

Prevalence of Lymphatic Filariasis based on Morbidity and Healthcare-seeking Practices of Patients in a Gram Panchayat of Paschim Burdwan District, West Bengal

Indranil Saha¹, Russoti Das², Ajay K. Mandal³, Pinki Darlami³, Subhajit Datta³, Gautam Ghose³, Sanjit Dey⁴

¹Scientist E (Medical), ICMR-Centre for Ageing and Mental Health, Kolkata, West Bengal, ²Department of Radiodiagnosis, Apollo Gleneagles Hospital, Kolkata, West Bengal, ³Department of Community Medicine, IQ City Medical College, Durgapur, West Bengal, ⁴Department of Physiology, Centre for Nanoscience and Nanotechnology (CRNN) and Centre with Potential for Excellence in Particular Area (CPEPA), University of Calcutta, Kolkata, West Bengal, India

Abstract

Lymphatic filariasis is one of the neglected tropical diseases still present in many areas. A community-based cross-sectional study was conducted during 2019–2020 in the Gourbazar gram panchayat area of Paschim Burdwan District, West Bengal, to find out the prevalence of lymphatic filariasis based on morbidity and its distribution in terms of selected sociodemographic variables and to assess the healthcare-seeking practices of the affected people. The entire area was covered by the National Center for Vector Borne Diseases Control flashcards. Data was analyzed by SPSS software (version 20.0). Overall, the prevalence of LF was found to be 0.97%. About 49.6% of filariasis patients were male. Among the males, the majority suffered from hydrocele, followed by lymphoedema of the legs. Overall, about 2/3rd of the patients (66.1%) consulted with doctors regarding their health problems. Overall, 90.8% consulted from the private healthcare sector and the majority relied on traditional healers. It is now essential to line list the cases and to provide appropriate management from the designated service area so as to promote health and well-being.

Keywords: Health seeking practice, hydrocele, lymphatic filariasis, lymphoedema, morbidity, prevalence

INTRODUCTION

Lymphatic filariasis (LF) is a neglected tropical disease known from ancient times. To date, this disease is endemic in as many as 80 countries across the world.^[1] As of date, about 863 million people in 47 countries remain endangered by lymphatic filariasis worldwide.^[2] Although LF does not lead to mortality, it leads to significant suffering and chronic disablement of the people affected. India along with the other eight countries falls under LF hotspot in the South East Asia Region (SEAR). In India, there were 256 endemic districts of LF as per a 2018 government report.^[3]

Disability prevention and management is one of the important strategies for the elimination of LF.^[1] Here lies the importance of maintaining a line listing of the affected patients in an endemic zone. At the same time, it is necessary to know the healthcare-seeking practices of the affected patients of that area. In this background, the present study was carried out to find out the prevalence of

lymphatic filariasis based on morbidity and its distribution in terms of selected sociodemographic variables and to assess the healthcare-seeking practices of the affected people.

MATERIALS AND METHODS

It was a community-based, cross-sectional study conducted during 2019–2020 at the Gourbazar gram panchayat area of Paschim Burdwan District, West Bengal. There are seven villages in this gram panchayat area, which falls under the field

Address for correspondence: Dr. Indranil Saha, ICMR-Centre for Ageing and Mental Health, Indian Council of Medical Research, Block DP-1, Sector V, Salt Lake, Kolkata - 700 091, West Bengal, India.
E-mail: drsahaindranil@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Saha I, Das R, Mandal AK, Darlami P, Datta S, Ghose G, *et al.* Prevalence of lymphatic filariasis based on morbidity and healthcare-seeking practices of patients in a gram panchayat of Paschim Burdwan District, West Bengal. Indian J Community Med 2025;50:193-6.

Received: 08-03-23, **Accepted:** 05-03-24, **Published:** 03-07-24

Access this article online

Quick Response Code:



Website:
www.ijcm.org.in

DOI:
10.4103/ijcm.ijcm_146_23

practice area of the Department of Community Medicine, IQ City Medical College, Durgapur, Paschim Burdwan district, West Bengal.

