

Full Length Research Paper

Gender dimensions of knowledge, physical and psycho-social burden due to lymphatic filariasis in Benue State, Nigeria

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Understanding gender specific perceptions on lymphatic filariasis-related hydrocele and lymphoedema is critical to developing community health education materials. The study was aim at assessing villager's knowledge and beliefs on the causes, transmission, prevention and socio-cultural issues on lymphatic filariasis using questionnaire survey method. Female respondents were more superstitious than their male counterparts with 30.0 and 43.9% of female respondents attributing the cause of the disease to walking long distance and stepping on charms respectively. While 46.1 and 41.9% of male respondents identified good hygiene and avoidance of mosquito bite as preventive options respectively, only 35.5 and 37.7% of their female counterparts thought likewise. These differences were statistically significant ($P < 0.05$). Women's perspective on the matrimonial consequences of lymphatic filariasis also differed from their male counterparts. Women's capacity to protect themselves and their family members is hindered by a lack of understanding of causes, symptoms, transmission routes and prevention of the disease. Our study justifies the need to seriously consider the role gender plays in the experience of tropical diseases and its interaction with physiological and socio-cultural factors.

Key words: Lymphatic filariasis, gender-related knowledge, perception, psycho-social implications.

INTRODUCTION

Human infection with *Wuchereria bancrofti* causes a disabling parasitic disease known as lymphatic filariasis, a disease with serious economic and social consequences as it affects many young working adults of both sexes. At present, 1.1 billion people (20% of the world's population) in some 80 endemic countries located in tropical areas of the world are at risk of infection (Addiss and Brady, 2007). The chronic manifestations in the form of hydrocele, lymphoedema and elephantiasis, could inflict grave social wounds upon the person affected (Pearson et al., 2006; Wynd et al., 2007; Addiss and Brady 2007). Communities with inadequate housing and no basic sanitation are at the highest risk of infection, these conditions coupled with the proliferation of water-holding containers (ideal breeding sites for the main

mosquito vector (*Culex quinquefasciatus*) are believed to be exacerbating the transmission of the disease (Nwoke and Ebo, 1993).

While the literature reveals that both men and women suffer from lymphatic filariasis, the prevalence of infection and disease's manifestations are significantly higher in males compared to females (Pani et al., 1991; 2005; Addiss and Brady, 2007). Exposure to a given disease may be common for sexes, physiological composition and socio-cultural situations may respond to the same disease in different ways. For instance, hydrocele, the genital manifestation of the disease in men, presents as a chronic swelling of the scrotum and affects about 27 million men (Hartigan, 1999). The experience of the disease is significantly influenced by gender as hydrocele is generally associated with sexual disability, lowers productivity and wage earning capacity and damage male identity (Dreyer et al., 1997; Gyapong et al., 2000; Ramaiah et al., 2000). On the other hand, women's lives are substantially burdened both socially and economically

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by physical impairment of elephantiasis of the limbs, most notably in the loss of income and disfiguring physical appearance (Coreil et al., 1998; Bandyopadhyaya, 1996; Hartigan, 1999; Pearson et al., 2006). The ability of women to protect themselves from lymphatic filariasis and to properly educate family members about prevention and treatment strategies is contingent on their access to proper information.

Understanding the gender distribution and gender-related gaps in knowledge and experience of disease burden is important to identify the target groups for intervention and design of gender-specific education materials. Few studies have addressed the psycho-social and behavioural aspects of lymphatic filariasis from a gender perspective in Nigeria (Briade et al., 2003; Onwurili et al., 2006). These studies reported sex-related bias in clinical manifestations and socio-cultural consequences of lymphatic filariasis. How the sexes respond differently to lymphatic filariasis in Nigeria warrants further in-depth anthropological investigation. This current study investigated lymphatic filariasis-related knowledge, attitudes and examines how men and women cope with disabilities from a gender perspective.

