Assessment of Mass Drug Administration activities for Lymphatic Filariasis Elimination in Vizianagaram District of Andhra Pradesh

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Abstract

Background: Lymphatic Filariasis commonly known as elephantiasis is a painful and profoundly disfiguring disease that has a major social and economic impact. Mass Drug Administration (MDA) programme for the elimination Lymphatic Filariasis (LF) has been implemented globally since 1997 and the MDA campaign launched in India during 2004 to interrupt the transmission of Lymphatic Filariasis

Methods: The present study is a cross-sectional descriptive study conducted from 13th to16th June, 2019 in Vizianagaram district of Andhra Pradesh. The three rural and one urban area of Vizianagaram district were selected using multistage cluster sampling technique Clusters of 30 houses from one village of each PHC and one ward of urban area with a total of 120 households were selected for the study.

Results: A total of 120 households covering 456 population were surveyed out of which 47.1% were male and rest 52.9 % were females. Overall drug distribution coverage is 94% and effective coverage rate is 88%.

Conclusions: There is a pressing need to promote operational research on possible transmission from nearby districts and confirmatory mapping of uncertain areas. Further qualitative comprehensive studies with more diverse participants are needed to ascertain the causal relationship.

Keywords: *Mass drug administration, Lymphatic Filariasis, Drug coverage, Effective coverage rate*

Introduction

Lymphatic Filariasis commonly known as elephantiasis is a painful and profoundly disfiguring disease that has a major social and economic impact[(1)] Currently 886 million people in 52 countries worldwide remain threatened by lymphatic Filariasis and require preventive chemotherapy to stop the spread of this parasitic infection[(2)]. Two-thirds of the endemic population resides in South-East Asia and one-third lives in India[(3)]. LF is prevalent in 256 districts in 21 states and union territories (UTs) and, as on 2017 around 630 million population live in the endemic districts[(4)].

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The Global Program to Eliminate Lymphatic Filariasis (GPELF) was launched by the World Health Organization (WHO) in 2000 with the goal of eliminating LF as a public health problem by the year 2020[(5)]. The Government of India (GOI) in 2004 began a nationwide mass drug administration (MDA) campaign in all the known LF endemic districts with an annual single dose of diethylcarbamazine citrate (DEC) with the aim of eliminating it as a public health problem by the year 2015. The current strategy of MDA is to administer annual single supervised dose of anti-filarial drugs by door to door visit along with drug administration at booths and groups preferably on a single day with two-day mopping up operations. MDA is to be repeated annually for a period of 5 years or more aiming at minimum 85% drug compliance for interruption of transmission[(6)]. National Health Policy 2017 envisages achievement and maintenance of elimination of LF in endemic pockets of India by 2017[(7)].

Post MDA assessment is routinely conducted to find out the performance of the implementing units in terms of Coverage and compliance of MDA activities and also to evaluate the reported coverage. This schedule process assist in finding out hindrance if any and to suggest suitable remedial measures. As per the program guideline, this sample survey study was conducted in Vizianagaram district, which is one of the 10 enlisted endemic districts of Andhra Pradesh. Post MDA independent assessment has been conducted in Vizianagaram district after the last round MDA activities conducted between 8th to10th February 2019.

The present study was conducted with the following objectives.

1. To find out the coverage, compliance, and effective coverage rates.

2. To evaluate the reported outcome along with processes followed all through the mass drug administration activities.

3. To determine the constraints in MDA activities and suggest suitable corrective measures.

Materials & Method

Study design and period of study:

The present study is a cross-sectional descriptive study conducted from 13th to16th June, 2019 in Vizianagaram district of Andhra Pradesh.

Study Area:

The present evaluation study was conducted in Vizianagaram district of Andhra Pradesh. In line with the proposition by National task force for evaluation of post MDA activities, the present assessment was conducted in four areas (clusters) – three rural and one urban[8].

Eligible population:

Study population includes all eligible individuals residing permanently in the MDA campaign area. Aligned with the program recommendation, DEC and Albendazole tablets were distributed to the eligible beneficiaries (excluding children under 2 years, pregnant women & seriously ill persons) and special consideration given for on-spot consumption of tablets (9)

Sampling technique:

The three rural and one urban area of Vizianagaram district were selected amongst the 50 endemic PHC and 5 endemic urban areas by using multistage cluster sampling technique. In first stage of stratification, One PHC was selected randomly from each cluster (High, Moderate and Low Coverage based on coverage report). From each of the earmarked PHCs, one sub-centre and thereafter one village from each of the selected sub-centres were finalized for the study purpose. One urban area was randomly selected with lowest reported coverage considering the similar technique. So the areas finalized for the evaluation study were three villages (i.e. Nelivada of Bondapalli PHC, Ramavaram of Gantyada PHC and Kella of Gurla PHC) and Bit-1 ward of Vizianagaram Urban area. Clusters of 30 houses from one village of each PHC and one ward of urban area with a total of 120 households were selected for the study.

