

# Utilization of health care services in rural and urban areas: a determinant factor in planning and managing health care delivery systems

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## Abstract

**Background:** Disparities in use of healthcare services between rural and urban areas have been empirically attributed to several factors. This study explores the existence of this disparity and its implication for planning and managing healthcare delivery systems.

**Objectives:** The objectives determine the relative importance of the various predisposing, enabling, need and health services factors on utilization of health services; similarity between rural and urban areas; and major explanatory variables for utilization

**Method:** A four-stage model of service utilization was constructed with 31 variables under appropriate model components. Data is collected using cross-sectional sample survey of 1086 potential health services consumers in selected health facilities and resident milieu via questionnaire. Data is analyzed using factor analysis and cross tabulation.

**Results:** The 4-stage model is validated for the aggregate data and data for the rural areas with 3-stage model for urban areas. The order of importance of the factors is need, enabling, predisposing and health services. 11 variables are found to be powerful predictors of utilization.

**Conclusion:** Planning of different categories of health care facilities in different locations should be based on utilization rates while proper management of established facilities should aim to improve health seeking behavior of people.

**Keywords/Phrases:** Utilization, healthcare Delivery System, Planning, Model, Factor Analysis, Rural and Urban Areas.

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## Introduction

Differences in health status, based on indices such as infant mortality, young and child mortality and maternal mortality, between developed countries and developing countries have witnessed historical documentation<sup>1</sup>. Within the developing countries, the phenomenon has shown aggravation as we move from urban to rural areas. Unfortunately, the causes of this disturbing reality are illnesses that can be treated and deaths that can be prevented by simple interventions but for which inappropriate structures have constituted a stumbling block. In order to justify the amount of money spent on health and the number of workers employed, serious attention is required in improving quality of healthcare services while containing costs and also in planning of health care activities and carrying out effective management functions relating to health care delivery systems (HCDS).

This cannot be done outside the imperatives of utilization. This is because utilization is the most activity-related problem, being consumer-oriented with diverse dimensions in needs, perceptions and knowledge. To the extent that utilization entails the cooperation and invitation of people outside the health system crystallizes the magnitude of the problem. Indeed, utilization as a major factor in planning any health care delivery system is validated by past and contemporary situations around the world. At the inception of HFA/2000, WHO<sup>2</sup> had warned that its goals, support activities, management and implementation may be irrelevant if they are not tuned towards maximum utilization. In the United States of America, hospitals and related health facilities require formal utilization review procedures as condition for participation under health plans and some kind of utilization review process in each institution seeking accreditation. In the United Kingdom, the comprehensive National Health Scheme (NHS) is structured to ensure equity and encourage all constituents to seek the use of services. Even in the “apartheid era” in South Africa, the health sector enjoyed desegregation by reconstructing health services along the principles of accessibility, affordability, acceptability, equity and efficacy. In developing countries, attempts have been

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directed towards promoting utilization particularly among the rural populations but success has been limited. Free medical services as a means of improving utilization through the elimination of financial barriers has formed a major issue of political activism. Success in this direction has been limited due to inappropriate structures that result from not tuning planning and management activities towards utilization, a situation compounded by other existing problems including<sup>3,4,5:</sup>

- A). Rapid population growth
- B). Increasing demand for health services against dwindling resources
- C). Faulty allocation of limited resources
- D). Internal inefficiency of government health care programs and health services.
- E). Poor quality of private health care services
- F). Inadequate support infrastructural facilities like water, electricity and good roads.

These problems have resulted in inappropriate structures, faulty allocation of resources and incongruent staff scheduling<sup>6</sup> which would not have arisen if potential utilization had formed the bases upon which the establishment of the facilities were initially hinged. This situation is a call to restructuring which can only be facilitated by x-raying the relationship between distribution of resources, health problems and patterns of utilization whereby identified determinants would reveal the services to be provided for the growing population as well as their magnitude.

