e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2025; 17(12); 2923-2927

Original Research Article

Coverage Evaluation of Mass Drug Administration Programme for Elimination of Lymphatic Filariasis in Latehar District of Jharkhand, India in year 2023

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Received: 28-10-2025 / Revised: 27-11-2025 / Accepted: 28-12-2025

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Conflict of interest: Nil

Abstract:

Background: Lymphatic filariasis remains a major public health problem in India, and Mass Drug Administration (MDA) is the key strategy for interrupting transmission. Regular coverage evaluation surveys are essential to assess programme performance, drug consumption, and reasons for non-compliance, especially in hard-to-reach and tribal districts.

Objectives: To assess the coverage and consumption of antifilarial drugs during the 2023 MDA round in Latehar district, Jharkhand, and to identify reasons for non-eligibility, non-receipt, and non-compliance.

Materials and Methods: A community-based cross-sectional coverage evaluation survey was conducted in October 2023 following the MDA round held in August 2023. Five blocks were selected as implementation units, and four clusters from each block were surveyed using cluster sampling. Thirty households per cluster were selected by systematic random sampling. Data were collected using a predesigned and pretested questionnaire from an adult respondent of each household. Data analysis was done using MS Excel and SPSS version 20, and results were expressed as proportions and percentages.

Results: A total of 600 households covering 3066 individuals were surveyed. Of these, 2897 (94.5%) individuals were eligible for MDA. Drug coverage among eligible individuals was 95.3%, and 2751 individuals consumed the drugs, resulting in an overall consumption rate of 89.72%. Non-eligibility was mainly due to age below two years (75.1%). Absence from home was the most common reason for not receiving drugs (68.1%), while fear of side effects was the leading cause of non-compliance (72.7%).

Conclusion: The MDA programme in Latehar district achieved high coverage and satisfactory consumption. Strengthening community awareness, addressing fear of adverse effects, and minimizing missed populations may further enhance programme effectiveness and contribute to elimination goals.

Introduction

Lymphatic filariasis (LF) is a neglected tropical disease caused by filarial parasites, primarily Wuchereria bancrofti, Brugia malayi, and Brugia timori, transmitted through mosquito vectors. The disease leads to chronic manifestations such as lymphoedema, elephantiasis, and hydrocele, resulting in significant physical disability, social stigma, and economic burden on affected individuals and communities [1]. Globally, lymphatic filariasis remains a major public health problem, particularly in tropical and subtropical regions, with India contributing nearly 40% of the global disease burden [2].

In India, lymphatic filariasis is endemic in several states and predominantly affects marginalized, rural, and tribal populations. Recognizing its public health importance, the Government of India launched the National Programme for Elimination of Lymphatic Filariasis (NPELF) with the objective of interrupting transmission through annual Mass Drug

Administration (MDA) and managing morbidity among affected individuals [3]. The strategy aims to achieve elimination by administering antifilarial drugs to the entire eligible population in endemic districts for a minimum of five consecutive years, ensuring coverage of at least 65–80% of the total population and effective consumption of drugs [4].

Mass Drug Administration involves the annual distribution of a combination of Diethylcarbamazine (DEC) and Albendazole, and more recently, the triple drug regimen of Ivermectin, DEC, and Albendazole (IDA), which has shown superior efficacy in reducing microfilaria levels and accelerating elimination efforts [5]. However, the success of MDA programmes largely depends on high coverage, proper drug consumption, community acceptance, and effective implementation at the grassroots level. Factors such as fear of side effects, lack of awareness, absenteeism, inadequate supervision, and logistic challenges often lead to suboptimal coverage and compliance [6].

Jharkhand is one of the endemic states for lymphatic filariasis in India, with several districts, including Latehar, reporting persistent transmission. Latehar district is characterized by difficult terrain, scattered tribal settlements, and limited healthcare access, which pose challenges to effective implementation of public health programmes [7]. Regular evaluation of MDA activities through Coverage Evaluation Surveys (CES) is therefore essential to assess programme performance, identify gaps in drug delivery and consumption, and understand reasons for non-compliance and non-eligibility [8].

The present study was conducted to evaluate the coverage and consumption of antifilarial drugs during the MDA programme implemented in Latehar district, Jharkhand, in 2023. The findings of this study are expected to provide valuable insights into the operational strengths and weaknesses of the programme and help guide future strategies to achieve elimination of lymphatic filariasis in the region.

