

A Mixed-Method Study to Improve
the Outcome of Mass Drug
Administration in Two Districts of
Uttar Pradesh That Failed the
Transmission Assessment Survey



2201 Westlake Avenue
Suite 200
Seattle, WA 98121 USA

www.path.org

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The PATH Neglected Tropical Disease & Malaria Team



List of abbreviations

ADR	adverse drug reaction
AIDS	acquired immunodeficiency syndrome
ASHA	Accredited Social Health Activist
BDS	bachelor of dental surgery
BE	bachelor of engineering
BTech	bachelor of technology
COVID-19	coronavirus disease 2019
DA	drug administrator
HH	household
HIV	human immunodeficiency virus
IDI	in-depth interview
IPC	interpersonal communication
LF	lymphatic filariasis
MBBS	bachelor of medicine and bachelor of surgery
MD	doctor of medicine
MDA	Mass Drug Administration
Mf	microfilaria
M-score	motivation score
MTech	master of technology
NBS	night blood survey
NCVBDC	National Center for Vector Borne Diseases Control
NTD	neglected tropical disease
TAS	Transmission Assessment Survey
UP	Uttar Pradesh
WHO	World Health Organization

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Executive summary

Background

PATH's India country office initiated an intervention study titled *A Mixed-Method Study to Improve the Outcome of Mass Drug Administration in Two Districts of Uttar Pradesh That Failed the Transmission Assessment Survey*. The study aims to identify the critical factors for achievement of optimal drug coverage amongst community members during mass drug administration (MDA) campaigns, develop an intervention package for use in the government's subsequent MDA programme to improve compliance, and assess the impact of the intervention package on drug coverage.

The study was conducted in the districts of Varanasi and Chitrakoot in Uttar Pradesh (UP). Chitrakoot and Varanasi were selected for the study, as they have failed Transmission Assessment Surveys (TASs), have suboptimal health indicators, and are geographically and demographically representative of districts that are lymphatic filariasis (LF) endemic in the country.

The study had two phases: the pre-intervention (baseline) and post-intervention (endline) phases. In the pre-intervention phase, baseline data were collected to establish coverage and compliance benchmarks and also to understand factors that hindered uptake of LF drugs amongst the community members. Findings from the baseline survey helped in the development of an intervention package used by the government in subsequent MDA campaigns. Finally, a post-implementation endline study was conducted to assess the impact of the intervention package on reach and consumption of LF drugs during MDA rounds.

Methodology

The study adopted a **mixed-method approach** using quantitative and qualitative approaches to construct a comprehensive assessment. Structured surveys were administered to both households (HHs) and drug administrators (DAs). In-depth interviews (IDIs) were conducted also with various government health officials, community leaders, and community influencers. In addition, a systematic analysis of secondary data and current literature was carried out. Insights gleaned from each instrument were corroborated to ensure minimal anomalies.

A total of 30 clusters (villages/wards) per district – same ones as in the baseline phase – were covered in the endline phase, as well. The clusters were selected by using the probability-proportionate-to-size method with census 2011 data. From each of the study clusters, 19 HHs were selected using the systematic random sampling method.

Socioeconomic profile of the respondents

In both the study districts, a little more than half of the respondents (55.3 percent in Varanasi and 52.5 percent in Chitrakoot) were women. Overall, the mean age of the respondents was 39 years old. About one-fourth of the respondents in Varanasi (29.0 percent) and one-third of the respondents in Chitrakoot (37.6 percent) had no formal education. The average family size in both the districts was approximately six members. For a majority of the respondents in Varanasi, the primary occupation for the HH was reported to be private jobs (48.1 percent), followed by jobs in business (23.4 percent), whereas farming was reported to be the main occupation (59.5 percent) for the respondent HHs from Chitrakoot.

In terms of dwelling units, one in every two HHs in Chitrakoot (50.0 percent) lived in a kutchha house, whereas 52.1 percent of HHs in Varanasi lived in pucca houses, and only 8.7 percent had a kutchha

house. Respondents in Varanasi reported a higher average monthly income of Indian rupee ₹10158 as compared to those in Chitrakoot, where the same was reported to be ₹8533. A majority of the HHs in both Varanasi (93.5 percent) and Chitrakoot (72.7 percent) had access to improved toilet facilities. However, more than one-fourth of the respondents in Chitrakoot (27.3 percent) reported practicing open defecation. Overall, respondents in Chitrakoot were economically more disadvantaged than those in Varanasi.

Salient findings

Awareness and perception regarding LF

In both the study districts, awareness regarding LF has increased in the post-implementation phase. In Chitrakoot, the community's awareness about the disease increased from 50.8 percent at the time of the baseline phase to 94.4 percent during the endline phase, and in Varanasi it increased from 87.3 to 90.5 percent. Whilst almost all the community leaders and influencers across both the study districts knew about LF, a majority of them were unaware of the cause and spread of the disease. A few of them still considered LF to be hereditary and caused by vitamin deficiency.

Source of information

As was true for the baseline phase, for a majority of the respondents in both the study districts, health workers (Accredited Social Health Activists, or ASHAs) were the primary source of information about LF. This was reported by 46.2 percent of respondents in Varanasi and 53.2 percent of respondents in Chitrakoot during the endline phase. After ASHAs, word of mouth via family, friends, and neighbours was found to be the next-most-common source of information about LF for respondents in both the study districts.

HHs visited for drug administration (reach of DAs)

The proportion of HHs visited by DAs across both the study districts between the baseline and endline study increased. Whilst in Varanasi it increased from 79.2 to 81.2 percent, in Chitrakoot it almost doubled, from 40.6 percent to 77.7 percent. No major change in HH visits based on HH type was observed in Varanasi. In Chitrakoot, however, the proportion of HHs visited by DAs increased across all the categories (i.e., from 35.0 to 74.0 percent for kutcha houses, from 48.0 to 80.0 percent for semi-pucca houses, and from 45.0 to 82.0 percent for pucca houses). A similar pattern was observed when the data on HHs visited by DAs for drug administration were checked for association with income of the HHs.

Reported reasons for shortfall in covering all HHs in a village

Whilst a sizeable number of respondents during qualitative IDIs mentioned that DAs visited all the HHs (a significant increase as compared to the baseline), few respondents cited specific reasons for not receiving the LF drugs during this MDA round. Reasons included people being away from home during ASHAs visits, lack of means of transport for DAs in Chitrakoot, and reported class bias of DAs in Varanasi.

Consumption of drugs

HH level

The proportion of HHs wherein all the family members refused to consume the medicines decreased from 11.0 percent (58 out of 525 HHs) to 7.3 percent (39 out of 532 HHs) and 11.2 percent (30 out of 267 HHs) to 8.2 percent (42 out of 512 HHs) in Varanasi and Chitrakoot, respectively. Whilst the

proportion of HHs with complete consumption (i.e., HHs wherein all the members consumed the drug) had gone up in Varanasi from 44.6 percent (234 out of 525 HHs) to 62.4 percent (332 out of 532 HHs), there was a reduction in the proportion of such HHs in Chitrakoot, from 69.3 percent (185 out of 267 HHs) to 44.9 percent (230 out of 512 HHs).

Individual level

Consumption of drugs at the individual level increased in both the study districts between the baseline and endline phases. Compared to baseline, consumption of LF drugs during MDA rounds increased from 53.0 to 63.1 percent in Varanasi and from 31.9 to 52.6 percent in Chitrakoot. During both baseline and endline surveys, a greater proportion of women reported having consumed the drugs as compared to men. This difference was more pronounced in the Chitrakoot District, wherein 57.3 percent of women surveyed consumed LF drugs during the MDA round as compared to 48.4 percent men during the endline survey.

Reasons for not consuming drugs

Several reasons were cited by HHs for not consuming the LF drugs during MDA rounds:

- Fear and past experiences of adverse drug reactions (ADRs): Fear of ADRs continues to be reported as one of the prime reasons for not consuming the drugs (approximately 39.00 percent of respondents) in Varanasi. In Chitrakoot, the proportion of respondents listing fear of ADR as the reason for noncompliance decreased substantially, from 40.43 to 14.53 percent.
- Unavailability of HH members at the time of the MDA emerged as the primary reason for noncompliance in Chitrakoot, with a little more than half the individuals (52.47 percent) who did not consume drugs having been away at work. A similar reason was cited for 1 in every 5 individuals in Varanasi who did not consume the drug. Additionally, about 14.68 and 8.69 percent of such individuals in Chitrakoot and Varanasi, respectively, constituted school- or college-going children who were unavailable during the DA's visit.
- One of the major reasons for nonconsumption of LF drugs that emerges from IDIs with numerous stakeholders across both the study districts is lack of awareness amongst people about the importance and benefits of the medicines.
- One-fifth of the respondents in Varanasi who did not consume the drug despite a DA's visit reported ongoing treatment for a chronic illness as the reason for nonconsumption. This was true for 5.96 percent of respondents in Chitrakoot, as well.

Motivation of DAs

During pre- and post-evaluation of the study, DAs' motivation was gauged based on their perceptions using a set of 20 statements across components like support and recognition from the community and from supervisors, self-motivation, etc. The endline score has a higher mean rank (79.58) than baseline mean rank (41.42) and thus tends to take higher values. This indicates a statistically significant improvement in terms of motivation amongst all the DAs at the time of endline as compared to baseline.

ADR incidences in the field

In comparison to the baseline (96.7 percent), a smaller proportion of DAs in Varanasi during the endline (64.3 percent) reported witnessing an incidence of ADR. In Chitrakoot, this proportion increased from 60.0 percent at the time of the baseline to 85.2 percent during the endline. However, it should be noted that this might be due to significant increase in coverage of HHs by DAs in Chitrakoot post-intervention. A majority of these DAs, across both the districts, followed the protocol on

encountering ADR incidence, reporting it to their supervisors and referring the patient to the nearest health facility. A majority of the community influencers in Varanasi confirmed that DAs informed them about possible ADRs and advised them on a further course of action. In Chitrakoot, about half of community influencers said that no such information was relayed to them during the MDA round.

Capacity-building, monitoring, and supervision

Before both the MDA rounds, training was carried out for almost all the DAs across both the study districts. In addition, regular supportive supervision was conducted to ensure efficient functioning of the DAs and better implementation of the programme. Daily reporting by DAs also increased marginally across both the study districts, indicating an effective chain of communication and monitoring.

Supply chain of drugs

As opposed to 60.0 percent of DAs at the time of baseline, only 20.0 percent of DAs in Varanasi reported any incidence of running out of medicines during the endline study. Negligible change was observed in this regard in Chitrakoot (only 16.7 percent of DAs reporting such stockout). Even in the instances of stockout, all the DAs stated that they informed their supervisors of the drug availability status, at which time the supervisors provided them with a sufficient stock of medicines, with no time lost.

Line listing

A significantly smaller proportion of DAs in Varanasi carried out line listing of beneficiaries before MDA (to gauge the requirement of medicines) during the endline phase as compared to during the baseline phase: one DA (3.3 percent) during the baseline phase and nine DAs (30.0 percent) during the endline phase reported that they did not conduct line listing at all prior to MDA. However, one-third of them (33.3 percent) carried out the exercise during the MDA campaign. In Chitrakoot, whilst all the DAs reported that they had conducted the family survey, a majority of them (80.0 percent) did so whilst administering the drugs instead of undertaking the exercise prior to the MDA rounds.