Utilization of service is the actual coverage and it is categorized into ambulatory medical care services (outpatient and home); inpatient services (hospital); and preventive services<sup>7</sup>. To achieve optimal levels of utilization, all the three categories must enlist the cooperation and initiative of the population as well as those of the health service providers. Hitherto, the assumption has been that the Health Ministry and other providers of health services knew the demand on their resources, upon which planning was based, by the number of people that demand services. There is at present increasing evidence, especially in the developing world, that many more who attempt to obtain such services are not getting them for a number of reasons. In Nigeria, particularly in Kwara State, the discrepancy between what the levels of health care utilization are and what they ought to be is easily discernible. This underlines current efforts in relating utilization to resources as well as to past and present planning efforts. It has been said that there is need to review planning

efforts and their appropriateness, especially when viewed from the context of utilization of health care services<sup>8</sup>.

### Study objectives

Increasing evidence suggests that the observed discrepancy between potential and actual utilization cannot be explained by only one factor but many. Each of these factors varies in its intensity from area to area in Nigeria. The study explored those relevant factors that determine the utilization of health care services in Kwara State, Nigeria.

The main purpose of the study therefore is to identify the major determinants of health care utilization in order to provide useful information and guide to health planners, administrators and policy makers on the need to ensure the provision of effective health care services through developing appropriate structures and instituting enduring management capabilities as a platform for effective utilization. The immediate objectives of the study are three-fold:

- (i) To determine the relative importance of the various predisposing, enabling, need and health services factors on the utilization of health care services;
- (ii) To determine the extent of similarity between the sets of factors affecting utilization in rural and urban areas; and
- (iii) To determine the major explanatory variables for utilization

### Methods

This study concerns the factors that guide the use of health care services at all levels – individual, family or community. It proposes that utilization pattern can be better understood by a 4-stage behavioral model comprising predisposing, enabling, need and health services (characteristics) factors. Behavioral models have been used in different perspectives and in various sizes in the past. This study is greatly informed by these early studies, a review of which is contained in the following paragraphs.

### Models of Health Care Utilization

A total of thirty-one (31) variables are identified for this study. It is however instructive to note that these 31 variables can be collapsed or expanded in a meaningful way to produce a smaller or larger number. Each or

any set of the variables could be, as indeed has been, used to construct models to determine empirically the extent to which any of them may be operative in a particular situation. Since each of these variables can influence utilization behavior, they have the advantage of reminding us that health care delivery systems will require pluralistic models. Moreover, developing models after a particular variable may allow more in-depth study of the many parts of the variable. For example, a model<sup>9</sup> identified six aspects of symptoms which were combined with cultural and psychological costs of treating symptoms. However, single or double variable models employing univariate or bivariate analytical methods tend to be “copouts” from other studies with the attendant limitations of qualification, reliability and replication.

Larger models of health care utilization can in general be delineated along economic, social and psychological lines. This claim is without prejudice to the inspiring multitude of studies based on socio-cultural, geographic, socio-demographic, and organizational factors and/or models that have been undertaken in the past. However, most economic and socio-psychological models contain elements of these other approaches.<sup>10,11,12</sup> Economic models seek to find the relationship between utilization patterns based on socio-demographic factors and a set of economic variables which include income, insurance coverage, prices of health services and free care for all or certain categories of illnesses.<sup>13</sup> Socio-psychological studies emphasize those factors such as values and attitudes, information influences, social distance, learned inclinations and other linked socio group structures as affecting the individual's definitions of illness and the subsequent decision to consult a physician.<sup>14</sup> These relatively larger models are also beset by problems of reliability and replication.

For an exploratory study intended to cover an area of diverse socio-cultural and economic factors, these models may prove inadequate. Additionally, the fact that health care delivery systems are changing rapidly, driven by demographic, social, economic, political and technological forces of a complex and interactive nature, demand that some form of multivariate modeling be focused upon.

Multivariate models have been constructed, used and cross-validated in various forms and sizes for reasons of changes over time of underlying structural relationships supporting many identified factors. Also, the use of large samples allows not only an assessment of the relative importance of the variables and factors

included in the model but also the process and nature of their interrelationships.