All these seven villages (2707 households, 11661 total population) were covered in this study with the help of a Flash card of “National Center for Vector Borne Diseases Control” guideline.^[1] This study was approved by the Institutional Ethics Committee (IEC of IQ City Medical College and Hospital as well as the University of Calcutta) and it adhered to all the basic principles of ethics.

Lymphoedema of the limbs was classified as grade I, II, and III lymphoedema. Grade I was defined as mostly pitting edema that spontaneously reversible on elevation. Grade II lymphoedema was defined as mostly nonpitting edema but not spontaneously reversible on elevation. Grade III lymphoedema/elephantiasis was defined as a gross increase in volume in a grade II lymphoedema with dermatosclerosis and papillomatous lesions.^[1]

Collected data was compiled on a Microsoft Excel worksheet. Categorical data were presented in proportion. Association between two categorical variables was employed by Pearson’s Chi-square test. Yates corrected and Fischer’s exact Chi-square test was employed in a 2 × 2 contingency table, where the expected cell value in any of the cells was between 5–10 and less than 5, respectively.^[4] SPSS software (version 20.0) was used for analysis. *P* value ≤0.05 was considered statistically significant.

RESULTS

Overall, the prevalence of LF was found to be 0.97% (115/11661). Gender wise, prevalence was 0.95% (57/5990) and 1.02% (58/5671) among males and females, respectively. On the whole, the majority of the participants (27%) were from the age group of 60–70 years, followed by 26.1% in 40–50 years. About 49.6% and 50.4% of patients were male and female, respectively. About, 93.9% of patients belonged to the Hindu religion and the rest 6.1% belonged to the Islam religion. Overall, 56.5% of patients were illiterate, followed by 20% of patients, who studied up to middle school level. More than half of the patients belonged to class 4 socio-economic status as per the modified Bal Gobind Prasad socio-economic status scale.

Among the males, the majority suffered from hydrocele, followed by lymphoedema of the legs. Again, the majority, i.e., 22.8% each had swelling of both scrotum and right scrotum. Among females, about half of the patients had swelling of the left leg (43.1%), followed by swelling of the right leg (39.6%). Two male patients had swelling of the left leg and left scrotum. Another male patient had lymphoedema of the left leg along with lymphoedema of the right arm. Again one male patient had lymphoedema of both legs along with adenitis. Three female patients had swelling of both upper and lower limbs and another patient had both left adenitis and lymphoedema [Table 1].

Table 1: Distribution of the filariasis patients according to morbidity in two genders *n*=115*

Morbidity	Male <i>n</i> (%)	Female <i>n</i> (%)	Total <i>n</i> (%)
Swelling of the left leg	7 (12.3)	25 (43.1)	32 (27.8)
Swelling of the right leg	10 (17.5)	23 (39.6)	33 (28.7)
Swelling of both legs	5 (8.8)	8 (13.8)	13 (11.3)
Swelling of the right lower arm	2 (3.5)	5 (8.6)	7 (6.1)
Swelling of the left lower arm	1 (1.8)	–	1 (0.9)
Swelling of the left scrotum	8 (14.0)	–	8 (7.0)
Swelling of the right scrotum	13 (22.8)	–	13 (11.3)
Swelling of both scrotums	13 (22.8)	–	13 (11.3)
Left adenitis	2 (3.5)	1 (1.7)	3 (2.6)

*Multiple responses taken

Overall, about 2/3rd of the patients (66.1%) consulted with doctors regarding their health problems. This proportion was even higher among females (77.6%) compared to males (54.4%) and the association was found to be statistically significant. Overall, 9.2% of participants sought consultation from the government facility and the rest 90.8% consulted the private healthcare sector. Among the private sector, most of them relied on traditional healers followed by allopathic doctors. Overall, 27.8% of patients received advice from the health sector, while the rest 72.2% of patients did not get any advice from the health sector. The distribution of the patients in the two genders was almost similar without any significant difference. Out of the 115 patients, only 1/4th of participants (26.1%) correctly knew the management of the affected area. Females (29.3%) had comparatively more correct knowledge than the males (22.8%). Only the least proportion of the patients (12.2%) received advice for blood examination. About 60% of patients received medication for their health problems. Again, the proportion of females was much higher compared to males (74.1% vs. 45.6%), and this distribution was found to be statistically significant. Out of the 69 patients who received medication, the majority, i.e., 84.1% patients completed their treatment protocol, and the rest 15.9% did not comply. Of three patients who did not comply, most of them (63.6%) cited financial constraints as a barrier to complete the treatment, and 18.2% opined of no faith, etc., For those who completed the treatment, more than 2/3rd of them (72.4%) went regularly to the health sector for follow-up visits. The proportion of males was higher compared to females (78.3% vs. 68.6%) but without any significant differences [Table 2].