Challenges regarding implementation of MDA

During IDIs with various government officials, the officials highlighted some of the challenges that implementation of MDA still encounters:

- Shortage of human resources, as ASHAs are generally overburdened with multiple health programmes, sometimes ones running simultaneously, and hence are limited in their involvement in MDA of LF drugs during that time.
- Unavailability of people (i.e., not at home) during the DA's visit – added to which are the paucity of time and the resource limitations that restrict the number of revisits a DA could do.
- Noncooperative community members towards undergoing a good-quality night blood survey, the performance of which is necessary to ensure that both the study districts pass the TAS.

Conclusions

As compared to the baseline phase, the reach of the DAs increased during the endline phase in both the study districts. In Chitrakoot, it almost doubled. This increase was uniform across various economic indicators, suggesting a lack of class or caste bias (as was reported for Varanasi and Chitrakoot, respectively, during the baseline study) from the DAs' end. Consumption of drugs, as well,

showed a substantial increase in both the study districts. The increase in both these key variables is indicative of the success of the intervention package in bridging some of the gaps that had existed.

However, there are still issues and challenges that remain, at both the demand and supply sides, which need to be addressed. Whilst there has been a significant increase in the proportion of HHs that can identify the LF disease, numerous myths regarding the disease still persist and act as a demotivating factor in consumption of drugs. Generating HH knowledge about the preventive nature of medicines along with awareness about ADRs associated with these drugs is paramount, as fear of ADRs continues to be one of the primary deterrents to consumption of medicines. Apart from this, HH unavailability was recorded as one of the major challenges to uptake of LF drugs, as per both quantitative and qualitative data: adult male members reportedly left home for work and hence were not present during the DA's visit, and children of different age groups were unavailable as they were away at school/college. Due to time and resource constraints, DAs reportedly were unable to schedule multiple visits to the same HH.

On the supply side, there was significant improvement of DAs in almost all variables during the endline survey: their overall motivation, training and supervision, daily reporting, and knowledge of appropriate protocol to be followed in case of any incidence of ADR. The only major gap reported was in terms of the line listing being carried out by most of the DAs, which was done either during the MDA rounds or not at all. This renders the entire exercise futile, as line listing is supposed to be undertaken prior to MDA so as to ensure sufficient stock of drugs and to generate awareness amongst people regarding LF and MDA. The awareness factor took a beating – especially in Chitrakoot, where a majority of the community influencers and leaders were unaware of any ADR associated with LF drugs and had no prior intimation of a DA visit to their HHs, which would have helped them ensure availability of all the family members.

Recommendations

Recommendations from this study are as follows:

- Ensure line listing of beneficiaries before the MDA rounds: As was reported during the endline study, a majority of the DAs in both Chitrakoot and Varanasi either did not conduct the line listing or did so whilst administering the drugs, which renders the exercise futile. Sufficient time and resource allocation and/or a management information system needs to be put in place to ensure that line listing of beneficiaries is conducted before the MDA rounds. This would not only ensure lesser instances of drug stockout but also help in raising awareness amongst community members regarding the date of the MDA round so that they can be available on the scheduled date.
- Raise awareness regarding ADR: Particularly in Chitrakoot, most of the community influencers and leaders did not know about possible ADRs of the LF drugs. This gap in dissemination of vital information needs to be critically examined, as fear of ADR continues to be one of the primary reasons for noncompliance.
- Scale up drug administration camps at schools: Whilst such camps are already being organised in some of the villages in Chitrakoot, they were observed to be extremely helpful and should be scaled up. They not only increased consumption of drugs amongst children but also raised awareness amongst parents about LF drugs.
- Use information, education, and communication materials: A miniscule proportion of HHs recalled having come across any poster, banner, wall painting, public announcement, etc. with respect to LF or MDA of LF drugs. Use of these materials could prove essential to increasing awareness amongst people and lending greater credibility to the programme.

Chapter 1: Introduction and background to the study

About lymphatic filariasis (LF)

LF is a leading cause of permanent disability worldwide and is considered a neglected tropical disease (NTD) globally. Affected people are rendered unable to work because of the disability, harming their families and communities, socially and economically.¹ This NTD tends to affect economically poor and politically and socially vulnerable communities disproportionately. LF persists under conditions of poverty and is concentrated almost exclusively in impoverished populations in the developing world. People who are most affected by NTDs are often a part of marginalised communities, living in remote, rural areas, urban slums, or conflict zones. Lacking a strong political voice, people affected by LF have a low profile and status and thus are low in public health priorities. LF does not impact any one age group disproportionately, and in communities where it is prevalent, people of all ages seem to be affected by it. Whilst the infection may be acquired during childhood, its visible manifestations may occur later in life.² Both the parasite and vector mosquito of LF are known to be inefficient in transmission of infection. When a mosquito bites a person who already has LF, microscopic worms circulating in the person's blood enter and infect the mosquito.

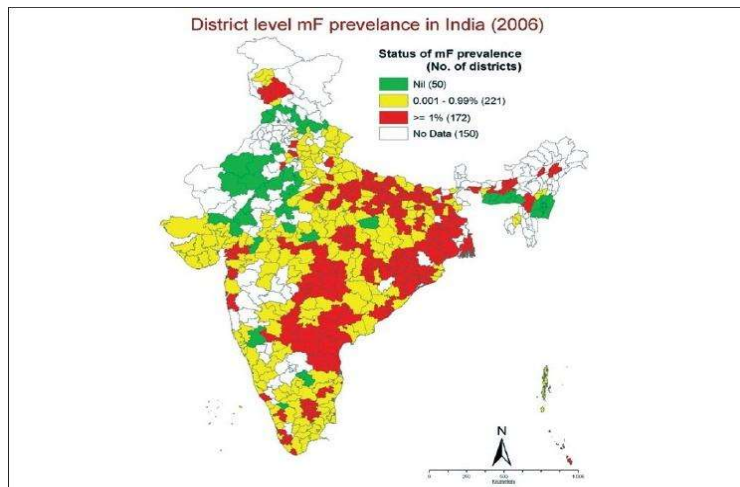
According to the World Health Organization (WHO), around 57 percent of the people at risk of the disease live in WHO's Southeast Asia region – a region that encompasses 11 countries, including India and 37 percent of African countries. As one of the leading causes of global disability, LF accounts for at least 2.8 million disability-adjusted life years; this does not include the significant comorbidity of mental illness commonly experienced by patients and their caregivers. In 2000, WHO estimated that 120 million people were infected with the disease, and more than 1.3 billion people are at risk of infection worldwide. More than 40 million people suffer from lymphoedema (including elephantiasis) and hydrocele. The disease is concentrated in tropical and subtropical areas of the world, particularly Africa, India, and Southeast Asia. It is estimated that the disease results in US\$1.3 billion in lost productivity every year. In India, about 650 million people are at risk of LF. Out of the 15 states and six union territories where LF is prevalent, 4 states – namely, Uttar Pradesh (UP), Bihar, Jharkhand, and West Bengal – bear two-thirds of the burden of disease.

Prevalence of LF in India

A district-level endemicity map created for India in 2000 shows that, of the 289 districts surveyed up to 1995, 62 percent (i.e., as many as 257) were found to be endemic. Additionally, 17 states and six Union Territories were identified as endemic, with about 650 million people exposed to the risk of

infection; of those, about 146 million live in urban areas, with the remaining 504 million in rural areas. About 31 million people are estimated to be the carriers of Mf (microfilaria), and over 23 million suffer from filarial disease manifestations in India. Bihar State has the highest endemicity (over 17.0 percent), followed by Kerala (15.7 percent) and UP (14.6 percent). Andhra Pradesh and Tamil Nadu have about 10 percent endemicity each. Figure 1 shows Mf prevalence in India from 2006, by district.

Figure 1. District-level microfilaria (Mf) prevalence in India (2006).



Mass drug administration (MDA)

Following a World Health Assembly resolution in 1997, in 2004 India launched annual MDAs of diethylcarbamazine citrate tablets to all eligible populations (excluding pregnant women, children under 2 years old, and seriously ill persons). Albendazole was added to the programme in 2008, and ivermectin was added in 2018 in selected districts. Finally, activities around information, education, and communication, as well as behaviour change communication, were added for social mobilisation to support MDA.

WHO envisaged that five to six continuous annual rounds of MDA with at least 65 percent coverage of the population (consumption) would interrupt transmission of LF infection in each endemic district (implementation unit). Achievement of the goal of elimination in the district would be validated through a Transmission Assessment Survey (TAS). A district would have to conduct three successful TASs within a span of four to six years amongst children born after initiation of MDA to achieve elimination status. A successful TAS means antigenemia of less than 2 percent amongst young school-going children. In the event of failure of the first TAS in any unit, two additional rounds of annual MDA would need to be conducted before repeating the first TAS.

Thus far, 100 of the 257 affected districts in India have successfully achieved this rate. In the remaining 157, transmission continues to be problematic, persisting even after five rounds of MDA. Presently, India is committed to eliminating LF by 2030 and reducing the rate of Mf infection to less than 1 percent of the population. Once this target is achieved, it would be possible to interrupt transmission, making elimination an achievable goal.

Introduction to the present study

In August 2020, PATH, an international nonprofit organisation, initiated the intervention study titled *A Mixed-Method Study to Improve the Outcome of Mass Drug Administration in Two Districts of Uttar Pradesh That Failed the Transmission Assessment Survey*. The study aims to identify the critical factors for achievement of optimal drug coverage amongst community members during MDA campaigns, develop an intervention package for use in the government's subsequent MDA programme to improve compliance, and assess the impact of the intervention package on drug coverage.

The study was conducted in the districts of Varanasi and Chitrakoot in UP. Chitrakoot and Varanasi were selected for the study, as they have failed TASs, have suboptimal health indicators, and are geographically and demographically representative of LF-endemic districts of the country.

The study has two phases: pre-intervention and post-intervention. In the pre-intervention phase, baseline data were collected for the last MDA coverage through a household (HH) survey, and the motivational score of drug administrators (DAs) was calculated through a DA survey. Qualitative data were captured through in-depth interviews (IDIs) and rapid ethnography. The qualitative data helped in the development of an intervention package used by the government in subsequent MDA campaigns. *(A brief outline of the intervention package has been added as Appendix 1 of this document.)*

Finally, a post-implementation endline study was conducted to assess the impact of the intervention package on drug coverage, which was measured, along with the motivational score of the DAs, by comparing the data collected through the HH surveys and DA surveys from both phases. A qualitative assessment of the intervention package was conducted through IDIs.

LF in UP

Infection rates

Previous research on LF in UP concludes that clinical manifestations of LF are much more pronounced in areas where filarial endemicity is of long standing (i.e., Eastern and Central UP), as compared to areas where filarial spread is of relatively recent times (i.e., Western UP). Earlier reports of filarial survey in UP have demarcated filarial infections to be endemic only in Lucknow and districts situated east to Lucknow. However, later studies^{Error! Bookmark not defined.} concluded an Mf rate above 20 percent in other districts of Western UP, placing the whole of UP in a high-endemicity group.