Most multivariate studies of healthcare utilization have been based on models that condition physician utilization on predisposing, enabling and need factors.<sup>15,16,17</sup> In summary, these models have theorized that predisposing factors, consisting of socio-demographic variables combined with attitudes and beliefs, interact with enabling factors mainly of economic variables to produce the conditions under which a person is or is not likely to seek care when confronted by need factors such as symptoms. Different powerful statistical techniques such as regression<sup>15,17</sup>, multiple classification analysis,<sup>16</sup> correlation employing phi and tau<sup>18</sup> among others have been employed to arrive at the general finding that need and ability to pay are significant in predicting utilization behavior.

The conceptual approach guiding the type of multivariate analysis enunciated above was originally developed by Andersen and his associates.<sup>19, 20, 21</sup> Characteristically, these studies dealt with large representative samples and employ sophisticated multivariate analytical procedures. In general, results from these studies showed that each component of the model correlated with families' use of health services, but that need was more important than predisposing and enabling components and that need was most important while the enabling component was least important (Need > Predisposing > Enabling). Over time, this approach has proved adequate and successful for viewing people's use of health care services. Its features include large representative samples, large number of variables and suitable but sophisticated techniques oriented towards successful research effort. This was the approach employed for the study at hand but modified by the inclusion of a fourth stage, health services factors, defined as issues having to do with actions and conducts tending towards the welfare of others. The reason for including this factor was to provide a leverage to establish the existence of a dichotomy between rural and urban health services utilization.

Not much work has been done in this area that can assist in the planning and management of HCDS in Nigeria. However, some studies have been carried out on utilization of specific services. They include studies on factors associated with patient satisfaction with care in an outpatient department (OPD) in Cross Rivers State of Nigeria<sup>22</sup>; on the magnitude of access problems at time of need, in Lagos metropolis<sup>23</sup>; and on factors affecting utilization of antenatal care services in Ibadan<sup>24</sup>.

A few other studies have focused on use of health care services by identified groups such as students<sup>25</sup>, the elderly and rural dwellers<sup>26</sup>, while the effect of certain policies such as the national health insurance scheme on utilization has also been studied<sup>27</sup>.

The obvious limitations of these studies manifest in the lack of a holistic approach both in concept and in scope which the present study attempts to bridge. Two past studies show a semblance. The first<sup>8</sup> was in fact motivated by the need to review planning efforts and their appropriateness viewed from the context of *health services* utilization. That study came up with information on utilization rates for many states of the Federation at both rural and urban levels. The other<sup>28</sup> examined the stages of health seeking behavior in Nigeria. These also suffer the limitations identified above.

### Study Design

The study covering the geographical entity known as Kwara State of Nigeria was carried out in 2011 and in order to capture all possible variations in utilization behavior and variations in individual characteristics, deliberate attempt was made to include all the major ethnic groups as well as people from rural and urban areas using the definition of minimum population threshold<sup>29</sup> and the reality of observed increasing urbanization.

Both publicly and privately owned health institutions in the rural and urban areas of the state were covered in the study. By the exploratory nature of the study, the independent (explanatory) variables explaining utilization in the study are all embracing and have been identified from an extensive review of literature in the area and also from the researcher's personal knowledge and experience of the study area environment. The variables were categorized into four major headings constituting the components of the model of health care utilization proposed. They were defined thus:

**Predisposing factors** are those that render health services favorable, inclined and susceptible. Variables that fall under the group are: age, sex, religion, occupation, education, family size, ethnicity, culture, attitude, belief, and health education.

**Enabling factors** denote variables which engender the use of health services and include family income, proximity, availability, costs, motivational benefits, free health care, health insurance, and third party influence.

**Health services factors** are those having to do with actions and conducts tending towards the welfare of others. For this study, the relevant variables considered

are: communications, bed supply, quality of care, outcome, treatment, type of facility, loyalty to provider, and ambulatory care.

**The need factors** are defined as those that are imperative and require action to be taken and such relevant variables for the study are: disease, symptoms, health status, and disability days. The decision to include both symptom and disease is informed by differences in decision criteria about seeking care that can possibly follow a mere symptomatic feeling of ill-health and actually being diagnosed with an ailment.

### Data Collection

For some reasons, including the need for reliability and internal validity, sampling covered patients in the health facilities and residents of the various communities in the facilities' milieu. Partly structured and partly open-ended pretested questionnaire was used and full-scale data gathering exercise carried out by research assistants, mainly consisting of health professionals who were already familiar with the type of interview method adopted and the information being sought.