Materials and Methods

Study Design: The present study was a community-based cross-sectional Coverage Evaluation Survey (CES) conducted to assess the coverage and consumption of antifilarial drugs administered under the Mass Drug Administration (MDA) programme for elimination of lymphatic filariasis.

Study Area: The study was carried out in Latehar district of Jharkhand, India, located in the north-western part of the state and bordered by Chhattisgarh and the districts of Ranchi, Lohardaga, Gumla, Palamu, and Chatra. The district is characterized by hilly terrain, dense forest cover, scattered villages, and a predominantly tribal population, with Scheduled Tribes constituting nearly 40% of the population as per Census 2011. Latehar district comprises two subdivisions and nine administrative blocks.

Study Duration: The coverage evaluation survey was conducted for a period of one month in October 2023, following completion of the MDA round conducted in August 2023.

Study Population: The study population included all eligible individuals residing in the selected households of the study area. As per national MDA guidelines, eligible participants included all residents aged ≥2 years. Exclusion criteria comprised children below two years of age, pregnant women, and seriously ill individuals at the time of drug distribution.

Study Drugs: The MDA programme implemented in the district involved administration of a triple drug regimen (IDA) consisting of Ivermectin, Diethylcarbamazine (DEC), and Albendazole.

Sampling Technique and Sample Size: A cluster sampling method was adopted with the administrative block considered as the implementation unit (IU). As per National Programme for Elimination of Lymphatic Filariasis (NPELF) guidelines, five blocks were selected from the district. From each selected block, four clusters (villages) were randomly chosen, making a total of 20 clusters.

Within each selected cluster, 30 households were surveyed using systematic random sampling. In case a household was found locked, the next immediate household was selected. A complete enumeration of all members in each selected household was carried out.

Thus, a total of 600 households were surveyed, covering 3066 individuals, which constituted the final sample size.

Data Collection: Data were collected by teams from the Department of Community Medicine, Medinirai Medical College, Palamu, with assistance from field-level health workers including ASHAs and Anganwadi workers. A predesigned and pretested structured questionnaire was used to collect information regarding socio-demographic details, eligibility for MDA, receipt of drugs, consumption of drugs, and reasons for non-receipt, non-eligibility, and non-compliance. Information was obtained from an adult respondent of each household.

Operational Definitions

1. **Coverage** was defined as the proportion of eligible individuals who received antifilarial drugs.

2. **Consumption** was defined as the proportion of individuals who actually consumed the drugs among those eligible.
3. **Non-compliance** referred to individuals who received the drugs but did not consume them.

Data Analysis

Data were entered in Microsoft Excel and analysed using SPSS version 20. Results were expressed as frequencies and percentages, and block-wise comparisons were performed.

Ethical Considerations

Participants were explained the purpose of the study, and verbal informed consent was obtained prior to data collection. Confidentiality of information was ensured throughout the study.

Results

The Coverage Evaluation Survey included 600 households across five selected blocks of Latehar district, covering a total population of 3066 individuals. Of these, 2897 (94.5%) individuals were eligible to receive Mass Drug Administration (MDA) drugs, while 169 (5.5%) were not eligible as per national guidelines.

Out of the eligible population, 2762 individuals received antifilarial drugs, resulting in a coverage of 95.3%. Among those who received the drugs, 2751 consumed them, yielding an overall consumption rate of 89.72%.

Table 1: Overall Coverage and Consumption Status of MDA in Latehar District (n = 3066)

Parameter	Number	Percentage (%)
Total population surveyed	3066	100
Eligible population	2897	94.5
Not eligible	169	5.5
Received drugs	2762	95.3*
Did not receive drugs	135	4.7*
Consumed drugs	2751	89.72
Non-compliance	11	0.36

*Percentage calculated among eligible population

Block-wise analysis revealed variations in drug receipt and consumption across the five implementation units. Consumption rates ranged from 85.57% to 93.29%, with the highest consumption observed in Latehar block.

Table 2: Block-wise Distribution of Eligible Population, Drug Receipt, and Consumption

Block	Population surveyed	Eligible population	Received drugs	Consumed drugs	Consumption (%)
Manika	643	615	572	568	88.33
Chandwa	531	498	483	480	90.39
Balumath	631	598	543	540	85.57
Latehar	671	635	626	626	93.29
Barwadih	590	551	538	537	91.01
Total	**3066**	**2897**	**2762**	**2751**	**89.72**

Among the 169 non-eligible individuals, the most common reason for ineligibility was age below two years, followed by serious illness and pregnancy.

