Determinants of the Demand for Primary Health Care Services in Abeokuta South Local Government, Ogun State, Nigeria

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Abstract
This study looks at the determinants of the demand for primary health care services in Abeokuta South local government, Ogun state. Multivariate regression model alongside correlation and frequency distribution tables are employed to identify the determinants of the demand for primary health care services. Findings of the study suggest that both economic and demographic factors are vital in determining the demand for healthcare services in Abeokuta South LGA of Ogun state. Although weak, there is a positive relationship between income and access to primary health. Furthermore, income of patients, patient's education level and quality of care have positive and significant effect on the demand for primary health care services while cost of drugs has negative effect. Consequence upon the findings, cost of drugs needs to be subsidized. Also, government should increase the quality of primary healthcare services so that it can serve people at the grass root effective.

Keywords: Primary Health Care, Multivariate, Abeokuta

JEL Classifications: *I11, I12*

Introduction

The health sector reform embarked upon by Nigerian authorities is to ensure the increased access to health care services so as to ensure Nigerians attain a level of health status and consequently improve their productivity. The reform made the primary health care the cornerstone of the nation's health system with responsibilities for health shared between the three tiers of government (Khureed, 2017). Further, international institutions such as the World Bank and the World Health Organization (WHO), have recommended that countries should adopt universal health coverage, believing that adequate health care is a basic human right (Malaga, 2021).

To broaden access to health care and to improve equity in Nigeria, primary health care (PHC) centers are established in both rural and urban areas in Nigeria. Regrettably, a good percentage of the population in Nigeria is still underserved (Abdulraheem et al., 2012). Factors responsible for this can be classified into two, namely government factor and patient factors. From the government side, factors such as lack of political will; inadequate funding/misappropriation of funds; inadequate inter-sectoral collaboration and conflicts between Local and State Governments are candidates. Community perceptions of poor quality and inadequacy of available services in the PHC centers; under/low utilization of PHC services; and poor community participation are contributory patient factors to acute access to PHC services. Other factors include lack of motivation in the workplace (such as poor remuneration; unhealthy rivalry between various categories of health workers; non-involvement of private health sector in the planning and implementation of PHC; and poor management of information system, heavy dependence on initiatives funded by foreign donors like UNICEF and USAID).

The situation is not different at the state level, and particularly in Abeokuta South Local Government. Although quite a number of research output in the area of factors driving access to health care services in Nigeria have been documented, results are diverse, depending on the state or local government for which the research is targeted. Besides, there is no theoretical underpinning of most existing empirical evidences. The implication of this is that there is not bases upon which those evidences can be explained. Further, most received studies either consider economic and demographic factors or socio-economic factors, but not both, thereby leading to omitted variable bias which makes the result from such exercise questionable. Specifically, the study developed a theoretical underpinning that explains how economic, social and demographic factors will influence demand for healthcare service. Second, the study combines all major components of drivers of healthcare demand (economic, social and demography) to provide a comprehensive information about how each of these components affect healthcare demand. Apart from this, this study fills empirical evidence healthcare demand in Abeokuta South Local Government Area, Ogun State, Nigeria. In particular, the study seeks to investigate the extent to which economic factors, demographic factors, equity, efficiency, and quality of health care services have influenced demand for primary health care services in the local government in the context of the theory of consumer behaviour. The attention is on this local government because there appears not to be a readily accessible research output on the demand for primary health care services in the local government on the one

hand and the fact that the health status of majority in the local government is relatively low (National Bureau of Statistics, 2020). It is in filling these gaps that this paper contributes to the frontier of knowledge in health demand analysis. Further, the outcome of this study is hoped to enhance better understanding about various factors that affect the demand for primary health care services, and further provide insightful information for both the local and international community with a view to addressing the inherent problems of primary health care services in the country.

Literature Review

Theoretical Review

The theories of health care services can be discussed from both the supply and the demand side. Since this study is more of demand side, attention is paid on the relevant theories explaining the demand for health. The major theory in this regard is the theory of consumer behaviour. Demand is perceived as willingness and ability to obtain a good that provides optimal possible satisfaction or utility. The utility function for the consumption of good X was presumed to be independent of the function of good Y and consumers were visualized as equating the utility of the last unit of each good purchased (the Marginal Utility) with its price. Relating this to health, the choice of health care demand is based on utility maximization theory where the decision maker chooses the health facility that provides the highest utility. The choice made is driven by economic and other factors and the determination of which factor is or is not important in explaining the choice is an empirical matter.

The economic factor, which determines the ability to pay for the good is proxied by income. Specifically, consumers will spend their income on goods that will offer the greatest satisfaction, depending on their taste and relative prices of goods. According to the Marshallian demand, increase in income will always lead to increase in demand, provided prices of the goods remain constant.

Alternative way of looking at the demand for health is to assume that the *"demander"* may predetermine a given level of satisfaction and then ask how much of income will be needed to attain such level of predetermined satisfaction. This type of demand theory was proposed by Hicks and the demand function is called the Hicksian demand function or compensated demand function. It is

called compensated demand because it refers to the amount of additional money an agent would need to reach their initial utility after a change in prices, a change in product quality, or the introduction of new products. Compensating variation can be used to find the effect of a price change on an agent's net welfare. However, Hicksian demand function is often convenient for mathematical and graphical manipulation because they do not require income or wealth to be represented (Varian, 2014).

There is also the Slutsky demand function, which relates changes in Marshallian (uncompensated) demand to changes in Hicksian (compensated) demand. In Slutsky's demand function, a change in demand for good following a change in the price of the good provides two effects, namely substitution effect and income effect. The substitution effect is the change in demand due to the change in the rate of exchange between the two goods. It is sometimes called the change in compensated demand. The income effect is the change in demand due to having more purchasing power. It depends on the amount of good the consumer is consuming, and the consumer's reaction to an income change that comes from the savings.

