Leprosy: Knowledge and Attitudes of Physiotherapists in Nigeria

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ABSTRACT

Purpose: *The objectives of this study were to investigate the knowledge and attitudes towards leprosy of physiotherapists in Nigeria.*

Method: *A cross-sectional survey of 330 physiotherapists, with minimum 1-year work experience in public hospitals in the 6 geo-political zones of Nigeria, was carried out. A pre-tested, self-administered questionnaire with open and close-ended questions was employed. Data obtained were analysed using descriptive and inferential statistics of Chi-square tests with Alpha level at 0.05.*

Results: *The respondents' mean and range of years of job experience was 8.6 + 5.51 and 1 to 27 years respectively. Close to half (44.5%) of the physiotherapists had only a fair knowledge about leprosy and 165 (50%) had poor attitudes towards leprosy and persons with leprosy. There were significant associations between the schools of training and each level of knowledge ($\chi 2 = 45.04$; $p = 0.0001$) and attitudes of physiotherapists to leprosy and to persons who have suffered from leprosy ($\chi 2 = 20.26$; $p = 0.009$). There was, however, no significant association between years of job experience and each of knowledge ($\chi 2 = 4.76$; $p = 0.312$), or attitudes of the physiotherapists to leprosy ($\chi 2 = 4.55$; $p = 0.337$).*

Conclusions and Implications: *It was concluded that a substantial number of physiotherapists in Nigeria had fair knowledge but poor attitudes towards leprosy. The institution of training appears to have an influence on their knowledge and attitudes. It is therefore recommended that educational and training programmes on leprosy should be organised and emphasised at the basic training institutions for physiotherapists.*

Key words: *leprosy, physiotherapists, attitude, knowledge*

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INTRODUCTION

Leprosy or Hansen's disease (HD), named after Dr. Gerhard Henrik Amauer Hansen who discovered the cause of the disease in 1873, is a chronic disease caused by the bacteria mycobacterium leprae (Sasaki et al, 2001; World Health Organisation – WHO, 2010). Leprosy is primarily a granulomatous disease of the peripheral nerves and mucosa of the upper respiratory tract with skin lesions and thickened peripheral nerves (Kenneth and George, 2004). Mycobacterium leprae (M. leprae) is the only mycobacterium known to infect nervous tissue, causing disfiguring skin patches and progressive nerve damage (WHO, 2009). Throughout history, leprosy has been feared and misunderstood and for a long time it was thought to be a hereditary disease, a curse or a punishment from God (Nighat et al, 2007). Even after the discovery of the biological cause of leprosy, social stigma of persons with leprosy continued because of the physical deformities caused by the disease (Nighat et al, 2007).

The knowledge of leprosy by health workers represents the cognitive components - intelligence, beliefs and values constructed from the environment, resulting from active manipulation of the culture of the community (Ewhrudjakpor, 2008). According to Croft and Croft (1999), there is a significant relationship between knowledge acquisition of leprosy by health workers and their attitudinal predisposition towards persons affected by leprosy. A number of studies have been done on knowledge and attitudes of health workers and students towards leprosy. A study in North Western Botswana found that the attitude of service providers towards leprosy was influenced by poor knowledge (Kumaresan and Maganu, 1994). According to two Nigerian studies, 65% of final year nursing students believed that leprosy was highly infectious and deformities were inevitable, 81% of final year physiotherapy students demonstrated poor attitude, 32% had good knowledge and 62% would not agree to work in a leprosy hospital (Awofeso, 1992; Iyor, 2005). Since health workers are members of the community in which they normally socialise, they must acquire health skills and techniques to mould their attitudes (Ewhrudjakpor, 2008). It is also necessary to investigate the current levels of knowledge, attitudes and practices about leprosy that are exhibited by health workers at a given point in time, in order to form important decisions bothering on imparting the required knowledge and skills to the workers if need be (Rao et al, 2007).

Physiotherapists play a major role in the management of deformities and disabilities occurring in leprosy (Yawalker, 2002). Though some studies have

examined the knowledge and attitudes towards leprosy of health professionals in other fields, there is a dearth of such studies among practising physiotherapists in Nigeria. This study was therefore designed to assess the levels of knowledge and attitudes of physiotherapists in Nigeria towards leprosy and persons with leprosy.