The sampling procedure had those features that tend to polarize service utilization along rural/urban, public/private and hospital/clinic dimensions implicitly built into it for the right analysis. This meant that cases (respondents) have to be drawn at these various levels.

In order to obtain a representative sample of the population, the sampling method adopted for the patients was multi-stage while convenient sampling constrained by time was used in selecting cases from the resident communities.

The procedure involved stratifying the State into rural and urban areas. From each stratum, clusters were drawn on the basis of whether health institutions are hospitals or clinic/centers. Each cluster was further broken down by form of ownership into private and public health facilities. The cases were then drawn from these.

A sample size of 1200 was adopted in consideration of three factors namely: the need to minimize the sampling error by making the sample as large as possible; factor analysis procedure which relates independent variables to number of cases to increase reliability and validity; and the enormous amount of resources required for a large sample. Thus, a large sample size implied by the first two factors was constrained by limited resources and the adopted size represents a satisfactory balance.

### Data Analysis

Two major analytical procedures were employed based



on the characteristics of the data sets obtained. The first was factor analysis which worked with 27 variables measured at the ordinal and interval levels while cross tabulation analyzed data on four (4) nominal variables. Three different statistics (Cramer's  $v$ , Tau  $c$  and Pearson's  $r$ ) were calculated because of their general suitability for nominal variables with different numbers of categories. Calculated chi-squares at corresponding degrees of freedom provided further tests of significance for values obtained.

### Factor Analysis

Factor-analyzed data was intended to produce a correlation matrix. Although a correlation matrix would not provide much explanation of the structure of interdependence between variables, it represents an appropriate method of orthogonal transformation of the raw data since the variables have different measurement attributes. The eigenvalues associated with the correlation matrix were also obtained. This was the extra-heuristic criterion that determined the number of factors extracted by the factor procedure. Usually, the number of eigenvalues greater than unity determines the number of factors for extraction. Since the total sum of eigenvalues equals the number of variables (average eigenvalue = 1), it follows that as many factors as the variables can be extracted. This implies that factors with eigenvalues greater than the average of unity were regarded as the minimum number of factors. These factors were regarded as the underlying construct of all the input variables.

Adopting the varimax rotation of the correlation matrix, factor pattern with associated factor loadings emerged from orthogonal rotation of the correlation matrix. Factor loadings represented the correlation between the factors and the original variables which then means that high loadings are indications of the strong influence of the variable on the factor. The use of varimax rotation simplified interpretation as factor loadings range from -1 to +1. Factor loadings having values close to zero show lack of association while those close to -1 and +1 indicate fairly strong association. Negative signs only indicate association between variable and factor in the opposite direction.

The other outputs of the factor analysis included the communalities and the percentage of variance explained. The communalities reflect the variation of all the respondents associated with each original input variable. Variables with high communalities reasonably

represented these variations. A summary of the percentage variance explained indicated the portion of the total original variance by all variables that were represented by the factor. Therefore, these two statistics were used in interpreting the variables and the factors respectively. Table 1 shows the factor pattern produced by the factor analysis and the accompanying statistics enumerated above

## Results and discussion

### Factor Analysis – Total Sample

Most often, researchers resort to the use of rule of thumb in deciding what values of factor loadings and communalities can be regarded as high enough for acceptability. For the present study, a value of 0.60 is taken as significant. The important advantage conferred by this decision is that figures were not over-interpreted.

Also, the factor pattern that emerged may not conform to expectation particularly as no theoretical answer is imposed on the factor model initially. The only approximation to the theoretical answer was the 4-stage model comprising predisposing, enabling, need and health services factors designed for the study.

Table 2, a derivation from table 1, showed the eight (8) factors extracted by the factor analytic model to represent the underlying dimensions inherent in the 27 variables. Going by the value of 0.60 taken as significance level, eight variables loaded substantially on the first factor, two on each of the second, third, fourth, fifth and sixth factors and only one variable on each of the seventh and eighth factors. This gave a total of 20 supposedly influential variables which can still be regarded as unmanageable. However, communalities of 60% and above became handy in identifying the relatively more important variables. The communality estimates in Table 2 further eliminated the variables whose influence can be regarded as minor (asterisked). It shows that only 12 variables can now be regarded as important.

