

Coverage Evaluation of Mass drug Administration of DEC for filariasis in Satna District of Madhya Pradesh : A Cross-Sectional Study

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Abstract

Background : Lymphatic filariasis is an important public health problem in India. Satna district of Madhya Pradesh is one of the endemic districts where Mass Drug Administration programme is undertaken every year to eliminate lymphatic filariasis. Present study was carried out to evaluate the coverage, compliance and reasons for non-compliance of mass drug administration (MDA) in Satna districts of Madhya Pradesh.

Methods: The guidelines of National Vector Borne Disease Control Programme (NVBDCP) was used to select a total of 120 households from three villages and one urban ward using three stage random sampling. Each household was visited by a team and data was collected by a predesigned questionnaire (provided by Director Health Services, State Health Committee, NVBDCP). Data was compiled on Windows excel spreadsheet and analyzed using SPSS software version 21. **Results:** The study population consisted of 504 individuals from 120 households, out of which 494 (98.01%) were eligible for DEC mass drug administration. Coverage rate, compliance rate, Coverage-compliance gap and effective coverage rate 90.89%, 87.97 %, 12.03% and 79.9% respectively were found in Our study. Fear of side effects or previous experience of side effect 7.57% was the most common reason behind not consuming drug. **Conclusion:** Based on the study findings, Coverage-compliance gap can be filled by proper advocacy for this campaign. Effective IEC activities should be undertaken through multiple channels such as electronic and print media, posters and banners in local language.

Keywords: Coverage-compliance gap, Effective coverage rate, Lymphatic filariasis, Mass drug administration

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Introduction

Lymphatic filariasis (LF) is a mosquito-borne, chronically disabling tropical disease caused by infection with thread-like parasitic filarial worms *Wuchereria bancrofti*, *Brugia malayi*, and *B. timori*. It is an ancient disease and was recorded in India as early as 6th century BC by the famous Indian surgeon Susruta in his book *Susruta Samhita*. The discovery of microfilariae in the peripheral blood was first made by Lewis in 1872 in Kolkata (Calcutta). [1] LF is endemic in 250 districts of 20 states in India and the population at-risk is approximately 600 million. [2] Filariasis has been a major public health problem in India, and identified as potentially eradicable disease by the International Task Force for Disease Eradication. The National Filaria Control Programme (NFPC) was launched in 1955 for the control of bancroftian filarial and now National Health Policy Goal is to eliminate lymphatic Filariasis from India by the year 2015. [3,4]

India's filarial control program has scaled up MDA over the past several years and recently added albendazole (ABZ) to the treatment of the 590 million Indians living at risk of infection. [5] In MDA, the drug is to be consumed in the presence of a drug distributor (DD). DEC is given to almost everyone in the community, irrespective of their symptoms. This is indicated in high and hyperendemic areas. A single dose is recommended by international task force (WHO) for

all except for children below 2 years, pregnant women, and very sick patients. [6] The principle behind MDA is that a single dose of DEC administered annually for 4–6 consecutive years will interrupt the transmission of filariasis. [7] Elimination depends, to a large extent, on coverage, drug efficacy, and the endemicity level. It is estimated that to interrupt transmission, MDA compliance must exceed 65%–75%, with 5–6 rounds of treatment. [8] In India, the coverage levels vary from 55% to 90%. In India, some states *viz.* Andhra Pradesh, Bihar, Jharkhand, and Madhya Pradesh are among the worst affected states in the country. [9] On the basis of microfilaria surveys and the line listing of lymphoedema cases, Madhya Pradesh had identified 11 districts *viz.* Katni, Datia, Chatarpur, Tikamgarh, Panna, Damoh, Satna, Rewa, Chhindwara, Sagar and Umaria and accordingly, they has been included for observing MDA since 2004. [10] Present study was carried out to evaluate the coverage, compliance and reasons for non-compliance of mass drug administration (MDA) in Satna districts of Madhya Pradesh.

