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Determinants of Patients' Choice of Medical Treatment Options in selected Rural, Rural-Urban & Urban Communities in Imo State, Nigeria

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Abstract

Background: The choice of a medical treatment option in the event of illness, can make a difference between life and death. This study explored the determinants of choice of medical treatment options in rural, rural-urban and urban residents in Imo State.

Method: This cross-sectional descriptive and analytical survey employed multistage sampling technique in its design. Questionnaire and interview were adopted for data collection and multinomial logistic regression was used in analyzing the data.

Result: Gender and educational qualification significantly influenced choice of medical treatment options. Other identified determinants of choice of medical treatment options were relative efficiency, easy accessibility, affordability etc. An intriguing result was that native treatment option was the modal choice with regard to fracture only; while modern treatment option was the modal choice in majority of the ailments studied. Also revealed in the study, was that native and spiritual healing options enjoyed more patronage than modern treatment option in the rural area.

Conclusion: This study considered 28 ailments out of which majority were chosen by the respondents under modern treatment option. Intriguingly, native treatment option was chosen by majority of the respondents in the case of fracture only. Also, the study revealed that the three treatment options were in use across the three residential locations under study; although spiritual and native treatment options were more prevalent in the rural communities.

Keywords: Choice, medical treatment option, rural, rural-urban, urban, Imo State, Nigeria

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Introduction

Every society has a health culture which forms a part of its general culture. Health culture has been defined as a systematic attempt to explain and treat sickness and to maintain health.[1] The health culture of a society encapsulates health-related aspects of the people's lives, including their perception of diseases and illnesses, their medical artefacts, ideo-facts, and related principle, beliefs and practices. Indeed, health is inherent in the social, economic, and even political lives of every society. Before delving fully into the topic of the paper, it is pertinent to highlight our context, the Nigerian health system.

The Nigerian health system is a complex amalgam of the *traditional/native, Western/modern and spiritual* health institutions. The traditional/native health subsystem is the indigenous system of food, health and medicine, by means of which indigenes of the various communities handled their illness and other health and medical problems before the advent of Western health and medical values and practices. The western/modern system is the science-based method introduced in Nigeria by the erstwhile colonial masters. Spiritual healing is provided by religious bodies and priests and are found in every part of the country.

In consonance with the three-tier system of government, the Nigerian modern health and medical practice also takes a three-tier structure, comprising the primary at the local government level, the secondary at the State government level and the tertiary at the federal level. Health system in Nigeria is in the concurrent list of the Constitution of the Federal Republic of Nigeria and reflects the capitalist ideological foundation of the State. It is worthy of note, that these various forms of health institutions in Nigeria have their respective clienteles, as well as their strengths and weaknesses. Their strengths act as "pull factors" that attract customers, and their weaknesses as "push factors", that repel customers.

According to Torrey, the goal of medical treatment is to restore or maintain health and prevent further illness.[2] He categorized medical treatment into four groups based on their potential outcomes namely, Preventive, Curative, Disease management and Palliative therapy.[2] And no matter the goal one chooses, he needs to consider the pros and cons of the treatment.[2]

Health culture varies with societies according to variations in their geography, demography, philosophy, and technology. A plethora of literature in medical and social research has established the relationship between a society's culture and health or illness.[3,4]

Illness is an existential reality in human life. For this reason, every society has multiple health and medical institutions that enable it to deal with all forms of ill-health and guarantee the physical, mental, and social well-being of its people. Choice of medical treatment options involves decision making.

Decision-making on where to seek treatment in the event of illness can make all the difference between life or death, depending on the type and gravity of the illness. Some individuals are known to have experienced aggravation of their ill-health, or even untimely death as a result of wrong decision-making on choice of treatment options. Conversely, others have experienced rapid recovery from the same ill-health but with different treatment options.

Although many research studies have been carried out on the factors that influence choice of medical treatment options, relatively little research has been carried out to scientifically determine the exact factors that influence patients' choice of medical treatment options for specific health problems in the rural, rural-urban, and urban communities under study. Thus, the study seeks to explore the determinants of patients' choice of place of treatment options for some health problems in selected rural, rural-urban, and urban communities in Imo State, Nigeria. The study also has some specific objectives that guided the context of the work.

This study is justifiable on theoretical and practical bases. Theoretically, it will add to the corpus of knowledge in health literature, as well as constitute a veritable reference material for student, health educators and other researchers working on the same area of study. From the practical perspective, the study will enhance the understanding of health behaviour of patients, as well as provide a scientific basis for health policy formulation and reformation in the subject area of the study.

Method

Population of Study

The population comprised economically active adults, aged 20-64 in the selected communities in Imo State, Nigeria.[5] Imo State is one of the Igbo speaking people of South Eastern Nigeria with 3 Senatorial Zones (Okigwe, Orlu and Owerri), 27 Local Government Areas and 655 Autonomous Communities. However, due to insecurity in Orlu zone during the period of the study, the study population was limited to Owerri and Okigwe zones.

