.2%)	
Age of household head		
< 20	4 (1.5%)	44.7±13.7
20-29	13 (4.9%)	
30-39	58 (21.7%)	
40-49	119 (44.6%)	
50-59	42 (15.7%)	
60-69	10 (3.7%)	
70-79	12 (4.5%)	
80 & above	9 (3.4%)	
Education of household head		
Less than secondary	53 (19.9%)	
Greater than secondary	214 (80.1%)	
Marital status		
Married	232 (86.9%)	
unmarried	35 (13.1%)	
Household size		
1-3	77 (28.8%)	4.3±2.1
4-6	155 (58.1%)	
7-9	29 (10.9%)	
10-13	6 (2.2%)	
Religion		
Christian	219 (82.0%)	
Muslim	41 (15.4%)	
Traditional	7 (2.6%)	
Occupation of household head		
Employed	244 (91.4%)	
Unemployed	23 (8.6%)	
Monthly income of household		
0-99	97 (36.3%)	117.75±66.91
100-199	149 (55.8%)	
200-299	18 (6.7%)	

300 & above	3 (1.1%)	
Distance of household head to nearest healthcare center		1.57±0.7
< 1	20 (7.5%)	
1-2	85 (31.8%)	
2-3	156 (58.4%)	
3-4	3 (1.1%)	
4-5	3 (1.1%)	
Waiting time for health service delivery		1.5±0.6
< 1	4 (1.5%)	
1-2	133 (49.8%)	
2-3	127 (47.6%)	
>3	3 (1.1%)	
Lost days of household head due to illness		7.2±11.0
0-4	162 (60.7%)	
5-9	58 (21.7%)	
10-14	9 (3.4%)	
15-19	15 (5.6%)	
20-24	13 (4.9%)	
25 & above	10 (3.7%)	
Health cost per month		17.68±58.84
0-19.99	167 (62.5%)	
20-39.99	37 (13.9%)	
40-59.99	32 (12.0%)	
60-79.99	18 (6.7%)	
80-99.99	13 (4.9%)	
Type of health care services used by of households		
Clinics/hospitals	58 (21.7%)	
Traditional	50 (18.7%)	
Self-treatment	159 (58.6%)	

Majority (85.8%) of the households were headed by male respondents. The decision on the type of health care service to be used by a household is mainly influenced by the household head since it is assumed that he/she is the household breadwinner. Almost half (44.6%) of the household heads were in their 40s; about two thirds (66.3%) were within 30s and 40s years of age. Many (80.1%) of the household heads had minimum of secondary education. High level of formal education is assumed to influence decision on choice of health care service by the

households. Majority (86.9%) of the household heads were married; others were single, widows, or divorcees. Most (58.1%) of the households had 4-6 members. About 88.0% of the households had 1-6 members. The average household size was 4.3. Majority (82.0%) of the selected households were Christians. Christianity is the major religion in Liberia. Others were either Muslims (15.4%) or traditional religion (2.6%). Over 90.0% of the household heads had one form of employment or the other. The rest had no job that could serve as means of regular income for

their respective families. Possession of gainful employment is believed to have effect on demand for quality health care services by a household. About 92.0% of the households earned less than USD200 per month. This implies that an average individual member of a household in the study area lived on USD27.38 per month, or USD0.91 per day. It could be concluded that over 92% of the residents of the study area live below poverty line as required by UN. About 60.0% of the households reported that the nearest health centers were more than 2km away from their residence. Only 7.5% reported that health care center was nearby their places of residence. It is believed that proximity to a hospital or clinic might influence decision on the choice of health care service. About half (49.8%) of the households reported spending 1-2 hours waiting for health personnel before being attended to; another 48.7% reported waiting for over 2 hours. When a patient spends more time waiting for health personnel, it could result into deciding for other alternative means of health care services. About 60.0% of the household heads claimed to lose 0-4 days in a year of their productive time due to illness by members of household. About 22.0% of the household heads claimed to lose 5-9 days in a year of their productive time due to illness by members of household. About 18.0% of the household heads claimed to lose more than 10 days in a year of their productive time due to illness by members of household. A household head loss an average of 7 days per annum due to illness by members of household. The cost implication as a result of illnesses in a household was USD17.68 per month. This implies that health bill was responsible for about 15.0% of monthly income. About 62.5% of the households spent less than USD20.00 on health services; about 26.0% spent between USD20.00 and USD60.00 on health issues. The rest spent between USD60.00 and USD100.00 on health care services. Lastly, almost 60.0% of the