DISCUSSION

A community-based, cross-sectional study was carried out in a gram panchayat of Paschim Burdwan District of West Bengal. Overall, the prevalence of LF was found to be 0.97% (115/11661). Gender wise, prevalence was 0.95% (57/5990) and 1.02% (58/5671) among males and females, respectively. A similar finding was also noted by Walsh *et al.*,^[5] where the burden of lymphedema was found to be 1.3% in 2005 in the Khurda district of Odisha.

Table 2: Distribution of the filariasis patients according to their healthcare-seeking practices

Parameters	Male <i>n</i> (%)	Female <i>n</i> (%)	Total <i>n</i> (%)	Chi-square test (<i>P</i>)
Consultation with doctor				
Yes	31 (54.4)	45 (77.6)	76 (66.1)	6.90 (<0.05)*
No	26 (45.6)	13 (22.4)	39 (33.9)	
Total	57 (100.0)	58 (100.0)	115 (100.0)	
Types of provider				
Govt. facility	4 (12.9)	3 (6.7)	7 (9.2)	#
Private facility	27 (87.1)	42 (93.3)	69 (90.8)	
Total	31 (100.0)	45 (100.0)	76 (100.0)	
Advice received from the health sector				
Yes	13 (22.8)	19 (32.8)	32 (27.8)	1.41 (0.23)
No	44 (77.2)	39 (67.2)	83 (72.2)	
Total	57 (100.0)	58 (100.0)	115 (100.0)	
Management of the affected area				
Correct	13 (22.8)	17 (29.3)	30 (26.1)	0.63 (0.42)
Incorrect	44 (77.2)	41 (70.7)	85 (73.9)	
Total	57 (100.0)	58 (100.0)	115 (100.0)	
Advice received for blood examination				
Yes	6 (10.5)	8 (13.8)	14 (12.2)	0.06 (0.80) [Yates corrected]
No	51 (89.5)	50 (86.2)	101 (87.8)	
Total	57 (100.0)	58 (100.0)	115 (100.0)	
Receipt of medication				
Yes	26 (45.6)	43 (74.1)	69 (60.0)	9.74 (< 0.05)*
No	31 (54.4)	15 (25.9)	46 (40.0)	
Total	57 (100.0)	58 (100.0)	115 (100.0)	
Completion of treatment				
Yes	23 (88.5)	35 (81.4)	58 (84.1)	(0.51) [Fischer's exact <i>P</i>]
No	3 (11.5)	8 (18.6)	11 (15.9)	
Total	26 (100.0)	43 (100.0)	69 (100.0)	
Follow-up visits				
Yes	18 (78.3)	24 (68.6)	42 (72.4)	(0.55) [Fischer's exact <i>P</i>]
No	5 (21.7)	11 (31.4)	16 (27.6)	
Total	23 (100.0)	35 (100.0)	58 (100.0)	

*Statistically significant. #Not applicable

However, Viveka Vardhani and Adinarayana^[6] found that the filarial endemicity rate was 6.0% in five habitations of the filaria endemic Palnadu area of Guntur district, Andhra Pradesh, in 2013. Mukhopadhyay *et al.*^[7] estimated that the microfilaria (mf) rate was 4.43% and 3.48% after VI and VII rounds of the MDA program, respectively, in an endemic area of East Godavari district of Andhra Pradesh. Both the above two studies, i.e., Viveka Vardhani and Adinarayana^[6] and Mukhopadhyay *et al.*,^[7] yielded a much higher prevalence rate because they used microfilaria estimation in the blood, while the present study relied on signs and symptoms of the patients based from the flash card of NVBDCP.^[1] Mwase *et al.*^[8] demonstrated prevalence of filariasis ranging between 1% and 54% based on Circulating filarial antigen (CFA). Cabral *et al.*^[9] in Brazil found the prevalence of lymphatic filariasis as 2% according to the ICT. Modi *et al.*^[10] showed the prevalence of microfilaria at 0.3% in 2015 in pre-MDA surveys.

