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THE SOCIO-ECONOMIC STATUS OF HOUSEHOLDS, SOURCES OF WATER SUPPLY AND ASSOCIATED WATER RELATED DISEASES OF COMMUNITIES IN NJABA LOCAL GOVERNMENT AREA OF IMO STATE

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Abstract

Background: Water ideally should be odourless, colourless, tasteless, clear and without turbidity. It is an essential part of life and is needed in every day life. Socio-economic status refers to the measure of one's access to collectively designed resources and it is a fundamental element in the social and health sciences. Inadequate supply of water most times results from low socio-economic status and diseases associated with poor water supply abound in households of low socio-economic status.

Objectives: To assess the socio-economic status of households in communities in Njaba Local government area of Imo State, their sources of water supply and associated water related diseases prevalence.

Methodology: A descriptive cross-sectional study of households in the communities of Njaba Local Government Area, Imo State. Multi-stage sampling method was used to select the communities to be studied. At the village level, cluster sampling was used to select the clans, while systematic random sampling was used to select 400 households.

Results: The study showed that majority of the respondents were between the age of 50-59 years 173(43.3%); most lived in bungalows 190(47.5%); majority were married 199(49.8%); fathers highest level of education was senior secondary 211(52.8%), mothers highest level of education was senior secondary school 203(50.8%); fathers occupation was mainly farming 162(40.5%); mothers occupation was mainly farming 131(32.8%). Sources of water were mainly boreholes 397(46.8%), and prevalence of water related diseases showed that diarrhoeal diseases have the highest frequency 180(52.2%) and occurred more in households of low socio-economic class.

Conclusion: Most of the households belong to the low and middle socio-economic classes. Sources of water were mainly borehole. Diarrhoeal diseases were found to be more prevalent among the households in the area and occurred more in the low socio-economic households.

Key words: Socio-economic, status, households, water supply, Njaba communities.

Introduction

Water is a clear colourless, odourless and tasteless liquid essential for plant and animal life[1].

Household refers to all the people living together in a house[2]. Sources of water include surface water from oceans, seas, rivers, lakes, streams, ponds. Other sources are rainfall, and underground water often obtained by digging wells and sinking of boreholes[3]. The deep well could be drawn manually with a bucket or by an electric pump[4]. Good water should be free from chemical and biological contamination and should be acceptable in terms of colour, taste and smell in accordance with the world health organization (WHO) guidelines on the quality of drinking water[5].

Access to water in the required quality is needed to achieve good personnel and domestic hygiene purposes[6]. Water supply is the provision of water by public utilities, commercial organizations, community endeavour or by individual efforts. Many communicable diseases and many of the

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poverty related diseases spread as a result of inadequate access to clean drinking water[6,7].

Socio-economic status is an economic and sociologically combined social measure of an individual's or family's position in relation to others based on income, education and occupation. These are basically divided into four major classes (class 1-4) using occupation and highest educational attainment. The Oyedeji classification parameters will be used in this study. It entails using the father's occupation and the mother's highest educational attainment as the assessment criteria[8].

The objective of this study is therefore to assess the socio-economic status of households in communities in Njaba Local government area of Imo State, their sources of water supply, and associated water related diseases prevalence.

Materials and methods

Study Area: It was carried out among households and residents of communities in Njaba Local Government Area (L.G.A) of Imo State. Njaba L.G.A is located along the Owerri-Orlu road, it is in the Orlu senatorial zone and bounded in the West by Oru-East L.G.A, in the East by Isu L.G.A, in the North by Orlu L.G.A and in the South by Mbaitolu L.G.A. It has an area of 84 square kilometers and was originally composed of seven homogenous communities with the same ancestral and maternal origin. It is now made up of twenty autonomous communities. Their major occupation includes farming, trading, artisans and civil service. Their different sources of water supply are rivers, rainfall, borehole and deep wells.

Study Population: Njaba L.G.A has a population of 115,110 as at the 2006 national census. There are about 16,500 households in the study area.

Study Design: It was a cross-sectional descriptive study to investigate socio-economic status of households and sources of water supply in Njaba L.G.A of Imo State.

Sample Size: The total number of households in the study area was expected to be more than 10, 000. The sample size was determined using the Cochrane formula.

$$N = \frac{z^2 pq}{D^2}$$

Where N = sample size

q = (1-proportion) = 1-0.5

z = standard normal deviation (1.96)

p = proportion of target population. This was set at 0.5.

D = degree of accuracy desired. It was set at 0.05.

$$N = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2}$$

400 households were studied.

Sample Technique: A multi-stage sampling method was used. Simple random sampling was used to select the communities that were studied. At the village level, cluster sampling method was used for the selection of villages. The households that were studied among the villages were selected by systematic random sampling.

Instrument for data collection: A descriptive interviewer administered semi-structured questionnaire was used for data collection. Basic questions to assess the socio-economic status and their sources of water supply were asked.

The respondent in each household was the head of the household. Where the head of the household was not available, any other senior member of the household provided answers.

Method of data collection: The questionnaires were taken from one community to another by the researchers who administered the questions to the respondents.