From the theories reviewed, it is clear that demand for health care services depends not only on the income and price of health products but also by the prices of alternative goods. However, these subsumed other factors such as demographic and socio-cultural factors aspect of the demand. Also, issues surrounding quality of products and of the health workers are not captured in the theories. Nevertheless, several empirical evidence, testing these theories abound and are reviewed thereafter.

Empirical Evidence

There is a vast and growing literature on developing countries analyzing health care demand decisions of individuals. The empirical literature identifies income, quality, distance cost or time cost and user charges or fees as determinants of the demand of health care services.

Ali and Noman (2010), in their study on Bangladesh indicate that household income is a strong and important driver of health care demand. The study suggests that increase in Bangladeshis' household income will lead to increase in demand for health care services. In Rwanda, Jayaraman et al. (2008) established that women from wealthy households were more likely to deliver a child with assistance of medical personnel as they have higher income. Also in Rwanda,

Ruhara and Urbanus (2016) show that the household income is significantly correlated with the probability of accessing health care services. For instance, income is positively related to choosing a private provider. In Rural Uganda, Kaija and Okwi (2011) showed that health seeking behaviour of low and high income individuals differ significantly. In the case of Mozambique, Linndelow (2002) reports that income as no significant effect on health facilities.

The introduction of user charges as a strategy for easing the health care financing crisis has been questioned, among others, on the basis of its implications for health care utilization. Amaghionyeodiwe (2007) finds that the introduction of user fees affected health care utilization of the consumers in Nigeria by reducing the usage of public health services, particularly for the poor. Deininger and Mpuga (2003) also found user fees to be particularly important in determining access to health services in Uganda, mostly among the poor. The work of Ali and Noman (2013) for Bangladesh show that there is negative relation between price of health care and demand for it. Ruhara et al (2016) also confirm the negative effect of price on the choice of private health facilities in Rwanda. The direct implication is that increasing user charges decreases the likelihood of seeking health care from private health provider relative to self-medication. In the same vein, the finding of Cisse (2006) also shows that user fees effects health demand negatively in Cote d'Ivoire. The study of Amaghionyeodiwe (2018) focuses on the health care demand in Nigeria, the study indicates that the effect of user cost was more pronounced among the poor and the low income earners. Specifically, low-income earners suffer more from the imposition of user charges as it reduces their utilization level of public sector health care services. Many of the poor, even those that are not government employees prefer to utilize the government health care facilities because of the reduced prices, quality of care and distance.

Another important cost of health care demand is the distance or time (of waiting) cost. Muriithi's research (2013) on the demand for health care in a Nairobi slum showed that an increase in distance induces a payment of some extra cost to travel to the source of treatment as opposed to seeking self-treatment. The results support the findings on demand for health care services in Uganda, which was carried out by Ssewanyana et al., (2004), Lawson (2004) in Nigeria Awoyemi et al., (2011) in Kogi State, Nigeria. Awoyemi et al. (2011) argue that distance reduces the probability of using distant service providers. However, the distance

to health facility from home is positively associated with the choice of a private health facility. This means that distance to private health providers is perceived to be associated with quality of health care. In this case, private health facilities although distant are chosen provided their quality services is perceived to be high. In Rwanda, Ruhara et al. (2016) find that the distance to health care centre from the area of residence tends to inhibit the choice of public and semi-private health facilities. Thus, increasing distance induces an increase of the likelihood of a household member opting for self-treatment. The negative sign is not surprising since the distance to health care is highly related to the transportation cost. However, Ali and Noman (2013) find positive effect of distance on demand for health care in Bangladesh, a result that is counterintuitive.

In terms of quality of services as a determinant of health care services, many studies have employed varied definitions of quality. In theory, quality of medical care can be assessed through three distinct ways, namely, process indicator, technical efficiency, and the outcome of treatment. At the level of health care provider, the quality of medical care in terms of technical efficiency as proxied by availability of drugs has been cited as a key determinant of demand for health care by Sahn et al. (2003). The study finds that medical quality, assessed in terms of both health staff qualifications and by availability of drugs increases the probability of a visit to both private clinics and public hospitals. Baltussen et al (2002) in their study of perceived quality of care of primary health care services in Burkina Faso reported that perceived quality of care relates to patients' view which is one of the critical issues to understand the relationship between quality of care and the utilization of services and adherence of treatment.

Amaghionyeodiwe (2009) finds that households try to evaluate the quality of care in health facilities before making their choices. This evaluation includes availability of better infrastructure, drug and diverse services. Ali and Noman (2013) in Bangladesh find a positive relation between quality of care and demand for health care in their study. Azhar et al (2016) also reported that respondents were satisfied with the primary health care service. Khurseed (2017) finds in India, that the health centres face the acute shortage of drugs which hamper the proper functioning of the health centres, particularly the trust of the patients which is influential for utilization of the services of the health centres. The health centres focus more on the curative healthcare and ignore the preventive aspects.

Mhlanga (2021) investigate the drivers of demand for healthcare in South Africa find that male, white and Indian, and being a property owner reduces the probability of demand for public healthcare facilities.

While the empirical evidence is not exhaustive, the one discussed indicate that income, user cost, loyalty and distance costs are candidates for demand for health care services. However, there are still other factors such as cost of drug and equity which has not been considered. Not incorporating these important variables could lead to in t which could lead to omitted variables bias in previous studies. The present study seeks to contribute to the existing knowledge by incorporating these variables.