On the whole, the majority of the participants (27%) were from the age group of 60–70 years, followed by 26.1% in 40–50 years. The mean age of the participants was found to

be 50.08 (± 15.07) years. About 49.6% (57/115) of filariasis patients were male and the rest 50.4% (58/115) were females. Similar to the present findings, Walsh *et al.*^[5] also found that the mean age of lymphoedema patients was 49.4 years and 51.3% were female patients. Overall, 56.5% of patients were illiterate, followed by 20% of patients, who studied up to middle school level. More than half of patients (55%) belonged to class 4 socioeconomic status similar to the findings of Viveka Vardhani and Adinarayana^[6] and the Kerala Grant project^[11] where the socioeconomic conditions of the population were very poor. The reason could be due to not being able to follow the personal protection methods due to low education and lower socioeconomic status. Manhenje *et al.*^[12] also identified poverty as an important predictors of filariasis. In addition to this, Manhenje *et al.*^[12] also documented temperature, altitude, and rice culturing as key factors in the transmission of the disease in Mozambique. The present study settings belonged to a tropical area with favorable temperature and paddy fields were found to be responsible for the abundance and presence of the vector. Among the males, the majority suffered from hydrocele, followed by lymphoedema of the legs. Similar to the

present finding, 51.3% of the patients reporting lymphedema were female and early lymphedema was reported in two-thirds of the patients.^[5] In contrast Adhikari *et al.*^[13] found hydrocele as a major health problem in the studied communities in Nepal.

Overall, about 2/3rd of the patients (66.1%) consulted with doctors regarding their health problems. Overall, 90.8% of participants sought consultation from the private sector, and out of them, the majority consulted traditional healers. Similar to the present finding, Person *et al.* and Adhikari *et al.* also found that the patients were more inclined to traditional healers for their problems because of their influence over physical, mental, spiritual, and supernatural properties of illness.^[13,14] Adhikari *et al.*^[13] also found ayurvedic and allopathic hospital-based care as the second preference after traditional healers. Out of the 115 patients, only 1/4th of participants (26.1%) correctly knew the management of the affected area. About 60% of patients received medication for their health problems. Out of the 69 patients who received medication, the majority, i.e., 84.1% patients completed their treatment protocol, and the rest 15.9% did not comply. Of three patients who did not comply, most of them (63.6%) cited financial constraints as a barrier to complete the treatment, and 18.2% opined of no faith, etc., Bontha *et al.*^[15] also found that most of the patients were practicing the washing of affected limbs only. Other recommended foot care practices like massaging, elevation, and exercising of the affected, limb and use of bandage were largely not known to the patients and were practiced by only a few patients. Adhikari *et al.*^[13] found that standard foot care practices except washing were largely absent in the Nepal study too. Douglas *et al.*^[16] also found poor knowledge regarding the management of lymphoedema among the patients and caregivers in both Bangladesh and Ethiopia.^[16] This knowledge and self-care increased significantly after 24 weeks of training. Douglas *et al.*^[17] also showed improvement in the limbs following imparted knowledge similar to the study by Aggithaya *et al.*^[18]