Tools and techniques:

Following the program recommendations, the data were collected in a pre-designed pretested semi structured proforma during interviewing the study participants. In-depth interview of health care service providers conducted as part of qualitative assessment and the response were captured in an open ended questionnaire form.

Data analysis & Statistical Methods:

Data Collected during the sample evaluation survey entered in MS Excel and analysed using SPSS version 21. All the analysed results are shown in the form of percentages and projected as tables.

Results

Post MDA assessment conducted in four clusters including three rural and one urban area. Table-1 shows distribution of populations surveyed in listed four clusters. A total of 120 households covering 456 populations were surveyed in Vizianagaram district. Overall 47.1% of studied populations were male and rest 52.9 % were females. Out of the total 456 study populations, only 08 were below <2 years so DEC tablets were distributed to 448 (98.2%) eligible individuals. Out of 448 eligible study participants, majority (79.7%) were aged ≥ 15 years while 12.5 % were in the age group of 2 – 14 years. The age and sex wise distribution of study population in both urban and rural areas were almost similar. Similarly, in both the rural & urban majority of the population were in the age group 15 years or above.

Gender and age wise composition of all 120 interviewed respondents were illustrated in Table-2. Overall, Male and female respondents correspond to 40 % and 60% respectively. Likewise collectively in both settings, majority (77.5%) of the respondents belong to the age group 30–59 years and only 5.8% respondents were above 60 years of age.

The area wise drug distribution coverage, Drug compliance rate and effective coverage rate is described in Table-3. Overall drug coverage was 94% in all the four clusters. Drug coverage in rural area (95%) is marginally better than the urban area (92%). Out of the three rural clusters, maximum coverage was attained in PHC, Gurla area (96%) which corresponds to the reported coverage data shared by the district authority. On the whole drug compliance rate was 93%, as 394 persons consumed the drugs out of 422 drug receivers. Drug compliance rate in both the urban (94%) and rural (93%) is found to be approximately comparable. Effective coverage rate in rural clusters is somewhat better (88%) than the urban cluster (86%).

As illustrated in Table-4, knowledge shared to 92% of interviewed persons by the drug administrator on mode of transmission and various MDA activities. Additionally, Drug Administrator persuaded everyone to swallow the tablets in presence of him/her.

The role of various service providers in creating awareness in the community is elucidated in Table-5. Respondents of all 120 (100%) households were aware of MDA prior to the scheduled activities. Though almost all type of frontline health workers supported in generating awareness in the community, but the role of ASHA is significantly appreciable in rural areas (100%). On the other hand, AWW had taken noticeably effort in sharing knowledge among urban populations.

Various forms of IEC material used and their impact in creating community awareness are well revealed in Table-6. Overall in both urban and rural clusters, posters (58%) were responded as the most effective form of IEC material followed by Banners (32%), handbills (7%) and news papers (3%).Though there was a provision for mike announcement and street play as other forms of community awareness activities, but no one responded regarding the same.

Table-1: Age and Sex-wise distribution of study population

Age group	**Rural**			**Urban**			**Total**		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
< 2 years	00	05	05 (1.4%)	02	01	03 (2.7%)	02	06	08 (1.8%)
2 – 4 years	03	10	13 (3.8%)	02	02	04 (3.54%)	05	12	17 (3.7%)
5 – 14 years	16	11	27 (7.9%)	06	07	13 (11.5%)	22	18	40 (8.8%)
> 15 years	145	153	298 (86.9%)	41	52	93 (82.3%)	186	205	391 (85.7%)
Total	164 (47.8%)	179 (52.2%)	343 (100%)	51 (45.1%)	62 (54.9%)	113 (100%)	215 (47.1%)	241 (52.9%)	456 (100%)