Methodology and Data

The theoretical basis for this study is the Marshallian demand theory. According to the theory, consumers will spend on goods that will offer the greatest satisfaction, depending on their income, taste and relative prices of goods. In most health care literature, price of treatment is an important determinant of demand for health care services. Theoretically, other things being equal, the price of treatment (the direct cost of treatment) should act as an important determinant of usage of health care services. For an individual with a particular health status, change in the price of medical care would affect her (his) demand for consumption of health care or consumption of other goods, and probably both. A surge in the price of health care services could possibly result either a reduction at least in one of the two goods (Consumption of health care or consumption of other goods) or both. If medical care use is not responsive to price change – that is, if it has price elasticity close to zero- the change in price do not affect the demand for medical care. In the situation when medical care is price inelastic a surge in the price of medical care services leads to a relative reduction in consumption of non-medical care services (reduce consumption of other goods). However, in a situation of high price elasticity of demand for medical care services there is a proportionate drop for demand of medical care services, and there is virtually no effect on the demand for other consumption.

The maximisation problem facing the rational consumer can be summarized in equation 1

$$\max. U = u(q_1, q_2) \quad (1)$$

Subject to; $y = p_1q_1 + p_2q_2$ (2)

where;

q_1 = quantity of commodity 1 that is consumed,
q_2 = quantity of commodity 2 that is consumed,
p_1 = price of commodity 1, p_2 = price of commodity 2

Solution to this optimization problem usually takes several methods but the most commonly used is the La-Gragian function is in equation 3and the optimization is in equation 4 –6

$$L = q_1q_2 + \lambda(y - p_1q_1 - p_2q_2) \quad (3)$$

$$\frac{\partial L}{\partial q_1} = q_2 - \lambda p_1 = 0 \quad (4)$$

$$\frac{\partial L}{\partial q_2} = q_1 - \lambda p_2 = 0 \quad (5)$$

$$\frac{\partial L}{\partial \lambda} = y - p_1q_1 - p_2q_2 = 0 \quad (6)$$

Solving the first order condition yields;

$$q_2 = \frac{p_1}{p_2}q_1 \text{ , } q_1 = \frac{p_2}{p_1}q_2$$

Substituting this to the constraint in (6), we have;

$$y = 2p_1q_1 = q_1 = \frac{Y}{2p_1} \quad (7)$$

This therefore means that quantity of commodity 1 is positively related to income and inversely related to its own price. Similarly,

$$y = 2p_2q_2 = q_2 = \frac{Y}{2p_2} \quad (8)$$

In equation (8), the quantity of commodity 2 is positively related to income and inversely related to its price. But,

$$p = (p_1, p_2), \quad q = (q_1, q_2)$$

So the Marshallian demand function would be written as;

$$q = \frac{Y}{2p}$$

$$q = y.(2p^{-1}) \quad (9)$$

Suggesting that there is a direct relationship between quantity and income and there is an inverse relationship between quantity and price.

Model Specification

The primary focus of this paper is to analyze the determinants of the demand for health care services, the theoretical framework shows that quantity demanded is a function of money income and relative prices;

$$q^* = f(y, p_1, p_2) \quad (10)$$

where; $q^* =$ expenditure on health care services , $y =$ income of the patient, $p_1 =$ cost of drugs
$p_2 =$ price of alternative services . However, there are other factors that determine the demand of health care services. Thus;

$$q^* = f(y, p_1, p_2, x) \quad (11)$$

where; $x =$ other factors that determine healthcare services. Standard papers such as Belay (2013) explained the socio-demographic factors affecting the demand for health care. He specified Education as one of the factors. Quality of care, according to Hanson, Yip & Hsiao, 2004 and Peabody et al., 2006, is also emphasized to be an important variable for this model as an explanatory variable to health care model. This variable is very crucial to affect the demand for health care. Efficiency, Equity and Accessibility are also factors that affect the demand of health care services. The efficiency factor has to do with time management by the hospital attendance and the doctors. It also provides information about the environment of the centre. For instance, how quick a patient is attended to by the nurses and doctors improves efficiency of the personnel in the health centre. How appropriate is are the prescribed drugs are given and meet the sickness complained can also be considered as efficiency of the centre. In the case of equity, it is important to understand whether patients are treated equally or not, in terms of billing, gender, religion, culture and so on. Accessibility measures how it is to take advantage of the health facilities in the center. The mathematical specification of demand for health is specified below;

$$q^* = f(y, p_1, p_2, ed, k, e, a, ef) \quad (12)$$

q^* = expenditure on health care services, ed = patient's education level , k = quality of care, e = equity, a = accessibility, ef = efficiency,

The behavioural equation of (12) is captured by Cobb-Douglas utility function and it is specified in equation 13,

$$q^* = \beta_0 y^{\beta 1} p_1^{\beta 2} p_2^{\beta 3} ed^{\beta 4} k^{\beta 5} e^{\beta 6} a^{\beta 7} ef^{\beta 8} \quad (13)$$

The estimable (linear) model arising from 13 is obtained by taking the log of both sides and include the error term and this is shown in equation 14

$$q^* = \beta_0 + \beta_1 y + \beta_2 p_1 + \beta_3 p_2 + \beta_4 ed + \beta_5 k + \beta_6 e + \beta_7 a + \beta_8 ef + \varepsilon \quad (14)$$

The apriori expectation of β_1, β_3, β_4 β_5, β_6, β_7, $\beta_8 > 0$. In other words, the coefficients of income of the patient, alternative prices, education level, quality of care, equity, accessibility and efficiency are expected to positively affect demand for health care services. While the apriori expectation of $\beta_2 < 0$. This means that the coefficient of cost of drugs, is negatively related to demand for health care services. The ε, which is the error term, is assumed to be normally distributed with a mean of zero and constant variance.

Research Design, Population, Sample and Sampling Technique

This study assesses the effect of some selected drivers of primary health care demand in Abeokuta South Local government area, Ogun State. For the purpose of this study, a survey method was adopted the use of questionnaires. The respondents were asked questions in respect to their demographic status, economic status, quality of care, accessibility, equity and efficiency of the health care services in their centers.

