



Health Status, Access and Utilization of Health Services in Health Resource Poor Environment: Evidence from a Suburban Community in Nigeria

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Abstract

Introduction: Health care planning in low-and-medium-income countries can be intellectually demanding. However, users' centric planning approach is intuitively promising to enhance utilization, resource allocation, and strengthening of the health system. This study examines the relative importance of health status and access on intention to use the health services and the mediating role of prior experience and perceived quality of care on utilization intention.

Methods: This study was a cross-sectional survey method in a suburban location in Nigeria with administration of a questionnaire on a random sample of voluntary and non-remunerated participants. The study utilized structural equation model that encompasses the relationship between these variables based on survey data from five hundred and nineteen (519) respondents.

Results: The study found that access was a stronger determinant of intention to use health services than self-rated health status; in addition, negative prior experiences in the health system was found to be a disincentive to intentions to use health services.

Conclusion: It seems of benefit to initiate and encourage programs that seek to improve the health care professionals' competence in management of individual-health facilities contact experience and strengthen the bond between perceived health status and responsive attitude to use health services. Health facilities planning approach need to consider the location models that facilitate physical access and seek to deconstruct administrative barriers to obtaining care.

Keywords: Health status, Access, Health service, Utilization, Healthcare planning, Facilities, Hospital

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Introduction

Health care planning in low- and medium-income countries that focus on achieving equitable distribution of health facilities can be intellectually demanding. There are contentious issues, such as lack of reliable data set as planning premise, primacy of political considerations over knowledge of health services utilization, and scarcity of resources which should be considered. Political considerations often weigh in making decisions on the location, size, mission and management of health facilities in favor of areas considered as important in future elections. Consequently, planning outcomes marginalizes the rural areas with poorer population while comparatively fostering overcrowding of facilities and patients over- load in urban areas. The poor rural individuals, therefore, are more dependent

on self-medication or other traditional alternatives due to the ease of access and perceived effectiveness, restricted access, and cost of organized Medicare (1)

Knowledge of health service utilization should form a basis for strategic planning of the design of effective model of health care delivery in pursuit of universal health care. Consequently, policymakers and planners often experiment with different models of resource deployment pattern and mixture of resources to improve access to health care and make effective use of available health resources. The subtle assumption seems to be that availability of health resources is related, *ceteris paribus*, with utilization; therefore, demands for care are envisaged. It is assumed that those who need health care would, naturally, seek health facilities to use available health resources.

However, in environments characterized by poor or non-existent health insurance coverage, inadequate health facilities, out-of-pocket payment by health users, few instances of co-payments, economic inequalities, and urban drift of agile sector of the population, such factors as social structures and other enabling resources other than population health needs potentially exert a critical role in access to care and utilization of health services (2, 3). Theoretically, the goal of health for all or the universal health care initiative is ensuring access to care on the basis of need rather than economic ability or income. Prevalence of high costs of minor medical procedures and treatment, out-of-pocket payment, time wasting in outpatient wards, and demand for payment before care are the barriers to access, rapid preferential access and utilization of health services. (1, 4).

Health planning approach which utilizes population health status as a sub-variable in planning will potentially distribute health services and facilities disproportionately with population health needs. Potential and actual entry of the sections of population into the healthcare delivery system will be obstructed with consequences on health service utilization. Therefore, this study aimed to empirically assess the relative importance of self-rated health status and access on intention to use health services in environments with poor health resources. Assessment of this relationship is important in strengthening the health system and evolving a robust health users centric planning approach. Health facilities are provided with expectations that those who require care would seek it; however, a potent way to influence utilization behavior is measurement of behavioral intentions (5)

Conceptual Framework

Health status is a multidimensional concept measured by multiple indicators and methodologies. Conceptualization and measurement of health status may be problematic; for example, in clinical research it may be taken as outcome measure, a functional and psychosocial profile of individual patients (6). This conceptualization focuses on objective measurement based on standardized examination or medical records. Health status is also measured subjectively as self-assessed or self-perceived health. This approach involves individuals rating their current status, often, using single-item measure; this subjective or self-assessed health has consistently been the objective measure of health (7). Extant literature posits that the subjective measures which involve subjective reflection of individuals on their

health correlate with other measures of health status and predict mortality, morbidity and admission to long term care facilities (8-10)