Methods

A community-based cross-sectional study was conducted for the evaluation of MDA by a household survey in four selected clusters (three rural and one urban) of Satna district of Madhya Pradesh as per National Vector Borne Diseases Control Programme (NVBDCP) guidelines. This study was conducted during Nov.2014. The study team constituted faculty members and postgraduate students of the Department of Community Medicine. Telephonic discussion with Medicine Faculty about adverse Reaction of drug. The objective was to study the coverage and compliance, reasons for noncompliance, and drug-related side effects in the community. Feedback about the

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role of a DD in imparting health education, persuasion for consumption of drug, and knowledge about any information, education, and communication (IEC) activity undertaken before the start of the MDA round was obtained from the community. Three CHCs from district were selected. As per guidelines CHCs should have been classified in to 3 groups depending upon MDA coverage as CHC with coverage below 50, CHC with coverage between 50-80, and CHC with coverage above 80%. In case there is no CHC in a particular category, two CHCs from the next category may be selected. In each category of the CHC, one PHC should be selected randomly. From each of the selected PHC one village should be selected randomly for household survey. But in district Satna every CHC was shown in more than 80% coverage group, so we randomly chose three CHC in district Satna, and then one village (SariyaTola, Kamlai and Bela) was chosen randomly from each CHC. For urban area, one ward (Ward No 17) was selected randomly. The selected three villages and one urban ward were designated as clusters.

House-to-house survey was carried out. The house for the beginning point was selected randomly and the team moved in a particular direction. All the eligible peoples present in study area were selected on the basis of exclusion criteria. Pregnant and lactating mother, children below 2 years, seriously ill persons, severely debilitated patient and people of extreme age were excluded from study. All the sampled eligible population in the study area was included in the study. In each of the selected clusters 30 households were surveyed. Thus, 120 households were surveyed for evaluation of MDA. A predesigned questionnaire (provided by Director Health Services, State Health Committee, NVBDCP) was used to collect information regarding consumption of DEC and other relevant points. Data was compiled on Windows excel spreadsheet and analyzed using SPSS software version 21.

Results

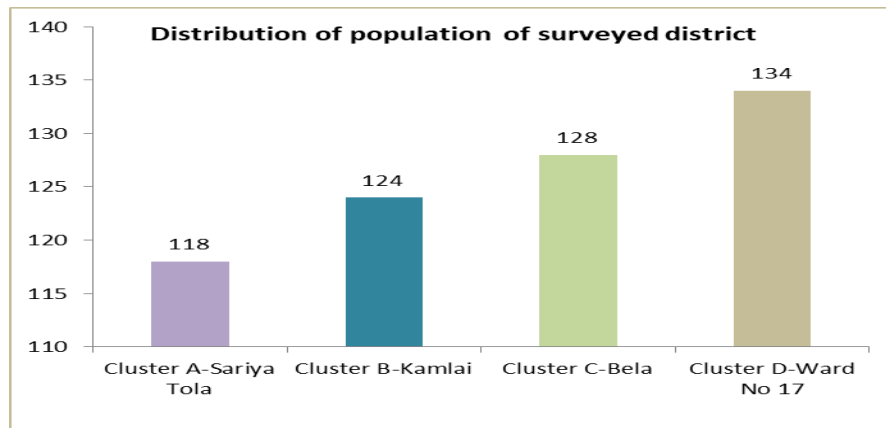


Fig 1: Distribution of population of surveyed district

In the surveyed population [Fig 1], 98.01 % individuals were eligible for DEC. The main reasons for noneligibility of DEC was children

<2 years followed by pregnancy and illness then extreme age. Among those who were eligible, 90.9 % were covered by DEC.

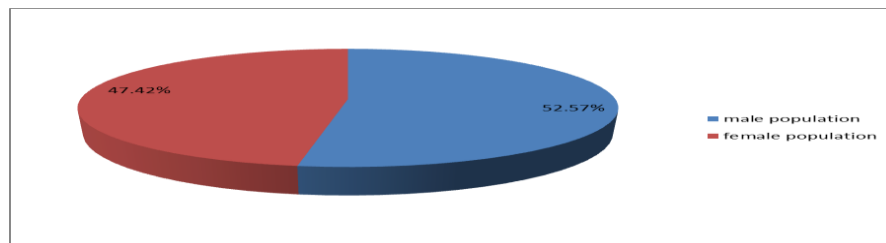


Fig 2: Coverage

In Fig 2 Coverage showed that Majority were Male (52.57%). Compliance refers to the actual consumption of drug by the community.