The population for the study is the entire people living in Abeokuta South local government area of Ogun State. According to National Bureau of Statistics (2020), the total population of residents in the study area is 250,295 after the 2006 census with 128,557 within the age bracket of 20-80 years, representing about 51 percent of the population. The survey data cover primary healthcare users in the local government.

There are six primary healthcare centers in this Local Government Area, namely, Keesi, Kugba, Ake, Abule Oloni, Itoko and Oke Ijemo health centres. According to the record made available to the researcher in each center, an average of 1000 people visit Keesi, Kugba and Ake health care centres per month in 2020, while about an average of 500 people use or patronize Abule oloni, Itoko and Oke ijemo health centres montly in 2020. Consequence upon this, 100 respondents was selected for Keesi, Kugba and Ake health care centres while 50 respondents was selected for Abule Oloni, Itoko and Oke Ijemo health centres, making a total of 450 respondents from the six Local Government. The respondents were selected by employing simple random sampling in each health care centre.

Sources of Data and Method of Data Collection

Questionnaire is the source of data collection and it is structured into three sections. Section A covers demographic characteristics of respondents such as gender, education level, age, occupation, religion and marital status. Section B is based on information regarding the income of the respondents, price of healthcare services, price of alternative services, preferences and costs of drugs which are twelve questions. Section C is centered on consumer satisfaction proxy with quality, efficiency, equity and accessibility. It took two and a half months for the questionnaires to be distributed and collected although it was not distributed every day of the week. Two to three days of each week was dedicated to distribute and collect the questionnaire. Copies of questionnaire were administered and collected on the same day but the respondents were not rushed for collection. During the process of administering the questionnaire, some of the respondents were assisted in reading the content in their local dialect (Yoruba) and their response was recorded accordingly.

Technique of Analysis

Three types of method of analysis are employed for this study. First is the frequency table and simple percentage to capture the nature of demographic characteristics of respondents. The second method is the Spearman rank product moment correlation coefficient which is employed to examine possible association between pairs of variables. The third method is multiple regression technique employed to estimate the determinants of the demand for health care.

Results and Discussion

Demographic Characteristics of Respondents

This section presents, analyses and discusses findings regarding the determinants of health care services in Abeokuta South Local Government, Ogun State. Table 1 presents the frequency distribution of the six primary health centres and the number of respondents from each centre. Abule-Oloni, Itoko and Oke-Ijemo had 50 respondents each, and a total of 11.1% of the sample. Kugba and Keesi had 100 respondents each and a total of 22.2% of the sample.

Table 1: Frequency Distribution of Primary Health Centres (PHC)

Location of PHC	Frequency	Percentage
Abule-Oloni	50	11.1
Kugba	100	22.2
Ake	100	22.2
Itoko	50	11.1
Keesi	100	22.2
Oke-Ijemo	50	11.1
Total	450	100

The respondents' demographic characteristics is presented in Table 2. The distribution indicates that 60% of the respondents fall between 18 to 34 years, about 36% fall between 35 to 64 years while 4.4% are above the age of 64. This means that mostly young adults whose productivity is expectedly high dominate those that patronize primary health centres in these Local Government Areas.

Table 2: Demographic Characteristics of the Respondents

Factor	Frequency	Percent
Q1: Age (in years)		
18-34	270	60
35-64	160	35.6
above 64	20	4.4
Total	450	100
Q2: Gender		
Male	105	23.3
Female	345	76.7
Total	450	100
Q3: Education Attainment		
None	10	2.2
Primary School	50	10.9
Secondary School	290	64.4
Post-Secondary	100	22.2
Total	450	100
Q4: Occupation		
Farmer	20	4.4
Civil Servant	60	13.3
Trader	19.8	44
Artisan	42	9.3
Caterer	22	2.6
Fashion Designer	42	9.3
Hairdresser	46	10.2
Student	20	4.4
Total	450	100
Q5: Religion		
Christianity	263	58.4
Islam	187	41.6
Total	450	100
Q 6: Marital Status		
Single	106	23.6
Married	339	75.3
Divorced	5	1.1
Total	450	100
Q7: Income range (in naira average per month)		
Below 10000	153	34
Above 10000 ut below 50000	263	58.4
Above 50000 but less than 100000	28	6.2
Above 100000	6	1.3
Total	450	100

It is interesting to also observe that a large percentage of female (77%) involve in visiting primary health centres in the Local Government Areas. Thus, it can be conjectured that while primary health care services are accessed by mostly the young adults, a large proportion are female. Going by the education attainment of respondents, the result indicates that **a**bout 2% of the respondents are not educated. However, those with basic education (primary school leaving certificate) constitute around 11% while as much as about 64% only made it to Secondary School leaving certificate and just a little above 22% attained post-secondary education. This means that it is mostly secondary school certificate holders that patronize the primary health centres in the Local Government Areas.

Various occupation engaged by the respondents suggests that about 4% are farmers, 13% are civil servants, 44% are trader, 9% are Artisans, around 3% are caterers, 9% are fashion designers, 10% are hairdressers while about 4% are students. This means that majority of the people that patronize the primary health centres in the Local Government Area are traders.