METHOD

A cross-sectional survey design was adopted in view of the widespread nature of physiotherapists across the country and the fact that the data required could be obtained at a single point in time and without any manipulation of the participants.

Study Participants

Participants were physiotherapists practising in Nigeria who had at least 1 year of work experience in public hospital settings (tertiary or secondary health facilities) and were registered with the Medical Rehabilitation Therapists Board of Nigeria (MRTBN). According to the register of the MRTBN, 458 physiotherapists were listed as "active" practitioners in the tertiary or state health facilities in Nigeria. Participants were recruited from Nigeria's 6 geo-political zones, namely the South-South, the South-East, the South-West, the North-East, the North-West, and the North-Central zones.

Research Methods

A self-administered questionnaire, made up of close and open-ended questions (25 close-ended and 2 open-ended), was used to obtain information about participants' demographic data, institution of training, years of job experience, attitude towards and knowledge about leprosy and its musculoskeletal complications. A questionnaire previously designed by Iyor (2005) to assess the knowledge and attitudes of Nigerian physiotherapy students towards leprosy, was modified and further expanded to accommodate knowledge about musculoskeletal complications in leprosy. This addition was made because musculoskeletal complications constitute one of the major reasons why persons with leprosy are required to undergo physical therapy. The questionnaire was assessed by physiotherapy experts from the College of Medicine, University of Ibadan, to ensure its face and content validity. It was also pre-tested for clarity and comprehensibility among 20 physiotherapists across the professional grades.

A pilot application of the questionnaire produced a good test-retest reliability (r = 0.90).

The questionnaire consists of three major parts. Part 1 seeks socio-demographic information such as age, sex, institution of training, place of work, previous exposure to leprosarium and religious affiliation. Part 2 contains 9 items to evaluate respondents' attitudes towards people affected by leprosy and willingness to work in a leprosarium. Part 3 contains 18 items to evaluate the participants' knowledge about leprosy, sources of knowledge and information about leprosy, its cause, mode of transmission, musculoskeletal complications, management approaches and prevention techniques.

Scoring of Questionnaire

The items on the questionnaire were scored in the manner outlined by Iyor (2005). For scoring the participant's attitude, each positive response was '1' and each negative or no response was '0'. Each participant's total attitude marks were divided by 9 and multiplied by 100 to obtain the percentage score for attitude. Similarly, for scoring the participant's knowledge, each correct response was '1' and each wrong response or no response was '0'. Each participant's total knowledge score was divided by 18 and multiplied by 100 to obtain the percentage score for knowledge.

Procedure for Data Collection

Before the commencement of the study, approval was obtained from the University of Ibadan/University College Hospital Research Ethics Committee. Permission was also obtained from the Chief Physiotherapists/Heads of Physiotherapy Departments before the distribution of the questionnaires in the public (tertiary and state) hospitals in Nigeria. An informed consent form, attached to each of the questionnaires, stated the purpose of the study, sought the consent of participants, and assured them of confidentiality and that the information obtained would be used for the purpose of the study only. Copies of the questionnaire were either handed over to the participants or sent by surface mail through a contact person in the various hospitals. Answered questionnaires were retrieved through the same route.

Data Analysis

Descriptive statistic of range and mean was used to compute the participants' years of job experience. Percentages were used to compute the scores of

knowledge and the scores of attitude. Knowledge and attitude scores were classified into three categories thus: 0-39 (poor), 40-59 (fair) and 60-100 (good). Chi-square test was used to determine: 1) the association between knowledge of physiotherapists about leprosy and each of age, years of job experience and schools of undergraduate training, and 2) the association between attitude of physiotherapists to leprosy or persons who have suffered from leprosy and each of age, years of job experience and schools of undergraduate training. Data on religious affiliation of the participants was inconclusive as only a few of them completed this section. Level of significance was set at 0.05.