households resorted to self-treatment. This might be as a result of very low levels of income as observed from the study. About 22.0% made use of clinics or hospitals during illness by any member of the households. The rest resorted to traditional medicine. This might be due to relatively low cost of herbs as compared to medical services and costs of drugs in hospitals and clinics.

Determinants of choice of health care services in the study area

Tables 2-4 show the regression results obtained from the estimation of three empirical models discussed earlier in this study. These are analyzed in the light of the objective of the study. The analyses are therefore carried out in three stages. First, attempt was made to identify the factors that influence the decisions of individual households to adopt self-treatment at times of illness. The second stage seeks to identify the factors that determine the probability of choosing hospitals or clinics as health care service provider during illness occurrence in a household. The third stage seeks to identify the factors that determine the probability of choosing traditional medical center as health care service provider during illness incidence in a household. The study uses binomial logit models for these analyses. This is due to the nature of the dependent variables which have discrete choice (dummy) variables. In Logit models, the signs of the coefficients specify the directions of association between the explanatory variables and the probability of occurrence. In order to comprehend the magnitude of the change in the probability of occurrence caused by the changes in the independent variables, the odds ratios are calculated. An odd ratio greater than one indicates the increase in the probability of an event occurring compared to when it is not occurring. The opposite holds when the ratio is less than one.

Table 2: Determinants of choice of self-medication in the study area (Binary Logistic Output)

Variables	Coefficients	P-value
Constant	3.873	0.799
Sex	1.696	0.031**
Age	0.457	0.365
Education	0.715	0.325
Marital status	2.594	0.029**
Household size	0.075	0.874
Religion		
Christian	-2.916	0.799
Muslim	-2.960	0.799
Traditional	-0.583	0.799
Occupation	-2.390	0.015**
Income	-0.212	0.276
Distance	3.534	0.000***
Waiting time	2.190	0.000***
Lost days	-0.928	0.000***
Health cost	0.361	0.014**
Cox and Snell R ²	0.651	
Nagelkerke R ²	0.732	
Chi-square	144.471	
P-value	0.05	

NB: ** 0.05 significance level; ***0.01 significance level

Table 2 examines each variable included in the model. It is revealed that seven variables (sex, marital status, occupation, distance to nearest health service provider, waiting time, lost days due to illness, and cost of health service) significantly influenced household decisions in resorting to self-treatment. Thus, sex of the household head is one of the variables having significant effect on the household decision whether or not to settle for self-treatment. Noting that a unit change in the dummy variable indicates the switch from female to male. The result shows that the probability of male headed household to resort to self-treatment at times of illness is more than 5 times as high as that of females. In addition, the positive sign of the parameter depicts the direct relationship between the probability of resorting to self-treatment and sex of the household head. In other words, compared to females, males headed households

are more inclined to resort to self-treatment at times of illness. This result is inconsistent with the findings of KUWAB Consultants (1996).

Marital status is the second variable that has a significant effect on probability of resorting to self-treatment by households. The result shows that the probability of a household being headed by a married man or woman to resort to self-treatment at times of illness is about 13 times as high as a household that was headed by an unmarried fellow. In addition, the positive sign of the parameter depicts the direct relationship between the probability of resorting to self-treatment and marital status of the household head. In other words, compared to households headed by unmarried person, households headed by married person are more inclined to resort to self-treatment at times of illness.

Occupational status was the third variable that have significant influence on probability of

resorting to self-treatment by households. The result shows that the probability of a household headed by an unemployed person to resort to self-treatment at times of illness is about 11 times more than a household headed by an employed person. Households headed by unemployed person are more inclined to resort to self-treatment at times of illness.