In other words, six factors (2 and 6 were ruled out) could be taken as providing the unobservable dimensions of the observed variables. However a factor can be meaningful if two or more variables overlap. This suggested that factors 7 and 8 can be taken as unimportant except that theory and practice lead to different conclusions about the influence of religion

Table 1: Varimax Rotated Factor Pattern (Total Sample)

FACTORS		F1	F2	F3	F4	F5	F6	F7	F8	COMMUNALITIES
V	V1	-0.03	0.05	-0.02	0.68	0.01	0.38	0.01	0.21	0.66
A	V5	0.21	-0.06	0.16	-0.47	0.60	-0.15	-0.06	-0.11	0.68
R	V6	-0.02	-0.08	-0.11	0.74	0.17	0.00	0.07	0.17	0.63
I	V7	-0.11	0.02	0.02	0.22	0.78	0.03	-0.02	-0.13	0.68
A	V9	-0.02	-0.01	0.06	0.08	-0.31	0.67	0.07	0.05	0.57
B	V10	-0.68	-0.07	-0.05	0.11	-0.13	0.03	-0.25	-0.18	0.60
L	V13	-0.05	0.07	0.03	0.13	0.17	0.71	-0.15	-0.02	0.58
E	V14	-0.09	0.18	0.03	0.08	-0.09	-0.08	0.74	-0.02	0.62
S	V15	0.54	0.27	0.08	0.02	-0.23	0.16	-0.23	0.20	0.54
	V16	0.70	0.11	0.11	0.03	0.11	-0.14	-0.12	-0.09	0.57
	V17	-0.77	0.07	-0.08	0.05	-0.03	-0.08	-0.02	-0.07	0.62
	V18	0.68	0.19	0.06	-0.00	0.07	-0.09	-0.12	-0.13	0.55
	V19	-0.57	0.28	-0.02	-0.15	0.01	0.22	-0.14	-0.16	0.52
	V20	0.68	0.12	0.18	-0.02	-0.15	0.11	-0.29	0.01	0.63
	V21	0.54	0.23	0.20	-0.04	0.14	0.02	-0.34	-0.01	0.52
	V22	-0.70	0.13	-0.03	-0.06	0.01	-0.05	-0.12	-0.19	0.56
	V23	0.01	0.69	-0.16	-0.08	0.16	0.09	0.09	0.14	0.57
	V24	0.02	0.66	0.16	0.01	-0.18	-0.00	-0.04	0.13	0.51
	V25	0.14	0.65	0.03	0.09	-0.00	-0.11	0.27	-0.07	0.54
	V26	0.32	0.24	0.42	0.42	-0.20	-0.16	-0.06	0.06	0.59
	V27	0.75	0.12	0.19	0.04	-0.05	-0.02	0.01	0.02	0.61
	V28	0.40	0.41	0.45	-0.10	-0.09	-0.02	-0.01	-0.08	0.35
	V29	0.60	0.18	0.19	0.05	0.10	-0.19	-0.18	-0.07	0.51
	V30	0.21	0.45	0.01	0.12	0.35	-0.16	-0.10	-0.11	0.44
	V31	0.16	0.04	0.87	-0.13	0.05	0.07	0.02	0.24	0.81
V32	0.42	0.05	0.77	-0.05	0.10	0.11	0.00	0.07	0.80	
V33	0.08	0.26	0.39	0.07	-0.04	-0.25	-0.35	0.37	0.55	
V34	0.13	0.14	0.07	0.05	0.05	0.03	-0.01	0.85	0.76	
Eigenvalue		6.27	2.17	1.89	1.50	1.44	1.23	1.03	1.03	
% of		19	8	7	6	5	5	4	4	
Variance		19	27	34	40	45	50	54	58	
Cummulative										

Source: Compiled from Analysis of Field Survey, 2011

(factor 7) and belief (factor 8). In the case of religion, one could expect that extreme views which disagree with use of health care services would be completely ameliorated by majority of positive thinking towards scientific medical care. Also, interpretation of religious services would vary from religion to religion and from person to person. At best therefore, the influence of religion remains unclear. On the part of beliefs, it could

be imagined, to a reasonable extent, that the beliefs people hold of the doctor's ability, the efficacy of drugs and the medical care systems in curing illnesses and the relative effectiveness of alternative sources of care such as traditional healing would determine their levels of utilization of health care services. Therefore, whereas, the influence of religion can be dispensed with, the same view cannot hold for beliefs.

