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A Cross-Sectional Study to Assess Mass Drug Administration Programme for Lymphatic Filariasis in an Endemic District of Jharkhand, India, 2024.

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Abstract

Background:

Lymphatic filariasis remains a major public health problem in India. Mass Drug Administration (MDA) is a key strategy for its elimination.

Objectives:

To assess coverage, compliance, and factors affecting drug consumption during MDA in an endemic district of Jharkhand.

Methods:

A community-based cross-sectional study was conducted in Garhwa district in April 2024 among 600 households selected using cluster sampling. Data were collected from 2,871 individuals using a prevalidated questionnaire. Socio-demographic variables such as age, gender, and occupation were recorded.

Results:

Of 2,871 individuals, 2,740 were eligible for MDA. Among them, 2,594 (94.67%) received drugs, and 2,578 (89.79%) consumed them. Non-compliance (n=16) was mainly due to fear of side effects and personal reasons. A total of 146 individuals did not receive drugs due to absence or the distributor's non-visit.

Conclusion:

The MDA programme achieved adequate coverage and compliance. However, gaps in drug distribution and misconceptions about side effects persist.

Recommendations:

Strengthening community awareness, improving drug distributor training, and ensuring revisit strategies can enhance programme effectiveness.

Keywords: *Lymphatic filariasis, Mass drug administration, Coverage, Compliance, Jharkhand.*
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Introduction

A neglected tropical illness, lymphatic filariasis is brought on by filarial parasites that are spread by mosquitoes. Chronic symptoms like hydrocele, lymphedema, and elephantiasis cause long-term disability, social humiliation, and financial hardship. Globally, lymphatic filariasis affects millions of individuals and remains a significant public health concern in many developing nations. (1).

The World Health Organization established the Global Programme to Eliminate Lymphatic Filariasis in 2000 in response to this burden, with the goal of controlling morbidity in afflicted persons and stopping transmission through yearly Mass Drug Administration (MDA). Antifilarial medications are administered to all eligible individuals in endemic areas for a number of years in a row. (2).

Jharkhand is one of the states in India where lymphatic filariasis is endemic. To lower microfilaria levels in the population and stop disease transmission, the Indian government conducts yearly MDA programs using antifilarial medications, including albendazole and diethylcarbamazine. The program's success depends on achieving high coverage and compliance among the eligible population. (3).

Following MDA campaigns, coverage evaluation surveys are carried out to determine the percentage of the population that received and used the medications, as well as to pinpoint obstacles to compliance. These assessments aid in finding operational weaknesses and enhancing the execution of programs. (4). In order to evaluate the coverage and compliance of the Mass Drug Administration program for lymphatic filariasis in an endemic district of Jharkhand in 2024, the current study was conducted.

MATERIALS AND METHODS

Study Setting and Duration

Garhwa district is located in the north-western part of Jharkhand, India, with a predominantly rural population. The district has an estimated population of approximately 1.3 million, with agriculture as the primary occupation. It shares borders with Bihar and Uttar Pradesh, making it epidemiologically significant for lymphatic filariasis transmission. The health infrastructure includes primary health centres, subcentres, and community health workers such as ASHAs and ANMs who play a key role in MDA implementation.

Study Design

A community-based cross-sectional study design was utilized to assess the coverage and adherence to MDA activities.

Study Participants

The research encompassed all qualified persons living in the chosen families. Eligibility requirements were established in accordance with national MDA guidelines, encompassing all household members with the exception of pregnant women, those with severe illnesses, and children under two years of age. Information concerning all family members was gathered from an adult respondent in each household. The MDA campaign was initially executed via booth-based distribution at schools and Anganwadi centers, subsequently transitioning to door-to-door medicine administration.

Sampling Technique and Sample Size

A cluster sampling technique was utilized, with administrative blocks designated as implementation units. In accordance with the requirements, five blocks were chosen from the district. All subcentres inside each block were enumerated, and four subcentres were chosen at random. One village (cluster) was randomly selected from each allocated subcentre. Thirty households were systematically picked from each cluster, yielding a total of 120 households per block (4 clusters × 30 households). In instances when residences were inaccessible or respondents were absent, the nearest neighbouring household was incorporated. The study comprised a total sample size of 2,871 participants.

