

A Cross-Sectional Study Assessing Compliance with Mass Drug Administration for Lymphatic Filariasis Elimination in The Rural Field Practice Area, Telangana.

Dr. Boda Mahendar Kumar¹, Dr. B Nirmala Devi², Dr. P Sreelatha³

¹post Graduate, ²professor, ³assistant Professor

Community Medicine

Osmania Medical College

1. Introduction

Lymphatic filariasis (LF) is a major public health and socioeconomic challenge in many developing countries⁽¹⁾. It is the fourth most common cause of disability worldwide⁽²⁾. However, it is one of the six tropical diseases that can potentially be eradicated⁽³⁾. According to WHO estimates published in March 2022, 863 million people across 47 countries remained at risk of lymphatic filariasis, while at least 36 million were living with chronic disease manifestations — including about 25 million men with hydrocele and roughly 15 million people with lymphoedema⁽⁴⁾. Owing to its geo-climatic characteristics, South East Asia bears the largest share of lymphatic filariasis cases. About half of the world's affected population lives in this region, and according to the 9th Meeting of the Regional Programme Review Group (2012), 63% of those at risk were concentrated across nine of the 11 SEAR countries (Bangladesh, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste)⁽⁵⁾. Globally, 5.9 million Disability Adjusted Life Years (DALYs) were lost due to lymphatic filariasis in 2010⁽⁶⁾.

India accounts for roughly one-third of the world's filariasis cases⁽⁷⁾. By 2019, indigenous infections had been documented in 272 districts across 16 states and five union territories, placing about 670 million people at risk of lymphatic filariasis⁽⁸⁾. The highest burden is concentrated in Uttar Pradesh, Bihar, Jharkhand, Odisha, Kerala, and Gujarat⁽⁹⁾. Nationwide, the disease causes an estimated 2.06 million disability-adjusted life years (DALYs) lost each year and about USD 811 million in annual productivity losses⁽¹⁰⁾.

Mass drug administration (MDA) is favoured over alternatives like selective chemotherapy because it is more cost-effective. Vector control is less effective for eliminating filariasis in tropical settings such as India, since transmission can persist even when vector populations are very low⁽¹¹⁾. Having endorsed the World Health Assembly resolution to eradicate lymphatic filariasis, India's National Health Policy (2002) set a goal to eliminate the disease nationwide by 2015⁽¹²⁾. In 2004 the government initiated the National Elimination of Lymphatic Filariasis Programme, adopting annual mass drug administration (preventive chemotherapy) as its principal intervention⁽¹³⁾.

Estimating MDA coverage and compliance is a critical process indicator for eliminating lymphatic filariasis. In India, MDA coverage has been reported between 48.8% and 98.8%, while compliance ranged from 20.8% to 93.7%⁽¹⁴⁾. Failure of segments of the population to take the medication leaves an untreated parasite reservoir, which can lead to a resurgence of microfilaremia and reduce the likelihood of program success⁽¹⁵⁾. Models indicate that interrupting transmission requires maintaining about 85% coverage for 4–6 years⁽¹⁶⁾. Nevertheless, LF transmission continued in two-thirds of districts receiving MDA even after 15 rounds, mainly because coverage remained inadequate due to poor community perception, fear of adverse events, the number of tablets, people being unavailable during MDA, and population movement⁽¹⁴⁾.

Mass drug administration (MDA) can effectively eliminate filariasis, but its real-world success depends on two things: how many people are reached (coverage) and how many actually take the drugs (compliance). Measuring these two factors is therefore essential to track progress toward elimination. This study was done in villages under RHC Patancheru, Hyderabad, Telangana, to measure MDA coverage and compliance, to examine whether sociodemographic factors affect who takes the drugs, and to identify why some people refuse or skip treatment. The results will help policymakers and program managers improve MDA delivery and move closer to eliminating the disease.

