

Level of Public Awareness on Leprosy and its Effects on Leprosy Control Programmes in Anambra and Ebonyi States of Southeast Nigeria

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Abstract

Three related objectives informed this research paper. The first was to ascertain the level of awareness about leprosy among residents of Anambra and Ebonyi states of Southeast Nigeria. The second was to find out if there were differentials in levels of awareness about leprosy across socio-economic profile of residents of the two areas. The third objective interrogated how the prevailing level of awareness in the area affected the effectiveness of leprosy control programme in the area. The study adopted a cross-sectional survey design. Quantitative data was generated through structured questionnaire schedule administered on 1116 study participants, selected through a combination of cluster and simple random sampling methods. Qualitative data were generated through Focus Group Discussion (FGD) administered to persons affected by leprosy and In-Depth Interview (IDI) of leprosy control staff and officials of both World Health Organization and the donor agency supporting leprosy control in the two states. The Statistical Package for the Social Sciences (SPSS) software was employed in analysis of data. Frequency tables, percentages, bar charts, chi-square and multiple regressions were used for presentation, analysis and in testing the stated hypotheses. It was found that leprosy was considered as a serious health problem by most of the respondents (66.5%). The level of awareness about the disease which has several local names in the area was relatively high (89.6%). There was no significant difference in the level of awareness between older and younger respondents, income generating and non income generating respondents. However, significant differences exist in levels of awareness about leprosy between respondents with different educational attainments ($X^2=43.916$, $df=8$, $p=0.000$), across urban and rural residents, male and female respondents, and between different religious affiliations. Multiple regression analysis conducted to predict the net and pure effects of socio-demographic variables on awareness of leprosy when the factors act simultaneously showed that religion, income and locality were positively associated with

awareness while age, gender, education and occupation have negative association. Other factors that were found to affect leprosy control in the area were belief system, lack of community participation, poverty, poor political commitment/ funding, low literacy level of patients and the public. It was recommended that aggressive public enlightenment through public, private and local media; incentive package for health workers; socio-economic empowerment for effective rehabilitation of patients; prohibition of socio-cultural practices that promote the spread of leprosy etc; be adopted to enhance leprosy control in Anambra and Ebonyi states.

Keywords: Awareness, Leprosy, Leprosy Control programme, Persons Affected by Leprosy, Social Exclusion

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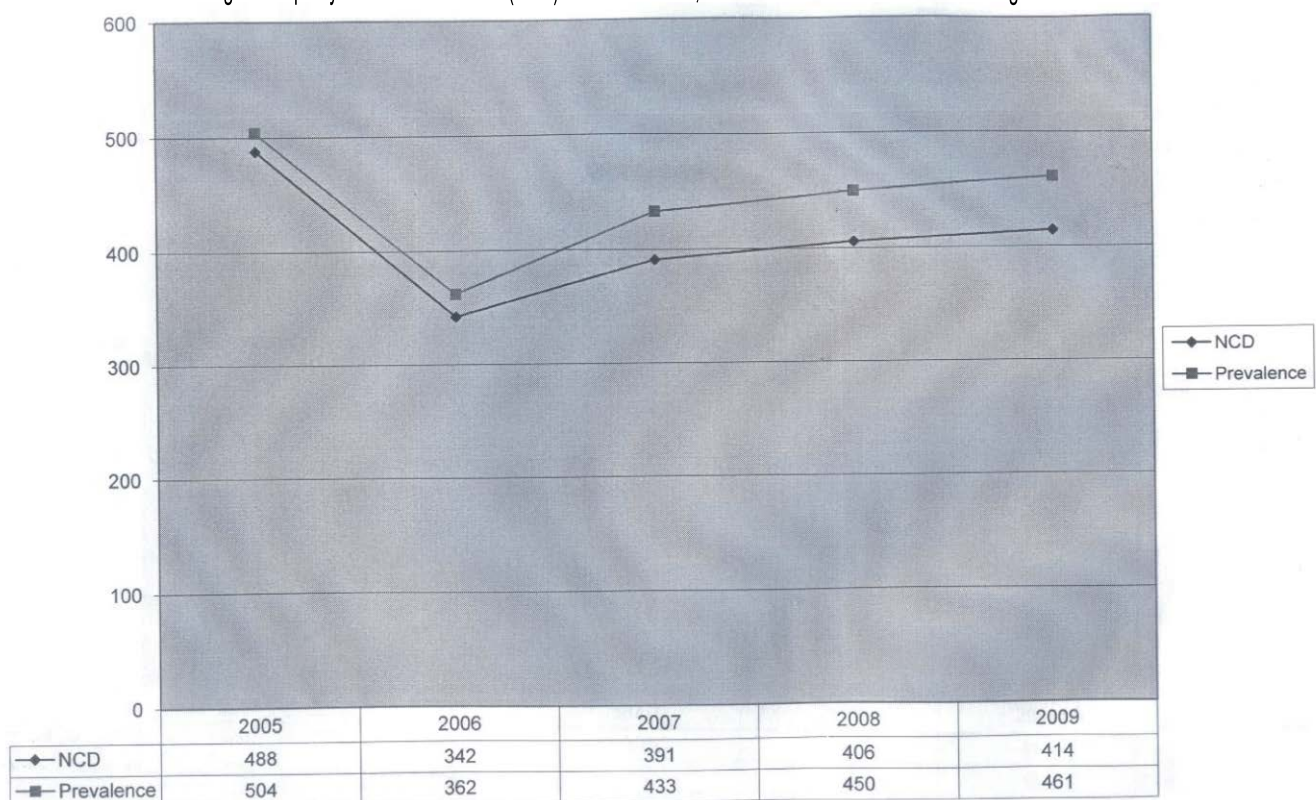
Introduction

Nigeria's Federal Ministry of Health (FMOH, 2004) defined leprosy as a chronic, infectious disease that mainly affects the skin, peripheral nerves and mucous membrane of the upper respiratory tract caused by *Mycobacterium leprae*. The disease has remained a public health problem and cause of morbidity in Nigeria. Lockwood, (2000) also notes that the disease is a leading cause of permanent disability worldwide, and has over the year's left terrifying memory of mutilation, rejection and social exclusion.