METHODOLOGY

Description of study area and population

Benue State is one of the 36 states in the Federal republic of Nigeria, a tropical country on the west coast of Africa. The state derives its name from River Benue the second largest river in the country and located in central region of the country where it lies between latitude 6° 30' and 8° 00'N and longitude 8° 00' and 9° 30'E . It covers an area of about 34,059 square kilometers with a population of over 4.2 million people (NPC, 2006), with the Tiv ethnic group accounting for 46.2% of the population, the Idoma ethnic group make up about 32.1% , Igede ethnic group account for 8.7%, while the other minority groups and non indigenes make up the remaining 13%. The majorities of the inhabitants live in rural area and engage principally in peasant agriculture. This study was conducted in eleven Tiv speaking villages in Logo and Kwande Local Government Areas (LGAs), nine Idoma speaking villages in Ado and Agatu LGAs and six Igede speaking villages in Obi and Oju LGAs. The three ethnic groups have distinct socio-cultural and traditional norms; however, occupational and sanitary conditions that predispose them to mosquito bites are similar.

Ethical clearance

This survey received ethical clearance from the State Ministry of Health and the proposal was approved by the Postgraduate Research Committee of the University of Nigeria, Nsukka. After explaining the purpose of the study to the village chiefs and traditional leadership councils and obtaining their permission and consent. Informed verbal consent was obtained from all the participants after the explanation of the procedures and the likely benefits and inconveniences of the study. The confidentiality of information collected was also assured. All participating adults (16 years of age and older) were asked to gather at the village Primary Health Care (PHC) Centre and randomly selected. The participants were assigned identification numbers and their names, age,

occupation and marital status were taken.

Clinical examination for hydrocoele and lymphoedema

A total 1702 participants were examined for clinical manifestations of lymphatic filariasis. Participants and/or patients were asked to partially disrobe, and health officer (nurse) trained to differentiate hydrocoele from inguinal hernia performed a physical examination focused on the scrotum and inguinal area. Clinical hydrocoele was diagnosed based on the finding of a non-tender, soft, fluid-filled mass whose superior limit could be defined by the examining finger. Clinical search for lymphoedema was a lot easier, participants were simply asked to lift up their clothing to expose their legs. Swollen limbs were identified and classified based on the degree of swelling. Further identification procedures of clinical manifestations followed criteria highlighted in earlier publications (Eigege et al., 2002; Nwoke et al., 2006).

Study instrument for socio-cultural studies

A total of 1,610 persons participated in the questionnaire aspect of the study; the instrument was designed to obtain information on demographic characteristics. Based on preliminary interaction with community members from which descriptive information was collected, a structured questionnaire was developed. It includes seven major questions to assess participants' knowledge, attitude and perception on the cause, transmission and prevention of lymphatic filariasis.

The questionnaire was pre-tested and modified to address identified needs and additional issues following the format recommended (Gyapong et al., 2000). The additional issues were on the influence of socio-cultural beliefs, psychological implications and consequences of the disease on marriage prospects. Descriptive information was collected through discussions with health officers, community leaders and teachers. Specific attention was paid to local terminologies used to describe manifestations of lymphatic filariasis. The questionnaire was developed by the research team made up of health experts and social scientists from the Department of Psychology, Benue State University, Makurdi. The questionnaire was pre-tested in two rural communities not participating in the actual study.

Data analysis

Frequency distributions were obtained and chi-square was employed to test significance. Data analysis was done using SPSS version 10.0 of the SPSS software package (SPSS Inc, Chicago IL).

RESULTS

A total 1702 participants were examined for clinical manifestations of lymphatic filariasis. Most participants (66.2%) were agricultural workers, age ranged from 16 to 84 years and 79% of participants were within the 20 to 60 years age interval. Hydrocoele was diagnosed in 107 (10.07%) men and prevalence seems to increase with age (Table 1).

Lymphoedema was diagnosed in 33 (1.94%) individuals with women accounting for 91.6% of the cases seen. Chronic hydrocoele sizes were more

Table 1. Age and sex related prevalence of manifestations of lymphatic filariasis in study area.