2. Materials and Methods:

Study Area: This study is carried out in the rural field practice area of Osmania Medical College, Hyderabad, Telangana under RHC Patancheru, Sangareddy district. **Study Population:** All the households of the study area present during the survey. **Study Period:** The study was carried out after the MDA program conducted in this area during August 2025 to November 2025. **Sampling Technique:** Systematic Random Sampling was used to select the houses in different villages and survey was conducted, 156 houses were selected and the sample size of 736 of eligible population was surveyed for the study. **Inclusion Criteria:** All the house holds of the study population who are above 2 years of age. **Exclusion criteria:** Pregnant mothers, chronic sick and bed ridden patients were excluded for the study. The study was carried out with the help of a pre-structed questioner and the responses were recorded. The data was analysed using SPSS software version 22.

3. Observations and Results:

A total of 736 individuals has participated in the study interviewed from 156 house-holds from different villages in the study area. The age distribution of the study population – 2-5 years 45 (6.11%), 5-14 years 76 (10.33%), above 14 years 615(83.56%). Sex distribution the males were 402 (54.62%) and female population was 334 (45.38%).

The socio-economic classification of the population – 140 (19%) belongs to upper class, 102 (14%) belongs to upper middle class, 14(10%) belongs to middle class, 66(9%) belongs to lower middle class and 354(48%) were lower class.

Education of the study population – 214(29%) of the people do not have formal education, 236(32%) of the people had primary education, 140(19%) were educated up to middle school, 80(11%) up to secondary and 66(9%) had higher education.

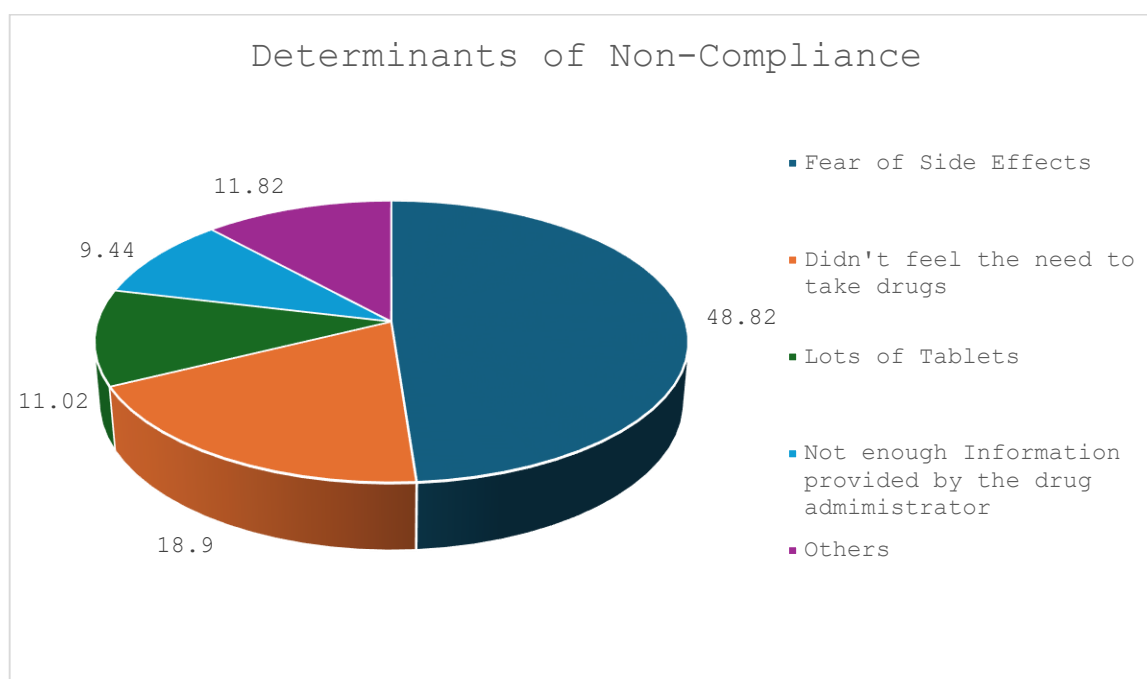
Occupation of the study population – 37(5%) of the study population were either professional/business men, 44(6%) of the population were salaried, 58(8%) of the population were farmers doing cultivation, 110(15%) of the study population were agricultural wage earners, 170(23%) of them were non-agricultural wage earners and 199(27%) were students.