Nigeria has a national leprosy control programme, an organised effort with clearly defined goals to reduce leprosy burden in the country. Key activities of the programme include problem assessment, health education of the public, case finding, diagnosis, chemotherapy, rehabilitation and efforts to integrate persons affected by leprosy into their community. There is also inbuilt monitoring and evaluation arrangements in the programme.

However, over the years, Nigeria's leprosy control programme and persons affected by leprosy have encountered several problems. These include poor funding of leprosy control activities and unsuccessful integration of leprosy control with general primary health care. Particularly disturbing is the graph below from World Health Organization (WHO) Southeast of Nigeria Office (2010), which shows consistent increases (rather than decreases) in both new case detection and prevalence of leprosy from 2006-2009 in Southeast area of Nigeria.. This raises worries about the effectiveness of leprosy control programme in the area and whether leprosy is a re-emerging disease in the area and for what reasons.

Fig.1: Leprosy New Case Detection(NCD) and Prevalence, 2005 - 2009 for South-east Zone of Nigeria



Source: World Health Organisation, Southeast Zonal Office, Enugu Nigeria, (2010).

Furthermore, poor leprosy control outcomes has persisted to the extent that a former World Health Organization's Country Representative in Nigeria, Dr Peter Ekiti lamented that in 2008; only 14% of the estimated new leprosy cases in Nigeria were actually detected and enrolled for treatment (Ekiti, 2010). Similarly, Adagba (2011) was very critical that prevalence of leprosy among children in Nigeria is still high and unacceptable.

In 2008, Nigeria was ranked at the fifth position among nations with high leprosy burden in the world, and in Africa, second only to Republic of Congo (W.H.O, 2008). Nigeria's registered prevalence of leprosy as at 2002 was 5890 (FMOH, 2004). It declined to 5381 by the beginning of 2008 (W.H.O, 2008) and further to 3913 cases at the end of 2010 (Adagba, 2011).

The above situation appears to be compounded by enormous fear of leprosy among the Nigerian populace (Ogoegbulem, 2000). Furthermore, community participation and socio-economic rehabilitation which are crucial elements in leprosy control have remained weak (Osakwe, 2004). Consequently, community response or behaviour toward those suffering from leprosy is characterized by avoidance, insult and rejection. Even discharged leprosy ex-patients are not spared of these actions that also constitute violation of human rights.

Nicholls (2000) further observes that leprosy more than any other disease has caused individuals to leave their families and communities and be forced to live as outcasts in separate colonies and settlements. Some of such colonies or settlements are still operating at Okija, Otolu-Nnewi, and Amichi communities in Anambra state; and at Mile Four Abakaliki and Uburu communities at Ebonyi state. There are others at other parts of Nigeria. Their continued operation is an evidence of the failure of the National Leprosy Control Programme to implement home based or ambulatory care arrangement where most patients access treatment from their homes, except those who are in critical conditions and require hospitalization. The advantage of home based care in reducing segregation and facilitating the new thrust toward Community Based Rehabilitation (CBR) cannot be over-emphasized.

The lukewarm attitude of health workers toward leprosy control activities (Adagba, 2011) is also a major challenge facing the control programme. Poor allowances, negative cultural reactions towards leprosy and fear of contracting the disease negatively affect the disposition of health workers to committed service.

Above all, awareness of leprosy in Nigeria seems to be low, which may likely produce negative impact on the control effort. 'Awareness' in the context of this study on leprosy refers to one having heard (being informed), seen cases of leprosy or knowing the local name(s) of the disease in his/her area. Another indicator of awareness is having heard (being informed) about leprosy control programme.

It is against the above background and problems that the research was undertaken to investigate the level of awareness of residents of Anambra and Ebonyi states of Southeast

Nigeria about leprosy, and how such prevailing level of awareness about leprosy affect the effectiveness of leprosy control programme in the area.

Brief Review of Literature on Modes of Conceptualization and Awareness of Leprosy across Societies

The word ‘leprosy’ was derived from a Greek word ‘Leptos’ which means scaly (Ezekpeazu, 2000). Nigeria’s Federal Ministry of Health (FMOH, 2004) defined leprosy as a chronic, infectious disease that mainly affects the skin, peripheral nerves and mucous membrane of upper respiratory tract caused by *Mycobacterium leprae*. On their part, Haanpaa, Lockwood and Hietaharju (2004) defined leprosy as a chronic granulomatous disease caused by *Mycobacterium leprae* which primarily manifest with damage to peripheral nerves and skin.

Aside from medical and scientific conceptualization of leprosy, studies across cultures show that the disease has also been conceived in derogatory terms quite distinct from other diseases. This gives leprosy a special but negative reckoning in human history (see Ogbeiwi 2005; Stiger, Geus and Heyenders 2000; Scott 2000 etc). In this regard, Brycesson and Pfaltzgraph (1990) contended that although the descriptions of leprosy in the bible do not correspond to the clinical picture of the disease in our times, and may have merely encompassed a varied group of skin conditions; such bible references nevertheless compounded contemporary social reactions to leprosy due to uncomplimentary description of its victims as ‘unclean’.

Nwankwo (2000) notes that even in the present era of science and technology, the definition of leprosy as a curse from gods and the attachment of extreme social stigma to it remain crucial elements of the conceptualization of the disease especially across sub-Saharan Africa. Kaufman, Neville and Miriam (1993) similarly observed that leprosy is conceived with loathing and aversion and that attitude toward the disease is the same in many eastern and western cultures alike. To them, low awareness and fear of the disease have remained part of characteristic social attitude towards it right to the present day.