Sample size

The sample size was calculated based on the WHO cluster survey guidelines for MDA coverage evaluation. Assuming a coverage of 85%, 5% absolute precision, and a design effect of 2, the required sample size was approximately 2,800 individuals. Accordingly, 600 households were surveyed to achieve a sample size of 2,871 participants.

Data Collection and Analysis

The Department of Community Medicine at Medinirai Medical College in Palamu, Jharkhand, executed the survey with a team consisting of faculty members, medical professionals, and field workers, including Auxiliary Nurse Midwives (ANMs) and Accredited Social Health Activists (ASHAs). Data were gathered via a pre-formulated and pre-validated questionnaire. The study's goal was articulated to

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all participants, and informed verbal consent was secured before data collection commenced. The gathered data were input into Microsoft Excel and analyzed with SPSS software version 20.

Bias

To minimize bias, standardized data collection tools were used, and survey teams were trained prior to data collection. Recall bias was reduced by conducting the survey shortly after the MDA round. Selection bias was minimized through random cluster sampling.

RESULTS

A total of 600 households were surveyed, comprising 2,871 individuals. Of these, 2,740 were eligible for MDA, while 131 were excluded due to age, illness, or pregnancy. Among eligible individuals, 2,594 received drugs, and 2,578 consumed them. A total of 146 individuals did not receive drugs due to operational reasons.

Drug Compliance is the total number of participants who consumed all the drugs divided by the total number of people surveyed.

Drug Coverage is the total number of people who receive both the drugs amongst the population that is eligible.

Table 1: Block-wise Summary of MDA Survey of Garhwa District (2024)

Block	Houses Surveyed	Total Persons	Eligible Population	Received Drugs	Consumed Drugs	Consumption %
Meral	120	597	577	545	542	90.78
Manjhion	120	559	544	519	518	92.66
Ranka	120	583	548	524	522	89.53
Garhwa Rural	120	538	509	463	459	85.31
Nagar Untari	120	594	562	543	537	90.4

Table 2: Overall District Data

Indicator	Value
Total Houses Surveyed	600
Total Population	2871
Eligible Population	2740
Received Drugs	2594
Consumed Drugs	2578
Overall Consumption	89.79%
Overall Coverage	94.67%

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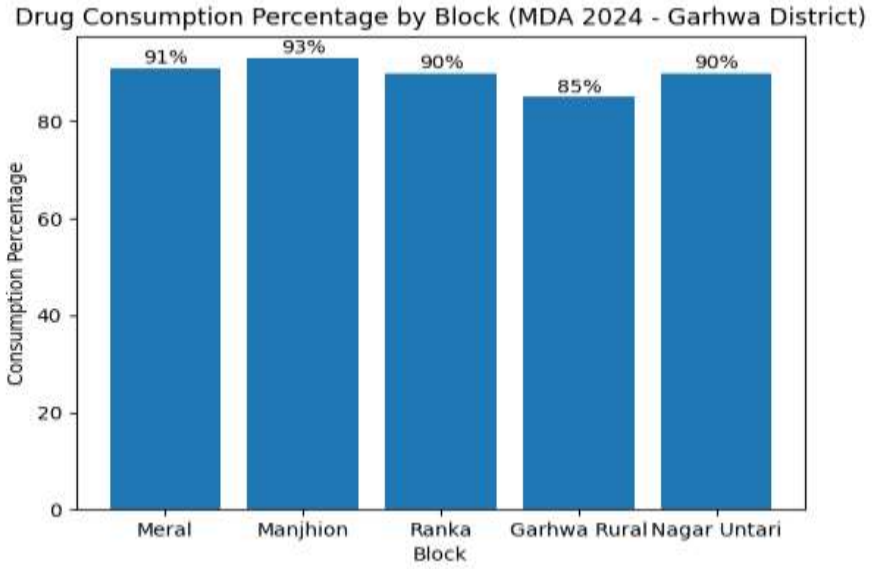