Initial decisions to use health services are often at individual's discretion (11); we would, in line with common wisdom, expect such decisions to be predicated on self-perceived health status. Seeking professional care givers for treatment or prevention of health problem will expectedly influence the health status. Indeed, submission is that access to and utilization of health services are important to health outcomes (12). This make access, population health status and utilization of health services an important planning premise for health resource allocation. Deconstructing access and utilization barriers are the key considerations in the design of effective intervention approach to widen health service coverage; otherwise, planning approach and policy measure will secure less than desired success.

Health planners and policymakers need to have knowledge of barriers to health services utilization for effective management of the health system and resource allocation. A number of individuals do not have access to health services due to financial hardship, government negligence, out-of-pocket payment policy, distance, lack of information, and cultural practices (13). Access to care is worsened in most transition economies by slow economic growth which often count on the government budget allocation to health care and social sectors (14). Economic constrains culminate to inadequate resource flow to the health sector as a result of competitive demands of developmental projects for resources and exigent needs in other sectors of the economy. Health practitioners are more focused on enhancing skills, procedures for treatment, supplies and environment of health facilities with limited focus on addressing the impediments to accessing services (15).

Poor access to health services contributes to high mortality; however, contrary to expectations, the numbers of physicians available, potential increase through immigration and medical schools and population demand are less examined in developing nations (16). Developed nations have adequate records of health facilities that are over- or under-utilized and establishment of observations in health status, based on indices such as infant mortality, population, child and maternal mortality (17). Poor acceptability of health services may be the outcome of poor access due to structural and personnel deficiencies, and physical and emotional discomforts. This is evidenced by increased patronage of trado-medical

practitioners and self-medications (18, 19). Prevalence of out-of-pocket payments for care, low government investment, uneven distribution of health care funds, and regional inequality in health care expenditure have been identified as barriers to access (20). Indeed, extant studies indicated that social structural factors mediated the effect of health service use and influence access (21). For example, co-payment and use of deductibles were found to create situations in which economic resource and insurance coverage are important in access and use of medical care (22, 23). Key dimensions of access to health care services that are of strategic interest in planning for improved access are: organizational, geographical, availability, financial dimensions, and acceptability (24).

Study Location

The study location is a sub-urban area, a border settlement, located within the transitional zone between Lagos, the commercial and economic nerve centre of Nigeria, and Ogun State. The stretch of the study location is an economically active zone which is characterized by poor road networks and inadequate social infrastructures with evident poor planning of residential areas. The community is served by reasonable a number of public/government-owned health facilities including a general hospital and networks of primary health care facilities. In addition, there are privately-owned specialist hospitals, faith-based hospitals and privately-owned general practice hospitals within the settings. In alignment with the nation's health policy, there are hosts of traditional and complementary health facilities in the community. However, costs of care are largely out-of-pocket payment; a noticeable drawback in the health system is the prevalence of seemingly exploitative cost of medical treatment in private health facilities, demand for payment before treatment. Time wasting in out-patients ward is a common phenomenon in government-owned facilities; besides, care procedures for the poor, in many instances, are quite unsympathetic. However, costs of treatment are comparatively lower than obtained in private health facilities (25).

Materials and Methods

This research is based on the data obtained using cross-sectional survey method in the study area and a questionnaire was distributed among a sample of 600 voluntary and non-remunerated participants. The study was done by administration of the questionnaire and follow-up visits using remunerated research assistants who were familiar

with the geographical terrain and were involved in similar experiment in the past over a four week period in Ota, Ogun State Nigeria. On the strength of geographical spread of residential areas and field experience of research assistants, five locations were selected and sampled. Eligibility criteria for inclusion in the sample in each location was the participant's willingness, employment status, and age. We aimed to have a fairly representative sample that polarized service utilization along age, employment and residential locations.