Table 1: Compliance and Effective coverage (n=736)

Age Group	Eligible population (A)	Received Drugs (B)	Coverage (B/Ax100)	Consumed all drugs (C)	Compliance (C/Bx100)	Effective coverage (C/AX100)
2-5 years	45	40	88.8	38	95	84.44
5-14 years	76	68	89.4	65	95.58	85.52
>14 years	615	546	88.7	506	92.6	82.27
Total	736	654	88.85	609	93.11	82.74

From the above table it is observed that out of 736 study population, only 654 of the population have received the drugs showing a coverage of 88.85% and out of them only 609 have consumed the drugs giving the compliance of 93.11% and effective coverage of 82.74%.

Figure 1: Pie-diagram showing Determinants of Non-Compliance (n=127)



Determinants of Non-Compliance: Out of 736 study population 127(17.25%) have not consumed the drugs. The reasons for the non-compliance were – 62(48.82%) people have fear of side effects to the MDA drugs, 24(18.9%) didn't feel the need to take drugs, 14(11.02%) lots of table to be consumed, 12(9.44%) not enough information provided by the drug administrator, 15(11.82%) gave other reasons.

Table 2: Association between the demographic profile and the non-compliance of study population. (n=736)

Variables	Compliant (n=609)	Non-Compliant (n=127)	p-value
AGE: 2- 14 years	74	47	0.0001
>14 years	535	80	
SEX: Males	330	72	0.60
Females	279	55	
Education: Illiterates	157	57	0.0001
Literates	452	70	
SES: Middle class & above	257	59	0.37
Lower middle & below	352	68	

From the above table it was observed that association between the age of the participants and education was found to be statistically significant and the sex of the participants and the socio-economic status were not significant statistically.

4. Discussion:

Lymphatic filariasis remains endemic in nearly 250 districts of India despite the launch of the National Filariasis Control Programme (NFCP) in 1955, which initially used the single drug diethylcarbamazine (DEC), and the subsequent introduction of mass drug administration (MDA) in 2004, with albendazole added to the regimen from 2008 onward. India had set a target to eliminate lymphatic filariasis by 2015, aiming to achieve MDA coverage of more than 85% of the targeted population for five to seven consecutive years⁽¹⁷⁾. In the present study the coverage for MDA drugs was 88.85% compliance was 93.11% with overall drug consumption was statistically significant with age and education status of the participants and fear of side effects to the MDA drugs and did not feel need to take the drugs were the important reasons for non-compliance.

In a study by Kumar D et al, in two districts of Jharkhand state it was observed that one district achieved MDA coverage and compliance rates of 96.02% and 88.90%, respectively, whereas the second district recorded substantially lower figures of 67.06% for coverage and 48.44% for compliance. Among the eligible population, overall drug consumption showed a statistically significant association with age group, educational level, and socio-economic status. The most frequently reported reason for not ingesting the medication was the absence of family members during the MDA rounds, followed by drug distributors not visiting the household⁽¹⁸⁾. In a mixed method study by P Ratna et al, in Odisha it was found that coverage of 99.28% and compliance of 85.87% for MDA drugs. Participants reported a lack of confidence in drug distributors and a fear of side effects as major causes for non-compliance⁽¹⁹⁾. In a study by Shubhashisha Mohanty et al, coverage and compliance rates were 86.36 % and 91.12 % for albendazole, while 84.12 % and 90.62 % for DEC respectively. Fear of side effects was the reason for most of the participants' non-consumption. The coverage rate was low in urban areas because of gated communities and a lack of confidence in drug distributors⁽²⁰⁾. In a cross-sectional study by Bashar A et al in Uttar Pradesh, it was observed that compliance among those who had received the drugs was 61.6%

with effective coverage of 36.0%. The most common reason quoted for not consuming drugs was fear of side effects (34.9%)⁽²¹⁾.

5. Conclusion:

Our study concluded that the coverage rate of MDA program in the rural field practice area of Osmania Medical College – RHC Patancheru, was 88.85% and compliance was 93.11%, overall, the outcome of coverage was satisfactory. The main reason for not consuming the drugs among the individuals who received the drugs was fear of side effects to the drugs and did not feel need to take the drugs. This can be reduced by strengthening of the awareness among the participants in order to achieve the elimination goal for lymphatic filariasis. There is a need to emphasize directly observed drug consumption in front of the drug distributor so that he/she can explain the doubts of the participants while increasing the compliance.

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