Figure 1: Drug consumption percentage by block

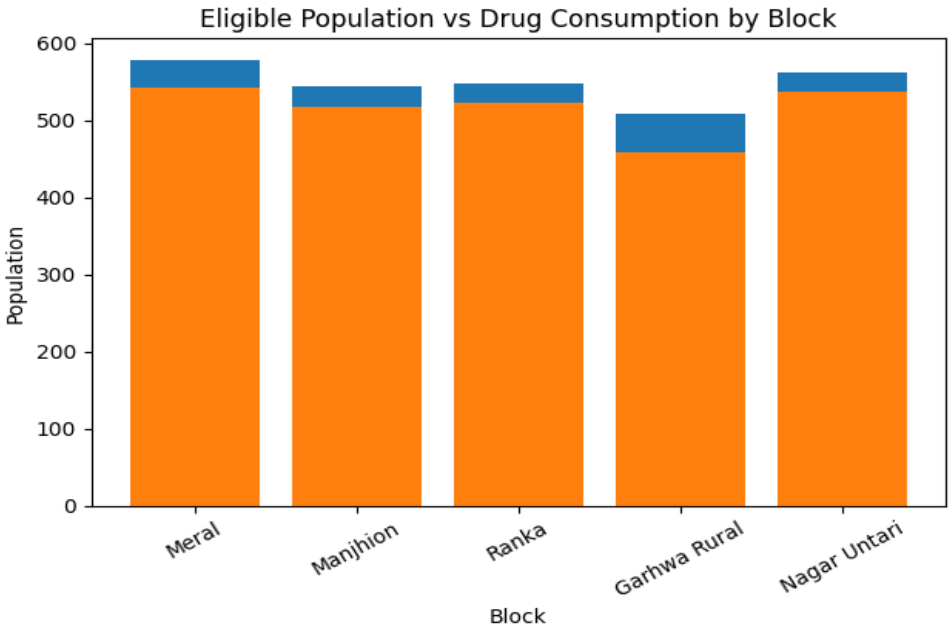

Figure 2: Eligible population vs drug consumption by block

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Table 3: Reasons for Non-Compliance

Reason	Number
Fear of side effects	6
Healthy / not sick	3
Fever/vomiting	2
Mentally ill	1
Marriage function	4
Total	**16**

Table 4: Reasons for Not Receiving Drugs

Reason	Number
Absent during visit	91
The distributor did not visit	53
Other reasons	2
Total	**146**

Table 5: Reasons for Ineligibility

Reason	Number
Under age	63
Sick	48
Pregnant	20
Total	**131**

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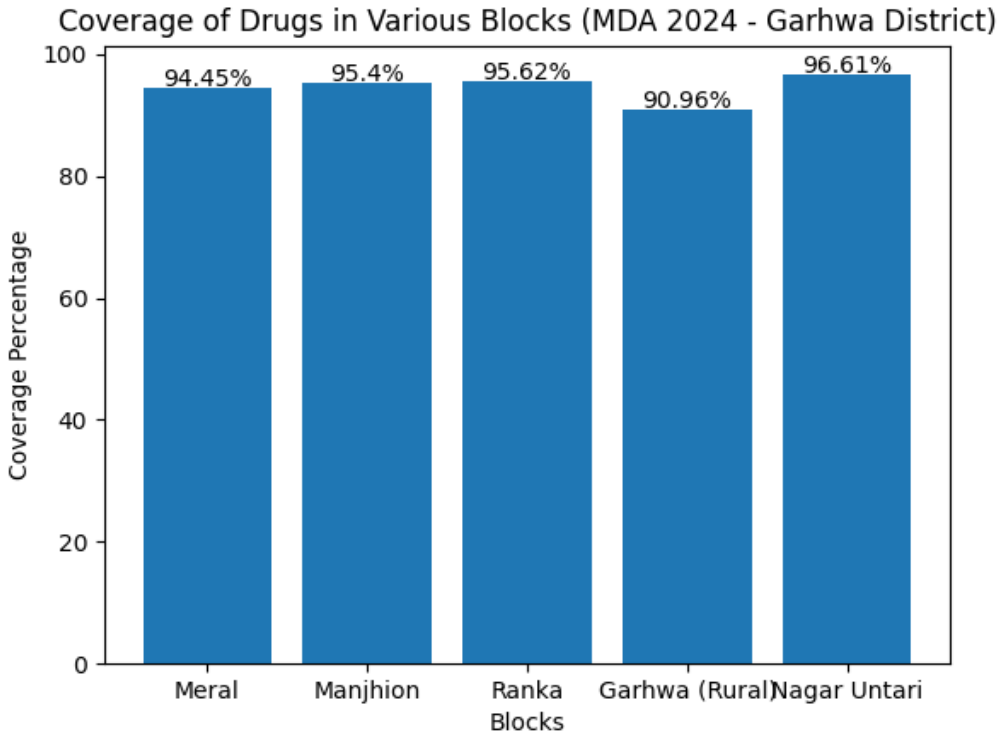