CONCLUSION

Appropriate management of the affected area is one of the important strategies in the goal of elimination of lymphatic filariasis. The time has come to line list the cases and to provide appropriate management from the designated service area so as to promote the health and well-being of the affected person.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Filariasis Control in India and its elimination. Available from: <https://nvbdcp.gov.in/WriteReadData/1892s/43461824631532409675.pdf>. [Last accessed on 2022 Nov 05].
2. Lymphatic filariasis. World Health Organization. 2022. Available from: <https://www.who.int/news-room/fact-sheets/detail/lymphatic-filariasis>. [Last accessed on 2022 Nov 19].
3. Available from: <https://main.mohfw.gov.in/sites/default/files/05%20ChapterAN2018-19.pdf>. [Last accessed on 2023 Mar 01].
4. Saha I, Paul B. Essentials of Biostatistics & Research Methodology. 3rd ed. Kolkata: Academic Publishers; 2020.
5. Walsh V, Little K, Wiegand R, Rout J, Fox LM. Evaluating the burden of lymphedema due to lymphatic filariasis in 2005 in Khurda District, Odisha State, India. PLoS Negl Trop Dis 2016;10:e0004917.
6. Viveka Vardhani V, Adinarayana R. Incidence of filariasis in endemic areas by means of field survey to detect the Mf density, Mf rate, disease rate and endemicity in the community. Biolife 2013;1:159-64.
7. Mukhopadhyay AK, Patnaik SK, Babu PS, Rao KNMB. Knowledge on lymphatic filariasis and mass drug administration (MDA) programme in filaria endemic districts of Andhra Pradesh, India. J Vector Borne Dis 2008;45:73-5.
8. Mwase ET, Stensgaard AS, Nsakshalo-Senkwe M, Mubila L, Mwansa J, Songolo P, *et al.* Mapping the geographical distribution of lymphatic filariasis in Zambia. PLoS Negl Trop Dis 2014;8:e2714. doi: 10.1371/journal.pntd.0002714.
9. Cabral S, Bonfim C, Oliveira R, Oliveira P, Guimarães T, Brandão E, *et al.* Knowledge, attitudes and perceptions regarding lymphatic filariasis: Study on systematic noncompliance with mass drug administration. Rev Inst Med Trop Sao Paulo 2017;59:e23.
10. Modi A, Vaishnav KG, Kothiyi K, Alexander N. Lymphatic filariasis elimination endgame in an urban Indian setting: The roles of surveillance and residual microfilaremia after mass drug administration. Infect Dis Poverty 2021;10:73.
11. An epidemiological survey to identify environmental and occupational determinants on lymphatic filariasis patients in 3 districts of Kerala and to study impact of entry point education and yoga. A project under the Grant of Research Schemes under Ecology and Environment Schemes, Environment Management Agency Kerala (EMAK), Govt. of Kerala (Presently known as Dept. of Environment & Climate Change). Available from: <https://iad.org.in/research/completed-projects/quality-of-life-study-of-filarial-lymphoedema-patients/>. [Last accessed on 2018 Oct 10].
12. Manhenje I, Galan-Puchades MT, Fuentes MV. Socio-environmental variables and transmission risk of lymphatic filariasis in central and northern Mozambique. Geospat Health 2013;7:391-8.
13. Adhikari RK, Sherchand JB, Mishra SR, Ranabhat K, Pokharel A, Devkota P, *et al.* Health-seeking behaviors and self-care practices of people with filarial lymphoedema in Nepal: A qualitative study. J Trop Med 2015;2015:260359. doi: 10.1155/2015/260359.
14. Person B, Addiss DG, Bartholomew LK, Meijer C, Pou V, van den Borne B. Health-seeking behaviors and self-care practices of Dominican women with lymphoedema of the leg: implications for lymphoedema management programs. Filaria J 2006;5:13.
15. Bontha VB, Abhay NN, Anna SK. A survey on foot care practices among filarial lymphoedema patients in Orissa, India. Trop Biomed 2007;24:7-14.
16. Douglass J, Martindale S, Mableson H, Jhara ST, Karim MJ, Rahman MM, *et al.* Insights on lymphedema self-care knowledge and practice in filariasis and podocniosis-endemic communities in Bangladesh and Ethiopia. Front Trop Dis 2021;2:767045. doi: 10.3389/ftd.2021.767045.
17. Douglass J, Mableson H, Martindale S, Jhara ST, Karim MJ, Rahman MM, *et al.* Effect of an enhanced self-care protocol on lymphedema status among people affected by moderate to severe lower-limb lymphedema in Bangladesh, a cluster randomized controlled trial. J Clin Med 2020;9:2444. doi: 10.3390/jcm9082444.
18. Aggithaya MG, Narahari SR, Vayalil S, Shefuvan M, Jacob NK, Sushma KV. Self care integrative treatment demonstrated in rural community setting improves health related quality of life of lymphatic filariasis patients in endemic villages. Actatropica 2013;126:198-204.