The survey instrument is an enhanced version of that used in earlier work by the author; however, it was modified and re-focused on key variables in the study. The research instrument is divided into two sections. The first section is focused on obtaining socio-demographic information of the respondents. These socio-demographic variables were considered tangential to access and utilization of health services (21). Participants are asked to respond to questions on age, gender, education, employment status and source of regular care in this section

The second part of the research instruments consists of a set of questions focused on the respondents' self-reported health status, access and utilization of health services. The wordings and scales adopted in the research instruments are straightforward in anticipation of the minimal level of education of the respondents. Question items were focused on obtaining data on travel time to regular source of care, waiting time, whether respondents have refrained and/or delayed from seeking care on account of costs, or difficulty in accessing health personnel or facility. A multi-item index was used to measure the respondents' intention to use health services. Research evidence suggests that the best way to affect utilization behavior is measurement of behavioral intention (5). The design of the instruments utilized for data collection are largely an adaptations and rework of that used in earlier works (1, 21, 26). Health status measures the individual's evaluation of his/her own health on a 7-point Likert scale ranging from 7(excellent) to the least being 1 (very poor). Similarly, respondents were to indicate how frequently they had experienced pains on a scale of 7 (very often) to I (not at all). The third item for health status asks the respondents to report on the frequency of their worries or anxieties over their health: 7(worry a great deal) to 1 (no worry). However, with reference to access, participants were asked to indicate the number of times they had delayed or abstained from obtaining care on account of costs in the last 12 month using time intervals: 1-4 times, 5-7 times, none. Questions

on ease of access to health facilities and waiting time before care were scored from very satisfied (7) to very unsatisfied (1). Generally, questions for the variables of health status, utilization, perceived quality and prior experience in the health system were scored on a 7-point Likert scale to a reduce skewness. A single item measure was adopted to capture the respondents' evaluative impression of the quality of care, while the respondents evaluative experience in the system utilized a multi-item index. Therefore, variables and measures were guided by items with established reliability and validity; we excluded some items to fit based on the colleagues and experts' views.

Analysis of the data obtained from the completed copies of the research instrument was done using SPSS. Question items on utilization intention and experience in the health system were transformed for each item in SPSS and the mean score taken as respondent's total score for that item; this was used in further analysis on AMOS. We utilized structural equation model ON AMOS 22 to assess the relative importance of health status and access on intention to use the health services. The proposed models considered the intention to use health services as dependent variables. Further analysis utilized respondents prior care experience in health facility as mediating the link between access, health status and intention to use health services. One of the models utilized perceived quality of services as mediating the link between access, health status and intention. Access was considered as evaluative impressions of those dimensions which describe the potential and actual entry of the respondents to the healthcare delivery system

Results

Table 1 summarizes the socio-demographic characteristics of the sample; of the 519 completed questionnaires, 281 respondents or 54.1% of the sample were male and 238 or 45.9% of them were

female (49.5%). As to age, 31.1% of the respondents were in the age group of 41 years and above, while a reasonable number of the respondent were aged between 25 and 40 (37.4%). Respondents aged 25 years and below accounted for 31.5% of the sample. A reasonable number of the respondents had formal education with only 8.9% of them having no formal education; therefore, there was a reasonable level of understanding of the research instruments by the respondents; however, the research assistant had to spend more time in interpreting questions and responses to segment the respondents with no formal education.

Occupationally, 193 respondents were without regular employment and were actively searching for jobs. 62.8% of them were in full-time employment either in their private firm, their own business, or in the civil service (employed by government). Of the respondents, 66.1% used public or government-owned hospitals, while 29.5% of them had used private hospitals to address their health needs. However, 3.9% of the subjects indicated self-medications as their source of care; these adhered more to self-medications as their first measure.

Participants in the study were to indicate the number of days they were held back from normal economic activities or absent from duty on account of ill health within the past year. Poor health potentially disrupts normal activities and when it genders absence from duty, it will be expected to have implications for economic role performances or ability to earn a living and this may serve as impetus to use health services to regain health early enough. 24.3% of the participants had not been absent from work on account of ill health, while 187(36%) of them had been off work on account of ill-health at least once, that is 1-7 days. Ill-health had restrained (3.5%) 18 respondents from work for more than 30 days in the past one year; they would had used hospital or health care services more frequently than others (Table 2).