Age group	Male			Female			Total		
	Number examined	Number with hydrocoele	Number with lymphoedema	Number examined	Number with hydrocoele	Number with lymphoedema	Number examined	Number with hydrocoele	Number with lymphoedema
10-19	42	-	-	26	-	-	68	-	-
20-29	73	2	-	44	-	2	117	2 (1.71)	2 (1.71)
30-39	263	9	-	156	-	7	419	9 (2.15)	7 (1.67)
40-49	284	21	1	168	-	8	452	21 (4.64)	9 (1.99)
50-59	149	28	1	89	-	7	238	28(11.76)	8 (3.36)
60-69	139	31	-	82	-	4	221	31(14.03)	4 (1.81)
70-above	117	16	-	70	-	3	187	16 (8.55)	3 (1.60)
Total	1067	107	2	635	-	31	1702	107(10.07)	33 (1.94)

Figures in parentheses are percentages.

common amongst older men, while severe lymphoedema sizes showed no age – specific pattern. The age interval of 40 to 60 years accounted for 79% of individuals with either hydrocoele or lymphoedema. A total of 1610 persons participated in the questionnaire aspect of the study, out of which 63% were males and 37% were females. The ethnicity of respondents comprised 772 (47.9%) Tivs, 597 (37.0%) Idomas and 214 (14.9%) Igedes.

Knowledge about the cause

On the whole, only about 36.1% of the population knows that lymphatic filariasis is caused by mosquito bites, there was no gender difference ($P > 0.05$) in the sex-related comparison of the true cause of the disease. However, the female respondents were more superstitious than their male counterparts with 30.0% and 43.9% of female respondents attributing the cause of the disease to walking long distance and stepping on charms respectively (Table 2).

Transmission of infection

About 37.7% and 34.2% of male and female respondents respectively felt that lymphatic filariasis is transmissible from one person to another through mosquito bite. Sex-related comparisons of perceived mode of transmission showed no gender difference ($P > 0.05$). Respondents' perception on the mode of transmission; though not scientifically correct in most instances, yet follows a logical inference of their knowledge of the cause of the disease (Table 3).

Knowledge of lymphatic filariasis prevention

Adhering to good personal and community hygiene and avoidance of mosquito bite were generally considered to be best preventive options. While 46.1 and 41.9% of male respondents identified good hygiene and avoidance of mosquito bite as preventive options respectively, only 35.5 and 37.7% of their female counterparts thought likewise (Table 4).

Psycho-social and marriage implications of lymphatic filariasis

Respondents demonstrated relatively high awareness of the socio-economic and psychological impact of the disease and implications on the marriage institution. Male and female respondents have relatively similar perception on most of the socio economic issues, however, while 64.2% of male respondents were of the opinion that affected persons, avoid social gathering, only 54.8% of female respondents thought so (Table 5).

The study population also demonstrated high level of awareness on the consequences of the disease on family, marriage and sexual dysfunction (Table 6). Women's perspective on the matrimonial consequences of lymphatic filariasis differed significantly ($P < 0.05$) from their male counter-parts. Almost 81.9% ($n = 1610$) of respondents perceived that swollen limb and scrotum as being a problem affecting lives of affected persons and triggers varying feelings regarding it.

Table 2. Sex-related knowledge on perceived causes of lymphatic filariasis.

Causes	Male (n=1014)		Female (n=596)		Total (n=1610)	
	Yes	(%)	Yes	(%)	Yes	(%)
Working in the sun	260	(25.6)	147	(24.6)	407	(25.2)
Walking long distance	131	(12.9)	179	(30.0)	310	(19.2)
Sexual intercourse	267	(26.3)	174	(29.2)	441	(27.4)
Stepping on charm	395	(38.9)	262	(43.9)	657	(40.8)
Contaminated food	286	(28.2)	145	(24.3)	431	(26.7)
Lack of personal hygiene	418	(41.2)	235	(39.4)	653	(40.5)
Fever	309	(30.4)	191	(32.0)	500	(31.0)
Mosquito bite	269	(36.4)	213	(35.7)	582	(36.1)

($\chi^2 = 6.71$, $df = 1$, $P < 0.05$)

Table 3. Sex-related knowledge on perceived mode of transmission of lymphatic filariasis.