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Sampling Procedure

Multistage sampling method was used in this study. At first stage, 2 Local Government Areas were selected from Okigwe zone out of 6 and 3 Local Government Areas were selected from Owerri zone out of 9 using simple random sampling. The second stage involved the selection of 10% of the 387 autonomous communities in selected Local Government Areas which gave 39 autonomous communities (16 from Okigwe zone and 23 from Owerri zone). The autonomous communities were selected based on the proportion of autonomous communities in the selected Local Government Areas. Finally, in each selected autonomous community, at least 25 economically active adults aged 20-64 years were randomly selected and the questionnaire administered on them.

Sample Size

The sample size was calculated based on the estimated proportion approach.[6,7] Using projected proportion of economically active adults from 2006 Nigeria census, the sample size was calculated from the formula:

$$n=\left(\frac{Z_{\alpha}}{e}\right)^{2} p(1-p) \qquad (1)$$

Where,
n = Sample size
Z = Value of standard variate corresponding to α
e = Acceptance error in a given situation
p = Projected proportion of cases in the population.
At 95 percent confidence, with e = 0.031 and p = 0.42, we obtained n = 1000.

Instruments for Data Collection

This study relied on Researchers'- Made- Questionnaire (RMQ) and interview, complemented by secondary sources. The validity and consistency of the instruments were ascertained through a pilot study. The questionnaires were administered to the respondents by trained final year students of Statistics.

Data Analysis

Descriptive and Analytical methods were employed in the study. Given that the data generated were frequency (categorical) data, and that the categories of the dependent variables (medical treatment options) were more than two (2), and do not have a natural ordering, multinomial logistic regression was adopted to analyze the data. The advantages of fitting one multinomial model over fitting several binary models are that there is one likelihood ratio chi-square, χ^2 for fit of the entire model and there is an opportunity to test hypothesis about equality of slopes.

Operationalization of variables

Two categories of variables were involved in this study, namely: Dependent and Independent variables. The dependent variables (Q10) were the three treatment options: Orthodox/modern (1), traditional/native (2) and spiritual/prayer (3) options. The independent variables were gender (Q2), place of residence (Q3), marital status (Q4), educational qualification (Q5), religion (Q6), occupation (Q7), family type (Q8), family size (Q9) and income (Q15). Other reasons/factors considered in this paper, as revealed in literature, that determine peoples' choice of medical treatment options include: easy accessibility (EA), relative efficiency (RE), parental influence (PI), modern civilization (MC), affordability (A), culture (C) and religion/faith(R/F).

Results

Table 1 shows that the coefficients (B) of predictor variables gender and educational qualification were significantly different from zero since the significance of their Wald statistic is less than 0.05 at 1 degree of freedom. This implies that predictors, gender and educational qualification made a significant contribution to the prediction of the outcome (medical treatment options). However, gender was the main determinant of the choice of medical treatment option, followed by educational qualification. The other seven predictor variables did not make significant contributions to the prediction of the outcome (medical treatment options).

In addition, the odds ratio (Exp(B)) of predictor variables gender and educational qualification were less than 1. This indicates that as gender increased by one unit, the change in odds of using modern treatment compared to spiritual healing is 0.498 or 2 times more likely and that of using native treatment compared to spiritual healing is 0.337 or 3 times more likely. Similarly, as educational qualification increased by one unit, the change in odds of using native treatment compared to spiritual healing is 0.554 or 1.8 times more likely.

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Table 1: Parameter Estimates from Multinomial Logistic Regression

Dependent/Independent Variables		β	Std. Error	Wald	df	p-value	Exo(β)	95% C.I for Exp(β) Lower Bound	Upper Bound
	Intercept	7.132	2.101	11.517	1	0.001			
	Q2	-0.698	0.344	4.114	1	**0.043**	0.498	0.254	0.977
	Q3	-0.311	0.263	1.397	1	0.237	0.732	0.437	1.227
	Q4	-0.064	0.182	0.124	1	0.724	0.938	0.656	1.341
1	Q5	-0.119	0.264	0.204	1	0.651	0.887	0.529	1.489
	Q6	-0.991	0.598	2.751	1	0.097	0.371	0.115	1.197
	Q7	0.229	0.145	2.484	1	0.115	1.257	0.946	1.670
	Q8	-0.663	0.454	2.136	1	0.144	0.515	0.212	1.254
	Q9	0.105	0.310	0.116	1	0.734	1.111	0.605	2.039
	Q15	-0.283	0.244	1.346	1	0.246	0.753	0.467	1.216
	Intercept	4.615	2.198	4.407	1	0.036			0.000
	Q2	-1.089	0.381	8.153	1	**0.004**	0.337	0.159	0.711
	Q3	-0.410	0.294	1.940	1	0.164	0.664	0.373	1.181
	Q4	0.138	0.199	0.481	1	0.488	1.148	0.777	1.694
2	Q5	-0.591	0.281	4.416	1	**0.036**	0.554	0.319	0.961
	Q6	0.424	0.596	0.506	1	0.477	1.528	0.475	4.910
	Q7	0.063	0.160	0.156	1	0.693	1.065	0.779	1.457
	Q8	-0.034	0.490	0.006	1	0.937	0.962	0.368	2.515
	Q9	0.286	0.347	0.677	1	0.411	1.331	0.674	2.630
	Q15	-0.440	0.272	2.615	1	0.106	0.644	0.378	1.098