Against the above background, Stiger, Geus and Heyender (2000), taking a clue from Robinson (1990) explained leprosy in three related terms as disease (bio medical perception), illness (self-perception) and sickness (social perception). They opined that in the tripartite, it is the term “sickness” (social perception) that reflects the social stigma.

Valencia (1989) summed up the argument. He posited that while the ‘illness’ leprosy is experienced by the person and shaped by social and cultural influences; the ‘sickness’

leprosy encompasses the problem as perceived and named by the society, expressed into social stigma. In Nigeria, Adagba (2011) laments that advocacy and awareness creation about leprosy is still low, and that misconceptions also exist.

The above modes of conceptualizing leprosy has significant implications and must be taken into adequate consideration by any control programme that wants to achieve meaningful results. The problem of conceptualization is particularly worrisome because persons affected by leprosy often perceive themselves within the framework or template provided by their society with devastating effects on their self concept and socio-economic survival.

Research Questions

The following research questions guided the study

- (a) What is the level of awareness about leprosy among residents of Anambra and Ebonyi states of Southeast Nigeria?
- (b) Are their differential levels of awareness about leprosy across social demographic profile of residents of Anambra and Ebonyi states of Southeast Nigeria?
- (c) How does level of awareness about leprosy in the area affect leprosy control programme?

Research Hypothesis

Respondents with higher level of formal educational qualification are more likely to be aware of the cause of leprosy than those with lower educational qualification.

Theoretical Framework

Health Belief Model (HBM) is a health behaviour change model first developed in the 1950s by Social Psychologists, Houchbaum G.H., Rosenstock I.M, and Kegell. According to Gtanz, Rimer and Lewis (2002), the proponents used the theory in its original form to explain why free medical screening for tuberculosis offered by the U.S. Public Health Service was not successful. However, the model has been furthered by Howard Becker and colleagues in the 1970s and 1980s. Subsequent amendments to the model were made as late as 1988, to accommodate evolving evidence generated within the health community about the role that knowledge and perceptions play in personal responsibility (Glanz, Rimer and Lewis 2002).

In its latest packaging, the HBM has been defined as a conceptual tool used to understand, explain and predict health behaviour (curative and preventive), including possible reasons for non-compliance with recommended health action (Becker and Rosenstock, 1980).

In its task of explaining and predicting behavioural responses to treatment and other health services (health behaviours) and to promote uptake of health services, HBM focuses on the role that knowledge, belief, perceptions and attitude play in personal responsibility, decisions and actions toward a disease or health service.

Conner and Norman (1996) identified three broad areas of application of HBM. These are

- a. Preventive health behaviours which include health promoting (e.g. Diet, exercising) and health risk behaviours (e.g. Smoking) as well as vaccination and contraceptive practices.
- b. Sick role behaviours which refer to compliance with recommended medical regimens usually following professional diagnosis.
- c. Clinic use which includes physicians visits for a number of reasons.

The core assumptions, propositions and statements of HBM are based on the understanding that a persons' willingness to take a health action or change his health behaviour in a recommended direction is hinged on four major considerations or constructs.

These are:

- a. Perceived susceptibility (an individual's assessment of their risk of getting a condition).
- b. Perceived severity (an individual's assessment of the seriousness of the condition, and its potential consequences)
- c. Perceived barriers (an individual's assessment of the influences that facilitate or discourage adoption of the promoted behaviour)
- d. Perceived benefits (an individual's assessment of the positive consequences of adopting the behaviour). A variant of the fourth construct include the perceived cost of adhering to prescribed intervention.

Two constructs added later were:

- e. Perceived Efficacy (an individual's self assessment of ability to successfully adopt the desired behaviour).
- f. Cues to action (external influences promoting the desired behaviour).

The four major constructs of perception however respond to modifying or mediating factors that affect behaviour. Such modifying factors include the media, health professionals, personal relationships, incentive, culture, education level, past experiences and skill etc.

Against the above background, HBM has become a very useful tool to explain the problems associated with leprosy and its control programme in society. The quantum and

nature of knowledge, beliefs, perception and attitude toward leprosy is largely negative in many societies. This affects actions and decisions of individuals toward the disease. Despite strong perceptions of susceptibility and severity of leprosy, HBM explains poor compliance to treatment and low uptake of leprosy services as products of barriers posed by socio-cultural interpretations that stimulate a preference to cover-up the disease among victims. Among health workers, the perceived risk of contracting leprosy surpasses their estimation of perceived benefits from participation in leprosy management process. This accounts for their poor attitude to leprosy control duties. Unfortunately the role of mediating or modifying factors like the media and incentives has been abysmally low. They could not attenuate the negative perceptions of victims, health workers and the public hence the tenacity of leprosy and its related problems in society.

Materials and Methods

The study which is located in Anambra and Ebonyi states, randomly selected out of five states of Southeast Nigeria, adopted cross-sectional survey design. The study participants consisted of adults, aged 18 years and above. There are about 3,515,370 of such adults in the area which represented 57.2% of the area's total population of 6,354,775 (National Population Census, 2006)

Three instruments (questionnaire, focused group discussion and in-depth interview) were combined for optimum results. There are four categories of respondents, namely, the general public, persons affected by leprosy, leprosy control staff and officials of World Health Organization and the donor agency operating in the two states. All residents of the two states constituted the population of study. However, a sample size of 1116 adults (about 0.32% of adults/study population), considered adequate for applicable statistical techniques were the study participants on who a uniform set of structured questionnaire schedule, containing closed and open ended items were administered on a one-on-one (other administered) basis to generate quantitative data. The sample also accommodated geographical spread and rural-urban bias at the ratio of 2:1 (see Table 2).

Respondents were selected through a combination of cluster and random sampling methods. Qualitative data via focused group discussion (FGD) were generated from purposively selected 52 persons affected by leprosy from State Leprosy Treatment Registers. There were four sessions of FGD (two in each state) with 6-12 participants per session segmented along gender. The moderator of each FGD was of the same sex with their FGD

group. Also, purposively selected 10 Leprosy Control Staff and 2 officials of World Health Organization and the donor agency operating in the two states were respondents to In-Depth Interview (IDI).