Table 1: Compliance rate, coverage-compliance gap, and effective coverage rate

District Satna	Eligible Population	DEC given by D/D	Consumed (compliance rate) (%)	Coverage-compliance gap (%)	Effective coverage rate (%)
Cluster A-SariyaTola	116	110	100(90.9)	9.1	86.2
Cluster B-Kamlai	123	120	114(95)	5	92.6
Cluster C-Bela	125	110	96(87.2)	12.8	76.8
Cluster D-Ward No 17	130	109	85(77.9)	22.1	65.3
Total	494	449	395(87.97)	12.03	79.9

All the persons who received DEC did not consume it necessarily. Compliance rate was low among the receivers of DEC, making the overall coverage rate even lower ; DEC was distributed to 449 peoples while it is consumed by only 395 persons which make effective coverage rate of 79.9%

while coverage of MDA was 90.89% which is much higher than Effective coverage rate. Coverage – compliance gap is an area where we can make a significant improvement . [Table 1].

Table 2 : Drug coverage and compliance rates in urban and rural settings

District Satna	Coverage rate Out of eligible (%)	Compliance rate (%)	Coverage–compliance gap (%)	Effective coverage rate (%)
Urban(n=134)	83.84	77.98	22.01	65.38
Rural(n=370)	93.40	91.18	8.82	85.16
Total(n=504)	90.89	87.97	12.03	79.96

Drug Compliance varied among rural and urban setting. Coverage rate in urban area was lower than that of rural areas, but compliance was little higher in urban area [Table 2].

Table 3 : Reason for not swallowing drug

	Rural (n = 340), no (%)	Urban (n = 109), no (%)	Total (n = 449), no (%)
Previous experience of side effect (family members and neighbors) & Drug is hot	18(5.29)	16(14.68)	34(7.57)
Out of house (drug left to the family members)	7(2.06)	4(3.67)	11(2.45)
Not perceived important	11(3.23)	6(5.50)	17(3.79)
Loose tab given by DD	8(2.35)	15(13.76)	23(5.12)

Fear of side effects or previous experience of side effect (family members & neighbours), drug is hot was the most common reason behind not consuming drug followed by out of house (drug was handed over to the family members and later forget or discarded), don't trust on quality and Not perceived important.[Table 3]

households was 37.78 % (34 out of 90) whereas it was 16.67% (5 out of 30) in urban households. Similarly, information regarding prevention and transmission of filaria and why DEC is being given was furnished to 57.5 % households. In this survey we found 35.8% (43 out of 120) households with prior information regarding MDA, drug dosage, schedule contraindications, and side effects. The percentage of households who saw any audio or visual media announcement or any kind of advertisements was 24.1 % (29 out of 120).

Table 4 Showed That role of drug distributors is concerned, drug distributors persuaded for drug consumption in their presence (at least one member swallowed drug) in 32.5 % households(39 out of 120). The percentage in rural

Table 4: Drug distributor’s interest and media approach to reach the house holders

	No of key persons in household interviewed (n = 120)	%
DD persuaded swallowing of drug in his presence	39	32.5
DD explain importance and other details regarding prevention and transmission	69	57.5
Prior information of MDA dose, C/I , side effect	43	35.8
Any audio or visual media announcement on MDA	29	24.1

Fig 3 Showed That The adverse reactions due to DEC tablets are 3 cases, all are mild cases like giddiness, Vomiting and

gastric irritation & They were visited to Near by Physician etc.