1, 2 & 3 = Dependent variables: 1 = Modern, 2 = Native, 3 = Spiritual (Reference category), Q2 = Gender, Q3 = Place of residence, Q4 = Marital status, Q5 = Educational qualification, Q6 = Religion, Q7 = Occupation, Q8 = Family type, Q9 = Family size, Q15 = Income

Having identified the determinants of medical treatment options in Table 1, we used Nagelkerke R^2 and Cox & Snell R^2 in Table 2 to determine the magnitude of the effect. Here, the values Nagelkerke R^2 (0.144) and Cox & Snell R^2 (0.110), which represent relatively decent sized effect indicate that the predictors made some contribution in predicting the outcome variable. Table 2 also shows that the Pearson goodness –of- fit test $\chi^2(726)=804.288$ at 1 percent level is not significant (Dispersion parameters for Pearson and Deviance are approximately equal to 1), indicating that the predicted values were not significantly different from the observed values. In other words, the model is a good fit for our data.

Table 2: Goodness-of-Fit

	χ^2	df	p-value
Pearson	804.288	726	0.023
Deviance	592.242	726	1.000
Pseudo R-Square			
Cox & Snell	Nagelkerke		
0.110	0.144		

Similarly, Table 3 reveals that the model fit $\chi^2(18)=72.597, (\alpha=0.001)$ is significant; indicating that our final model predicts better than the original model.

Table 3: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	χ^2	df	p-value
Intercept only	753.199			
Final	680.601	72.597	18	.000

The result of this study, as given in Table 4, shows that for the modern treatment, relative efficiency was the modal reason followed by easy accessibility across the three residential groups. Easy accessibility was the modal reason followed by relative efficiency and affordability for native treatment and spiritual healing had religion/faith as modal reason followed by easy accessibility. Another fascinating revelation in Table 4 is that the three treatment options studied are patronized by the people in the three residential locations (rural, rural-urban & urban). Modern treatment was the modal treatment with 77.8%, 82.12% and 68.8% of respondents across the three studied communities. This is followed by native treatment with 19.0%, 14.36% and 22.3%; and spiritual healing having 3.2%, 3.6% and 8.9% respectively.

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Of interest, too, is that spiritual healing has the highest patronage in the rural communities and least patronage in the urban. Similarly, Native treatment has highest patronage in the rural communities, followed by urban and rural-urban as least.

Table 4: Distribution of Respondents by Residence, Treatment and Reason(s)

What reason(s) do you have for your choice?									
Residence	**Treatment**	**EA**	**RE**	**PI**	**MC**	**A**	**C**	**R\F**	**Total**
Urban	Modern	23	48	10	11	2	0	4	98(77.8%)
	Native	3	4	5	2	8	2	0	24(19.0%)
	Spiritual	1	1	0	0	0	1	1	4(3.2%)
	Total	27	53	15	13	10	3	5	126
Rural Urban	Modern	40	64	1	10	0	0	0	115(82.12%)
	Native	10	6	0	0	3	1	0	20(14.36%)
	Spiritual	0	2	1	0	0	0	2	5(3.6%)
	Total	50	72	2	10	3	1	2	140
Rural	Modern	98	102	11	49	20	0	6	286(68.8%)
	Native	26	25	2	5	21	7	7	93(22.3%)
	Spiritual	8	7	1	1	1	1	18	37(8.9%)
	Total	132	134	14	55	42	8	31	416

EA = Easy Accessibility, RE = Relative Efficiency, PI = Parental Influence,
MC = Modern Civilization, A = Affordability, C = Culture, R/F = Religion/Faith

Discussion

Gender and educational qualification were found to be significantly different from zero since the significance of their Wald statistic is less than 0.05 at 1 degree of freedom. Hence, the predictor variables gender and educational qualification made a significant contribution to the prediction of the outcome (medical treatment options). The other seven predictor variables did not make significant contribution to the prediction of the outcome (medical treatment options). The findings are in line with previous studies.[8]

In addition, the odds ratio indicates that as gender increased by one unit, the change in odds of using modern treatment compared to spiritual healing was 2 times more likely and that of using native treatment compared to spiritual healing was 3 times more likely. The implication is that those who rely most on native treatment are more likely to use spiritual treatment than those that rely most on modern treatment. This may be so since native treatment options often have elements of spiritualism. Similarly, as educational qualification increased by one unit, the change in odds of using native treatment compared to spiritual healing was approximately 2 times more likely.