RESULTS

Socio-demographic characteristics of the Physiotherapists

A total of 458 questionnaires were sent out to various public (tertiary and secondary) hospitals in the 6 geo-political zones of Nigeria, based on the number of practising physiotherapists in the regions. A response rate of 72.1%, representing 330 questionnaires, was obtained. The distribution of the physiotherapists according to age, sex, institutions of training, practice setting, years of experience and highest academic qualification is presented in Table 1. There were more male physiotherapists (197 or 59.7%) than female physiotherapists (133 or 40.3%) among the participants. The physiotherapists' years of job experience ranged between 1 and 27 years, with a mean of 8.64 ± 5.51 years, and the majority were trained at the University of Ibadan (97 or 29.4%). The basic or first Degree was the highest academic qualification for most of the respondents (63.9%).

Knowledge and Attitude scores of the Physiotherapists

Knowledge scores ranged from 12.5 to 87 with a mean score of 54 ± 0.72. Poor knowledge concerning leprosy was demonstrated by 57 physiotherapists (17.3%), while 126 (38.2%) demonstrated good knowledge. Attitude towards leprosy was good in 65 (19.7%) of the physiotherapists and poor in 165 (50%). Table 2 presents the physiotherapists' knowledge profile about leprosy. During their training or work as physiotherapists 104 (31.5%) had never heard any lecture on leprosy, while 91 (27.6%) physiotherapists believed that leprosy could be an affliction caused by enemies, as hatred directed towards others was usually perceived to take the form of spiritual afflictions through metaphysical means. Response of the participants to specific questions evaluating attitudes to leprosy is presented in Table 3. Majority of the physiotherapists (88.5%) had come across a person

Table 1: Distribution of Physiotherapists according to sex, schools of training, practice setting and years of experience

	Frequency	%
Age in years (n = 267)		
21-30	93	34.8
31-40	108	67.4
41-50	57	21.4
>50	9	3.4
Sex (n = 330)		
Male	197	59.7
Female	133	40.3
Institution of training (n = 330)		
University of Ibadan	97	29.4
Obafemi Awolowo University	86	26.1
Bayero University	45	13.6
University of Nigeria	46	13.9
University of Lagos	47	14.2
No response	9	2.7
Practice setting (n = 330)		
Teaching hospital	236	71.5
State hospital	82	24.9
No response	12	3.6
Years of job experience (n = 330)		
1-9	187	56.7
10-19	124	37.6
≥20	15	4.5
No response	4	1.2
Academic qualification of respondents		
(n = 330)		
B.Sc/BMR/B.Physiotherapy	211	63.9
M.Sc.	107	32.4
Ph.D	10	3.0
No response	2	0.6

Table 2: Distribution of responses to specific questions on Knowledge

	RIGHT	WRONG	NO RESPONSE
Lecture on leprosy	209 (63.3)	104 (31.5)	17 (5.2)
Cause of leprosy	151 (45.8)	171 (51.8)	8 (2.4)
Transmission of leprosy	183 (55.5)	146 (44.2)	1 (0.3)
Spreading of leprosy in the community	150 (45.5)	180 (54.5)	--
Site of affectation	121 (36.7)	209 (63.3)	--
Management of leprosy	96 (29.1)	234 (70.9)	--
Cure of leprosy	73 (22.1)	257 (77.9)	--
Isolation of persons with leprosy	249 (75.5)	80 (24.2)	1 (0.3)
Leprosy and vaccination	26 (7.9)	304 (92.1)	--
First clinical signs of leprosy	145 (43.9)	185 (56.1)	--
Transmission of leprosy by insects	172 (52.1)	158 (47.9)	--
Leprosy and perceived enemies	239 (72.4)	91 (27.6)	--
Affects adults only	239 (72.4)	91 (27.6)	--
Deformities are not preventable	288 (87.3)	42 (12.7)	--
Leprosy and transmission through inheritance	269 (81.5)	61 (18.5)	--
Complications of leprosy	235 (71.2)	95 (28.8)	--