Table 1: Demographic Characteristics of the Respondents

Variables	Frequency	Percentages	Variable	Frequency	Percentages
Gender			Education		
Male	281	54.1	None	46	8.9
Females	238	45.9	Not above secondary school	150	28.9
Age			Tertiary	322	62.2
<25years	164	31.5	Source of care		
25-40years	194	37.4	Public hospitals	343	66.1
41years & above	161	31.1	Private	153	29.5
Type of employment			Self-medication	20	3.9
Self-employed	132	25.4	Civil/public service	117	22.5
Job seekers	193	37.2	Private Firms	76	14.7

Table 2: Absence from duty, costs barrier and travel time

Variables	Frequency	Percentages	Variable	Frequency	Percentages
Days off work on account of illness			Phone contact with health personnel		
None	126	24.3	None	153	29.5
1-7 days	187	36	1-4 times	163	31.8
8-30days	185	35.7	5-10times	172	33.2
Above 30days	18	35	Above 10	26	5.0
Delayed seeking on account of cost of care			Estimated travel time to source of care		
None	138	26.6	30min and below	268	51.6
1-4 times	184	35.5	30-60min	144	27.7
5-7times	192	38.9	Above 60min	92	17.6

Costs of care and travel time to the source of care may potentially serve as barriers to seeking health care and continuity with care. Health status of an individual may require he or she to demand for health care; however, costs and distance from the source of care are potent barriers to health care utilization (27). Slightly over half of the respondents (51.6%) estimated the travel time to the location of care to be 30 minutes or less.

Modeling Intentions to Use Health Services

Structural equation modeling on AMOS 22 was utilized to assess the relative importance of health status and access in intention to use health services. In line with the theory of planned behavior, the path to behavioral change is measurement of intention (28). The structural equation model was estimated using the maximum likelihood estimation procedure (MLE). This procedure indicates events that are likely

to happen on the strength of observed variance-covariance matrix (29).

Relationships between the variables were tested using a number of models; four models were utilized in the study. The first model tested the link between self-reported health status and intention to use health services. The path coefficient was statistically significant and positive $\beta=0.32^{**}$. The model's R^2 of 0.10 suggests the variance in intention to use health services explained by the model. The relationship tested in the first model was moderated in model 2 by access to health services. Access with a path coefficient of $\beta=0.29^{**}$ has a stronger and statistically significant effect on intention than health status.

The third model mediated the relationship between access, health status and intention to use health service with prior experience with organized health system (model three diagram and path coefficient is shown in Figure 1). The effect of health status on