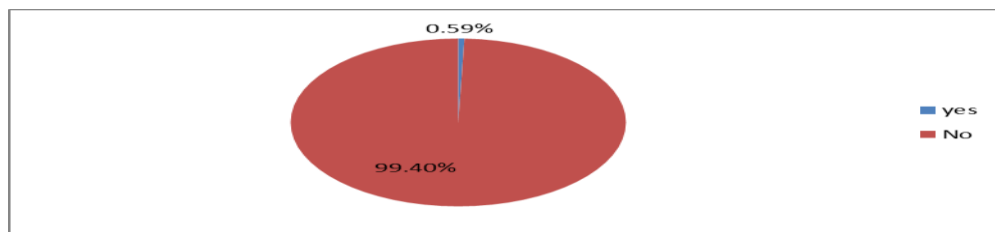


Fig 3: Adverse reaction of Drug

Discussion

In order to eliminate lymphatic filariasis from endemic area there is need of more than 85% Of DEC coverage rate for more than 5 years. Total population covered in survey of these 120 households of 3 rural and 1 urban area were 504. Out of population covered, eligible population were 494, while rest 10 people were in the non-eligible group due to Age < 2 Yr., Pregnancy and Illness .Our study revealed that Majority were Male (52.57%) in Study Population similar result found by Jothula KY *et al.* when study done in Nalgonda district, Telangana,India. [11] In our study area Coverage rate of 90.9%, is well above to 85% but effective coverage rate of 79.9% is below the target. Mishra Ambrish *et al* also found coverage rate of 91.02 % & Effective Coverage rate 77.06 % in Rewa district. [1] In our study we found Compliance rate 87.7%, peoples those who received the drug actually consume it. This gape because of different reason like fear of side effects, we were not at home during MDA activity, Not worth taking and I am healthy. Though the non compliance percentage is less, it can be made lesser by reorienting the drug distributors and proper supervision. etc. BansalManoj *et al* also found compliance rate of 80.42 % in their study in Chhindwara and Rewa district of M.P. [12] The gap between the coverage and compliance identifies an area of intervention by motivating people to consume the drug made available to them by the health system . In our study we found coverage – compliance gap of 12.03% in total which is highest in urban area that is 22.1%. Coverage-Compliance Gap as a whole was 11% in a study done in endemic district of Gujarat by Kumar *et al.* [13] Effective coverage rate is the end product of coverage of the health system and compliance by community. Effective Coverage Rate is 79.9% in total highest in Kamlai village that is 92.6% in lowest in urban area ward no 17 that is 65.3% which is lower than required level of 85%. A high coverage (>85%) in endemic areas, which is sustained for 5 years, is required to achieve for the interruption of transmission and elimination of disease in India. Effective coverage rate was 75.8% in Gujarat state according to study done by Kumar *et al.* [13] In the present study, the most common reason for noncompliance was ‘fear of side effects’ (7.5%) followed by don’t trust on quality (5.1%). The other reasons were Not perceived importance of drug 3.7%, not aware and out of house (drug was handed over to the family members and later forget or discarded) 2.4%. These were important reasons behind noncompliance in drug consumption.Prasad VG, *et al.* reported fear of side effects as the most common reason for noncompliance. [14] Similar observations were noted by Mishra A, *et al* that the most frequent cause was fear of side effects. [1]Hussain M, *et al.* reported that most common reason for noncompliance among the subjects received the drugs was ‘unaware about the dose and reason for taking the drugs’. [15]In our study we found that drug distributor persuaded swallowing of drug in his presence in only 32.5% of households, they explain importance & other details regarding prevention & transmission in only 57.5% household and prior information of MDA dose, contraindication, side-effect was only informed in only 35.8% house hold. Audiovisual aids have poor penetration,

particularly in rural areas. Persons got prior information regarding MDA and DEC through health staff and previous round. This must be kept in mind when planning for IEC activities. This study revealed DD imparted knowledge and awareness about LF and MDA to few community members. All these reasons can be tackled by improving the Information Education and Communication (IEC) activities prior to MDA programme so that the eligible population is well aware of benefits and safety of the programme.

Conclusion

The present study reveals the coverage as 90.89%, compliance rates as 87.97% and making effective coverage rate as 79.9 % and Coverage-Compliance Gap as 12.03 %. Fear of side effects or previous experience of side effect (family members & neighbours) was the most common reason behind this coverage – compliance gap. Based on the study findings, this gap can be filled by proper advocacy for this campaign. Drug distributor strictly peruses swallowing in his after explaining importance, & other details regarding MDA and prevention & transmission of filariasis. Training programme for Medical Officers and health workers (DDs) involved in MDA should emphasize more on how to address the fear of side effects among beneficiaries and benefits of the MDA programme. Effective IEC activities should be undertaken through multiple channels such as electronic and print media, posters and banners in local language. Drum beating and mike announcement 1-2 days prior to the MDA should be used as IEC tool as these traditional methods are still effective in rural India.

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