According to the statistics available from the Regional Filaria Training and Research Centre at Varanasi, the rate of Mf cases in urban areas of the city was 2.33 percent in 2007/08 and 2006/07, whilst it was 2.37 percent in 2005/06. In rural areas the infection rate varies from 4.00 to 5.00 percent.

MDA in UP

National Vector Borne Disease Control Programme guidelines envisage administration of drugs to 65 percent of the total population for five consecutive years to bring down the Mf rate to less than 1 percent amongst the whole population. The TAS is conducted after ensuring less than 1 percent Mf in ten additional sites that have been selected randomly.

For any district to be eligible for TAS:

- It must conduct five consecutive rounds of MDA.
- It should have about 65 percent epidemiological coverage.
- It should have an Mf rate of less than 1 percent in both random and sentinel sites.

Chapter 2: Study methodology

Research design and methodology

The post-implementation endline study was conducted following data collection in two phases: in Varanasi and Chitrakoot during August and December 2021, respectively. The study adopted a **mixed-method approach** using quantitative and qualitative approaches to construct a comprehensive assessment. In addition, a systematic analysis of secondary data and current literature was carried out.

The use of quantitative and qualitative methods created a robust framework for a comprehensive evaluation of the study subject. The quantitative tools provided numerical values to key testing metrics (i.e., research indicators) like LF awareness, drug coverage, drug compliance, etc., whilst the qualitative tools assisted in gaining deeper understanding of the knowledge base and barriers in accessing LF drugs and of its compliance. In addition to primary data, secondary data facilitated the triangulation process, taking forward the study's contextual goals holistically. The insights gleaned from each instrument were corroborated to ensure minimal anomalies.

Respondents

The textbox below summarises the respondents who were administered the various study tools.

Quantitative component:	Qualitative component:
<ul style="list-style-type: none">• Structured questionnaire with HHS.• Structured questionnaire with DAs.	<ul style="list-style-type: none">• IDIs with government health officials, community leaders, and community influencers.

Study clusters and sample covered

Selection of study clusters

A total of 30 clusters (village/wards) for each district – same ones as in the pre-intervention phase – were covered under the scope of this study. The clusters were selected by using the probability-proportionate-to-size method with census 2011 data. Figure 2 illustrates the cluster and sample distribution across both the study districts.

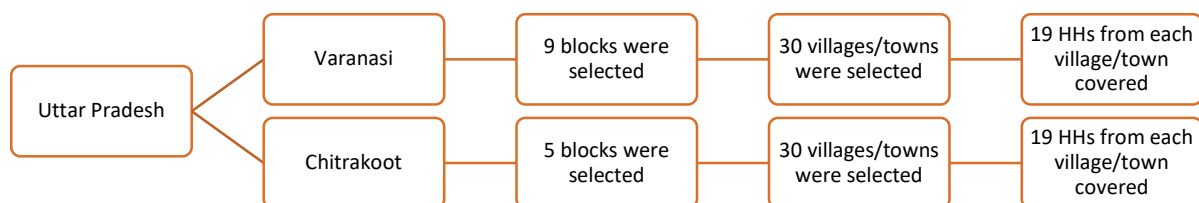


Figure 2. Selection of study clusters (villages/towns).

Sample selection method

From each of the study clusters, 19 HHs were selected using the systematic random sampling method. A sampling interval of ten HHs was considered. In the selected clusters, data investigators chose a random direction by spinning a bottle in the centre of the village. Thereafter, the investigators selected randomly the first house in that direction by taking out any currency note and selecting the HH corresponding to the last digit of the currency note. Then the next house was selected by using the right-hand rule and skipping HHs based on the sampling survey. Mostly, the HH head or the senior, most adult member of the HH present at the time of the visit was surveyed (not every adult member). HH selection was random, and therefore the same HHs surveyed during the pre-intervention phase may or may not have been resurveyed during the post-intervention phase.

The first points of contact in the community for prevention and care of the disease are frontline health workers or DAs. Thus, for each of the study clusters, DA surveys were also conducted. Further, to dive deeper, qualitative IDIs were conducted with community leaders, community influencers, district health officials, and block health officials in each district. Respondents for DA surveys and IDIs were identified with help of community resource persons following a purposive sampling method. The surveys were based on respondents' consent and availability during the fieldwork.

Sample size covered

Tables 1,2, and 3 give snapshots of the targeted and achieved sample sizes under the scope of this study.

Table 1. Tally of household surveys conducted.

District	Surveys per cluster	Total number of clusters	Targeted sample size	Achieved sample size
Varanasi	19	30	570	655
Chitrakoot	19	30	570	659
Total sample size			1140	1314

Table 2. Tally of drug administrator surveys conducted.

District	Surveys per cluster	Total number of clusters	Sample size
Varanasi	1	30	30
Chitrakoot	1	30	30
Total sample size			60

Table 3. Tally of in-depth interviews conducted.

Respondents	Varanasi	Chitrakoot
Community leaders	30	30
Community influencers	60	60
Assistant chief medical officer	1	1
District malaria officer	1	1
Medical officer in charge	1	1
Lab technician	2	1

Training

Training schedule

Prior to data collection in both the study districts, two-day trainings were held for the field teams by the DevInsights team, along with the PATH team, wherein the field teams were oriented on the LF elimination programme: the objectives and implementation of the programme, along with its issues and challenges. They were trained on the aspects of the research design and the rationale and use of each of the study instruments, along with the critical aspects of collection of high-quality data, observations techniques, and the proper way to verify and scrutinise the data. The training schedule was designed such that the first day was devoted to classroom training to provide a conceptual understanding of the study and study tools, and the second day was dedicated to mock practise of fieldwork and hands-on experience of the Computer-Assisted Personal Interviewing application.

The endline survey was first carried out with pen and paper, with the data digitised later the same day. This ensured double-checking of data before they were analysed.

Tool testing

The Computer-Assisted Personal Interviewing version of the tool was developed by DevInsights' in-house data analysis team and reviewed by the research staff to prevent technical bugs and to ensure it is error-free and easy to use.

Data management and analysis

Quantitative data analysis

Cleaning data, conducting descriptive statistics, and finding statistically significant associations and differences, if any, were the three main components of the quantitative data analysis. Descriptive statistical analysis was conducted (using the Statistical Package for the Social Sciences software) district wise. Since a majority of the variables were nominal, the chi-square testⁱ was used to see whether there was a statistically significant difference between key study indicators across pre- and post-implementation phase study/surveys.

Qualitative data analysis

Whilst IDIs with community leaders and influencers provided critical insights about some of the demand-side barriers to MDA compliance, interactions with government officials reflected upon some of the supply-side barriers. The qualitative data collected were first transcribed and translated into English. The qualitative coordinator in the project team studied detailed field notes to supplement the transcription and translation. After transcription, a detailed coding framework was developed according to various themes that emerged – such as distribution of medicines, capacity-building, logistics, etc. – that served as a reference whilst analyzing the qualitative data. The IDIs were transcribed in Excel sheets, and thematic analysis with colour coding was performed to segregate opinions/perspectives of different stakeholders.

Ethical consideration

With the objective of supporting important social and moral values of contributors and respondents and ensuring no harm to them, two key measures were followed at all stages of the study:

ⁱ The chi-square independence test (χ^2) is a procedure for testing whether two categorical variables are related in some population.

- Informed consent:
 - This was ensured by giving each respondent an information sheet to help them understand / educate them about the study and then asking them to signal their agreement to participate by signing the consent form.
 - As part of the introduction script, the principle of informed consent was explained to the respondent.
 - Surveyors/interviewers were asked to avoid distressing or upsetting the respondents and to clarify that respondents were free to withdraw from a survey/IDI at any time.
- Confidentiality:
 - All data were treated as confidential during all stages of the study process, including data collection, data capture, and management and reporting of outputs.
 - No personal identifiers of the respondents were recorded.
 - Private spaces were used to conduct surveys/IDIs.
 - All data and pre-analysis forms were stored electronically on password-protected PCs; hand-written notes, if any, were stored in a secure cabinet.

Key challenges and limitations

Key challenges to and limitations of the LF MDAs found via the study are as follows:

- The ongoing pandemic posed multiple challenges to the field team in terms of commuting and managing logistics.
- Chitrakoot had a limitation in terms of its geographical location and settlement pattern, not only because most of the villages lay in the remotest areas of the district, but also because the commute to those villages was via long stretches of undivided kutcha roads. Houses in most of the study villages in Chitrakoot are situated far away from each other, intercepted by stretches of agricultural land. Hence, traveling from one HH to another within a village was also a hard task, given that the distance between two hamlets would sometime be 4 to 5 kilometres.
- Whilst baseline data collection was held approximately six months post-MDA, endline data collection was held immediately after completion of the MDA round to minimise recall bias. However, this rendered the variable 'honorarium received by DAs for the last round of MDA' redundant, as the MDA had just ended the day before the survey was conducted. Hence, analysis for this indicator could not be carried out in the endline study.

Chapter 3: Socioeconomic profile of the HH respondents

Figure 3 shows a breakdown of the socioeconomic profile of HH respondents.