Table 3: Distribution of responses to specific questions on Attitude

Question	No n (%)	Yes n (%)	No response n (%)
Have you ever seen a person affected by leprosy?	38 (11.5)	292 (88.5)	
Do you think it is possible for you to have leprosy?	193 (58.5)	137 (41.5)	
Would you agree to work in a leprosy hospital?	147 (44.5)	183 (55.5)	
Would you eat with a person affected by leprosy?	243 (73.6)	86 (26.1)	1 (0.3)
Would you marry a lady/man who had leprosy?	307 (93)	23 (7.0)	
Would you marry a lady/man whose parents have leprosy?	169 (51.2)	160 (48.5)	1 (0.3)
Do you think persons with leprosy should be treated in all conventional hospitals?	229 (69.4)	101 (30.6)	
Would you agree to travel in a bus in which majority of the passengers are persons with leprosy?	216 (65.5)	114 (34.5)	
If you were sick, would you agree to be admitted in the same hospital as persons with leprosy?	216 (65.5)	114 (34.5)	

with leprosy before, but 147 (44.5%) of them would not like to work in a leprosy centre.

Association between Knowledge and Attitude and each of age, years of experience and institution of training

Significant association was found between knowledge of leprosy and the physiotherapist's institution of training ($\chi 2 = 45.04$; $p = 0.0001$), with 55 (56.7%) of the students from the University of Ibadan demonstrating the highest knowledge about leprosy (Table 4). Age group of the physiotherapists also demonstrated a significant association ($\chi 2 = 43.36$; $p = 0.0001$) with their knowledge about leprosy. However, there was no significant association between the knowledge of physiotherapists and their years of job experience ($\chi 2 = 4.76$; $p = 0.312$). Results for the respondents' attitudes, based on their institution of training and years of experience as physiotherapists (Table 5), showed that there was no significant

Table 4: Respondents' categories of knowledge in relation to age, years of job experience and school of training

	Categories of Knowledge			$\chi 2$	p
	Good n (%)	Fair n (%)	Poor n (%)		
Age in years (n = 267)					
21-30	36 (38.7)	41 (44.1)	16 (17.2)	43.36	0.0001
31-40	21 (19.4)	28 (25.9)	59 (54.6)		
41-50	7 (12.3)	31 (54.4)	19 (33.3)		
>50	4 (44.4)	1 (11.2)	4 (44.4)		
Job experience (n = 326)					
1-9	67 (35.8)	81 (43.3)	39 (20.9)	4.76	0.312
10-19	51 (41.1)	56 (45.2)	17 (13.7)		
≥20	8 (53.3)	6 (40.0)	1 (6.7)		
Institution of training (n = 321)					
University of Ibadan	55 (56.7)	26 (26.8)	16 (16.5)	45.04	0.0001
Obafemi Awolowo University	15 (17.4)	34 (39.5)	37 (43.1)		
Bayero University	18 (40.0)	22 (48.9)	5 (11.1)		
University of Nigeria	18 (39.1)	15 (32.6)	13 (28.3)		
University of Lagos	13 (27.7)	14 (29.8)	20 (42.6)		

Table 5: Respondent's categories of Attitude in relation to age, years of job experience and school of training

	Categories of Attitude			χ^2	p
	Good n (%)	Fair n (%)	Poor n (%)		
Age in years (n = 267)					
21-30	31 (33.3)	29 (31.2)	33 (35.5)	9.29	0.158
31-40	38 (35.2)	34 (31.5)	36 (33.3)		
41-50	11 (19.3)	21 (36.8)	25 (43.9)		
>50	0 (0.00)	5 (55.6)	4 (44.4)		
Job experience (n = 326)					
1-9	99 (52.9)	55 (29.4)	33 (17.6)	4.55	0.337
10-19	54 (43.5)	40 (32.3)	30 (24.2)		
≥20	5 (33.3)	6 (40.0)	4 (26.7)		
Institution of training (n=321)					
University of Ibadan	49 (50.5)	25 (25.8)	23 (23.7)	20.26	0.009
Obafemi Awolowo University	21 (24.4)	34 (39.5)	31 (36.0)		
Bayero University	14 (31.1)	18 (40.0)	13 (28.9)		
University of Nigeria	18 (39.1)	13 (28.3)	15 (32.6)		
University of Lagos	11 (23.4)	15 (31.9)	21 (44.7)		

association between the physiotherapists' attitudes to leprosy or persons with leprosy and each of age of the physiotherapists ($\chi2 = 9.29$; $p = 0.158$) and years of job experience ($\chi2 = 4.55$; $p = 0.337$). However, a significant association was found between the institutions of training and attitudes of physiotherapists ($\chi2 = 20.26$; $p = 0.009$). In comparison to respondents trained at other institutions, higher levels of good attitude towards leprosy were demonstrated by 49 (50.5%) of the physiotherapists who were trained at the University of Ibadan. A significant association ($\chi2 = 20.961$; $p = 0.0001$) was also demonstrated between knowledge about leprosy and attitude of physiotherapists towards leprosy.