Table 3: Reasons for Non-Eligibility for MDA (n = 169)

Reason for non-eligibility	Number	Percentage (%)
Under age (<2 years)	127	75.1
Seriously ill	28	16.6
Pregnant	14	8.3

A total of 135 eligible individuals did not receive the drugs during the MDA campaign. The predominant reason reported was absence from home at the time of drug distribution, followed by non-visitation by drug distributors.

Table 4: Reasons for Not Receiving MDA Drugs (n = 135)

Reason	Number	Percentage (%)
Absent during drug distribution	92	68.1
Drug distributor did not visit	33	24.4
Refusal	6	4.4
Not aware of MDA	4	3.0

Only 11 individuals who received the drugs did not consume them. The most frequently reported reason for non-compliance was fear of side effects.

Table 5: Reasons for Non-Compliance to MDA Drugs (n = 11)

Reason for non-compliance	Number
Fear of side effects	8
Too many tablets	1
Felt healthy / not sick	1
Bad taste	1

Discussion

The present coverage evaluation survey assessed the performance of the Mass Drug Administration (MDA) programme for elimination of lymphatic filariasis in Latehar district, Jharkhand, following the 2023 MDA round. The study demonstrated high drug coverage (95.3%) and satisfactory consumption (89.72%), indicating effective implementation of the programme in a predominantly tribal and geographically challenging district.

The overall drug coverage observed in this study is comparable to findings reported from other endemic districts of India, where coverage levels above 90% have been documented following intensified supervision and community mobilization [9,10]. High coverage in Latehar district may be attributed to the combined booth-based and house-to-house distribution strategy, involvement of frontline health workers, and supervision by medical college teams. Similar operational approaches have been shown to improve coverage in rural and hard-to-reach populations [11].

Consumption of antifilarial drugs is a critical determinant of programme success, as receipt alone does not ensure interruption of transmission. The consumption rate of 89.72% observed in the present study is higher than that reported in several earlier coverage evaluation surveys conducted in endemic areas of India, where consumption ranged between 65% and 85% [12,13]. Directly observed drug consumption by health workers, as noted in the present survey, has been identified as a key factor contributing to improved compliance [14].

Despite the overall success, non-coverage and non-compliance were still observed among a small proportion of the population. Absence from home during drug distribution emerged as the most common reason for not receiving drugs, which has been consistently reported in multiple CES studies across different states [15,16]. This highlights the need for repeated household visits and flexible timing of drug distribution, particularly in populations engaged in daily wage labor and agricultural activities.

Fear of side effects was the leading reason for non-compliance among individuals who received but did not consume the drugs. Similar concerns have been reported in other studies and are often linked to inadequate pre-MDA information, education, and communication (IEC) activities [17]. Misconceptions regarding drug safety, especially when asymptomatic individuals are targeted, continue to pose a challenge to achieving universal compliance [18].

The proportion of non-eligible individuals in the present study was low and primarily comprised children below two years of age, pregnant women, and seriously ill individuals, consistent with national guidelines and findings from other CES reports [19]. Proper identification and exclusion of ineligible individuals reflect adherence to programme protocols at the field level.

Overall, the findings suggest that the MDA programme in Latehar district is progressing in the right direction. However, sustained efforts focusing on community awareness, addressing fears related to adverse effects, and minimizing missed populations are essential to achieve and maintain elimination targets. Regular coverage evaluation surveys such as the present study play a crucial role in identifying operational gaps and guiding corrective measures for strengthening the lymphatic filariasis elimination programme.

Conclusion

The Coverage Evaluation Survey conducted in Latehar district demonstrated high coverage and satisfactory consumption of antifilarial drugs during the 2023 Mass Drug Administration round. The findings indicate that the MDA programme is being implemented effectively even in a predominantly tribal and geographically challenging district. Most eligible individuals received and consumed the drugs, reflecting good community participation and effective field-level execution.

However, gaps were identified in terms of missed populations due to absenteeism and non-compliance driven mainly by fear of side effects. These findings highlight the need for strengthened information, education, and communication activities, repeated household visits, and continued engagement of frontline health workers to address misconceptions and improve compliance.

Sustained high coverage, along with focused efforts to reduce non-compliance and non-receipt, is

essential for achieving and maintaining elimination of lymphatic filariasis. Periodic coverage evaluation surveys such as this provide valuable feedback for programme managers and are crucial for guiding corrective actions toward successful elimination.

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