Table 2: Factors, Influential Variables and their Factor Loading and Communalities – Total Sample

FACTORS	INFLUENTIAL VARIABLES	MODEL COMPONENTS	FACTORS LOADINGS	COMMUNALITIES
1	Proximity	Enabling	-0.68	0.60
	Health Education*	Predisposing	0.70	0.57
	Availability	Enabling	-0.77	0.62
	Free Health Care*	Enabling	0.68	0.55
	Health Insurance	Enabling	0.68	0.63
	Third Party Influence*	Enabling	-0.70	0.56
	Quality of Care Outcome*	Health Services	0.75	0.61
		Health Services	0.60	0.51
2		Health Services	0.66	0.51
	Communications* Treatment*	Health Services	0.65	0.54
3		Need	0.87	0.81
	Disease Symptom	Need	0.77	0.80
4		Predisposing	0.68	0.66
	Age Family Size	Predisposing	0.74	0.63
5		Predisposing	0.60	0.68
	Education Family Income	Enabling	0.78	0.68
6		Need	0.67	0.57
	Health Status* Disability Days*	Need	0.71	0.58
7		Predisposing	0.74	0.62
8	Religion Belief	Predisposing	0.76	0.76

\*Eliminated by the Community Criterion

Source: Derived from analysis of field survey data, 2011

### Cross-tabulation

Table 3-Total Sample revealed that all values of Cramer's  $\nu$ , Tau c and Pearson's were very small ( $<0.215$ ). Ordinarily, this suggests that the nominal variables do not provide satisfactory predictions for the dependent variable. However, it might be the case that imputed values of service use introduced substantial distortions since past events were hardly remembered with reasonable accuracy. This benefit of doubt was supported by the chi-square tests which showed, that, with the exception of the fourth variable (type of facility), the values were statistically significant ( $<0.05$ ). The rejection of the null hypothesis for the other three indicated that the values could only have resulted by chance (5 out of 100 chances). The two results considered together showed

sex, perhaps, as a fair predictor of service use. This is because it had fairly acceptable values of Cramer's  $\nu$  (0.207) Tau c (0.190) and Pearson's  $r$  (0.180) as well as a chi-square value (67.1) for 4 degrees of freedom much higher than was necessary to reject the null hypothesis. Even then, this conclusion hinged on the need for not under-interpreting relationships.

### Major findings of both analyses (Total Sample)

Results presented above indicate that the 4-stage model of health care utilization is generally supported. The fact that the eight factors accounted for 58% of the total original variance of all the 27 variables further confirmed the acceptability of the model in explaining utilization. As shown in Table 2 all the

model components were adequately represented in the factor pattern that emerged. In fact, except for minor distortions, each model component could be appropriately imposed on each separate factor. Also, cross tabulation results indicated sex, as perhaps the only significant variable for utilization. This showed that a total of twelve (12) variables namely: proximity, availability, health insurance, quality of care, disease, symptoms, age, family size, education, family income, beliefs and sex were adequate in explaining utilization

in answer to the third study objective.

The order of influence of the model components was derived by reference to factor loadings and communalities used as interpretation tools. This was done by comparing the number of input variables (31) first with the influential variables (20) identified by the factor loadings and secondly with the final set of variables after elimination by the communality criterion (12) for each component. Table 4 shows that need factors ranked first, followed by enabling factors, predisposing factors and lastly by health services factors.