All instruments used in the study were pre-tested outside the study locations by the researcher and five Field Assistants trained for the research. This was to ensure reliability and suitability of instruments to meet study objectives. The language of administration of the questionnaire and FGD was Igbo, spoken in the area, because there were many respondents who could not read, write or understand English language. Nonetheless, English was used where any respondent showed preference for English language. The instrument which was originally in English was translated into the local language, which is Igbo and retranslated into English, to provide both Igbo and English versions. Same sex administration of questionnaire was carried out to prevent any cultural barriers and permit free discussion or responses to questionnaire items. All IDI sessions were conducted in English because respondents were all very literate.

Quantitative data gathered in the course of research were analyzed with the help of the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics like frequency distribution tables, mean, median, percentages and bar-charts were used to interpret data. One correlation analysis (the chi-square) was employed in hypothesis test. On the other hand, qualitative data generated through FGD and IDI were transcribed and organized under different aspects of the discussion and used to explain quantitative data where applicable.

Table 1: Local Government Areas (LGA), Communities and Villages used in the study

States	LGAs	Communities	Villages/Streets	Compounds Visited	No of Respondents
ANAMBRA	Nnewi North (Urban)	Otolo	Orizu Road	62	186
	Idemili South (Rural)	Alor	Ifite village	62	186
	Awka North (Rural)	Achalla	Umudiana village	62	186
EBONYI	Abakaliki (Urban)	Abakaliki	Ibibio Street	62	186
	Ohaozara (Rural)	Okposi	Okposi-ukwu	62	186
	Ohaukwu (Rural)	Efiom	Akparata village	62	186
Total	6 LGAs	6Communities	6 Villages/Str.	372	1116

Source: Field Survey, 2010.

Research Findings

One thousand, one hundred and sixteen (1116) questionnaires were administered out of which 1104 were used for analysis after coding and cleaning/ editing all validly completed and returned questionnaire schedules. Results and their analysis were presented according to research questions for easy comprehension.

(a) Socio-Demographic/Personal Characteristics of Respondents

. The socio-demographic profile of respondents is presented in Table 3.

Table 2: Distribution of Respondents by Socio-Demographic Characteristics

Socio – Demographic Characteristics (Items 1 – 11)	Frequency N = 1104	Percentage %
Sex		
Male	505	45.7
Female	599	54.3
Age Group		
18 – 27	246	22.3
28 – 37	206	18.7
38 – 47	326	29.5
48 – 57	201	18.2
58 – 67	78	7.1
68 and above	47	4.3
Marital Status		
Married	499	45.2
Single	363	32.9
Divorced	51	4.6
Separated	62	5.6
Widowed	129	11.7
Religious Affiliation		
Christianity	890	80.6
Islam	21	1.9
Traditional Religion	189	17.1
Others	4	.4
Highest formal Educational Attainment		
No Formal Education	145	13.1
Primary School Certificate	142	12.9
Secondary School Certificate	414	37.5
Vocational/Technical School Certificate	168	15.2
Tertiary	235	21.3
Occupation		
Civil/Public Servant	239	21.6
Trader/Business man	243	22.0
Farmer	260	23.6
Student	119	10.8
Apprentice	85	7.7
Artisan	80	7.2
Unemployed	74	6.7
Others	4	.4

Nature of Income Per Month		
Regular	239	21.6
Periodic	634	57.4
No Income	231	20.9
Income Per Quarter of a year (every 3 months period)		
None	232	21
Below N30,000	147	13.3
N31,000 – N50,000	141	12.8
N51,000 – N70,000	123	11.1
N71,000 – N90,000	149	13.5
N91,000 – N110,000	124	11.2
N111,000 – N130,000	93	8.4
Above N131,000	95	8.6

Source: *Field Survey, 2010.*

Table 2 shows that females constituted 54.3% of the total respondents, while the males constituted 45.7%. Many of the respondents (29.5%) fall within the age bracket of 38 – 47 years. The least number of respondents (4.3%) came from the age – group of 45 years and above. However, the **modal and median** ages were **41 and 45 years** respectively. Also, the **mean age** of respondents was **40.33 years** with a **standard deviation** of **13.45**.

With regard to the marital status of the respondents, 45.2% were married while 32.9% are single. The widowed, separated and divorced respondents were very few (11.7%, 5.6% and 4.6% respectively). The large number of married respondents illuminates the high premium placed on marriage and family institution in the area. Similarly, divorce is low probably because the value system abhors it. Being married and having stable marriage are accorded high esteem and social honour among Igbo people.

With respect to religious affiliation, the table clearly shows that more than three-quarter of the respondents (80.6%) were Christians. A few of the respondents belong to other religious groups including Islam (1.9%), traditional religion (17.1%) and other unspecified groups (.4%).

In terms of highest formal educational attainment, those who possess secondary school certificate constituted 37.5% of the respondents. Other categories of educational attainment/ certification were tertiary (21.3%), vocational/technical school (15.2%), and primary school certificate holders (12.9%). With only 13.1% of the respondents without any form of formal education, the literacy level in the area is relatively high. However, more respondents from Anambra state (27.7%) had tertiary education than those from Ebonyi state where only 15% had tertiary education.

The respondents were almost equally divided across three major occupations. These are farmers (23.6%), traders (22%), and civil/public servants (21.6%). Students, apprentices, artisans and the unemployed were few. They constituted 10.8%, 7.7%, 7.2%, and 6.7% respectively. The occupational distribution of the respondents highlighted above mirrors the popular description of Ebonyi state as food basket (major agricultural zone) of the nation, and Anambra state as center for commerce and other entrepreneurial activities. The predominance of farmers and traders in the area of study is therefore not a major surprise. However, the nature of income reveals that most of the respondents (57.4%) earn periodic income; 21.6% earn regular income on monthly basis, while 20.9% earn no income at all.