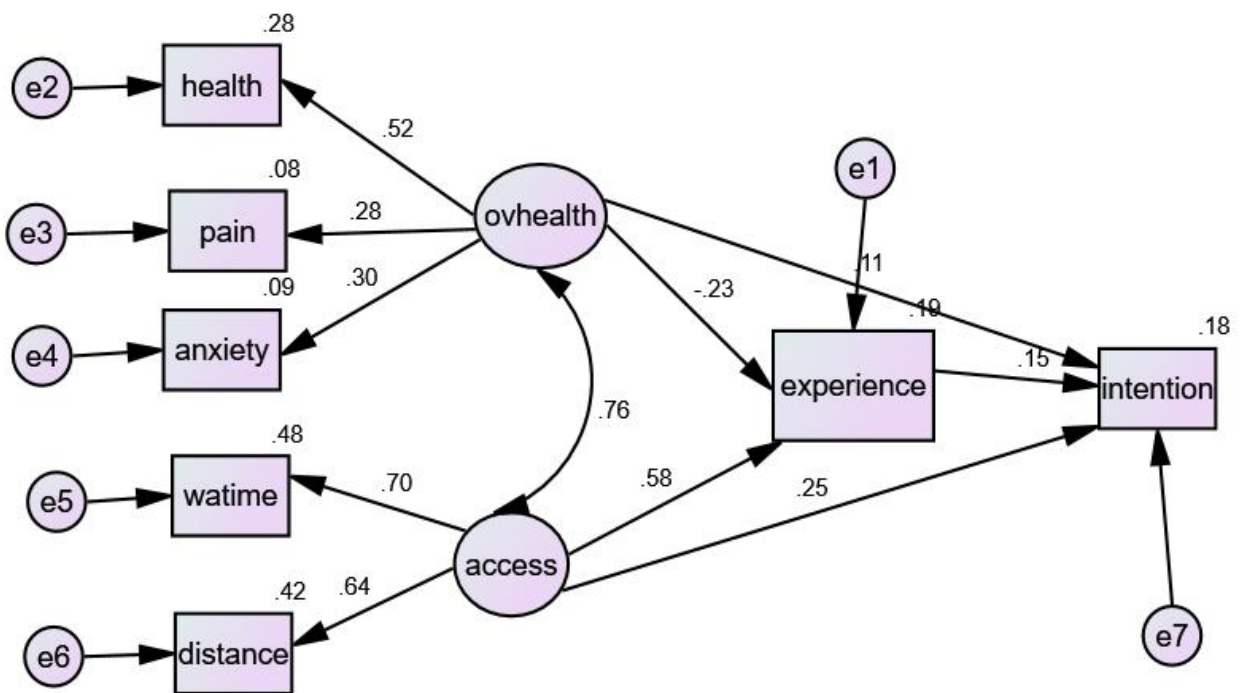


Figure 1: Relationship between health status, access and intention to use health services

Table 3: Comparative results of the models utilized in the study

Model fit/variable	Model 1	Model 2	Model 3	Model 4
X ² /df	4.91	2.48	3.45	2.07
RMSEA	0.08	0.05	0.07	0.04
CFI	0.82	0.96	0.93	0.98
NFI	0.83	0.94	0.91	0.96
IFI	0.85	0.96	0.93	0.98
X ² (P)	9.82(.007)	17.34 (.02)	34.49(.00)	20.78(.02)
Intention R ²	0.10	0.14	0.18	0.15
Intention <-ovhealth	0.32**	0.11‡	0.10 [‡]	0.13 [‡]
Intention <- access		0.29*	0.25 [‡]	0.35**
Experience R ²			0.19	
Experience<-ovhealth			-0.23 [‡]	
Experience <- access			0.58**	
Intention<-experience			0.15**	
Quality R ²				0.50
Quality<-ovhealth				0.38*
Quality <- access				0.38**
Intention<-quality				-0.10 [‡]

‡>0.10, *<0.05, **<0.001, R² Variance explained, N=519

experience is negative, suggesting that experience in the health system and health status negatively covaried ($\beta=-0.23^{**}$). There was, however, a strong link between experience and access to health services $\beta=0.58$; the link between health status and intention remained unchanged; however, the link between access and intention to use health services weakened though it was statistically significant $\beta=0.25$.

The fourth model mediated the earlier relationship with perceived quality of care (Table 3).

The fourth model had a better fit and indicated the link between access and intention to use health services which remained stronger than the link between self-rated health status and intention to use health services. However, adding quality as a mediator decreased the R² of intention to use health services to 0.15, suggesting that the model relatively explained less of the variance of intention to use health services when it was set against model 3. The results in models 3 and 4 showed the mediated effect of experience and quality on the intention to use health services; the effect was quite mediated in model 3 with the direct effect of self-rated health status, and access both weakened and declined the statistical insignificance. In model 4, the effect of health status on the intention remained eclipsed by access and was also statistically significant. Access seemed to have an effective moderating influence on health status and intention to use health services. Generally, in structural equation modelling (SEM), R² evaluates variance in dependent variable explained by one or several independent and

mediator variables together (30); therefore, studies are apt to prefer the models that explain the variance of the dependent variables more. On assessment of R², experience seems to have a larger effect on intention to use health services (R²=18, $\beta=0.15^{**}$), and the quality, perceived or experienced, shows demonstrable effect on the pattern of intention to use health services (R²=0.50, $\beta=-0.10^{#}$)