Table-2: Gender and Age wise distribution of respondents

Age group	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
15 – 29 years	03	09	12 (13.3%)	03	05	08 (26.7%)	06	14	20 (16.7%)
30 – 59 years	29	42	71 (78.9%)	09	13	22 (73.3%)	38	55	93 (77.5%)
> 60 years	04	03	07 (7.8%)	00	00	00 (0%)	04	03	07 (5.8%)
Total	36 (40.0%)	54 (60.0%)	90 (100%)	12 (40.0%)	18 (60.0%)	30 (100%)	48 (40.0%)	72 (60.0%)	120 (100%)

Table-3: Area wise distribution of Drug (DEC +Albendazole) Coverage, Compliance and effective coverage rate

Area	Eligible study population (X)	Drug Received (Y)	Drug Coverage (Y/X)	Drug Consumed (Z)	Drug Compliance (Z/Y)	Effective Coverage rate (Z/X)
PHC Bondapalli	107	100	93 %	92	92%	86%
PHC Gantyada	122	116	95 %	107	92%	88 %
PHC Gurla	109	105	96 %	100	95%	92 %
Total Rural	338	321	95%	299	93%	88%
Urban Vizianagaram	110	101	92 %	95	94%	86 %
Grand Total	448	422	94 %	394	93%	88 %

Table-4: Performance indicator of Drug administrator during MDA activity

Approach of Drug Administrator	Rural (N=90)	Urban (N=30)	Total Number of interviewed person (N=120)
DA explained regarding ELF and mode of transmission	84	26	110 (92%)
DA persuaded to swallow the drug concurrently	Yes	Yes	Yes

Table-5: Role of service provider in awareness generation prior to MDA activities

Informed about MDA	Rural Total (N=90)	Urban Vizianagaram (N=30)
Number of Respondents informed about MDA previous to drug distribution	90	30
Source of information (Multiple response)	ASHA-90 AWW – 66 ANM – 51	ASHA- 05 AWW – 30 ANM – 7

Table-6: Most effective form of IEC material assisted in generating community awareness

Area	Posters	Banners	Handbills	News paper	Mike announcement	Drama/Street play
Rural(N=90)	54 (60%)	30(34%)	3 (3%)	3(3%)	Nil	Nil
Urban (N=30)	16 (53%)	8(27%)	5(17%)	1(3%)	Nil	Nil
Grand Total(N=120)	70 (58 %)	38(32%)	8(7%)	4(3%)	Nil	Nil

Discussion

In the present study, multistage sampling technique adopted to select 3 rural clusters and one urban area. Similar techniques used in a study Dr Ashok Rupraoji Jadhao et al in Nagpur district of Maharastra[10] and Paul A et al in in Purbabarddhaman District, West Bengal[11]

Sex wise distribution of our study was found to be 47.1 % for males and 52.9 % for females. The result is being in congruence with the study finding by Patel et al conducted in Gulbarga district of Karnatak in 2010 (Male and female composition was 46.9% and 53.1%). [12]

With regard to the age group of respondents, in our study 94.2 % of the respondents were in the age group 15–59 years. Whereas in a study conducted by Patel et al though majority of the respondents were in this age

group (62.7% in Bagalkot district and 63.9% in Gulbarga districts, respectively) but it was significantly lower than our study. [12]

A high MDA coverage (>85%) with sustainable efforts for 5 years, is required to achieve the interruption of transmission and thereby elimination of LF in India [13]. The overall estimated drug distribution coverage is 94% and effective coverage was 88%, which is more than the expected targets and it is fairly better in rural clusters (88%) than the urban cluster (86%). The result is being in resemblance with the study conducted by Singh et al in Tikamgard district of Madhya pradesh in 2013 with overall coverage rate of 94.6% and an effective coverage rate of 85.2% [14]. This achievements might be due to increased awareness through community participation coupled with highly supervised program implementation.

Undoubtedly in our study it was found that, all the respondents aware about the MDA programme prior to the scheduled date by the Front Line Workers coupled with messages communicated through various forms of IEC materials. The role of ASHA is significantly appreciable in rural areas (100%). Our finding is higher than the study result conducted by a Jadhao AR et al in Nagpur district of Maharashtra (86.4% obtained the information from various field level health workers) [10] and similarly another study conducted by Paul A et al shows, FLW were the most frequent (80.82%) source of knowledge sharing about MDA.[11]

With regard to various forms of IEC material used, Posters and banners were found to be the effective forms of IEC material assisted in creating community awareness both in rural and urban Vizianagaram. This finding is comparable with the study conducted by Rajkumar et al, where 79.3% of respondents were aware of MDA trough banners / posters in the Medak district of Telengana state.[15]

Conclusion and Recommendation

In spite of good drug coverage and compliance observed in recent past consecutive years, Vizianagaram district failed to meet the transmission interruption criteria even after prolonged MDA. This necessitates promoting operational research on possible transmission from nearby districts and confirmatory mapping of uncertain areas.