Figure 3: Coverage of the mass drug administration programme

Discussion

The World Health Organization recommends mass drug administration (MDA) as a crucial tactic to eradicate lymphatic filariasis. The current survey, which was carried out in Jharkhand's Garhwa district, evaluated the MDA program's coverage and compliance in 2024. A total of 600 houses with a population of 2871 people were assessed for this study, and 2740 of them qualified for medication administration. Drug use was 89.79% of the total population, with 2594 people receiving the medications and 2578 using them. Drug coverage was 94.67% of the total eligible population.

The survey's total medicine consumption rate was satisfactory and met the suggested program goal of at least 85% effective coverage, which is necessary to stop transmission. Good community involvement and understanding of the MDA program in the research region are indicated by the high compliance rate. Nevertheless, a tiny percentage of people did not obtain or use the medications, suggesting weaknesses in the program's execution. (5).

Sixteen people were found to be noncompliant. Fear of side effects, feeling healthy and not needing medication, and other circumstances like fever, vomiting, mental illness, or family events like weddings were the main reasons given. Previous MDA research has shown fear of adverse medication effects as a common barrier to compliance. To dispel myths and increase drug acceptance, it is crucial to increase community knowledge and health education prior to the MDA campaign. (6).

During the campaign, 146 eligible people did not receive the medications. The failure of drug distributors to visit specific households and the absence of household members during drug distribution visits were the main causes. These results draw attention to operational inadequacies in the program's implementation, highlighting the significance of making

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sure drug distributors have proper training and supervision and putting revisit plans in place for households whose members were not present during the initial visit. (7).

Furthermore, 131 people were determined to be ineligible for medication delivery because they were underage, pregnant, or unwell at the time of the survey. In order to prevent potential negative impacts among vulnerable groups, these exclusions are in keeping with conventional MDA principles. (8).

Overall, the survey results indicate that there is a need for improvement, even though the MDA program's coverage in the Garhwa district was good. Increased coverage and compliance rates can be achieved by better monitoring of drug delivery activities, enhanced community mobilization, and effective interpersonal communication by health professionals. (9). The Mass Drug Administration program for Lymphatic Filariasis in Garhwa district of Jharkhand achieved a high level of compliance of 89.79% and a coverage of 94.67% in 2024, which is an improvement over the last year in 2023, wherein the compliance and coverage was 87.7% and 91.6%, respectively (10).

Generalizability

The findings of this study can be generalized to other endemic rural districts with similar socio-demographic and healthcare delivery settings, particularly in eastern India.

Limitations

The study has certain limitations. Recall bias may have affected responses regarding drug consumption. Socio-demographic variables were limited. Additionally, the cross-sectional design restricts causal inference.

Recommendations

Strengthening IEC activities, ensuring better supervision of drug distributors, and implementing follow-up visits can improve coverage and compliance.

Conclusion

According to the current survey, the Mass Drug Administration program for lymphatic filariasis in the Garhwa district of Jharkhand in 2024 had a good degree of coverage and compliance. The program reached the suggested coverage threshold required for the eradication of lymphatic filariasis, with an eligible population drug consumption rate of 89.79%. However, a tiny percentage of people did not receive or use the medications because of operational problems, side effects, anxiety, or ignorance.

To further increase program effectiveness, community education must be strengthened, medication distributors must guarantee full home coverage, and misconceptions about drug safety must be addressed. To successfully eradicate lymphatic filariasis in endemic areas, ongoing surveys and monitoring should be carried out to find gaps and improve implementation tactics.

Acknowledgement

The authors acknowledge the support of field workers, ASHAs, ANMs, and study participants for their cooperation.

List of Abbreviations

MDA – Mass Drug Administration
DEC – Diethylcarbamazine
ANM – Auxiliary Nurse Midwife
ASHA – Accredited Social Health Activist

Source of Funding

Financial support was provided by NCVBDC Cell, Health Directorate, Government of Jharkhand.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

Data supporting the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions

MR: Concept and design
RG: Analysis
Prerna: Data collection
NN: Manuscript drafting
QHK: Supervision and final approval

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