DISCUSSION

Socio-demographic characteristics of Physiotherapists

There is a numerical predominance of male physiotherapists over female physiotherapists. The difference in numbers may reflect the fact that physiotherapy

is a male dominated profession in Nigeria. This finding is consistent with previous findings (Adegoke et al, 2008) which reported that practising male physiotherapists were in the majority in Nigeria. Predominance of respondents in the younger age group and with work experience of less than 10 years, was also noted in this study. This should be expected since people are supposedly most active between 20 and 40 years of age. This may also indicate that younger physiotherapists are being actively recruited into the physiotherapy workforce in Nigeria.

Knowledge of Physiotherapists about leprosy

This study found the overall knowledge base of practising Nigerian physiotherapists to be fair, with respect to leprosy or persons with leprosy. However, the results of a South African study reported a contrary view, revealing that primary healthcare (PHC) workers generally lack basic clinical knowledge of leprosy, and have a very low level of practical involvement in leprosy work at the PHC clinics in the area (Ukpe, 2006). This observation could be explained by the fact that leprosy was reportedly a rare disease in South Africa, unlike in Nigeria where many leprosy centres abound. In another study which reported poor knowledge about leprosy among healthcare workers, Ewhrudjakpor (2008) claimed that the study was conceived because of the apparently inadequate knowledge and blatant stigmatisation of leprosy sufferers among health practitioners in Nigeria. The knowledge base of physiotherapists who participated in this study was, however, found to be influenced by their training institutions. This is not unexpected in view of previous findings by Iyor (2005), where the institution of training was identified as a major source of knowledge about leprosy or persons with leprosy.

This finding underscores the important role of formal acquisition of knowledge through relevant training with particular reference to leprosy (Jacobs et al, 1994; Baral et al, 1998). Although not reported for physiotherapists, the strategies suggested for PHC workers may well benefit physiotherapists. Useful strategies that could improve the knowledge base of PHC workers include more emphasis on leprosy at PHC training institutions, more leprosy-specific in-service training, special training in practical leprosy work, and regular follow-up and supervision of PHC workers at PHC clinics by specialised or experienced leprosy workers (Ukpe, 2006).

Attitude of Physiotherapists to Leprosy

Half of the respondents in this study showed poor attitudes to leprosy. This suggests that an appreciable number of physiotherapists are not well-disposed

towards leprosy or persons with leprosy. Equally disturbing is the fact that a large number of them would not agree to work in a leprosy hospital or would not agree that persons with leprosy could be treated in all conventional hospitals. More than half of the physiotherapists had wrong notions about the cause and transmission of the disorder, with many of them apprehensive about the possibility of getting infected. This may be largely due to their lack of knowledge about the pathology of leprosy. For instance, data from this study shows that knowledge base of the physiotherapists regarding leprosy is significantly linked with their attitude. A similar view was earlier expressed by Ewhrudjakpor (2008). Further, this study's data shows that one-third of the physiotherapists never received any lecture on leprosy during their basic training, which may make it difficult for them to understand the pathodynamics of the disorder. This is an uncomfortable situation in view of the obvious demand for physical therapy in leprosy centres and clinics in Nigeria.

In South Africa where the disorder was described as rare (Ukpe 2006), it was noticed that a majority of the PHC workers expressed the desire for training on leprosy, and showed willingness to provide care to persons with leprosy at the PHC clinics. It is interesting to note the similarity between the finding in this study concerning practising physiotherapists and the finding obtained in a previous study among final year physiotherapy students in Nigeria, wherein 81% of the respondents showed poor attitudes towards leprosy (Iyor, 2005). It gives the impression that physiotherapists' attitudes might have had its roots in the training institutions. The implication is that the physiotherapists are not being prepared to effectively care for persons with leprosy, and may not be supportive of the move towards integration.