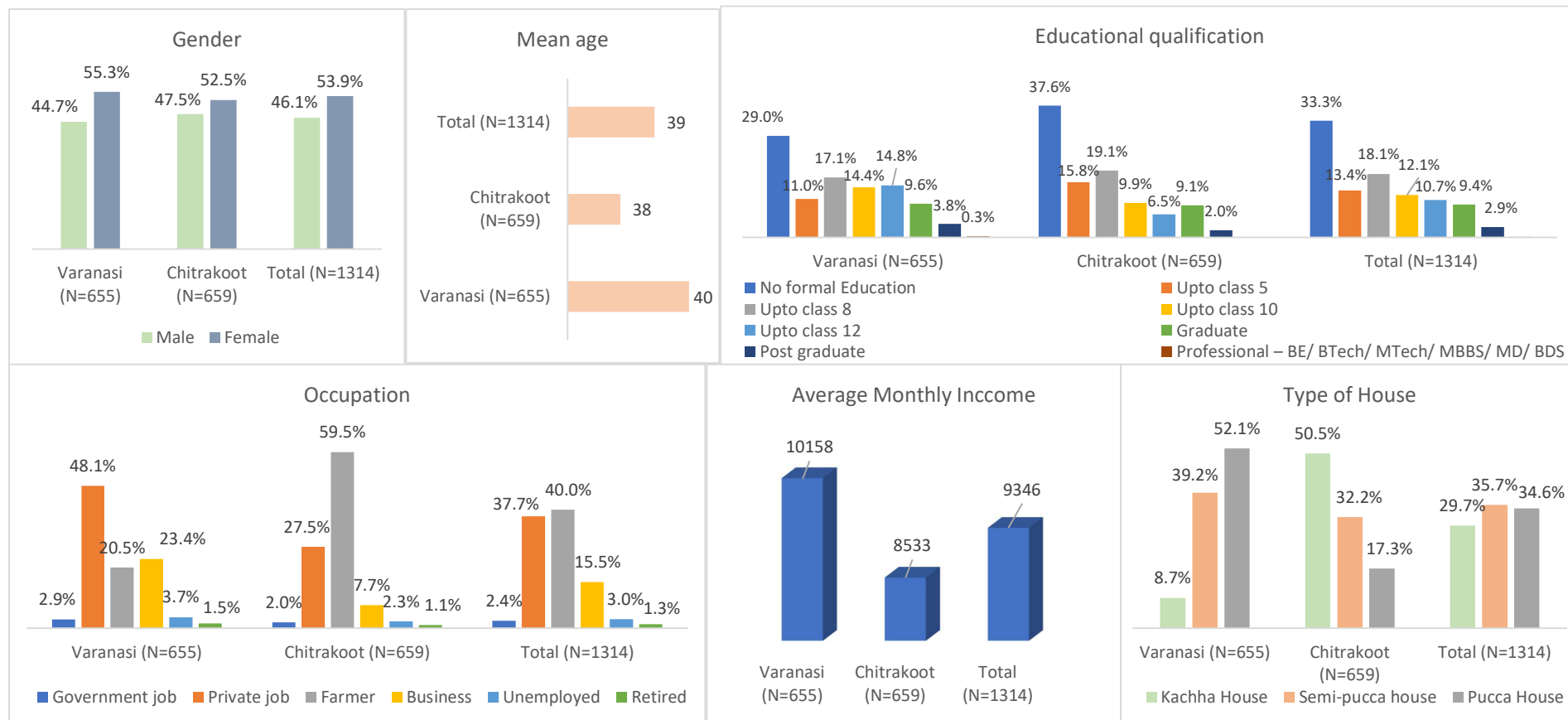


Figure 3. Socioeconomic profile of the respondents.

Abbreviations: BDS, bachelor of dental surgery; BE, bachelor of engineering; BTech, bachelor of technology; MBBS, bachelor of medicine and bachelor of surgery; MD, doctor of medicine; ; MTech, master of technology.

Profiling of the study respondents is an essential exercise that helps to study the sample population in terms of their existing socioeconomic status. This profiling provides us a glimpse into the target groups and future interventions, if any, can be accordingly planned. This section presents findings related to the profile of the study respondents and their HHs.

General profile of the study respondents

The structured survey schedule was administered to a total of 655 HHs in Varanasi and 659 HHs in Chitrakoot during the endline survey.

In both the study districts, a little more than half of the respondents (55.3 percent in Varanasi and 52.5 percent in Chitrakoot) were women. Overall, the mean age of the respondents was 39 years old. In Varanasi, about 89.0 percent of the respondents were married, whilst the same was true for approximately 93.0 percent of the respondents in Chitrakoot. About one-fourth of the respondents in Varanasi (29.0 percent) and one-third of the respondents in Chitrakoot (37.6 percent) had no formal education. The average family size in both the districts was approximately six members.

Since the same 30 clusters were visited during the baseline and endline phases, similar socioeconomic conditions were observed during both the time periods. (*Tables depicting socioeconomic indicators for respondents during the baseline phase have been added as Appendix 2 of this document.*)

Occupational and economic profile of the respondents

The study found that for a majority of the respondents in Varanasi, the primary HH occupation was private jobs (48.1 percent), followed by jobs in business (23.4 percent), whereas farming was reported to be the main HH occupation (59.5 percent) by the respondents from Chitrakoot.

Overall, respondents in Chitrakoot were economically more disadvantaged than those in Varanasi. This was reflected by both their reported income and the type of dwelling units in which they resided. In terms of the latter, one in every two respondents in Chitrakoot (50.0 percent) lived in a kutcha house, whereas 52.1 percent of respondents in Varanasi lived in pucca houses, and only 8.7 percent had a kutcha house. In line with the above findings, respondents in Varanasi reported a higher average monthly income of Indian rupee ₹10158 as compared to those in Chitrakoot, where the same was reported to be ₹8533.

Access to basic amenities

Data suggest that the majority of HHs in both Varanasi (73.6 percent) and Chitrakoot (56.8 percent) used boreholes / tube wells as the main source of drinking water. However, one-fourth of the HHs in Chitrakoot relied primarily on public taps for drinking water. Around 15.0 percent of HHs from both districts reported having a piped water connection at home, and a miniscule proportion (around 2.0 percent) are still dependent on wells for drinking water. Figure 4 summarises the various sources of drinking water.

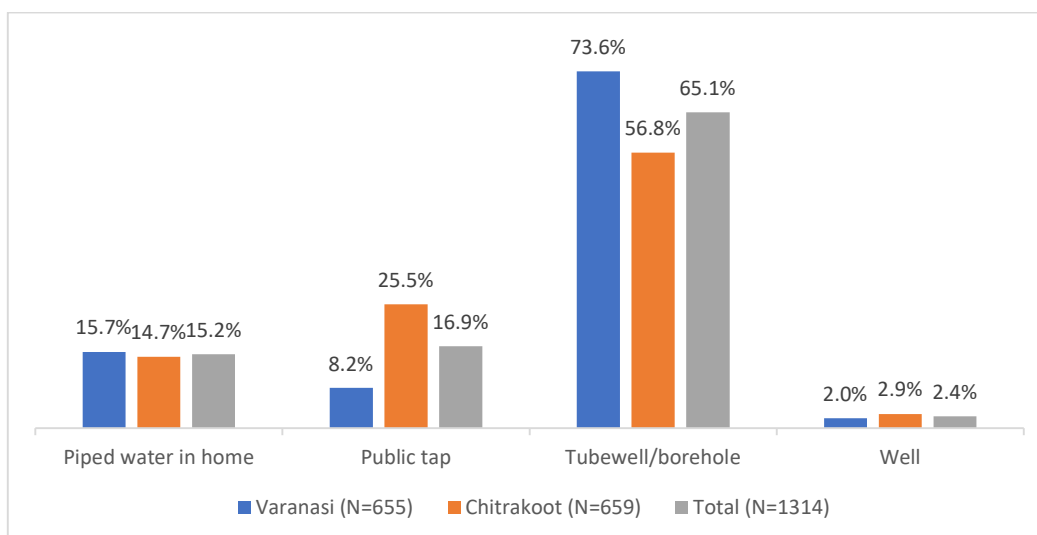


Figure 4. Source of drinking water.

The majority of HHs in both Varanasi (93.5 percent) and Chitrakoot (72.7 percent) had access to improved toilet facilities.^{ii,3} However, more than one-fourth of the respondents in Chitrakoot (27.3 percent) reported practicing open defecation. Figure 5 summarises toilet accessibility.

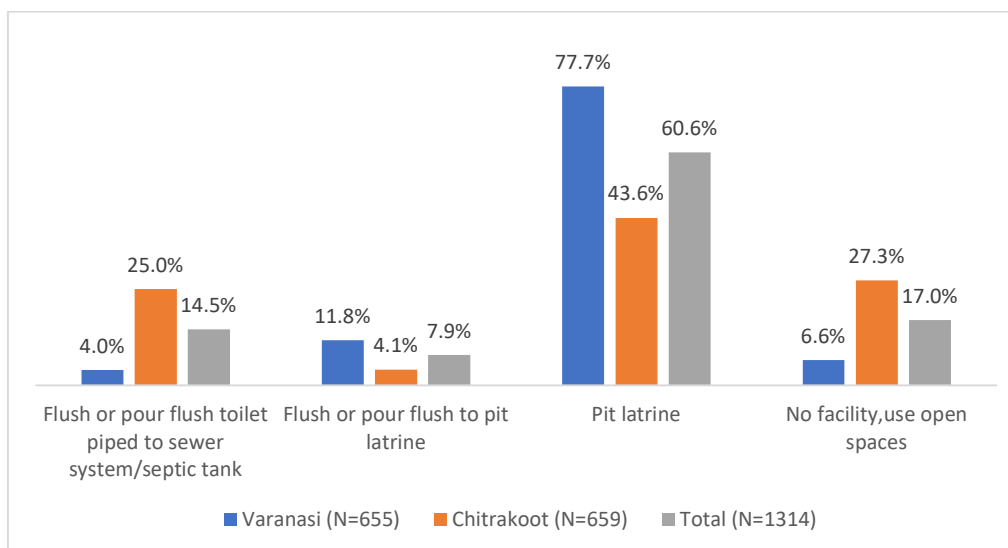


Figure 5. Access to toilet facility.

ⁱⁱ **Improved toilet facilities** include any non-shared toilet of the following types: flush/pour flush toilets to piped sewer systems, septic tanks, and pit latrines; ventilated improved pit (VIP)/ biogas latrines; pit latrines with slabs; and twin pit/composting toilets' (National Family Health Survey [NFHS-4], 2015/16: India).³

Chapter 4: Research findings – community level

Awareness and perception of LF

General knowledge of disease

Figure 6 shows a comparison of the baseline and endline phases regarding the percentage of households that are aware of LF, by district.

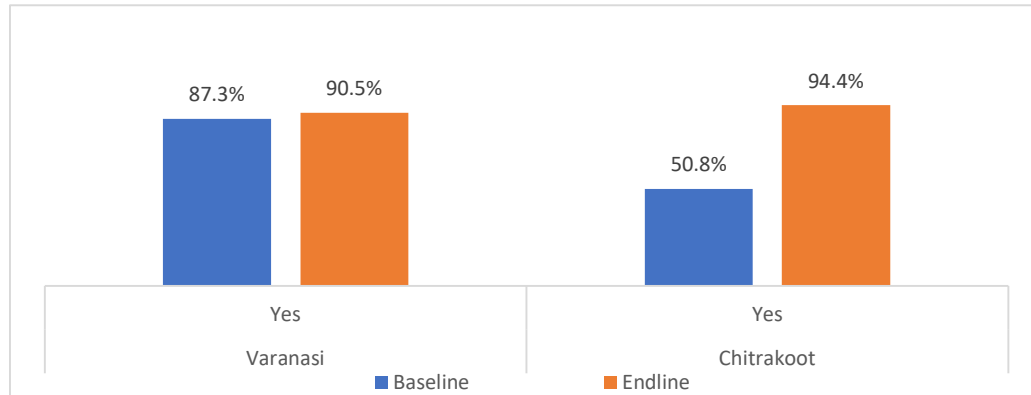


Figure 6. Households aware of lymphatic filariasis.

In the HH quantitative survey, the respondents were asked about their knowledge of LF. In both the study districts, awareness regarding LF increased in the post-implementation (endline) phase – especially in Chitrakoot, which witnessed a considerable increase of about 44 percentage points, from 50.8 percent of respondents at the time of the baseline survey to 94.4 percent of respondents during the endline survey. This change was tested to be statistically significant (CI 95%, $\chi^2=314.93$, $p < 0.001$). Even in Varanasi, about a 3 percentage point increase was observed in the awareness level of respondents. This change is also statistically significant (CI 95%, $\chi^2=3.43$, $p < 0.05$). This increase in awareness regarding LF was also reflected in IDIs with the community leaders and influencers, wherein, contrary to the baseline phase, almost all the respondents in the endline phase had heard about the disease and associated it with swollen limbs.