Mode of transmission	Male (n=1014)		Female (n=596)		Total (n=1610)	
	Yes	(%)	Yes	(%)	Yes	(%)
Sexual intercourse with infected person	245	(24.1)	120	(20.1)	365	(22.6)
Body contact	205	(20.2)	108	(18.1)	313	(19.4)
Witchcraft	320	(31.5)	178	(29.8)	498	(30.9)
Stepping on charms	322	(31.7)	189	(31.7)	511	(31.7)
Mosquito bites	383	(37.7)	204	(34.2)	587	(36.4)
Food poisoning	299	(29.4)	148	(24.8)	447	(27.7)

($\chi^2 = 5.31$, $df = 1$, $P < 0.05$).

Table 4. Sex-related belief on prevention of lymphatic filariasis.

Prevention	Male (n=1014)		Female (n=596)		Total (n=1610)	
	Yes	(%)	Yes	(%)	Yes	(%)
Avoid sexual contact with affected person	273	(26.9)	130	(21.8)	403	(25.0)
Avoid body contact	225	(22.2)	97	(16.2)	322	(20.0)
Sacrifice to appease gods	227	(22.4)	128	(21.4)	355	(22.0)
Good personal hygiene	468	(46.1)	212	(35.5)	680	(42.2)
Avoid mosquito bite	425	(41.9)	225	(37.7)	650	(40.3)
Avoid eating with infected persons	226	(22.3)	110	(18.4)	336	(20.8)

($\chi^2 = 5.21$, $df = 1$, $P < 0.05$).

DISCUSSION

Awareness of lymphatic filariasis cause, transmission and prevention were highly influenced by socio-cultural norms and superstitious beliefs. As the general community's awareness is poor, their ideas on prevention also have no scientific basis. Similar perceptions on lymphatic filariasis where the true cause, mode of transmission and prevention of the disease are replaced with superstitious reasoning have been reported in Nigeria (Braide et al., 2003; Onwurili et al., 2006) and other parts of the world (Lu et al., 1988; Ramaiah et al., 1996; Gyapong et al.,

1996; Ahorlu et al., 1999; Kumar et al., 2005; Jayakumay et al., 2006). The role of mosquitoes in transmitting the parasitic agent of filariasis is poorly appreciated in these investigated communities as elsewhere and thus it is not surprising that there is little awareness of the importance of minimizing mosquito contact for preventing infection. While these studies concluded that people's knowledge of filariasis is poor, this present study reveals the gender differentials in perception and rationale for people's misconceptions on the disease transmission and coping with the burden of disease manifestations. Socio-cultural roles of women in the communities studied and the

Table 5. Sex-related perception on socio-economic and psychological consequences of lymphatic filariasis.

Consequences	Male (n=1014)		Female (n=596)		Total (n=1610)	
	Yes	(%)	Yes	(%)	Yes	(%)
Hinder daily income	496	(48.9)	277	(46.4)	773	(48.0)
Loss of source of income	569	(56.1)	326	(54.5)	895	(55.6)
Absenteeism from work/school	633	(62.4)	344	(57.7)	977	(60.7)
Increase spending on health	556	(54.8)	339	(56.8)	895	(55.6)
Increase dependence on others for care	612	(60.3)	318	(53.3)	930	(57.7)
Avoid social gathering	651	(64.2)	327	(54.8)	978	(60.7)
Loss of self-esteem	695	(68.5)	404	(67.7)	1099	(68.2)

($\chi^2 = 5.69$, $df = 1$, $P < 0.05$)

Table 6. Sex-related perception of the implications of lymphatic filariasis on marriage.

Matrimonial implications	Male (n=1014)		Female (n=596)		Total (n=1610)	
	Yes	(%)	Yes	(%)	Yes	(%)
Difficult to find spouse	837	(82.5)	418	(70.1)	1255	(77.9)
Hinder marriage prospects of family members	615	(60.6)	311	(52.2)	926	(57.5)
Spouse desertion	701	(69.1)	472	(79.2)	1173	(72.8)
Suspicion of infidelity	819	(80.7)	431	(72.3)	1250	(77.6)
Couple may divorce	757	(74.6)	398	(66.7)	1155	(71.7)
Affect sexual relation with spouse	899	(86.6)	441	(74.0)	1320	(81.9)

($\chi^2 = 6.11$, $df = 1$, $P < 0.05$)

differential in pattern of illness experienced by both men and women influences their perception as well as health seeking behaviour.