Method of data analysis: Collected data was analyzed manually using calculators and results presented using frequency tables.

Ethical consideration: Permission was obtained from the Ethics and Research Committee of the Imo State University Teaching Hospital Orlu and from the various traditional rulers of the various communities prior to the commencement of the study.

Limitations: It was the index study of this topic in the area; hence there was a dearth of literature on it. The villagers were a bit apprehensive, but became receptive and cooperative when the motive of study was fully explained to them.

Results

400 households were selected and interviewed. This represents 100% response rate.

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Table 1 shows that the majority of the respondents were within the age bracket of 50-59 years 173(4.3%)

Table 2 shows that majority of the respondents reside in bungalows 190(47.5%).

Table 3 shows that majority of the respondents were married 199(49.7%).

Table 4 and 5 shows that majority of the respondents attained the senior secondary school as their optimal level of education 211(52.8%), 203(50.7%).

Also **tables 6 and 7** showed that farming was the main occupation of the respondents 162 (40.5%) and 131(32.7%).

Tables 8 and 9 showed that majority of the respondents earned between N10, 000 to N50, 000 per month, 163 (40.7%), and 177(44.2%).

Table 10 shows that most of the respondents sourced their water for domestic use from bore holes 397(46.8%).

Table 11 gave safety as their main reason for choosing the source of their water supply.

Table 12 shows that diarrhea was the most frequent water-related disease encountered by the respondents 180(52.2%).

Table 1: Age of respondents

Age(yrs)	Frequency	Percentage(%)
<20	12	3
20-29	48	12
30-39	100	25
40-49	50	12.5
50-59	173	43.3
>60	17	4.2
Total	**400**	**100**

Majority of the respondents were within the age bracket of 50-59 years, 173 (43.3%).

Table 2: Nature of residence of respondents

Residence	Frequency	Percentage(%)
Single room	64	16
Self contained	123	30.7
Duplex	23	5.8
Bungalow	190	47.5
Total	**400**	**100**

Majority of the respondents reside in bungalows 190(47.5%).

Table 3: Marital status of respondents

Martial status	Frequency	Percentage(%)
Single	168	42
Married	199	49.7
Separated	10	2.5
Divorced	13	3.3
Total	**400**	**100**

Tables 4: Father's highest level of education

Level of education	Frequency	Percentage(%)
Primary education	25	6.2
Junior secondary	31	7.8
Senior secondary	211	52.8
Tertiary secondary	133	33.2
Total	**400**	**100**

Table 5: Mother's highest level of education

Level of education	Frequency	Percentage(%)
Primary education	38	9.5
Junior secondary	69	24
Senior secondary	203	50.7
Tertiary secondary	63	15.8
Total	**400**	**100**

Table 6: Father's occupation

Father's occupation	Frequency	Percentage(%)
Unemployed	8	2.0
Farming	162	40.5
Trading	74	18.5
Artisan	12	3.0
Civil service	199	29.8
Professional	14	3.5
Clergy	11	2.7
Total	**400**	**100**

Table 7: Mother's occupation

Mother's occupation	Frequency	Percentage(%)
Unemployed	10	2.5
Farming	131	32.7
Trading	125	31.3
Artisan	12	3.0
Civil service	106	26.5
Professional	8	2.0
Clergy	8	2.0
Total	**400**	**100**

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Table 8: Father's monthly income

Amount per month	Frequency	Percentage(%)
<5,000	33	8.3
5,000-10,000	136	34
10,000-50,000	163	40.7
>50,000	68	17
Total	**400**	**100**

Table 9: Mother's monthly income

Amount per month	Frequency	Percentage(%)
<5,000	62	15.5
5,000-10,000	133	33.3
10,000-50,000	177	44.2
>50,000	28	7
Total	**400**	**100**

Table 10: Respondent's source of water for domestic use

Water source	Frequency	Percentage(%)
Rainfall	169	19.9
Local wall	100	11.7
Stream	82	9.6
Borehole	397	46.8
Mobile water vendor	100	11.7
Total	**848**	

Most household have more than one source of water hence multiple frequency in some cases (total frequency is >400).

Table 11: Respondents reasons for source of water

Reason	Proximity	Season	Cost	Safety	Total
Frequency	165	217	108	348	838

Multiple frequency (Sources of water) allowed.

Table 12: Frequency of water related diseases

Disease	Frequency	Percentage(%)
Diarrhea	180	52.2
Typhoid	135	39.2
Cholera	-	-
Hepatitis A	30	8.6
Total	**345**	**100**

Table 13: Relationship between source of water and reasons for the source of water

Reason Source	Proximity	Cost	Safety	Season	Total
Stream	539(64.6%)	29(35.3%)	-	-	82
Borehole	61(15.3%)	10(2.5%)	166(29.2%)	200(50.3%)	397
Rainfall	-	21(12.4%)	1.48(87.5%)	-	169
Local well	31(31%)	18(18%)	51(51%)	-	100
Mobile water vendors	-	30(30%)	53(53%)	17(17%)	100
Total	**165**	**108**	**348**	**217**	