From the religious point of view, about 58% practice Christianity, while around 42% practice Islam. This means that it is mostly Christians that patronize the primary health centres in the Local Government Area. The marital status of respondents is such that about 24% of respondents were single while 75% were married with about 1% divorced. This means that most people that patronize the primary health centres in the Local Government Area are married. Income distribution of respondents shows that 34% receive below 10,000 while about 59% receive above 10,000. About 6% receive above 50,000 but below 100,000 and just around 1% receive above 100,000. This means that majority of the respondents patronizing primary health care services in the local government areas are still low income earners,

The distribution of respondents based on why they visit the primary health centres was summarized in Table 3. It can be summarized from the table below that the respondents mainly went to the health care centres for Ante-natal and Immunization. Coming to the out of pocket expenditure on health care services, about 37% of the respondents spend below 1000 naira per month on healthcare while about 55% spend above 1000, but below 5000. 6.7% indicate they spend above 5000 but below 10000 (Table 4). Also, 1.8% of the respondents spend above 10000 naira monthly on healthcare. This therefore means that on average, majority of the respondents spend above 1000 but below 5000 on health care. The respondents were asked to indicate if the price of alternative (private) health

care services is high or not. About 45% identified price of alternative health services as being high while about 55% said it was not high. Furthermore, the respondents were asked to identify by how much more do they pay for alternative health care. The respondents spend below ₦1000, 55% spend above ₦1,000 but below ₦5,000, 33% spend above ₦5,000 but below ₦10,000 and 2.5 spend above ₦10000. This means that majority of the people that patronize the primary health centres in the Local Government Area responded that the price of alternative health care services is not high, therefore affordable.

Table 3: Reasons for Visit to Health Centres

Types	Response	Frequency	Percent
Headache	Yes	83	18.4
	No	367	81.6
Malaria	Yes	189	42
	No	261	58
Typhoid	Yes	174	38.7
	No	276	61.3
Family Planning	Yes	161	35.8
	No	289	64.2
Ante-natal	Yes	288	64
	No	162	36
Immunization	Yes	269	59.8
	No	181	40.2
Healtlh Education	Yes	72	16
	No	378	84
Fever	Yes	67	14.9
	No	383	85.1
Polio	Yes	54	12
	No	396	88
Pregnancy test	Yes	55	12.2
	No	395	87.8
Accident	Yes	64	14.2
	No	386	85.8
Blood Pressure	Yes	68	15.1
	No	382	84.9
Gonorrhoea	Yes	26	5.8
	No	424	94.2
Tuberculosis	Yes	34	7.6
	No	416	92.4
Cholera	Yes	36	8
	No	240	92

There are a total of 450 respondents

Table 4: Frequency Distribution of Respondents' out of pocket health expenditure, alternative health services and costs of drugs

Question	Options	Frequency	Percent
Q9: On average, how much do you spend on health care monthly (in naira)?	Below 1000	166	36.89
	1000-5000	246	54.67
	above 5000 but less than 10000	30	6.67
	above 10000	8	1.78
	Total	**450**	**100**
Q10: Do you pay more for alternative health care services?	Yes	203	45.1
	No	347	54.9
	Total	450	100
QQ12: Is the cost of drugs high?	Yes	95	21.1
	No	335	78.9
	Total	**450**	**100**
Q11: If you pay more, by how much (in naira)?	Below 1000	19	9.4
	1000-5000	112	55.2
	above 5000 but less than 10000	67	33
	above 10000	5	2.5
	Total	**203**	**100**
Q13: if the cost of drug is high, by how much (in naira)?	Below 1000	18	18.9
	1000-5000	35	36.8
	above 5000 but less than 10000	31	32.6
	above 10000	11	11.6
	Total	**95**	**100**

As to whether the cost of drug is high or not, the table shows that about 21% of the respondents indicate that drug cost is high while about 79% indicate cost of drugs to be low (Table 4). Furthermore, the respondents spend below 1000 on drugs, 18.9% of those who picked yes spend below ₦1,000. 36.8% spend above ₦1,000 but below ₦5,000, 32.6% spend above ₦5,000 but below 10,000 and 11.6 % spend above ₦10000. This means that majority of the people that patronize the primary health centres in the Local Government Area agree that the cost of drugs is not high. Table 5 presents the frequencies distribution of the respondents on the services provided by the hospital. About 3% of the respondents says that the services provided by the hospital is very poor while 1.7% says the services are poor and 68% said services provided by the hospital are good while 14.7% opined that the services are very good. This means that

majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the service provided by the hospital.

Table 5: Perception about Quality of Services in the Primary Health Care Center

Quality of services	Response	frequency	Percent
Rate the quality of services provided by the hospital	Very poor	13	2.9
	Poor	8	1.7
	Fair	57	12.7
	Good	306	68
	Very Good	66	14.7
	Total	**450**	**100**
Quality of care	Very poor	5	1.1
	Poor	10	2.2
	Fair	78	17.3
	Good	292	64.9
	Very Good	65	14.4
	Total	**450**	**100**
Doctor's understanding of health complain	Very poor	5	1.1
	Poor	11	2.4
	Fair	72	16
	Good	292	64.8
	Very Good	70	15.6
	Total	**450**	**100**
Drug prescription with respect to complain	Very poor	3	0.7
	Poor	13	2.9
	Fair	110	24.4
	Good	254	56.4
	Very Good	70	15.6
	Total	**450**	**100**
Environment of the health centre	Very poor	1	0.2
	Poor	26	5.8
	Fair	162	36
	Good	234	52
	Very Good	27	6
	Total	**450**	**100**
Toilet facilities of the hospital	Very poor	5	1.1
	Poor	46	10.2
	Fair	166	36.9
	Good	203	45.1
	Very Good	30	6.7
	Total	**450**	**100**

Respondents have been asked about their opinion on the quality of healthcare given to them. The table below shows the results of their response, about 1.1% of the respondents said the quality healthcare given is very poor, 2.2% said the healthcare given is poor while 17.3% of the respondent said the health care given is fair. About 65% of the respondent said the health care given is good and 14.4% of the respondents said the healthcare given is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the quality of healthcare services.

Each respondent were asked about Doctor's understanding of health complaint, the frequency distribution of each respondent's opinion is presented in the table below. The result shows that 1.1% of respondents opined that doctor's understanding of health complaint is very poor, 2.4% said it is poor while 64.8% of the respondents said doctors understanding of health complaint is good and 15.6% said it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area agree that the doctors understand the health complaint.