The high levels of poor attitude, as found in this study, may constitute a barrier to effective management of leprosy and persons with leprosy. Physiotherapists may not be able to fulfil their primary professional obligations to such persons with respect to the management of deformities and disabilities. It is also important to note that the poor attitude demonstrated by the physiotherapists, which according to this study hinges more on poor knowledge, may actually be a reflection of the attitude of the general populace towards leprosy.

Nations et al (2009) had earlier reported that leprosy has been stigmatised and associated with social exclusion throughout history, while Ebenso et al (2012) also claimed that there is a high level of apprehension and shame associated with leprosy in south-west Nigeria. The significant association found between

institution of training and attitude is also consistent with previous findings by Iyor (2005), in which institutions of training were identified as an important avenue to channel information on leprosy or persons with leprosy to physiotherapy students.

The significant association between attitude and knowledge of physiotherapists with respect to leprosy implies that the attitudes of the physiotherapists in this study may be informed by their overall knowledge base concerning leprosy. This corroborates the finding of Kumaresan and Maganu (1994) who reported that the attitude of service providers towards leprosy was influenced by poor knowledge. According to Croft and Croft (1999), there is a significant relationship between acquisition of knowledge on leprosy by health workers and their attitudinal predisposition towards leprosy sufferers. This finding is however at variance with the finding among physiotherapy students where there was no significant relationship between their attitudes and knowledge about leprosy (Iyor, 2005).

Another important finding was the fact that there was no significant association between the years of job experience and each of knowledge and attitude of physiotherapists towards leprosy or persons with leprosy. This suggests that length of service among the bulk of participants in this study has not impacted positively on them, with respect to leprosy or persons with leprosy. These findings negate the earlier conclusion drawn from a study by Ewhrudjakpor (2008) where it was advised that health workers, as members of the community, should acquire health skills and techniques that would help mould their attitudes towards the health needs of people around them.

Clinical Implications of findings

It can be inferred from this study that persons with leprosy may find it difficult to access care for their needs in the physiotherapy facilities across Nigeria's 6 geo-political zones. This is based on the fact that half of the physiotherapists displayed poor attitudes towards leprosy or persons with leprosy. Also, with close to one-third of the physiotherapists not in favour of persons with leprosy being treated in conventional hospitals, this implies that the majority of the practitioners in Nigeria are not supportive of the move towards integration in the area of leprosy management. This may have a plethora of implications for the sufferers, including increased social stigma, isolation, and possible increase of secondary complications such as ulcers, contractures and other deformities. In a study that emphasised the depth of stigma in leprosy matters, Nsagha et al

(2011) reported that leprosy has been eliminated as a public health problem in most countries of the world according to the World Health Organisation, but the social stigma attached to the disease is still very high. According to the authors of this study, stigma-related factors should be researched and analysed in order to develop appropriate health education strategies and define specific messages. Until stigma is dealt with, leprosy as a disease cannot be fully cured.

CONCLUSION

The Nigerian physiotherapists who participated in this study were equally divided between poor attitude on one side, and a combination of fair and good on the other. The knowledge base of the majority, regarding leprosy or persons with leprosy, can best be described as fair. Exposure to issues or courses pertaining to leprosy during their physiotherapy training played an important role in the level of their knowledge and attitudes. It is therefore recommended that educational programmes on leprosy should be formulated for practicing physiotherapists, in the form of continuous professional education. Efforts must also be made to correct the perceived deficiencies in their leprosy knowledge base at the training institutions. It is recommended that this should not only be lecture-based, but should also include practical exposure to persons with leprosy so that students acquire hands-on experience in leprosy management. This hands-on experience will go a long way in reducing the divide between physiotherapists and persons with leprosy. For future studies, the authors recommend an expanded focus group study involving physiotherapists, physiotherapy students and persons with leprosy, with each expressing their views on the barriers to accessing physiotherapy care by persons with leprosy.

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