Creating an enabling environment, through coordinated community awareness programs involving different stakeholders and local media with announcements by loudspeakers may be undertaken.

Programme implementation can be improved by ensuring supervised 'on-the-spot' drug consumption. This may be achieved by engaging trained external monitors during the MDA round through third party institutional partnership.

The present evaluation study is only cross-sectional in nature having resource constraints, so further qualitative comprehensive studies with more diverse participants are needed to ascertain the causal relationship.

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Conflict of Interest: None

References

1. World Health Organization. Building partnerships for lymphatic filariasis : strategic plan, Working version September, 1999. Available from - https:// apps.who.int /iris/handle/10665/66252. [Assessed on 3rdth October]
2. World Health Organization. Fact Sheet. Available from - https://www.who.int/news-room/fact-sheets/detail/lymphatic-filariasis. [Assessed on 3rdth October]
3. World Health Organization, Dept. of Control of Neglected Tropical Diseases, Geneva; 2009. Available from - http://www.who.int/iris/ handle/10665/44214#sthash. w9257Gz8.dpuf. [Assessed on 16th October]
4. Ministry of Health & Family Welfare, Government of India. Accelerated plan for elimination of lymphatic Filariasis; 2018. Available from - https://nvbdcp.gov.in/ WriteReadData/

l892s/1031567531528881007.pdf. [Assessed on 16th October]

5. Ministry of Health and Family Welfare, Government of India. National Health policy; 2002. Available from - http://planningcommission.nic.in/sectors/health.php? sectors=hea. [Assessed on 16th October]
6. Ministry of Health & Family Welfare, Government of India. National Vector Borne Disease Control Programme, Directorate General of Health Services. Filariasis control in India & its elimination. New Delhi: National Vector Borne Disease Control Programme, Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India. Available from - http://nvbdcp.gov.in/doc/guidelines-filariasis-elimination-india. [Assessed on 16th October]
7. Ministry of Health & Family Welfare, Government of India. National Health Policy 2017. Available from - https://mohfw.gov.in/sites/default/files/9147562941489753121.pdf. [Assessed on 18th October]
8. Ministry of Health and Family Welfare, Government of India. Guidelines on Filariasis Control in India and its Elimination. National Vector Borne Disease Control Program; Ministry of Health and Family Welfare, Government of India, 2009. Available from - http://nvbdcp.gov.in/doc/guidelines-filariasis-elimination-india.pdf. [Assessed on 18th Oct 2019].
9. Operational guidelines on elimination of lymphatic filariasis. Delhi: Directorate of National Vector Borne Disease Control Programme 2004; p. 1–36. Available from - https://nvbdcp.gov.in/WriteReadData/l892s/43461824631532409675.pdf. [Assessed on 2nd Nov 2019].
10. Jadhao AR, Sahoo DP, Deshmukh JS et el. Mass Drug Administration Coverage Evaluation for Elimination of Lymphatic Filariasis in Nagpur District of Maharashtra. JMSCR. 2017;05(09):28230-28236. Available from : https://pdfs.semanticscholar.org /5971/f31b1ca6c2f005c133565d2252a778857972.pdf. [Assessed on 14th Nov 2019]
11. Abhishek Paul. Coverage Evaluation Survey of Mass Drug Administration for Lymphatic Filariasis in Purbabarddhaman District, West Bengal. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2018;17(5):10-15.
12. Patel PK. Mass Drug Administration Coverage Evaluation Survey for Lymphatic Filariasis in Bagalkot and Gulbarga Districts. Indian J Community Med. 2012;37(2):101–6.
13. Ministry of Health & Family Welfare, Government of India. National Vector Borne Disease Control Programme. Available from : http://nvbdcp.gov.in/MDA.html. [Assessed on 15th Nov 2019].
14. Singh S, Patel M, Kushwah SS. An evaluation of mass drug administration compliance against filariasis of Tikamgarh district of Madhya Pradesh-A household-based community study. J Fam Med Primary Care 2013;2:178-81.
15. Rajkumar PS, Pandve TK, Nagaiah Tajmul G Bansode A, Inamdar NS. An Operational Research on Annual Mass Drug Administration (MDA) For Elimination of Lymphatic Filariasis in Medak District, Telangana. IAIM. 2016;3(7):239-44.