In terms of actual income earned per quarter (every three months), many of the respondents (21%) earn no income. These include students, apprentices, some artisans and the unemployed. More than two-thirds of these respondents that earn no income are from Anambra state. Furthermore, 13.5% of the respondents earn below N30, 000 per quarter, and only 8.6% earn above N131, 000 per quarter. This shows that income status of individuals within the area of study is generally low. The **mean income** per quarter of the respondents is

Analysis of Research Questions

The research questions posed to guide the study are analysed below.

Research Question I: What is the level of awareness about leprosy in Anambra and Ebonyi states?

Awareness was measured using five variables. These were first, how informed or aware they were of the health problem called leprosy and secondly, knowing its local name. The third, fourth and fifth factors were haven seen case(s) of the disease; recognising that leprosy is a severe skin related health problem and being informed (aware) of the programme to control it. Awareness as a function of some socio-demographic variables was also examined. The responses are shown in Tables 3, 4 and 5

On whether respondents were aware (informed or heard) of leprosy, it was verified through questionnaire item which specifically sought to know if they were aware of the health problem called leprosy. Table 5 below shows the distribution of their responses.

Table 3: Distribution of Respondents by their Awareness of Leprosy

Response	Frequency	Percent
Yes	989	89.6
No	35	3.2
Don't know	80	7.2
Total	1104	100

Source: Field Survey, 2010.

Table 3 above shows that more than three-quarter (89.6%) of the respondents were aware of leprosy as health problem. However 3.2% were not aware, while 7.2% claimed they were uncertain. On the other hand, about 92.3% of the respondents have seen between 1-5 or more cases of leprosy in their lifetime. Only 7.7% said they have never seen a case of leprosy. These results were corroborated by IDI results in which most of the participants observed that public awareness on leprosy had steadily improved. The IDI respondents said that they were aware of leprosy prior to their involvement in leprosy control. Such initial awareness they said has been enhanced by their present positions in control programme. Similarly, more than three-quarter of FGD participants said they were aware of leprosy. They maintained that they had seen cases in the past and heard about the disease through friends and radio, before they were later diagnosed of it. A male FGD participant at Mile 4 Hospital summarized his awareness of leprosy in these words- *I know about leprosy before I was diagnosed. It is called 'ekpenta' in my community. I have also seen some of the victims in the past but I don't know how and why the disease came to me. None of my close relations have it.*

To further appreciate the level of awareness and weight attached to the problem of leprosy, the opinion of respondents was sought about which disease they considered a serious skin-related problem. Their responses are shown in Table 6 below.

Table 4: Distribution of Respondents by their Opinion about which Disease is a Severe Skin- related Health Problem in their Community

Response	Frequency	Percent
Eczema	145	13.1
Leprosy	734	66.5
Diabetic ulcer	203	18.4
Don't know	22	2.0
Total	1104	100

Source: Field Survey, 2010.

Table 4 shows that most of the respondents (66.5%) considered leprosy as a severe skin related health problem in their community. Other skin problems mentioned were diabetic ulcer (18.4%) and eczema (13.1%).

A male FGD participant at Mile 4 Hospital, Abakaliki in describing the severity of sufferings arising from leprosy said that *'leprosy destroys the whole person'*. Yet another participant observed that *'leprosy damages legs and fingers and disfigures the victim'*. Also, many IDI respondents conceived leprosy as a very serious health and social problem. In the words of an IDI respondent from WHO zonal office Enugu, *'Leprosy is a social barrier. The drive to succeed in life is diminished by leprosy'*.

With regards to whether respondents were aware of any government programme to control leprosy, Table 5 below shows that 47.6% were aware while 41.1% were not.

Table 5: Distribution of Respondents by their Awareness of Leprosy

Response	Frequency	Percent
Yes	526	47.6
No	454	41.1
Don't know	124	11.2
Total	1104	100

Source: Field Survey, 2010.

In view of all the information/data, there is relatively high level of awareness about leprosy in the two states. This is further buttressed by several local names for the disease which respondents enumerated. They include 'ekpenta' (65.3%), 'ahuocha' (37.8%). Others are 'ndi-leper', 'akpukpa', 'kuturu', and 'agwo'. Only .3% of the respondents did not know any local name for the disease in their community. These local names were re-echoed by FGD participants. About the same number of respondents from both states were aware of leprosy (89.4% from Anambra and 89.7% from Ebonyi). This indicates parity in awareness level between the two states.

Research Question II: Are their differential levels of awareness about leprosy across social demographic profile of residents of Anambra and Ebonyi states of Southeast Nigeria?

In order to find out how socio-demographic characteristics of respondents relate with or affect awareness; the two variables were cross-tabulated with 'socio-demographic items' as independent variables while 'awareness' was the dependent variable (see table 6 below).

Table 6: Distribution of Respondents by some Socio-Demographic Variables, Awareness about Leprosy (% in parenthesis)