The study also showed that tertiary education with 411 (52.7%) had the highest number of respondents, serially followed by secondary education with 301 (38.6%), primary education with 55 (7.1%) and no education with 13(1.7%). This result of the educational variable reflects the educational status of the State as one whose main industry is said to be education. The situation or trend can also be explained by the factor of unemployment. In the absence of employment, the people continue to read for higher qualifications instead of staying idle, especially when the opportunities are there. Also, low income earning workers enroll for higher qualifications to enhance their income and socio-economic status.

Furthermore, the study showed that modern treatment with 581 (74%) respondents was the modal choice. It was successively followed by native treatment with 153 (19.5%) and spiritual healing with the least 51 (6.5%). The implication of this result is that the people generally have highest confidence in modern treatment option and least in spiritual healing. However, for mental illness, spiritual healing option ranked second in preferred treatment option after modern treatment. The result is also a reflection of the increasing sophistication and Westernization of contemporary Nigerian society. This finding agrees with previous studies which showed high utilization of complementary and alternative medicine (CAM) in Nigeria. In particular, that the cultural beliefs of Africans that illnesses have a "spiritual" origin make patients interested in finding an explanation for their symptoms or root cause of their problems and therefore consult alternative practitioners. [9,10]

On whether they would take all cases of ill-health to the hospital, if the fee were reduced or medical treatment were free, 451 (58%) of the respondents chose 'Yes' and 326 (42%) chose 'No'. This result indicates the people's more preference for native and spiritual treatments than

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modern treatment in some ailments. Hence, policy makers on health services should find out ailments where the strengths of native and spiritual treatments are high and integrate them into Nigerian health system. This finding agrees with previous studies which showed high utilization of complementary and alternative medicine (CAM) in Nigeria. In particular, that the cultural beliefs of Africans that illnesses have a "spiritual" origin make patients interested in finding an explanation for their symptoms or root cause of their problems and therefore consult alternative practitioners. [9,10]

For the modern treatment, "relative efficiency" was the modal reason, followed by "easy accessibility" across the three residential groups. Easy accessibility was the modal reason followed by "affordability" for native treatment and spiritual healing had "religion/faith" as modal reason followed by "relative efficiency". This finding corroborates previous studies which found that distance to health facility and medical fees contribute to use of native treatment.[11,12]

Also, the three treatments studied are patronized by the people in the three communities (rural, rural-urban & urban). Modern treatment was the modal treatment. Spiritual healing had the highest patronage in the rural area and least patronage in the urban area. Native treatment has highest patronage in rural communities, followed by urban and rural-urban as least.

Finally, of the 28 ailments studied, modern treatment was the modal choice in 27 ailments. The result confirms the dominance of modern treatment as the people's most preferred choice of medical treatment option. With regard to native treatment, the result showed that the option was the most preferred option in the case of fracture. The result also corroborated an earlier study.[8]

Limitations of the study

The non-response rate seem to be high. This was due to the researcher's inability to access troubled communities for collection of questionnaire earlier distributed there. High transportation cost occasioned by removal of fuel subsidy adversely affected the budget for the research.

Implications of the findings

This study would help resolve the conflicts among practitioners of the three treatment options and thereby strengthen Nigerian health system. Government should provide more educational opportunities to the people to enable them make informed treatment choices in the event of ill-health. There is need to make health services more accessible and affordable to the people

Conclusion

This study considered the determinants of choice of medical treatment options among rural, rural-urban and urban residents in Imo State, Nigeria. The study identified gender as the most important determinant of medical treatment option in the studied population. This implies that men and women perceive medical treatment options differently. Also found in this study, was that although, majority of the respondents across the studied communities preferred modern or orthodox treatment to native and spiritual options, the three treatment options were patronized by the people. It is worthy of note too, that native and spiritual healing enjoyed their highest patronage in the rural communities.

Declarations

Ethical consideration

Instruments employed in the research were ethically validated by experts. The research assistant voluntarily participated in the research. The respondents consented to participating in the exercise; and their responses were held in strict confidentiality. In some cases, the questionnaire were administered and collected through volunteer Principals, Headmasters and teachers who were educated on the subject. Volunteers with adequate knowledge of the subject matter were interviewed.

Authors' contribution: Obasi conceptualized the study and wrote the introduction and literature review. Ajaraogu wrote the methods and typed the manuscript. The final draft was approved by the two authors.

Conflict of interest: There was no conflict of interest between the authors in the conceptualization, design and implementation of the study.

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