**Table 3: Measures of Association  
Location 1 (urban area)**

VARIABLES	UTILIZATION				
	CRAMER'S V	TAU C	PEARSON'S R	CHI-SQUARE (P 0.05)	DF
Sex	0.308	0.244	0.282	88.6	4
Occupation	0.217	0.026	0.026	175.7	56
Ethnicity	0.206	0.011	0.057	158.5	28
Type of Facility	0.110	0.062	0.095	11.3	4

**Location 2 (rural area)**

VARIABLES	UTILIZATION				
	CRAMER'S V	TAU C	PEARSON'S R	CHI-SQUARE (P 0.05)	DF
Sex	0.169	0.070	0.044	17.9	4
Occupation	0.331	0.085	-0.129	274.9	60
Ethnicity	0.234	0.142	0.204	136.8	28
Type of Facility	0.174	0.008	-0.039	18.9	4

**Total Sample**

VARIABLES	UTILIZATION				
	CRAMER'S V	TAU C	PEARSON'S R	CHI-SQUARE (P 0.05)	DF
Sex	0.207	0.190	0.180	67.1	4
Occupation	0.214	0.028	0.014	285.7	60
Ethnicity	0.143	0.054	0.106	126.8	28
Type of Facility	0.045	0.028	0.022	3.2*	8

\*Null Hypothesis Accepted

Source: Derived from analysis of field survey data, 2011

Although this may appear a short gun analytical approach, it was nonetheless effective in determining the relative importance of each of the model components.

#### **Determinants of utilization in rural and urban areas**

The underlying assumption for the second objective of this study was that utilization patterns could be

expected to differ between the urban areas (Location 1) and the rural areas (Location 2) based on differences in the socio-economic and cultural characteristics of the two groups.

Tables 5 and 6 indicated that the 4-stage model of health care utilization was supported in the two areas. This is evident from the high factor loadings recorded for the model components



Table 4: Relative Importance of Model Components

Model Component	No of Imputed Variables	No of influence Variables by Factor Loadings	No of Explanatory Variables after Elimination by Communality	Ranking
Predisposing	11	6 (55%)	5(45%)	3
Enabling	8	6(75%)	4(50%)	2
Need	4	4(100%)	2(50%)	1
Health Service	8	4(50%)	1(12.5%)	4

Source: Computed from Table2

Of predisposing, enabling, need and health services factors. It would appear that this model is fairly robust in explaining utilization for any pattern of settlement. However, while the communality criterion removed the influence of health services factors for the urban areas, it confirmed the adequate representation of all the model components for the rural areas. To this extent, it could be inferred that factors determining utilization were different between the two groups. Support for this claim was provided by the factor pattern in Tables 5 and 6.

While ten factors provided the underlying dimensions

represented by the 27 variables for the urban areas, only six factors accounted for the variables for the rural areas. Moreover, the factor patterns showed the difference in the variability of the determinants of health care utilization. There was an even spread of the variables loading on the factors for the urban areas (Table 5), while majority of the variables had their loadings on the first factor for the rural area (Table 6). The implication of these divergent values is that while utilization determinants could be easily and comprehensibly ordered in the rural area, such an attempt is fraught with more variability in the urban areas.

Table 5: Factors, Influential Variables, Factors Loading and Communalities – Location 1(urban)

FACTORS	INFLUENTIAL VARIABLES	MODEL COMPONENTS	FACTOR LOADINGS	COMMUNALITIES
1.	Motivational Benefits*	Enabling	0.60	0.56
	Loyalty to Providers*	Health Services	0.66	0.54
2	Disease Symptom	Need	0.83	0.71
		Need	0.85	0.74
3	Education family Income Health Status	Predisposing	0.68	0.70
		Enabling	0.80	0.72
		Need	0.66	0.61
4	Third Party Influence* Quality of Care*	Enabling	0.68	0.59
		Health Services	0.71	0.56
6	Health Education* Free Health Care*	Predisposing	0.74	0.57
		Enabling	0.66	0.54
7	Age Family Size	Predisposing	0.73	0.63
		Predisposing	0.76	0.67
8	Disability Days Religion*	Need	0.73	0.61
		Predisposing	0.60	0.64
9	Availability Belief	Enabling	0.76	0.65
		Predisposing	0.82	0.73

\*Eliminated by the Communality Criterion

Source: Derived from analysis of field survey data, 2011

Table 6: Factors, Influential Variables and their Factors Loading and Communalities 2 (rural)