Table 5 also shows the respondents opinion on drug prescription with respect to health complaint. It shows that 0.7% of the respondents are of the opinion that drug prescription with respect to health complaint is very poor and about 2.9% said it is poor while 56.4% opined that the drug prescription with respect to health complaint is good and 15.6% said it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the drug prescription with respect to health complaint. Responding to the state of environment in the primary health centers, 2% of the respondents said that the state of environment at the health centre is very poor, 5.8% said it is poor while 52% opined that the state of environment is good and 6.0% said it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the state of the environment at the health centre.

In the same vein, 1.1% of the respondents said that the state of toilet facilities at the health centre is very poor, 10.2% said it is poor while 45.1% opined that the state of toilet facilities is good and 6.7% said it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the state of the toilet facilities at the health centre.

Efficiency, Equity and Accessibility of Health Care Services

Efficiency

Respondents were asked of their opinion concerning waiting time for a patient to be attended to. The result shows that about 3.0% of the respondents said that the waiting time for a patient to be attended to at the health centre is very poor, 8.0% said it is poor while 50.2% opined that the waiting time for a patient is good and 12.4% said it is very good (Table 6). This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the time that they have to wait before being attended to.

Table 6a: Perception about Efficiency, Equity and Accessibility of Health Care Services in the Abeokuta South Local Government Areas

	Efficiency				**Equity**				**Accessibility**		
	Response	**Freq.**	**%**		**Response**	**Freq.**	**%**		**Response**	**Freq.**	**%**
Waiting time for a patient to be attended to	Very poor	13	2.9	Hospital Charges are affordable	Strongly disagree	12	2.7	The health care provider is accessible	Strongly disagree	16	3.6
	Poor	36	8		Disagree	24	5.3		Disagree	16	3.6
	Fair	119	26.4		Neutral	81	18		Neutral	49	10.9
	Good	226	50.2		Agree	211	48.9		Agree	265	58.8
	Very Good	56	12.4		Strongly Agree	122	27.1		Strongly Agree	104	23.1
Time taken to be attended to by doctor	Very poor	5	1.1	Educational difference determine the treatment given	Strongly disagree	78	17.3	The cost of treatment is affordable	Strongly disagree	10	2.2
	Poor	28	6.2		Disagree	138	30.7		Disagree	17	3.8
	Fair	137	30.4		Neutral	164	36.4		Neutral	68	15.1
	Good	219	48.7		Agree	53	11.8		Agree	257	57.1
	Very Good	61	13.6		Strongly Agree	17	3.8		Strongly Agree	98	21.8
accuracy of drug prescriptions with illness	Very poor	21	4.7	There is preferential treatment for more influential people	Strongly disagree	100	22.4	The hospital facilities are easily accessible	Strongly disagree	9	2
	Poor	6	1.3		Disagree	159	35.3		Disagree	20	4.4
	Fair	101	22.4		Neutral	126	28		Neutral	115	25.6
	Good	281	62.4		Agree	51	11.3		Agree	232	51.6
	Very Good	41	9.1		Strongly Agree	13	2.9		Strongly Agree	74	16.4
condition of hospital equipment	Very poor	9	2	There is preferential treatment for people based on tribe, and cultural	Strongly disagree	118	26.2	There is an easy access to drugs	Strongly disagree	7	1.6
	Poor	24	5.3		Disagree	152	33.8		Disagree	7	1.6
	Fair	111	24.7		Neutral	123	27.3		Neutral	100	22.2
	Good	270	60		Agree	44	9.8		Agree	270	60
	Very Good	36	8		Strongly Agree	13	2.9		Strongly Agree	66	14.6

background

Table 6b: Perception about Efficiency, Equity and Accessibility of Health Care Services in the Abeokuta South Local Government Areas

Efficiency			Equity				Accessibility		
Response	**Freq.**	**%**		**Response**	**Freq.**	**%**		**Response**	**Freq.**	**%**
			Women have access to better health care services than men	Strongly disagree	17	3.8	The health care provider is accessible	Strongly disagree	6	1.3
				Disagree	35	7.8		Disagree	15	3.3
				Neutral	152	33.7		Neutral	86	19.1
				Agree	207	46		Agree	244	54.2
				Strongly Agree	39	8.7		Strongly Agree	99	22

Time taken by the nurse to attend to patients or doctor suggests that 1.1% of the respondents' perceive it is very poor, 6.2% indicate that it is poor while 48.7% said it is good and 13.6% opined that it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the time taken to be attended to by a nurse or doctor. As to the accuracy of drug prescription with respect to the illness, about 5.0 % of the respondents' state accuracy of drug prescription with respect to the illness is very poor, 1.3% said it is poor while 62.4% said it is good and 9.1% opined that it is very good (Table 6). This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the accuracy of drug prescription with respect to illness.

Result shows that about 2.0% of the respondents said that the condition of hospital equipment are very poor, 5.3% said it is poor while 60% opined that the condition of hospital equipment is good and 8.0% said it is very good. This means that majority of the respondents that patronize the primary health centres in the Local Government Area are satisfied with the condition of the hospital equipments. About 2.0% of total respondents strongly disagree that hospital fee are affordable, 5.3%, 18.0%, 46.9% and 27.1% disagree, neutral, agree and strongly agree respectively. Thus, majority of the respondents strongly agree to hospital fees is affordable.

Equity

Table 6 also reports that 17.3% of total respondents strongly disagree that educational differences determined by treatment given, 30.7%, 36.4%, 11.8% and 3.8% disagree, neutral, agree and strongly agree respectively. This means that it is unknown if the primary health centres in the Local Government Area determine the treatment given according to educational difference. Further, 22.4% of total respondents strongly disagree that there is preferential treatment for more influential people, 35.3%, 28.0%, 11.3% and 2.9% disagree, neutral, agree and strongly agree respectively. This means that majority of the respondents agree that there is no preferential treatment for more influential people in the primary health centres in the Local Government Area. According to the respondents, there appears not to be preferential treatment based on tribe and cultural background as 60.4% (strongly) disagree to the statement while 27.3% were indifference.