Awareness of cause, spread, and treatment of LF

Whilst almost all the community leaders and influencers across both the study districts knew about LF, a majority of them were unaware of the cause and the spread of the disease. Only a handful of people knew that the disease was spread by mosquito bites. Responses from other study participants reflected certain myths and misconceptions that they associated with LF.

It is a contagious disease and spreads by being in contact with an infected person. – Community influencer, Varanasi

It is caused due to vitamin deficiency and hormone imbalance. – Community influencer, Varanasi

It is a genetic disease, like if my grandmother had it, then my father will inherit, and then I will. If there is no family history, we won't get it. – Community influencer, Varanasi

It happens mainly to old people. Doctors tell people to avoid eating sweet stuff and potato[es]. I took my father to [the] doctor as he had swelling in [his] legs. [The] doctor said that he has symptoms of filariasis, and it is due to diabetes. – Community influencer, Chitrakoot

It happens only during [a] monsoon that the virus of LF enters the body due to rainwater and infects the person. – Community leader, Varanasi

Similar responses, though in greater proportion, were recorded during the baseline phase, as well.

With respect to treatment, about half of the respondents in Varanasi believed that LF is treatable. Hence, they did not consider their community members to be at risk of getting LF. The opinion of almost all the community influencers in Chitrakoot resonated with that of influencers in Varanasi on available treatment of LF.

No, the community is not at risk because treatment is available now, and people go to small and big hospitals to seek treatment. – Community influencer, Varanasi

No, the community is not at risk. Some people in the village had LF, and they got better after taking medicines. There is a young boy who got infected. This disease is not dangerous because it is not a communicable disease. That boy is fine now, and he got better by seeking treatment. – Community influencer, Chitrakoot

Sources of information

Table 4 summarizes the sources of information on LF, by study phase and district.

Table 4. Sources of information on lymphatic filariasis.

	Baseline			Endline		
	Varanasi (n=579)	Chitrakoot (n=334)	Total (n=913)	Varanasi (n=593)	Chitrakoot (n=622)	Total (n=1215)
TV	6.3%	16.2%	8.5%	5.2%	2.4%	3.8%
Radio	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%
Newspaper	2.3%	2.2%	2.3%	1.5%	0.3%	0.9%
Hoarding/poster/ banner	1.8%	2.2%	1.9%	1.2%	0.3%	0.7%
Public announcement	0.5%	7.6%	2.0%	3.0%	0.2%	1.6%
Health worker	51.6%	36.8%	48.3%	46.2%	53.2%	49.8%
Relative / family members	10.0%	16.2%	11.4%	12.3%	9.3%	10.8%
Neighbour/friends	27.5%	18.4%	25.5%	30.5%	34.2%	32.4%

Note: Conditioned on those who knew about lymphatic filariasis.

In the HH quantitative survey, all the respondents who knew about LF were further asked about the source of this information. As was true for the baseline phase, for a majority of the respondents in both the study districts, health workers (Accredited Social Health Activists, or ASHAs) were the primary source of information. This was reported by 46.2 percent of respondents in Varanasi and 53.2 percent of respondents in Chitrakoot. After ASHAs, word of mouth via family, friends, and neighbours was found to be the next-most-common source of information about LF for respondents in both the study districts. This can be attributed to the effectiveness of the awareness-generation activities at the local levels, where aware community members were passing on the information to their friends and relatives. Apart from these, sources of mass media – likely TV, radio, posters, banners, etc. – served as the source of information for a miniscule proportion of the respondents. Qualitative IDIs with the community stakeholders corroborate these findings.

[The] source of information for all such health programmes is [the] ASHA only. In our village, she put up banners, and there were pictures on the banners. It showed 3 small tablets and 1 big tablet and how hydrocele and LF [are] caused. All the information was given to us. There were banners and posters. I have seen posters and banners in the markets, hospitals, etc. near our village but nowhere else. – Community influencer, Chitrakoot

Few respondents in either study district reported also attending LF awareness camps, which were organised in school campuses in the villages or via information boards.

Information about LF was provided through camp in school by doctors. There was a discussion about LF and that medicines will be provided through [an] ASHA worker. – Community influencer, Chitrakoot

There is a notice board here in my area. Information is written on the board to make people aware and mention the dates of medicine distribution so that people take the medicine. – Community influencer, Varanasi

Contrary to Chitrakoot, Varanasi showed much higher awareness levels amongst community members, with a substantial proportion of respondents in study villages being aware of LF as a disease. Their awareness was primarily an outcome of knowing someone suffering from LF in their vicinity.

HHs visited for drug administration (reach of DAs)

Overall

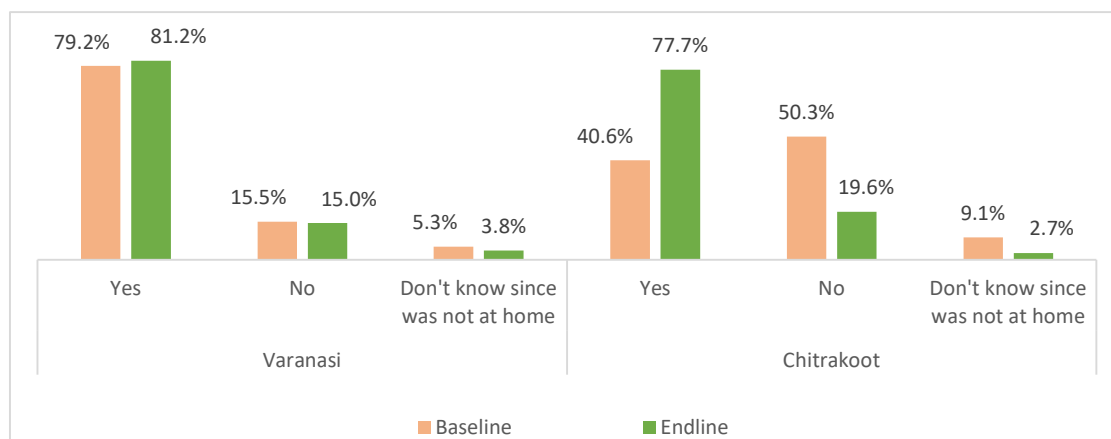


Figure 7. Households visited for drug administration.

To estimate the proportion of HHs visited by DAs for administering the LF drugs, all the respondents were asked whether ASHAs visited their house to provide them with the LF drugs. Multiple probes in terms of colour and number of tablets given were used to ascertain an accurate measure of the reach of DAs. The results showed an increase in the number of HHs visited by DAs for administering the drugs in both the districts (Figure 7). Whilst in Varanasi the proportion reportedly increased by 2 percentage points in the MDA round post-implementation of the intervention measures, the same almost doubled in Chitrakoot, from 40.6 to 77.7 percent at the time of the endline survey. This was found to be a statistically significant increase (CI 95%, $\chi^2=164.46$, $p < 0.001$). These findings are in line with IDIs undertaken with community influencers and leaders, as a majority of them across both the study districts confirmed receiving LF drugs during MDA.

In Chitrakoot, an increase in the proportion of HHs receiving LF medicine in the post-intervention (endline) phase may be an outcome of the administration of drugs in schools in some of the study villages and the resulting increased awareness amongst parents about the campaign.

Medicine was distributed in all the schools. There was an entire team of people, along with ASHAs and one more person from our village. This encouraged parents to be more receptive when ASHAs visited their house, and in case they didn't, they

went to [the] ASHA themselves to enquire about the medicines. This time [the] ASHA gave medicine to all the people and made sure that they consume[d] it in her presence.
– Community influencer, Chitrakoot

Whilst door-to-door coverage was observed in almost all the study villages of both districts, one village in Varanasi reported that medicines were only available at the centre and that only a few houses in the village had doorstep administration of drugs.

Medicine is distributed at Anganwadi centre by [an] ANM [auxiliary nurse midwife]. Workers of Anganwadi centre ask people to visit the centre to collect the medicine and then people take the medicines at home. – Community influencer, Varanasi

By type of house

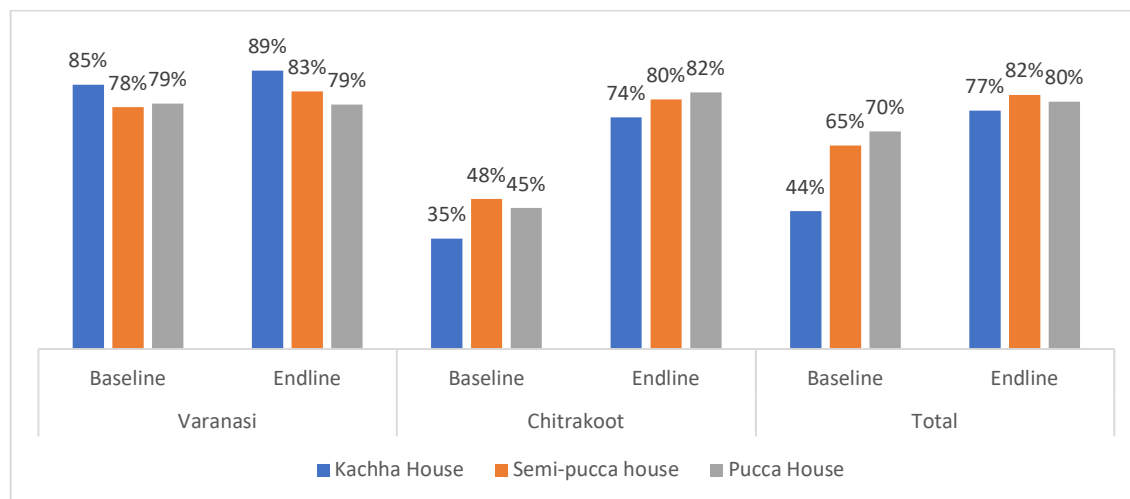


Figure 8. Households visited for drug administration, by type of house.

Figure 8 demonstrates whether DAs' visits to HHs have any association with the type of house (an indicator of the economic condition of an HH). It outlines the proportion of HHs visited in each of the house categories out of the total number of kutcha, semi-pucca, and pucca houses surveyed. No major change in HH visits based on house type was observed in Varanasi: whilst 79 percent of pucca houses surveyed during both baseline and endline surveys confirmed that ASHAs visited their HHs to administer LF drugs, the proportion increased by 5 percentage points each for kutcha and semi-pucca houses. In Chitrakoot, the proportion of HHs visited by DAs increased across all the categories. A statistically significant increase (CI 95%, $\chi^2=30.6684$, $p < 0.001$) was observed in the proportion of kutcha houses covered during the endline survey (74 percent) as compared to the baseline survey (35 percent). The proportion of semi-pucca HHs visited by DAs also increased from 48 to 80 percent between the two time periods. This increase was also statistically significant (CI 95%, $\chi^2=22.22$, $p < 0.001$). Visits to pucca houses also increased from 45 to 82 percent (statistically significant increase

at CI 95%, $\chi^2=29.533$, $p < 0.001$). Thus, increase in visits by DAs was not biased towards any particular economic class in Chitrakoot.