FACTORS	INFLUENTIAL VARIABLES	MODEL COMPONENTS	FACTOR LOADINGS	COMMUNALITIES
1.	Proximity	Enabling	-0.65	0.60
	Culture	Predisposing	0.76	0.61
	Health Education*	Predisposing	0.69	0.59
	Availability	Enabling	-0.83	0.72
	Free Health Care*	Enabling	0.69	0.53
	Costs*	Enabling	-0.76	0.59
	Health Insurance	Enabling	0.83	0.71
	Motivational Benefits*	Enabling	0.71	0.59
	Third Party Influence*	Enabling	-0.73	0.55
	Bed Supply	Health Services	0.63	0.60
	Quality of Care	Health Services	0.84	0.78
	Belief*	Predisposing	0.60	0.53
2.	Disease	Need	0.87	0.78
	Symptom	Need	0.75	0.80
3.	Age	Predisposing	0.80	0.66
	Education	Predisposing	-0.61	0.77
	Health Status*	Need	0.62	0.44
4.	Ambulatory Care	Health Services	0.75	0.63
5	Disability Days*	Need	0.71	0.57
	Treatment*	Health Services	0.61	0.54
6.	Family Income	Enabling	0.78	0.71

\*Eliminated by the Community Criterion

Source: Derived from analysis of field survey data, 2011

### Cross-tabulation of nominal variables

The measures of association provided additional criterion for comparing the influential variables in the rural and urban areas based on four nominal variables. Table 3 (Rural

And Urban Areas) showed the results of cross-tabulation of service use against the four nominal variables. Although the chi-square tests for all the two locations indicated that the values are significant permitting a 5% chance of error, it would amount to over-interpretation if values below the 0.10 level were accepted. Consequently, only sex for urban areas and ethnicity for rural areas could be regarded as important in determining utilization in the respective locations.

**Health Services Factors** -The common health services variable to both rural and urban areas was the

quality of care which was given expression to by the paramedical services antecedent to health care and cure. However, while patients in the urban areas expressed more loyalty to a provider, the rural residents seemed to be fascinated by those qualities that were lacking in the facilities located in their areas. It could be suggested that the absence of doctors in the rural clinics, the lack of bed facilities, and the impossibility of obtaining service at home or as inpatient do not mould the right perception of the HCDS.

### Conclusions

In the process of determining the factors responsible for health care utilization three objectives regarded as capable of providing adequate information were investigated. Results from factor analysis and cross-tabulation generated findings which provided answers

to these objectives. They nonetheless also generated one or two contradictions.

The factor and cross-tabulation analyses of the total sample showed that a 4-stage model comprising predisposing, enabling, need and health services factors was adequate in explaining the reasons why people behave as they do towards health care utilization. The variables representing the predisposing factors included age, sex, family size, education and belief; those representing enabling factors were proximity, availability, health insurance and family income. All need variables showed importance but disease and symptoms gained more prominence than disability days and health status. The quality of care was the major variable under health services factors which indicated that people were conscious of the importance of the service equipment and other paramedical services needed to treat them. Separate analysis of data from rural areas also shows support for the model. However, finding from the same analytical procedure on data from the urban areas indicated that a model which does not contain the health services factors could be adequate for explaining utilization. This means that a 3-stage model, consisting of predisposing, enabling and need factors would be adequate in accounting for patterns of utilization in urban areas.

It was revealed that *need factors* were the most important predictors of utilization. This is consistent with findings in many different empirical settings. *The enabling factors* also showed a great deal of importance, they being more important than predisposing factors contrary to findings in other studies. There were enough justifications for the predictive power of enabling factors found in this study. One of these was that solutions are yet to be found to the problem of the barriers posed by physical inaccessibility, unavailability of services particularly in the rural areas and financial barriers to utilization<sup>30, 31, 32</sup>. This is quite different from what obtains in the developed countries where services are readily available and different health insurance plans have substantially reduced the formidability of financial barriers. Although the health services factors seemed to be of the least importance, they nonetheless established the fact that health care services users would make a choice given the opportunity. These findings have far reaching implications for policy regarding planning the establishment of different categories of health care facilities in different locations based on utilization rates and the subsequent proper and efficient management of established facilities in order to encourage greater professionalism in the health seeking behavior of the

people.

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