Distance between household residence and the nearest health facility is the fourth variable observed to strongly and positively influence self-treatment decision of households in time of illness. If the distance to the nearest health care unit increases by one kilometer, the probability of resorting to self-treatment increases by about 34 times.

The time spent at health facilities during illness by a member of household was observed to be positively significant in influencing probability of resorting to self-treatment by household. If the time spent in seeking medical attention at health infrastructures increases by 1 hour, the probability of resorting to self-treatment increases by about 9 times.

Also, number of days lost by household head due to illness by a household member was negatively significant in association to the probability of

resorting to self-treatment by households. If the number of productive time lost during time of illness of a household member increases by 1 day, the probability of resorting to self-treatment falls by about 3 times. This variable can be taken as a proxy for the severity of the illness. In other words, the more severe illness is, the less the tendency of household to continue using self-treatment.

The last variable under consideration in this category is cost incurred for health services. The result shows that the higher the cost incurred at health service providers, the higher the probability of resorting to self-treatment by a household. If the cost incurred in seeking medical care from service providers increases by USD1, the probability of resorting to self-treatment increases by about 1.5 times.

The value of Cox and Snell R^2 of 0.651 implies that about in 65 percent of the cases of the explanatory variables included in the model explains the variation in the probability of resorting to self-treatment by households in times of illnesses.

Table 3: Determinants of choice of clinic/hospital services in the study area (Binary Logistic Output)

Variables	Coefficients	P-value
Constant	-2.515	0.134
Sex	0.022	0.778
Age	0.231	0.521
Education	-0.206	0.591
Marital status	1.190	0.083*
Household size	-0.803	0.008***
Religion		
Christian	-0.055	0.780
Muslim	-0.196	0.725
Traditional	0.920	0.499
Occupation	0.581	0.417
Income	-0.077	0.546
Distance	-0.363	0.315
Waiting time	-0.204	0.503

Lost days	0.007	0.776
Health cost	0.188	0.072*
Cox and Snell R ²	0.566	
Nagelkerke R ²	0.593	
Chi-square	118.114	
P-value	0.05	

NB: * 0.1 significance level;*** 0.01 significance level

Table 3 examines each variable included in the model. It is revealed that three variables (marital status, household size, and cost of health services) significantly influenced household decisions in choosing hospital or clinic as health care service provider. Thus, marital status is the first variable that has a significant effect on probability of choosing hospital or clinic as health care service provider by households. The result shows that the probability of a household being headed by a married man or woman to choose hospital or clinic as health care service provider at times of illness is about 3 times as high as a household that was headed by an unmarried fellow. In addition, the positive sign of the parameter depicts the direct relationship between the probability of choosing hospital or clinic as health care service provider and marital status of the household head. In other words, compared to households headed by unmarried person, households headed by married person are more inclined to choose hospital or clinic as health care service provider at times of illness. The second variable in this model is household size. The size of a household had negative and significant influence on probability of choosing

hospital or clinic as health care service provider at times of illness. An increase in household size reduces the probability of a household choosing hospital or clinic as health care service provider. If a household increases by a member, the probability of choosing hospital or clinic as health care service provider at times of illness falls by more than 5 times.

The last variable in this model is cost incurred for health services. The result shows that the higher the cost incurred at health service providers, the higher the probability of choosing hospital or clinic as health care service provider at times of illness by a household. If the cost incurred in seeking medical care from service providers increases by USD1, the probability of continuing choosing hospital or clinic as health care service provider at times of illness increases by about 1.2 times.

The value of Cox and Snell R² of 0.566 implies that about in 57 percent of the cases of the explanatory variables included in the model explains the variation in the probability of choosing hospital or clinic as health care service provider at times of illness by households.