By income of the HH

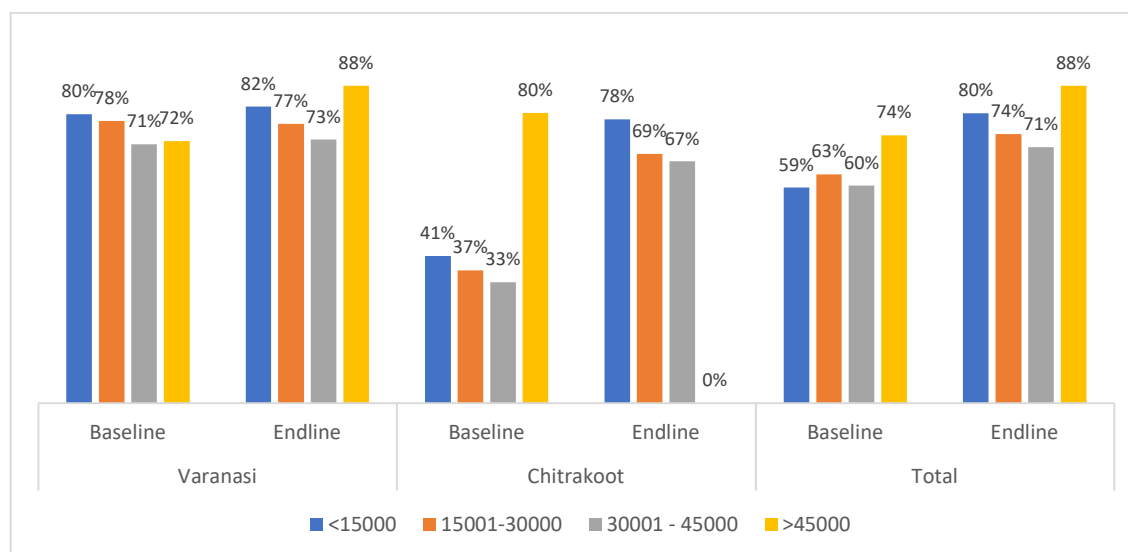


Figure 9. Households visited for drug administration by income of household.

A similar pattern was observed when HHs visited by DAs for drug administration were cross-tabulated with income of the HHs (Figure 9). For the purpose of this comparison, cutoff values taken were income quartiles recorded for all the HHs. Whilst no significant change was observed in Varanasi, in Chitrakoot the proportion of HHs visited by DAs increased across all the income categories. During the baseline survey, 4 HHs in Chitrakoot reported a monthly income greater than ₹45000, whilst no HH during the endline survey reported an income greater than this value. Hence, no HH in this income category was visited during the endline phase (as no such HH formed part of the random sample).

Reported reasons for shortfall in covering all HHs in a village

Whilst a sizeable number of respondents during qualitative IDIs reported that ASHAs visited all the HHs (significant increase as compared to the baseline survey), few respondents cited specific reasons for not receiving LF drugs during this MDA round.

People not at home

A majority of the respondents across both the study districts reported that many people left for work before the ASHA's arrival. In case a family member was not present, the ASHA would usually hand over their medicine to other family members or even to the neighbours instead of revisiting the house.

When [the] ASHA worker make[s] a visit, people are usually at work or at [a] relative's house, and they are not able to receive the medicine. They also go to the farms to work. So she gives medicines for those people to the family members who are present there. – Community influencer, Chitrakoot

Sometimes [the] drug administrator give[s] medicine to neighbours if a person is not available at home, and maybe [the] neighbours don't give it to them, and hence people miss out [on] consuming the drugs. – Community influencer, Varanasi

Lack of means of transportation

As was described in the baseline report, some of the villages in Chitrakoot have difficult terrain, and hamlets within a village are situated far from each other. This makes commuting a challenge for the DA.

There are tribals living in forested areas in our village, and [the] ANM [auxiliary nurse midwife] is unable to visit them. It is not a safe area, and there is no means of transportation. Roads are not well maintained. The area is covered with forests, and houses are [situated] at long distances. These are the reasons why any DA is unable to visit those particular clusters of the village. – Community influencer, Chitrakoot

Reported class bias of DAs in Varanasi

Even though the proportion of kutcha houses and lower-income HHs visited by DAs in Varanasi marginally increased by the endline survey, a handful of community influencers in some villages of Varanasi reported that ASHAs preferred not to visit the poorest hamlets of the village, as they were usually located at the outskirts of the village and often had 'filthy surroundings'.

Yes, sometimes drug administrators don't go to people's house for reasons like long distance and unclean society area. The poorest community of the village lives a little far off from here, but that area is always dirty, and even ASHAs don't prefer to go there. – Community influencer, Varanasi

Consumption of drugs

HHs having complete or partial consumption

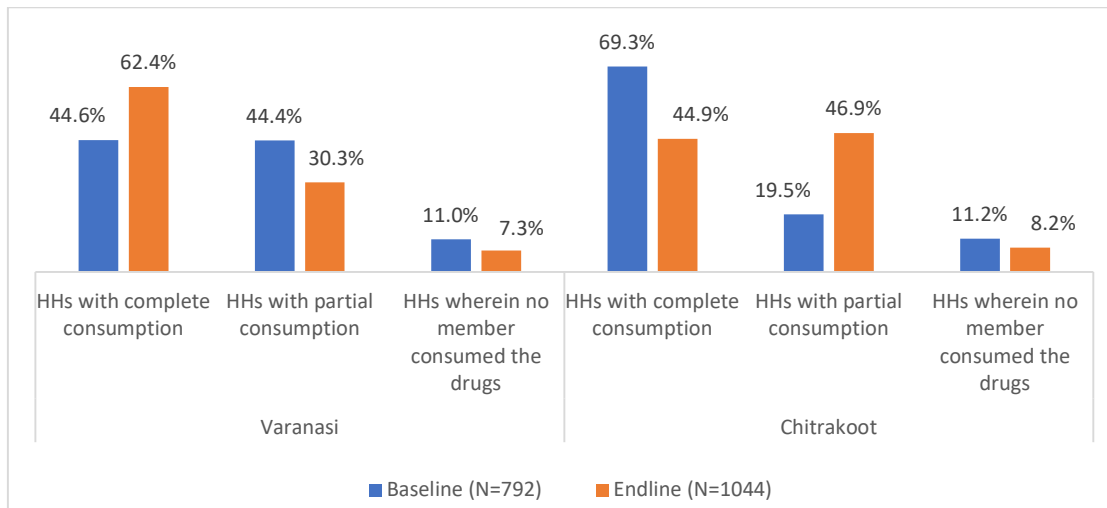


Figure 10. Complete and partial consumption of drugs, at household (HH) level.

The HHs ASHAs visited were further asked whether they consumed the drugs that were provided to them (Figure 10). Overall, there were 792 such HHs at the time of the baseline survey and 1044 such HHs during the endline survey out of those who confirmed that ASHAs visited their HHs for drug administration. At the district level, 525 HHs during the baseline survey and 532 HHs during the endline survey in Varanasi were visited by HHs and hence considered for analysis in this section. Similarly, for Chitrakoot 267 and 512 HHs for the baseline and endline evaluations, respectively, have been considered. (Cross-tabulation for Figure 10 has been added as Appendix 3 of this document for further clarity.)

The proportion of HHs wherein all the family members refused to consume the medicines decreased from 11.0 to 7.3 percent and 11.2 to 8.2 percent in Varanasi and Chitrakoot, respectively. Whilst the proportion of HHs with complete consumption (i.e., HHs wherein all the members consumed the drug) has gone up in Varanasi from 44.6 to 62.4 percent, there has been a reduction in the proportion of such HHs in Chitrakoot (from 69.3 to 44.9 percent).

As far as my family members are concerned, [the] AWW [Anganwadi Worker] made them consume the medicine in her presence. Health workers tell us that they have been given strict guidelines to make people consume the medicine in their presence. They also put an ink mark on the finger after an individual has consumed the drug. – Community influencer, Varanasi

Consumption at the individual level

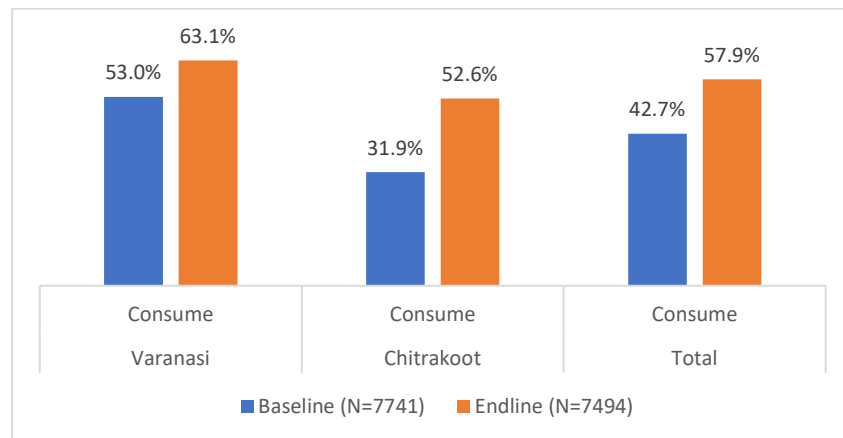


Figure 11. Consumption of drugs, at individual level.

The study further analysed drug consumption at the individual level (Figure 11). For this, all the family members of all the HHs surveyed (including those not visited by DAs) during the baseline and endline phases were considered for the purpose of this analysis, a total of 7741 and 7494 individuals, respectively. Overall, consumption of drugs increased in both the study districts between the baseline and endline surveys. Compared to the baseline phase, even though statistically not significant, consumption of LF drugs during MDA rounds in the endline phase increased from 53.0 to 63.1 percent in Varanasi. In Chitrakoot, a statistically significant increase (CI 95%, $\chi^2=9.023$, $p < 0.001$) in consumption of drugs from 31.9 to 52.6 percent was reported.

Consumption by gender

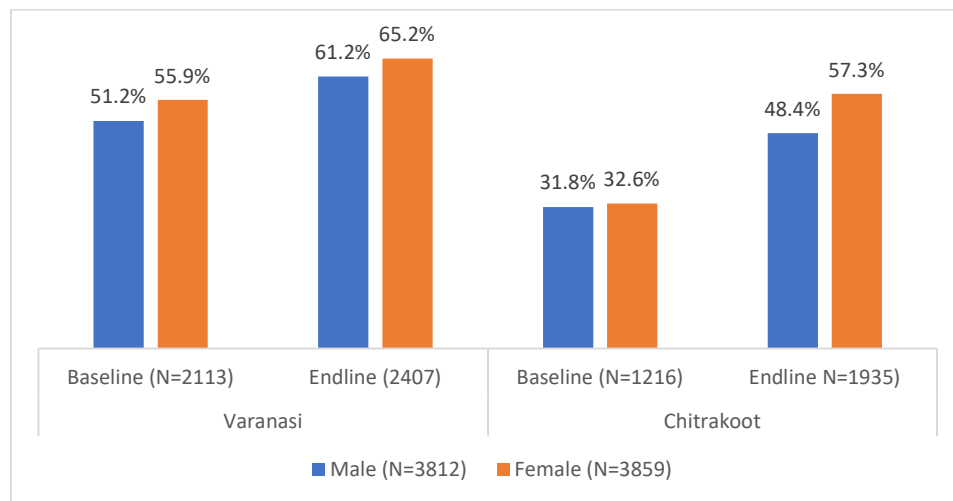


Figure 12. Consumption of drugs by gender.