Discussion

Findings of this study showed that 74.4% of the study participants reported delays in seeking care on the account of cost. The percentage was comparatively higher than a previous study which suggested that cost may cause the individuals to delay or avoid both preventive and non-preventive care (31). This may have a significant effect on population's health because perceived cost barrier may predispose these participants to seeking less expensive but inappropriate care, such as self-medication. Besides, delays in seeking care at the onset of symptoms of illness may increase the progression and likelihood of worsened health. The outcome of economic barriers to seeking care makes it evident that there is the need for concern for the low level of adoption of health insurance scheme which could have mitigated the delay.

It was observed that 46.8% of the respondents estimated travel time to their preferred source of care to be above 30 minutes. The time estimates may be considered comparatively high in an environment with poor road networks, epileptic

social infra-structures and poor traffic management (32). Restricted physical access due to inadequate transport and poor roads is a planning concern in location of health facilities because of its implications for utilization (33, 34) and can make a difference between life and death in emergencies. 29.5% of the subjects used private health providers(hospitals) for their health care needs. Private providers deliver more expensive services in terms of cost; however, these have better attitudinal dispositions and prompt response to patients' need (25). 3.9% of the subjects attempted self-medications. Self-medication excludes the physicians and health professionals in care decisions; however, our study indicated that the initial choice of care in ill health among students to be self-medication (35). The pattern of using health facilities indicated in this study is fairly consistent with a similar study (36).

The structural equation model provides evidence that reinforces the relative importance of individuals' evaluation of their own health as antecedents of demand for care. This relationship supports the significance of the individuals' discretion in physician and health facilities visits for care; however, the effect of self-rated health status seems to be eclipsed by access. Access potentially serves as a stronger determinant of individuals' intention to use health services (33) This finding is a preliminary support for the proposition that utilization increases with proximity to health facilities (37). Access may predispose individuals to self-medicate, delayed care or inappropriate mode of care (35, 38)

The negative effect of health status on experience amplifies the potential effect of disagreeable experiences in providers-patients encounter. We would expect the individuals that evaluated their health as good to have low demand for health services, However, poor interpersonal skills and communication of care providers' competence or poor management of care experiences may potentially cause a negative relationship between health status and experience of entering the health system.

Limitation of the Study

Studies have limitations; therefore, this must be acknowledged in this study. First, subjective health assessment of the respondents was used and it was not possible to validate these responses with objective measures. Second, utilization intention was not focused of a specific health service being provided in any of the facilities; rather, a global use of health services was the focus of the study. Third, judgement was exercised in the use of residential dispersals as

the basis for developing clusters of locations for sampling; however, sampling of respondents within the cluster was randomized to ensure diversity of the respondents.

Conclusions and Implications

The practical implications of the results of this study suggest the need to initiate and encourage the programs that are focused on facilitating the spread of knowledge of personal health care. Such knowledge has beneficial consequences in terms of responsive attitude to use health services; however, the effectiveness of this approach will be enhanced by provision of access to health services. Health facilities planning approach needs to consider location models that facilitate or break physical and organizational access to care; it seems evident that providers' empathy, interpersonal relationship, communication of skills, knowledge and professional abilities may have demonstrable benefits on the experience of health service users with positive implications on future intention to use health services. Administrative or organizational access that reduces waiting may potentially encourage seeking care when needed. Policymakers must be interested in addressing various dimensions of access (geographical, organizational and economic); this study indicated that access enhanced the individuals' response to perceived health status.

Findings from the study suggest that individuals' prior experience with the health system may serve as disincentive to intentions to use health services. Management of individual-health facilities contact experience become important; poor management of the contact experience has long-term consequences for potential and actual future entry to the health care delivery system. Health planning and policy objectives may seek a framework that distributes health facilities to improve geographical access; however, this is necessary but not a sufficient condition for the use of health services. Non-affordability of care and poor management of individual facilities contact potentially disconnects the link between health status and health services use.

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