Table 14: Association between source of water for domestic use and diseases

Disease water source	Diarrhea	Typhoid	Cholera	Hepatitis A
Rainfall	61	58	-	8
Local wall	16	25	-	7
Stream	58	28	-	8
Borehole	12	8	-	-
Mobile water vendor	33	16	-	7
Total	**180**	**135**	**-**	**30**

Table 15: Association between disease and fathers' occupation

Disease Father's occupation	Diarrhea	Typhoid	Cholera	Hepatitis A
Unemployed	4	10	-	-
Farming	90	83	-	13
Trading	55	16	-	17
Artisan	13	16	-	-
Civil service	7	4	-	-
Professional	5	6	-	-
Clergy	6	-	-	-
Total	**180**	**135**	**-**	**30**

Table 16: Association between disease and mothers' occupation

Disease Mother's occupation	Diarrhea	Typhoid	Cholera	Hepatitis A
Unemployed	29	25	-	8
Farming	66	53	-	9
Trading	28	16	-	7
Artisan	32	18	-	6
Civil service	10	9	-	-
Professional	10	6	-	-
Clergy	5	6	-	-
Total	**180**	**135**	**-**	**30**

Table 17: Relationship between disease and fathers' highest level of education (HLE)

Father's (HLE) Diseases	Primary education	Junior secondary	Senior secondary	Tertiary education	Total
Diarrhea	69	46	24	24	180
Typhoid	36	51	20	20	135
Cholera	-	-	-	-	-
Hepatitis A	16	8	6	-	30
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Table 18: Relationship between disease and mothers' highest level of education (HLE)

Mother's (HLE) Diseases	Primary education	Junior secondary	Senior secondary	Tertiary education	Total
Diarrhea	71	33	48	25	180
Typhoid	42	39	29	28	135
Cholera	-	-	-	-	-
Hepatitis A	13	10	7	-	30
					345

Table 19: Relationship between fathers' income and disease

Father's income Disease	<5,000	5,000-10,000	10,000-50,000	>50,000	Total
Diarrhea	68	51	36	25	180
Typhoid	38	36	33	18	135
Cholera	-	-	-	-	-
Hepatitis A	16	7	7	-	30
					345

Table 19: Relationship between fathers' income and disease

Mother's income Disease	<5,000	5,000-10,000	10,000-50,000	>50,000	Total
Diarrhea	62	49	42	27	180
Typhoid	46	36	33	20	135
Cholera	-	-	-	-	-
Hepatitis A	15	8	7	-	30
					345

Discussion

The study shows that majority of the households in the communities in Njaba L.G.A were in the low and middle socio-economic classes, as assessed by the father's occupation and mother's highest level of education.

Majority of the respondents have more than one source of water for domestic use because of different reasons ranging from proximity to the water source, cost of obtaining the water, safety reasons, season (whether dry or rainy season). However majority of the households were found to have borehole as their major source of water for domestic use followed by rainfall. Out of the 387 respondents that had borehole as their main source of water, 200(50.3%) were of the opinion that borehole water is safer. This differs from the findings of Kirkwood et al[9], in their study done in a rural community in Imo State of South Eastern Nigeria, in which 98% of the households used borehole with season (dry) as their major reason. Of the 169 respondents that had rainfall as their major source of water, they used rainfall usually in the rainy season and resorted to other sources at dry season.

This agrees with the finding of Azuwuike et al[10], in their study at Ikeduru Imo State, South Eastern Nigeria were 64% of the households depend mainly on rainwater during the rainy season.

The study also showed that diarrhoeal disease 180(52.2%) was the most common water related disease in these communities while hepatitis A infection 30(8.6%) was the least common. This was similar to the finding of Huttly et al[11], in their study of epidemiology of acute diarrhea in which the prevalence ranged from 5-50%.

The incidence of diarrhea and other water related diseases were seen in the households where the fathers were mainly farmers, traders or unemployed as well as households where the mother's highest level of education was the junior secondary school or below, and also where the income of father and mother ranged from N10,000 to N50,000 or below. Most of the diseases occurred in households whose sources of water were mainly rainfall and stream. The households in the upper socio-economic class experienced fewer of the water-related diseases. This also agreed with the finding of Uba et al[12], in which low socio-economic status was noted as an important risk factor in the high prevalence of diarrhea. The prevalence of hepatitis A also occurred more among the low socio-economic class. This agreed with the findings of Salama et al[13], in Cairo, Egypt, North Africa in which the sero-prevalence of hepatitis A virus was seen mainly among people of the low socio-economic class.

Conclusion

Most of the households in the communities of Njaba L.G.A of Imo State belong to the low and middle socio-economic classes. Borehole was their most common source of water and they

cited safety as their main reason. Diarrhea disease was the most prevalent water related disease and it occurred mostly among those whose major source of water was rainfall. This was seen mostly among people of low socio-economic class.

Recommendation

Health workers and other relevant bodies should embark on massive public health campaigns to educate the people on the dire importance of getting their water from safe sources.

Governments, Non-governmental organizations (NGO's) and philanthropists should provide portable water in order to reduce the incidence of water related diseases in the communities.

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