Uptake of drugs increased for both genders across both study districts. During both baseline and endline surveys, a greater proportion of women reported consuming the drugs as compared to men. This difference was more pronounced in Chitrakoot, wherein 57.3 percent of women surveyed consumed LF drugs during the endline MDA round as compared to 48.4 percent of men. As discussed further in the section below, this difference could be attributed to the fact that male

members of the family were more likely to be away from home at the time of DA's visit, as they have to go out for work.

Reasons for not consuming drugs (endline)

Overview

Table 5. Reasons for nonconsumption of lymphatic filariasis drugs.

	Baseline			Endline		
	Varanasi (n=885)	Chitrakoot (n=329)	Total (n=1214)	Varanasi (n=564)	Chitrakoot (n=688)	Total (n=1252)
Was not at home (at work)	23.28%	16.41%	21.42%	21.45%	52.47%	38.50%
Had fear of side effects (ADRs)	39.32%	40.43%	39.62%	37.41%	14.53%	24.84%
Was on treatment for a chronic illness	12.99%	2.74%	10.21%	20.92%	5.96%	12.70%
Was not at home (at school)	10.51%	9.12%	10.13%	6.74%	13.81%	10.62%
Did not receive information about MDA	3.50%	4.86%	3.87%	6.03%	4.36%	5.11%
Was in good health and so felt not in need of drugs	8.81%	22.19%	12.44%	3.90%	6.25%	5.19%
Had empty stomach	0.68%	0.91%	0.74%	1.60%	1.74%	1.68%
Was not at home (at college)	0.90%	3.34%	1.57%	1.95%	0.87%	1.36%

Note: Conditioned on those who were visited by Accredited Social Health Activists but did not consume the lymphatic filariasis drugs during the MDA rounds.

Abbreviations: ADR, adverse drug reaction; MDA, mass drug administration.

Barring the supply-side barrier of drugs not reaching the house, the individuals who did not consume the medicines despite ASHAs visiting their HHs during the MDA round were further probed on reasons for this noncompliance. Several reasons were enlisted by the HHs in response to the structured quantitative tool administered to them. Similar themes also emerged from the IDIs with different stakeholders. Some of the major reasons for nonconsumption of drugs are discussed below.

Fear and past experience of adverse drug reactions (ADRs)

Fear of ADRs continues to be reported as one of the prime reasons for not consuming the drugs by approximately 39.0 percent of respondents in Varanasi. In Chitrakoot, the proportion of respondents listing fear of ADR as the reason for noncompliance decreased substantially from 40.43 to 14.53 percent. Qualitative interactions also had many people in both the districts citing fear of ADR as one of the major demotivating factors to consumption of LF drugs.

There is fear of side effects amongst people. People say that they won't consume anti-filarial drugs because they will get fever. They take the medicine and throw it away later. – Community influencer, Chitrakoot

One of the respondents in a village in Varanasi cited another myth that prevent people from consuming LF drugs.

There are rumours amongst people that medicine will cause impotency in them, and they doubt why medicine is being provided to them for free; these are the factors that prevent people from consuming the drugs. – Community influencer, Varanasi

Unavailability of HH members

Unavailability of HH members at the time of the MDA emerged as one of the primary reasons for noncompliance in Chitrakoot, with a little more than half of individuals (52.47 percent) who did not consume drugs having been out at work at the time of the visit. A similar reason was cited for one in every five individuals in Varanasi who did not consume the drug. About 14.68 and 8.69 percent of such individuals in Chitrakoot and Varanasi, respectively, constituted school- or college-going children who were unavailable during the ASHA's visit. As discussed in the previous section, ASHAs reportedly did not revisit such HHs.

Lack of awareness amongst people

One of the major reasons for nonconsumption of LF drugs that emerges from IDIs with numerous stakeholders across both the study districts is lack of awareness amongst people about the importance and benefits of the medicines.

People are not aware [of] LF and MDA in general, so they don't know the importance of these medicines. They don't have enough information, so how will they consume the medicine? If there is proper information available to people, then it will have a good impact. Women don't know about it all, while some men are still aware [of] it. – Community influencer, Varanasi

A government official in Chitrakoot also pinned lack of awareness amongst people as the primary reason for the low consumption rate in the district.

There are educational gaps amongst people. It stops people from trusting the drugs that they are receiving and takes longer for health workers to make them understand the benefits of consuming the drugs. There is a need to generate awareness amongst people. Low level of awareness about the benefits of the drugs and why it should be consumed has kept the consumption rates low in the region. – Government official, Chitrakoot

He further stressed the need for investing more on advertisements, posters, banners, etc. to generate awareness amongst people. He reasoned that a two- to three-weeklong annual drive by DAs will not be enough to sensitise people, and hence mass awareness campaigns need to be arranged.

Ongoing treatment for chronic illness

One-fifth of the respondents in Varanasi who did not consume the drug despite an ASHA's visit reported ongoing treatment for a chronic illness as the reason for nonconsumption. This was true for 5.96 percent of respondents in Chitrakoot.

Lack of awareness regarding precautionary function of medicines

During the baseline, another commonly cited reason for not consuming drugs was the perception that the concerned individual was healthy and did not feel the need to have medicine. This statement seems to arise from a lack of awareness amongst people regarding transmission of LF and the precautionary function of medicines. In the HH survey, the proportion of such individuals reduced across both the study districts. Overall, only 5.19 percent of respondents during the endline survey said that they did not consume LF drugs as 'they were healthy and did not need any medicine' as opposed to 12.44 percent of respondents during the baseline survey. Some of the community influencers in Chitrakoot also did not consume LF drugs due to this very reason.

She gave me the medicines, and I said I won't consume it so take it back. I didn't consume it because I don't have any disease. I am perfectly healthy. I have never been sick and admitted to a hospital. – Community influencer, Chitrakoot

Lack of trust in the quality/effectiveness of the medicines

A handful of people expressed the community's lack of trust in government-provided medicines. They also reasoned that, due to COVID, people were hesitant to consume unsealed medicines.

Yes, I received the medicine during [the] last MDA, but I didn't consume it because I don't have any trust, as the seal of medicine was open. People don't believe [in] medicine provided by the government. – Community influencer, Varanasi

People think that free medicine provided by the government is not reliable, and they have more trust [in] private medicines. – Community influencer, Chitrakoot

Other reasons

Some other reasons cited by a couple of people across both districts included lack of trust in ASHAs, as they lack the professional qualification for prescribing medicines, lack of trust in allopathic medicines, and resistance from the heads of HH.

Chapter 5: Research findings – DAs

Across the two districts, 60 DAs were administered a structured quantitative survey tool (30 in each district; one from each study cluster).

Motivational score

During pre- and post-evaluation of the study, DAs' motivation was gauged based on their perceptions using a set of 20 statements across components like support and recognition from community and supervisors, self-motivation, etc. Both the estimates have been presented in this report (*a detailed table with the individual score and statements has been added as Appendix 4 of this document*). The motivational questions consisted of 20 statements, and the responses were based on a 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree'.

To measure level of change in their motivation post-intervention, a total motivation score (M-score) was calculated for both the baseline and endline phases (Figure 13). The total M-score estimation consists of adding all the response values (all 20 statements) for each respondent. A comparison of the mean of the distribution of the variable 'total M-score' was desired for categories 'baseline' and 'endline', but due to non-normality of the variable, and since the variable is not an ordinal one, a Mann-Whitney U test was carried out.

The 'endline' (n=60) has a higher mean rank than the 'baseline' (n=60), at 79.58 and 41.42, respectively, and thus tends to take higher values. A statistically significant difference was found between endline and baseline for the M-score (U=655.00, $p < .001$), thereby indicating a statistically significant improvement in terms of motivation amongst all the DAs at the time of endline as compared to baseline.

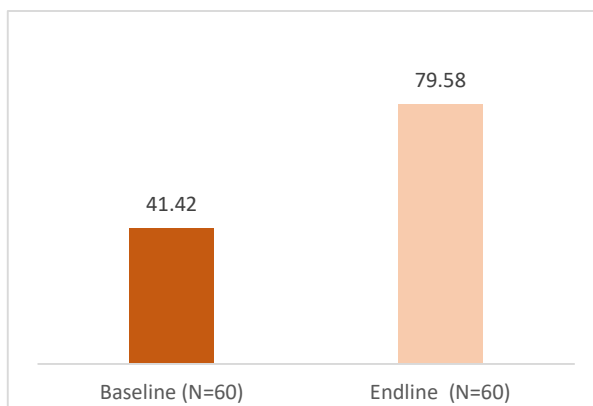


Figure 13. Motivational score of drug administrators.

ADR incidences in the field

As discussed in the previous chapter, in comparison to the baseline phase, a smaller proportion of people across both the study districts during the endline phase reported fear of ADR as one of the leading reasons for nonconsumption of LF drugs. However, it was still the second-most cited reason in the quantitative HH survey. Recognising the adverse impact of such incidence on the uptake of drugs by the community, redressal mechanisms have been put in place. A government official in Varanasi outlined this process.

Incidence of ADR does impact the consumption of the drug amongst people. Thus, we try to pass on information on ADR to people and to make them understand the possible reactions and methods to resolve them. We make sure that ASHAs are there to disseminate this information to their respective catchment areas.

– Government official, Varanasi

Despite these clear directives, whilst a majority of the community influencers in Varanasi confirmed that DAs informed them about possible ADRs and advised them on a further course of action, about half of them from Chitrakoot refused and stated that no such information was relayed to them during the MDA round.

Another official talked about the presence of rapid response teams to immediately address any such incidence.

There is a rapid response team that caters to ADR cases. They respond [in a] timely [manner]. All patients with ADR are picked up and dropped [off at] their nearest government health facilities to ensure that right treatment is provided immediately.
 – Government official, Chitrakoot

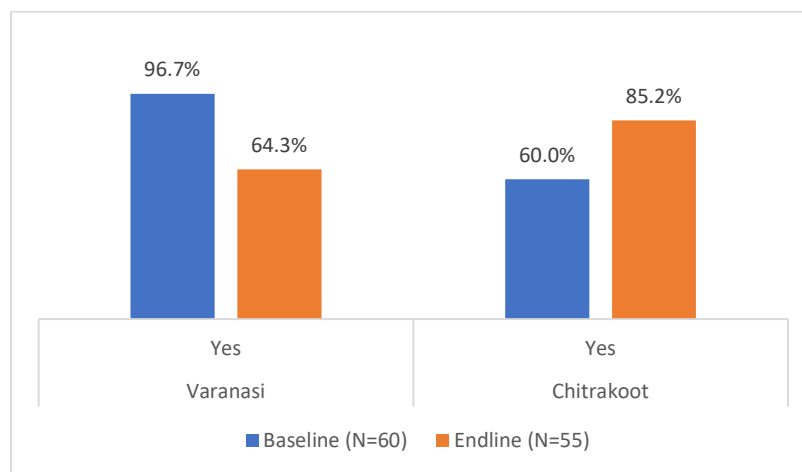


Figure 14. Incidence of adverse drug reactions (ADRs) encountered by drug administrators.