Socio – Demographic Variable	Awareness of Leprosy			Total	Statistics
	Yes	No	Don't know		
Age					
Younger Respondents (18-37 years)	416(92.04%)	18 (4%)	18 (4%)	452 (100%)	$X^2 = 22.168, df 10, p = .014$
Older Respondents (38–68 yrs and above)	573 (87.9%)	17 (2.6%)	62 (9.5%)	652 (100%)	
Total	989(89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Educational Attainment					
No formal Education	115(76.9%)	6 (4.1%)	24 (16.6%)	145 (100%)	$X^2 = 43.916, df 8, p = .000$
Low Education	124(87.3%)	2 (1.4%)	16(11.3%)	142 (100%)	
Medium Education	524 (90.03%)	19 (3.3%)	39 (6.7%)	582 (100%)	
High Education	226 (96.2%)	8 (3.4%)	1 (0.43%)	235 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Gender					
Male	440(87.1%)	17 (3.4%)	48 (9.5%)	505 (100%)	$X^2 = 7.291, df 2, p = .026$
Female	549 (91.7%)	18 (3.0%)	32 (5.3%)	599 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Religious Affiliation					
Christianity	812 (91.2%)	25 (2.8%)	53 (6.0%)	890(100%)	$X^2 = 44.256, df 6, p = .000$
Islam	16 (76.2%)	2 (9.5%)	3 (14.3%)	21 (100%)	
Traditional Religion	159 (84.1%)	6 (3.2%)	24 (12.7%)	189 (100%)	
Others	2 (50%)	2 (50%)	0(0%)	4 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Locality (place of residence)					
Urban area	358 (97%)	8 (2.5%)	3 (0.8%)	369 (100%)	$X^2 = 37.923, df 4, p = .000$
Rural area	626 (85.8%)	27 (3.7%)	77 (10.6%)	730 (100%)	
Don't know	5 (100%)	0 (0%)	0 (0%)	5 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Occupation					
Income Generating Occupations	724 (88.1%)	29(3.53%)	69 (8.4%)	822 (100%)	$X_2 = 18.155, df 14, p = .200$
Non-Income Generating Occupations	265 (94%)	6 (2.1%)	11 (3.9%)	282 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	
Income					
No Income	222 (95.7%)	5 (2.15%)	5 (2.15%)	232 (100%)	$X^2 = 30.899, df 14, p = .006$
Low Income	496 (88.6%)	21 (3.8%)	43 (7.7%)	560 (100%)	
Medium Income	192 (88.5%)	7 (3.2%)	18 (8.3%)	217 (100%)	
High Income	79 (83.2%)	2 (2.1%)	14 (14.7%)	95 (100%)	
Total	989 (89.5%)	35(3.2%)	80 (7.3%)	1104 (100%)	

Table 6 above shows that in terms of age grouping, about 92.04% of the younger respondents (aged 18-37 years), and 87.9% of older respondents (aged 38-68 years and above) were all aware of the disease condition. There is no significant difference ($p < 0.05$) in the level of awareness about the disease between the older and younger respondents ($X^2=22.168$, $df =10$, $p = .014$).

The awareness level as a function of level of highest formal educational attainment shows that slightly less than four-fifth (76.9%) of those with no formal education; more than four-fifth of those with low education (87.3%); about 90.03% of those with medium education and 96.2% of respondents with high education are aware of leprosy. The figures suggest that awareness progressively improved in absolute terms with improvements in level of formal education. As a result, there was a significant difference ($p < 0.05$) in the level of awareness about leprosy between respondents of the different educational status ($X^2 = 43.916$, $df =8$, $p = .000$). This finding has implications for health seeking behaviour, treatment preferences and compliance status of patients which are similarly affected by level of educational attainment.

Awareness level as a function of gender indicates that well over four-fifths of the males (87.1%) and slightly above nine-tenth of the female respondents (91.7%) are aware of leprosy. There was therefore a significant difference ($p < 0.05$) in the level of awareness about leprosy between male and female gender ($X^2 = 7.291$, $df = 2$, $p = 0.026$). Higher levels of awareness among the female gender could be explained by absence of restrictive traditions against women such as 'purdah' which is practiced by the Moslems. This enabled women in South-east Nigeria to encounter almost similar social environment with equal opportunities for information acquisition and socialization with the men folk. Regular visits to health institutions for maternal and child health services however provide women with additional avenue for acquisition of health information like those related to leprosy.

The awareness level as a function of religious affiliation shows that Christians appeared to be most aware of leprosy. About 91.2% of the respondents who were Christians were found to be aware of leprosy. On the other hand, above seven-tenth (76%) of the Moslems and about 84% of traditional religionists were also aware of the condition. There was a significant difference ($p < 0.05$) in the level of awareness between adherents of various religious groups ($X^2 = 44.256$, $df = 6$, $p= 0.000$). The several mention of leprosy in the bible and exposure to multiple sources of information may be accountable for the vantage position the Christians enjoy over other religious groups in relation to awareness of leprosy.

In terms of locality or place of residence, the respondents who reside in urban areas appear to be significantly more aware of leprosy ($p < 0.05$) than those who reside in rural areas ($X^2 = 37.923$, $df = 4$, $p = 0.000$). Over nine-tenth of the former or 97% and 85.7% of the later were aware of leprosy. This is explained by the fact that urban dwellers are in better position to access health related information faster than their rural counterparts due to Information, Communication and Technology (ICT) facilities available to them.

With regard to awareness level as a function of occupation, 88.1% of the respondents with income generating occupations (i.e. civil/public servants, traders, farmers, artisans) were aware of leprosy. On the other hand, slightly above nine-tenth (94%) of the non-income generating respondents were also aware of leprosy. Therefore, there was no significant difference ($p < 0.05$) in levels of awareness across the occupational groups and between income generating occupations and the non-income generating types ($X^2 = 18.55$, $df = 14$, $p = .200$).

With respect to awareness as a function of actual income, about 95.7% of respondents with no income were aware of leprosy. Similarly, 88.6% of respondents with low income were also aware, whereas 88.5% of medium income and 83.2% of high income earners were aware of leprosy. There was no significant difference ($p < 0.05$) in levels of awareness across income strata ($X^2 = 30.899$, $df = 14$, $p = 0.006$).

To further buttress the issue of awareness, the hypothesis which says that 'Respondents with higher level of formal education are more likely to be aware of the cause of leprosy than those with lower education' was tested (see details in Section 4.3.0). It was found that there is a significant difference in levels of awareness about leprosy between respondents with different levels of educational attainment ($X^2 = 43.916$, $df = 8$, $p = 0.000$). Generally those with higher education were more exposed and so had more awareness about leprosy.

(b) Socio-Demographic Correlate of Awareness

The socio-demographic variables used in correlating awareness include age, sex, educational attainment, religion, occupation, income and locality. In the analyses above (see Table 8 and interpretations thereafter), the contribution of these variables was determined by taking each one of the independent variables at a time.