There is also information regarding preferential treatment for women. Results from Table 6 reports that around 11.6% either strongly disagree or simply disagree that women have better access to healthcare services than men while 33.7% were indifference and at least about 55% agree. This means that women have better access to healthcare services than men in the primary health centres in the Local Government Area. Respondents also react to how easy it is to access the hospitals' facilities such as bed space, rest rooms, water, and so on. The result indicates that 3.6% apiece strongly disagree and simply disagree the facilities are accessible. About 82% either agree or strongly agree (Table 6). This means that the facilities in the primary health centres of the Local Government Area are accessible.

Cost of treatment in the health centres are affordable as indicated by the respondents. In this regard, about 6% of total respondents either strongly disagree or simply disagree that cost of treatment is affordable while about 79% either agree or strongly agree. This means that the cost of treatment is affordable in the primary health centres in the Local Government Area.

Accessibility

Result shows that about 2.0% of total respondents strongly disagree that hospital facilities are easily accessible, while 51.6% and 16.4% agree and strongly agree respectively (Table 6). This means that majority of the respondents that patronize the primary health centres in the Local Government Area agree that the hospital facilities are easily accesssible. On the issue of accessibility, respondents were asked to respond to some statements bothering on how accessible is health services in the local government. About 1.6% of total respondents strongly disagree that on easy access to drugs, 1.6%, 22.2%, 60.0% and 14.6% disagree, neutral, agree and strongly agree respectively (Table 6). Thus, at least around 75% of total respondents agree that drugs are easily accessed in the primary health facilities in the local government. In the same vein, at least about 76% agree that nurses and doctors are approachable. The table also reveals that about 37% of the respondents spend below 1000 naira per month on healthcare while about 55% spend above 1000, but below 5000. 6.7% indicate they spend above 5000 but below 10000. Finally, 1.8% of the respondents spend above 10000 naira monthly on healthcare. This therefore means that on a average, majority of the respondents spend above 1000 but below 5000 on health care.

Association between Income and Demand for Health Services

The crosstabulation presented in Table 7 provide information about the association between average monthly income and average monthly out of pocket healthcare expenditure. It was reported that 92 respondents with income below ₦10,000 spend less than ₦1,000 monthly on healthcare while just 6 respondents who earn more than ₦100,000 spend above ₦10,000 monthly on healthcare. Clearly, none of the respondents who earn below ₦10,000 spend above that amount on healthcare per month. A total of 171 respondents who earn between ₦10,000 to ₦50,000 monthly spend between ₦1,000 and ₦5,000 per month on healthcare. Thus, respondents with lower income levels spend less on healthcare per month.

Table 7: Crosstabulation of Income and Expenditure on Healthcare

		Average monthly amount spent on healthcare				**Total**
		Below 1,000	above 1,000 but below 5,000	above 5,000 but below 10,000	above 10,000	
Average monthly income of respondent	Below 10,000	92	53	5	0	**150**
	above 10,000 but below 50,000	69	171	19	2	**261**
	above 50,000 but below 100,000	3	18	5	1	**27**
	above 100,000	1	4	1	6	**12**
Total		**165**	**246**	**30**	**9**	**450**

Table 8 shows similar relationship between respondents' education attainment and monthly out of pocket expenditure on healthcare. Five of the respondents with no educational status indicated that they spend below ₦1,000 per month on healthcare while none of then spend above ₦10,000 per month. Out of a total of 98 respondents with post-secondary education, 17 spend below ₦1,000 monthly while just one spend above ₦10,000 monthly. 151 respondents with post-secondary education spend between ₦1,000 and ₦5,000 per month on healthcare. This indicates that people with relatively higher education spend more on health care.

Table 8: Crosstabulation of Education and Expenditure on Healthcare

		Average monthly amount spent on healthcare				**Total**
		Below 1,000	Above 1,000 but below 5,000	Above 5,000 but below 10,000	Above 10,000	
	None	5	4	6	0	**15**
	primary school	19	28	1	1	**49**
	secondary school	125	151	10	1	**287**
	post-secondary	17	62	18	1	**98**
Total		**166**	**246**	**35**	**3**	**450**

Table 9: Crosstabulation of Occupation and Expenditure on Healthcare

		Average monthly amount spent on healthcare				**Total**
		Below 1,000	Above 1,000 but below 5,000	Above 5,000 but below 10,000	Above 10,000	
Respondents' occupation	Farmer	6	13	0	0	**19**
	Civil servant	16	35	8	0	**59**
	Trader	92	94	10	1	**197**
	Artisan	4	35	2	51	**92**
	Self employed	4	30	7	42	**83**
Total		**122**	**207**	**27**	**94**	**450**

Table 9 presents a crosstabulation of respondents' occupation and expenditure on healthcare. From a total of 19 farmers, 13 spend between ₦1,000 and ₦5,000 while 6 spend below ₦1,000. 35 respondents who are civil servants spend between ₦1,000 and ₦5,000 while 16 spend below ₦1,000 monthly on healthcare. 42 self-employed respondents spend above ₦10,000 while 51 artisans spend above ₦10,000 monthly on healthcare. The result therefore indicates that artisans spend more than all other occupation groups while traders spend the least.

To quantify the degree of association between income and demand for health services, a correlation analysis was employed. The hypothesis is that there is no significant correlation between income and access to primary health care services in Abeokuta South local government, Ogun State**.** The hypothesis was tested by employing Spearman correlation coefficient. Correlation coefficient of 0.173 was reported, with probability value of 0.0000 (Table 10).