Differences in perception and perspective between men and women arise from the gender bias in disease manifestations and consequently disabilities experienced by affected persons. For example, hydrocele, the genital manifestations of the disease in men, presents as a chronic swelling of the scrotum and affects about 27 million men (Hartigan, 1999; Pani et al., 2005; Addiss and Brady, 2007). Male responses and perception of the socio-economic and psychological questions were significantly influenced by gender. Detection is difficult, as hydrocele is associated with sexual disability and lowers the productivity and wage-earning capacity of those affected (Ramu et al., 1996; Dreyer et al., 1997; Gyapong et al., 2000). The psychological stress of individuals and families including sexual disabilities and other genital abnormalities experienced by men most often guide their interpretation of disease etiology. On the other hand, lymphoedema, (elephantiasis of the legs) is more common with women. Women in Benue State, Nigeria account for 87% lymphoedema cases (Omodu and Okafor, 2007).

Women may depend more on their physical appearance to enhance their prospects for marriage and sustaining a partnership with a male. Young unmarried women with lymphatic filariasis manifestations have been

reported to lead reclusive existence in an attempt to hide their illness or because their limited marriage prospects make them a burden to their families (Wynd et al., 2007). Although women may have concerns about marrying men with the physical stigmata of lymphatic filariasis, their gender roles and prevailing power structures often leave them in a relatively powerless position. Reports in Haiti found that the risk of dysfunction and unhappiness was greater in marriages where the wife had physical manifestations of filariasis (Coriel et al., 1998). Studies in Ghana also suggest that the physical and psychological burden borne by men has a negative impact on their marriage and employment prospects, especially men with hydrocoele that were reported to struggle to establish their sexual identity and their capacity to be reliable economic providers (Gyapong et al., 2000). It is these psychosocial issues resulting from the physical disfigurement arising from the disease that influence the many superstitious beliefs around swollen limbs and scrotum. Considering the socio-cultural context and the traditional roles ascribed to women, their lives are substantially burdened both socially and economically by the physical impairment of elephantiasis, most notably in the loss of income and inability to provide care for members of her family. These psycho-social consequences of the disease in women seem to be wide spread as our findings corroborated studies in Haiti (Coreil et al., 1998) Dominican Island (Pearson et al., 2006) Sri Lanka (Wijesinghe et al.,

2007) and India (Ramaiah et al., 1997; Bandyopedhya, 1996).

Though male and female respondents' theory of causation, transmission and prevention of the disease are similar, areas of significant difference arise from gender work roles ascribed to both sexes. Women viewed the disease as occupationally related because they are the ones that need to trek long distances in search of either water, firewood or to farm and then carry heavy load on their head. Furthermore; the recurrent debilitating acute episodes limit women's ability to perform household chores. Anthropological studies in Haiti, India and Ghana have all reported that respondents' responses are influenced by sex, age and even caste affiliation and ethnicity (Eberhard et al., 1996; Kumar et al., 2005; Babu et al., 2004).

The paucity of socioeconomic consequences of the disease in Nigeria is the main reason why the impact of lymphatic filariasis has been grossly underestimated. The challenge this study poses for epidemiologists and public health workers is to translate this information into practical ways of promoting and improving lymphatic filariasis prevention and control. To accomplish this, these findings may be used to develop convincing ethnic and gender specific health educational curriculum to change and correct misconceptions and erroneous beliefs and practices and to achieve higher involvement of community in control activities. To make elimination programmes more efficient, there is the need to get community input right from the onset during the design and ensure that their interest during the whole intervention period is sustained. This will enhance compliance to preventive messages and improve participation in morbidity management. Our study also justifies the need to seriously consider the role of gender plays in the experience of tropical diseases and its interaction with physiological and socio-cultural factors and how these influence overall understanding of disease epidemiology in rural communities.

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