In order to determine the net and pure effects of each of the variables as predictors on the dependent variable (awareness) when they are acting simultaneously, a multiple regression analysis was carried out with 'awareness' as the dependent variable and the other

parameters as independent variables. The results of the analysis are shown in Table 9 below.

Table 7: Multiple Regression Analysis of Awareness of Leprosy with Selected Socio-Demographic Characteristics of the Respondents

Model/Variable	Unstandardized Coefficients		Standardized Coefficients		Sig
	B (mean)	Std Error	Beta	T	
(Constant)	1.183	.093		12.570	.000
Age	-.013	.013	-.034	-1.042	.298
Gender	-.052	.034	-.048	-1.536	.125
Religion	.058	.022	.080	2.584	.010
Education	-.045	.013	-.106	-3.324	.001
Occupation	-.013	.009	-.044	-1.442	.149
Income	.010	.008	.043	1.322	.186
Residence (locality)	.076	.018	.134	4.347	.000

R = .243 R2 = .059 F-value = 9.800 P = .000

‘Dependent Variable = Awareness of Leprosy’

Table 7 shows that variation in awareness level of the respondents could be explained by the differences in the socio-cultural, socio-economic and demographic variables contained in the model. Specifically, the table shows that religion, income and locality are all positively associated with awareness of leprosy in Anambra and Ebonyi states. After controlling other variables, religion for example is associated with a positive difference of 0.058 increases in the level of awareness. Put differently, a unit change in the religious grouping of the respondents will bring about 0.058 increases in the level of awareness. The relationship was however not significant ($p = .010$). Judging from the magnitude of the T-values, locality and religion had the most important influence on the level of awareness of leprosy in the study areas.

Other variables such as age, gender, level of education and occupation show negative association with awareness level. The regression result shows that the level of education attained is associated with a negative difference of 0.045 in the level of awareness. In other words, a unit increase in the level of education will result in a 0.045 decrease in the level of awareness on leprosy in Anambra and Ebonyi states. It should be noted that this relationship is significant ($t = -3.324$, $p = .001$). The explanation for this negative association between

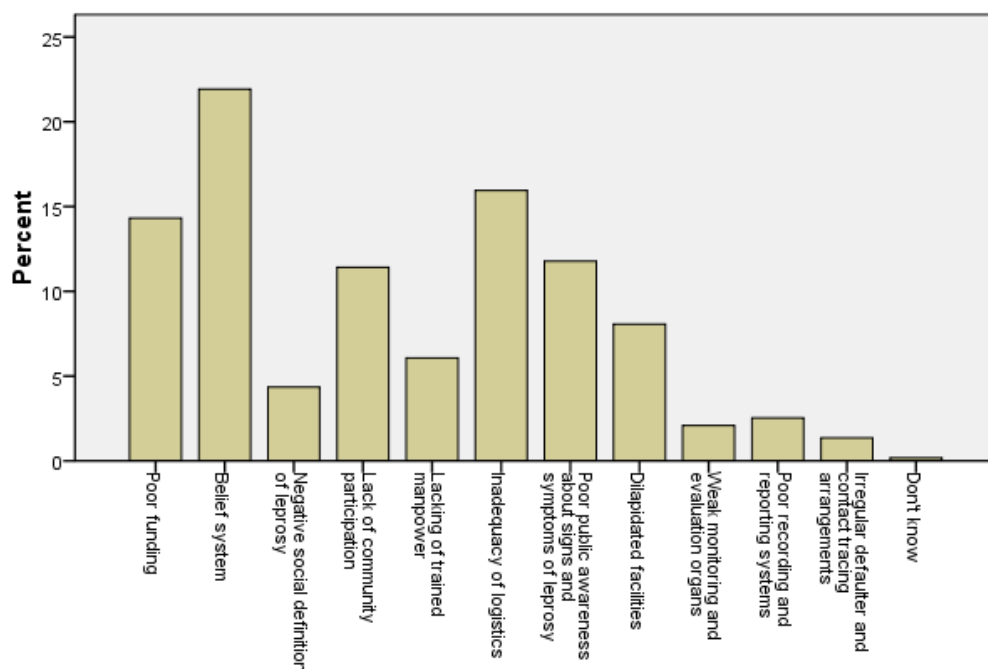
education and awareness lies in the fact that highly educated people may take health issues for granted (e.g. medical doctors' smoke). The highly educated also maintain social relationships mainly with the middle and upper classes in society. As such, they (the highly educated) do not constantly come in contact with the poor people who are victims of leprosy. All these undermine their level of awareness on leprosy. Similarly, a unit positive change in occupation will result in a 0.013 decrease in level of awareness. However, the relationship is not significant ($t = -1.442$, $p = .149$).

Research Question Four: How does level of awareness and knowledge about leprosy in the area affect leprosy control programme?

This research question was verified by asking respondents to identify major problems that confront leprosy control programme in their area. This is with a view to ascertain if low level of awareness and knowledge of leprosy will be listed by respondents. In this regard, majority of the respondents (21.9%) were of the opinion that the first major problem facing leprosy control programme is the belief system (see fig 2 below).

Fig. 2:

What do you consider as the major problem facing leprosy control programme in your community?



Four other problems, mentioned in their order of importance, were inadequacy of logistics (15.9%), poor funding (14.3%), poor public awareness and knowledge about signs

and symptoms of leprosy (11.8%) and lack of community participation in control effort (11.4%) etc. These problems were also emphasized by many FGD participants. An IDI participant from Ebonyi state identified problems of poor salary, low level of research and inability to link leprosy to national social welfare plan as additional problems.

Test of Research Hypotheses

In this section, two hypotheses raised for the study were tested separately. The chi-square statistics was employed in hypotheses testing since most of the data are categorical variables.

Test of Hypothesis One: Respondents with higher level of formal educational qualification are more likely to be aware of the cause of leprosy than those with lower educational qualification.