Table 10: Correlation between income and access to primary health care

			Income	Accessibility
Spearman's rho	Income	Correlation Coefficient	1.000	0.173**
		Sig. (2-tailed)	.	.000
		N	448	441
	Accessibility	Correlation Coefficient	0.173**	1.000
		Sig. (2-tailed)	.000	.
		N	441	448

***. Correlation is significant at the 0.01 level (2-tailed).*

As the probability value is less than the chosen 5% critical level, the null hypothesis that the correlation is not significant is rejected in favour of the alternative hypothesis that the correlation is significant. The positive relationship between income and access to healthcare services is significant, albeit, weak.

The Drivers of Demand for Health Care Services

Table 11 presents the summary of coefficients of the regression model. The model regresses the average monthly expenditure on health care services on the major economic and demographic factors. The table reports that the income of the patients, cost of drugs, patient's education level and quality of care are statistically significant. Starting from the income of the PHC users, the result indicates that increase in the average monthly income of the users of the PHC facilities will increase the demand for the services of the PHC. However, the magnitude of response is low because average monthly income must have risen by ₦1000 before demand increases to ₦82.00. Nevertheless, this magnitude of response suggests that primary health care services are normal goods, and increase in income will engender the patronage of the services. Cost of drugs to be purchased is a drag to demand for primary health care services in the local government. As the result suggests, if the cost of drugs increases by ₦100 on average, expenditure on primary health care services will drop by ₦14.78K. It is clear from this outcome that demand for primary health care services with respect to cost of drugs is inelastic. It is also the case that cost of drugs appears to be with the relatively affordable range so that an increase in the cost of drugs will be associated with slight decrease in the demand for primary healthcare services. The more people are educated, the more they demand for primary health care services. This implies that additional education will raise the level of understanding about the reason why it makes more sense to embrace primary health care services rather than indulging in self-medication. The quality of healthcare services provided tends to engender people to embrace the services and hence spend more on taking care of themselves with the hope of enjoying quality of life.

Table 11: Regression result showing the drivers of health care services demand in Abeokuta South local government area of Ogun state

Variable	Coefficient	Standard Error	t-Statistic	P>t
Constant	0.9152	0.5989	1.53	0.131
Income of the patient	0.0082***	0.0934	3.09	0.031
Cost of drugs	-0.1487**	0.0638	-2.33	0.023
Price of alternative services	0.1695	0.1157	1.46	0.148
Patient's education level	0.2034**	0.0858	2.37	0.020
Quality of care	0.0022***	0.0769	2.03	0.008
Equity	0.0844	0.0714	1.18	0.241
Accessibility	-0.1010	0.0737	-1.37	0.175
Efficiency	-0.0409	0.0757	-0.54	0.590

*Survey: Linear regression; Number of strata = 1 ; Number of obs = 450; F-statistic = 3.87; Prob. > F = 0.0009; R-squared = 0.7512; ***, ** and * indicate significant at 10%, 5% and 1% level*

Price of alternative health services (such as traditional healthcare services) did not influence the demand for primary health care services. This could be due to the fact that alternatives may not likely be available or where it is available, it is inferior to the primary healthcare services. Also, equity does not affect demand for primary heathcare services. This suggests that in this local government, users of primary healthcare services are treated equally irrespective of religion, gender, culture, tribe or any social fractionalization. Accessibility shows negative but insignificant effect, suggesting that the more accessible the services are, the lest the cost of demanding for the services. This is reasonable in the sense that if health services are of good quality and are easily accessible, the real cost of taking advantage of the services will necessarily fall. But since the indicator shows insignificant effect, it implies that just like equity, accessibility and efficiency are not important drivers of demand for primary healthcare service in this local government.

The F-statistic suggest that the model is significant while the adjusted R-squared indicates that about 75% of the total variations in the demand for health care services are explained by demographic and socioeconomic variables.

Summary and Conclusion

This paper assesses the drivers of demand for primary healthcare services in Abeokuta South Local Government, Ogun State. In achieving these objectives, a survey of 450 users of primary health services in the local government were

randomly selected from the six primary health centers in the local government. The result from the correlation model indicates a positive, significant but weak relationship between income and access to healthcare services. Furthermore, the study examined the significance of both economic and demographic factors in affecting the demand for healthcare services. Two economic factors (income and cost of drugs) and one demographic factor (education level) are significant. Quality of care was also found to be significant while accessibility, equity and efficiency are insignificant.

Some implications can be drawn from these findings. First, there is still a significant positive association between income and access to health care services. Second, increase in peoples' income engenders more access to healthcare services. This indicates that healthcare is a normal good in Ogun State. Third, the cost of drug rises, the less will be the demand for healthcare services. However, the reduction in demand following rising cost of drugs mild, indicating that cost of drug has not got to the point where it will be unbearable for patients to afford. This is even more valid when patients appear not to consider other healthcare services as alternative. Likewise, more aquisition of education will spur demand for healthcare services because they are better informed of the ills of their failure to do so. Fourth, the quality of care people receive at the health centres is a significant factor which influences their demand for healthcare services hence, if people get better healthcare services, they are more willing to approach primary health centres in the event of being sick.

Based on the findings and conclusions of the study, some recommendations are in order. Although high cost of drugs has small effect on primary healthcare services, it is recommended that cost of drugs be subsidized by the primary healthcare board, especially the State Ministry of Health and the local government health department so that demand for the services can increase. The State Government should continue to spend more on literacy and basic education that will further enlighten people so as to understand the need to utilize healthcare services at the primary level. Further, efforts be made by the State ministry of health (SMOH) and the local government health department (LGHD) to boost the quality of healthcare in its primary health centres. This can be done by establishing and or strengthening quality assurance in the primary health care centers. The quality assurance unit will ensure that drugs are of good quality, service attendance such as nurses and doctors are at their duty posts and attend to patitents within short period of time. The quality assurance unit can also administer questionnaire to patients to rate the quality of the services provided by the center.

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