Table 4: Determinants of choice of traditional medical care in the study area (Binary Logistic Output)

Variables	Coefficients	P-value
Constant	-4.282	0.799
Sex	0.983	0.384
Age	3.489	0.195
Education	2.090	0.797
Marital status	1.011	0.667
Household size	0.018	0.792
Religion		

Christian	2.724	0.800
Muslim	-1.610	0.800
Traditional	-3.543	0.800
Occupation	2.882	0.798
Income	-1.163	0.007***
Distance	1.749	0.084*
Waiting time	0.013	0.794
Lost days	-1.022	0.084*
Health cost	0.507	0.211
Cox and Snell R ²	0.546	
Nagelkerke R ²	0.668	
Chi-square	137.239	
P-value	0.05	

NB: * 0.1 significance level; 0.01 significance level

Table 4 examines each variable included in the model. It is revealed that three variables (household income, distance to nearest health service provider and lost days due to illness) significantly influenced household decisions in choosing traditional health care service provider. Household monthly income is the first variable in this model found to have significant effect (with the expected sign) on the probability of seeking traditional medical treatment. The regression result designates that the lower the monthly income of the household, the higher would be the probability of the household to seek traditional medical treatment. More specifically, reduction in the income of a household is projected to increase the probability of consulting a traditional medical practitioner. If the household monthly income increases by USD1, the probability of consulting a traditional medical practitioner at times of illness would reduce by 3 times. Abdulhamid and Alem (1996) and KUAWAB Consultants (1996) also have similar conclusion. Distance between household residence and the nearest health facility is the second variable observed to strongly and positively influence household choice of traditional medical practitioner as health care service provider in time of illness. If the distance to the nearest health care unit increases by one kilometer, the

probability of resorting to traditional medical practitioner as health care service provider would increase by about 6 times.

Also, number of days lost by household head due to illness by a household member was negatively significant in association to the probability of resorting to traditional medical practitioner as health care service provider by households. If the number of productive time lost during time of illness of a household member increases by 1 day, the probability of resorting to traditional medical practitioner as health care service provider falls by about 3 times. As stated earlier, this variable could be taken as a proxy for the severity of the illness. In other words, the more severe illness is, the less the tendency of household to continue consulting traditional medical practitioner as health care service provider.

The value of Cox and Snell R² of 0.546 implies that about in 55 percent of the cases of the explanatory variables included in the model explains the variation in the probability of choosing The value of Cox and Snell R² of 0.566 implies that about in 57 percent of the cases of the explanatory variables included in the model explains the variation in the probability of choosing traditional medical practitioner as health care service provider at times of illness by households.

Conclusion and Recommendations

In light of the findings of this study, some policy inferences could be concluded. The sex of the household head, household monthly income, household size, cost of health care services and distance from nearest health care facility were observed to significantly influence the decisions of households in making decisions on the type of health care service to be used by households.

This implies that women and their households that they headed were most vulnerable to health challenges. Some programs should be planned to facilitate provision of special health care services to this group of people.

In addition, the much lower self-treatment tendency of female-headed households than that of male-headed households infers necessity to increase responsiveness of women and their respective households in seeking appropriate medical treatment during times of illness. Also, households should avail themselves the required patronage of qualified service providers during illness rather than choosing self-treatment at homes. The study suggests that there exists a relatively low average medical charges in the study area.

Likewise, creating more income generating prospects that would increase household income; this has tendency to promote household demand for health care services provided by formal health sector. Thus, this would improve household health status in particular, and the population in general; thereby developing the economic development of the country.

Proximity to the nearest health care facilities has tendency to increase demand for health care services. Hence, government should embark on programs that would increase access to healthcare services through construction of new health facilities. They should also enhance the quality of treatment through ensuring availability of adequate medical resources (human and material resources) for health care services delivery.

The average waiting time for treatment at the study area was about 1 hour 30 minutes. Consequently, any public policy that would be structured with regards to this issue must ensure reducing wastage of productive time through unnecessary waiting for medical personnel.

The issue of self-treatment by households should not be overlooked as most of the households were involved in this act. Therefore, government policy through the Ministry of Health should aim at promotion of utilization of public health care facilities by introduction of healthcare subsidies and other incentive schemes for the economically deprived groups of the society. Moreover, the Ministry of Health should plan programs that would ensure provision of qualitative health care services to consumers. In summary, all these suggestions should be put into consideration because an improvement in health status of households and the members results in improvement of human capital of the economy in general. Eventually, this would result in development of economic wellbeing of the nation.

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