To test this hypothesis, the cross tabulation between level of education and awareness of the problem of leprosy was used (Table 8).

Table 8: Distribution of Respondents according to their Level of Education and Awareness about Leprosy (percentages in parenthesis)

Level of Education	Are you aware of health problem leprosy			
	Yes	No	Don't know	Total
No formal Education	115 (11.6%)	6 (17.1%)	24 (30%)	145 (13.1%)
Primary School Certificate	124 (12.5%)	2 (5.7%)	16 (20)	142 (12.9%)
Secondary School Certificate	376 (38%)	15 (43%)	23 (28.8%)	414 (37.5%)
Vocational /Technical School Certificate	148 (15%)	4 (11.4%)	16 (20%)	168 (15.2%)
Tertiary	226 (23%)	8 (23%)	1 (1.2%)	235 (21.3%)
Total	989 (100%)	35 (100%)	80(100%)	1104 (100%)

$$X^2 = 43.916, df = 8, p = 0.000$$

The calculated value of chi square is 43.916. The critical or table value of chi square at 0.05 level of significance with a degree of freedom (df) of 8 is 15.507. Having observed that the computed value of chi square is greater than the table value, the researcher therefore accepted the alternative hypothesis and then concluded that there is a significant relationship between educational attainment and awareness of leprosy.

Discussion of Research Findings

From the analysis of field data, it was observed that there is high level of awareness (89.6%) about leprosy which has local names like 'ekpenta', 'ahuocha', 'akpukpa', 'agwo',

'ndi-leper' and 'kuturu'. There was no significant difference in levels of awareness between four categories of respondents. These were younger and older, male and female genders, income generating and non income generating occupational groups, and between low, medium and high income earners. This could be attributed to the fact that the area of study lacked strict social stratification and information limiting practices related to leprosy that disadvantaged sections of the society.

On the other hand, there was significant difference in levels of awareness between respondents from different religious affiliations; between those that reside at urban and their rural counterparts; and between those with different levels of educational attainment. It was observed that awareness progressively improved in absolute terms with improvements in the level of formal education of respondents. This is not strange because education traditionally expands experiences, cognitive content and worldview. Nonetheless, the finding has implications for prevailing patterns of health seeking behaviour, treatment preferences, participation and responses toward the problem of leprosy. Nwankwo (2006) had observed that these issues are shaped by level of educational attainment.

Also, other socio-cultural factors were identified which may have united with level of awareness about the disease to compound challenges experienced by the control programme. The most important of such factors is the people's belief system about leprosy. This observation agrees with the Health Belief Model (HBM) adopted as the theoretical thrust for this study. The HBM explains behaviour (preventive and curative health behaviour and responses) in relation to belief systems, knowledge, attitude and perceptions held by individuals that ultimately affect their actions toward problems and disease situations.

Given strong perceptions of susceptibility and severity of leprosy among the study population (which ordinarily should stimulate appropriate responses), HBM thus relates or explains poor performance of leprosy control, evident in the study area in the forms of low community participation, low uptake of leprosy control services and poor compliance to treatment as associated to socio-cultural beliefs and reactions that stimulate a preference to cover up the disease by victims. Beliefs serve as templates that have negatively structured responses or activities of individuals in the context of leprosy control. Interestingly, this type of situation has also been found to be true in both Eastern and Western cultures where fear of leprosy has existed from ancient times (Nicholls, 2000). Valsa (1999) has also observed that the belief that leprosy is a curse from gods is a global phenomenon. This study has therefore shown that the Igbo group which populate the two states is not an exception in that regard.

It is therefore pertinent, as Kaufman, Neville and Miriam (1993) suggested that shared meanings of the group about leprosy and other cultural factors ought to be understood by leprosy control programmes. Unfortunately, this is the exception rather than the rule in the control programmes of Anambra and Ebonyi states.

Conclusions and Recommendations

Based on the findings from the present study, the following recommendations are made:

1. The support of traditional and religious institutions must be sought and won. To this end, there should be extensive advocacy visits by leprosy control staff to traditional rulers, religious leaders and other opinion leaders in the communities that make-up the two states. This is to improve their understanding of issues related to leprosy and to enable them be at the fore-front of the crusade to change people's perception about leprosy.
2. There is immense need to improve the level of community involvement, ownership and participation in the programme which is currently very low. The involvement of community leaders is a laudable step in this direction. In addition, the role of social groups like age-grades, women groups, clubs and faith-based associations will positively affect decisions toward ameliorating the effects of socio-cultural factors on leprosy control programme
3. With the support and participation of the community, socio-cultural practices and beliefs that negatively affected leprosy control should be out rightly abolished.
4. There is need for a holistic leprosy control programme which shall give priority to crucial components like public health education, treatment, social and economic rehabilitation and full reintegration of persons affected by leprosy into their communities as empowered and socially relevant individuals. The neglect of any components limits the level or extent of outcome of the programme
5. Existing legislations should be enforced and new ones enacted to adequately protect persons affected by leprosy from all forms of stigmatization, discrimination, and violations of their fundamental human rights.
6. There is immense need for inter-agency collaboration to meet the goals of leprosy control. The programme should liaise with National Alleviation Poverty Eradication Programme and the Social Welfare Department etc to address issues of poverty, welfare and social integration as they affect leprosy patients.

7. Government at all levels should demonstrate strong political will and commitment toward leprosy control. This should be done through adequate funding, prompt release of budgeted sums, provision of infrastructure, logistics, training and motivation of leprosy control staff through prompt payment of entitlement and allowances.
8. There should be regular conduct of seminars for traditional healers to enable them suspect and appropriately refer leprosy cases. This seminar is important given the fact that persons affected by leprosy may patronise them for treatment.
9. There should also be a synergy between donor agencies, non-governmental organizations, all partners and government departments involved in leprosy control. All channels of energy leakage, wasteful duplication of functions and confrontations should be blocked.

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