In comparison to the baseline survey (96.7 percent), a smaller proportion of DAs in Varanasi during the endline survey (64.3 percent) reported witnessing an incidence of ADR (Figure 14). In Chitrakoot, this proportion increased from 60.0 percent at the time of the baseline survey to 85.2 percent during the endline survey. However, it should be noted that this might be due to a significant increase in coverage of HHs by DAs in Chitrakoot post-intervention. A majority of these DAs across both the districts followed the protocol on encountering ADR incidence, reporting it to their supervisors and referring the patient to the nearest health facility.

This could be indicative of better facilitation of and communication between DAs and community members, wherein ASHAs are making sure that people do not consume the drugs on an empty stomach and that people suffering from chronic illness have been advised against taking the drug, amongst other indicators.

Capacity-building, monitoring, and supervision

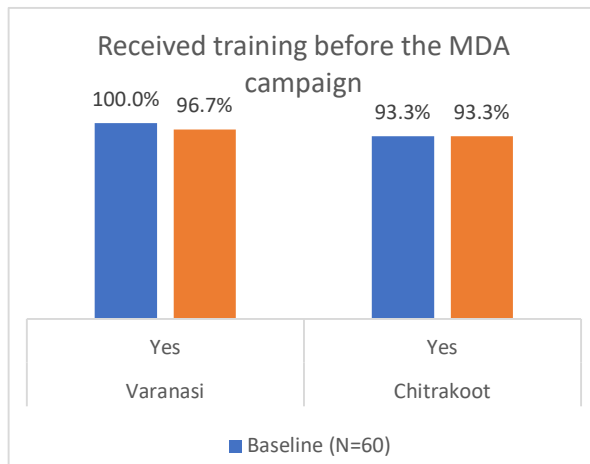


Figure 15. Training of drug administrators.

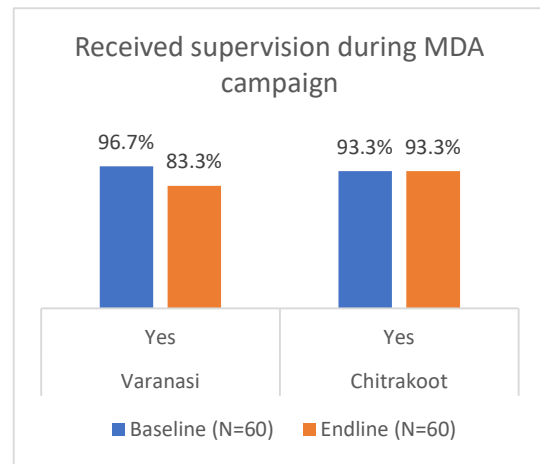


Figure 16. Supervision of drug administrators.

No significant change was observed in the training and supervision of DAs between the pre- and post-evaluation studies (Figures 15 and 16, respectively). Before both the MDA rounds, training was carried out for almost all the DAs across both the study districts. In addition, regular supportive supervision was conducted to ensure efficient functioning of the DAs and better implementation of the programme.

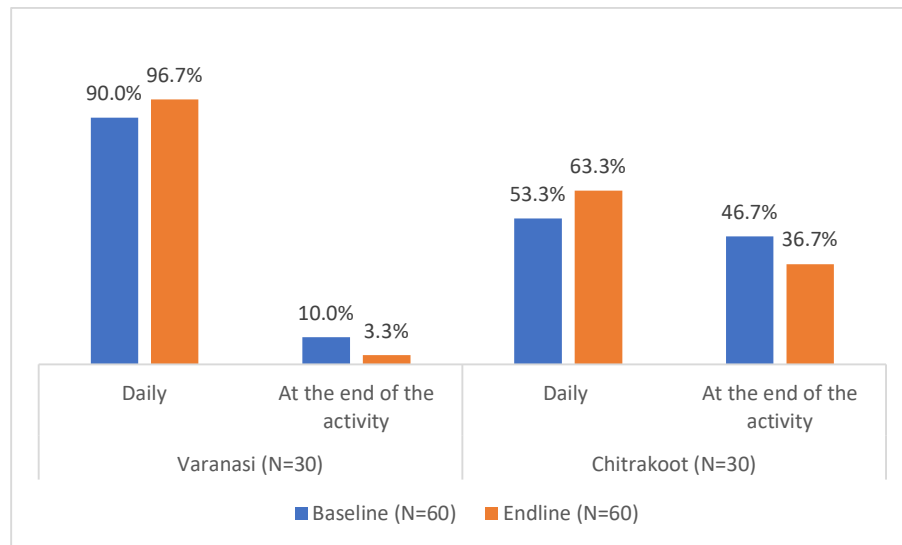


Figure 17. Reporting frequency of drug administrators.

Daily reporting by DAs increased marginally across both the study districts (Figure 17), indicating an effective chain of communication and monitoring.

Issues and challenges regarding implementation of MDA

Whilst the previous chapter outlined some of the demand-side barriers to drug consumption, IDIs with government officials highlighted some of the challenges their team faced in implementing MDA.

Human resources

Most of the government officials in both Varanasi and Chitrakoot mentioned a shortage of human resources, as ASHAs are generally overburdened with multiple health programmes, sometimes ones running simultaneously, and hence their involvement in MDA of LF drugs remains limited during that time.

There is definitely a shortage of resources. [The] programme is affected by many external factors that reduce the involvement of ASHAs in the filariasis programme. There is a need to ensure that there isn't an overlap of health programmes that ASHAs are engaged in. – Government official, Varanasi

Because of COVID[-19], there is not enough manpower. ASHAs are overburdened and hence can't be allocated to a single programme. – Government official, Chitrakoot

Supply chain of drugs and its logistics

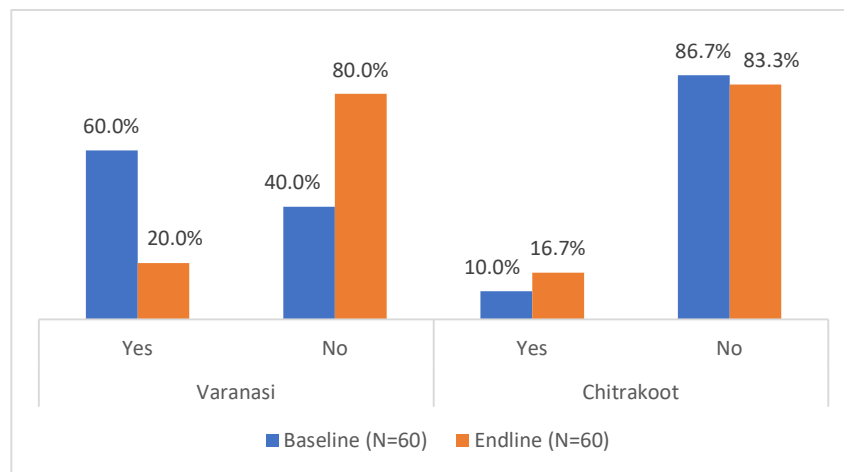


Figure 18. Drug stockout during mass drug administration (as reported by drug administrators).

A statistically significant change (CI 95%, $\chi^2=33.33$, $p < 0.001$) of reduced incidence of drug stockouts was reported in Varanasi: as opposed to 60.0 percent of DAs at the time of the baseline phase, only 20.0 percent of DAs reported an incidence of running out of medicines during the endline phase (Figure 18). Negligible change was observed in this regard in Chitrakoot (only 16.7 percent of DAs reporting such stockout). Even in the instances of stockout, all the DAs stated that they informed their

supervisors of the situation, at which time the supervisors provided them with a sufficient stock of medicines, with no time lost.

However, line listing of beneficiaries before the MDA (to gauge the requirement of medicines) was carried out by a significantly smaller proportion of DAs (CI 95%, $\chi^2=26.456$, $p < 0.001$) in Varanasi during the endline study. As opposed to one DA during the baseline phase (3.3 percent), nine DAs (30.0 percent) during the endline phase reported not conducting line listing at all prior to MDA. However, one-third of the DAs (33.3 percent) carried out the exercise during the MDA campaign. Whilst all the DAs in Chitrakoot reported that they had conducted the family survey, a majority of them (80.0 percent) did so whilst administering the drugs instead of undertaking the exercise prior to the MDA rounds.

Table 6. Line listing of beneficiaries by drug administrators.

	Baseline (N=60)			Endline (N=60)		
	Varanasi (n=30)	Chitrakoot (n=30)	Total (n=60)	Varanasi (n=30)	Chitrakoot (n=30)	Total (n=60)
1 week before MDA campaign	66.7%	43.3%	55.0%	36.7%	3.3%	20.0%
3 days before MDA campaign	30.0%	0.0%	15.0%	0.0%	16.7%	8.3%
During the MDA campaign	0.0%	53.3%	26.7%	33.3%	80.0%	56.7%
Did not do it all	3.3%	3.3%	3.3%	30.0%	0.0%	15.0%

People not present at home during the time of drug administration

Unavailability of people (i.e., not at home) during the DA's visit was reported as an issue of noncompliance – added to which are the paucity of time and the resource limitations that restrict the number of revisits a DA could do.

ASHAs face [a] problem if the people aren't at home. For example, 10 people are there in a house, and there are 5 of them [who] go [out] for a job. Even if the DAs give medicine between 7 a.m. [and] 9 a.m., and sometime[s] 2 p.m., as well, there are chances of missing out on some of these members, which brings down the overall consumption rate even though the house was visited. – Government official, Varanasi

Resistance of people during night blood surveys (NBSs)

Another leading challenge in ensuring that both the study districts pass the TAS is in undertaking a high-quality NBS: the times at which NBSs are undertaken present a huge problem for community members, who are either nonresponsive or noncompliant in undergoing the survey. Limitations on selecting truly random HHs for NBS sites can alter the outcome of the surveys significantly.

People are not willing to get their blood collected. They generally respond very rudely to people [in the] field during NBS. – Lab technician, Chitrakoot

Conclusions, recommendations, and lessons learnt

Conclusions

The endline assessment was undertaken with the objective of assessing the impact of the intervention package (designed based on the findings of the baseline study). The two key variables of interest in the study are greater reach of DAs in terms of covering a greater proportion of HHs in their catchment area and consumption of LF drugs by the community members once the drugs are administered to them.

As compared to the baseline phase, the reach of the DAs increased in both the study districts during the endline phase. In Chitrakoot, it almost doubled. This increase was uniform across various economic indicators, suggesting no class or caste bias (as was reported for Varanasi and Chitrakoot, respectively, during the baseline study) from the DAs' end. In terms of consumption of drugs, as well, there was a substantial increase in both the study districts. An increase in both these key variables is indicative of the success of the intervention package in bridging some of the gaps that had existed.

However, there are still some issues and challenges at both the demand and supply sides which need to be addressed. Whilst there has been a significant increase in the proportion of HHs that identify the LF disease, numerous myths regarding the disease still persist and act as a demotivating factor in consumption of drugs. Addressing the lack of knowledge about the preventive nature of medicines, along with generating awareness about ADRs associated with these drugs, is paramount, as fear of ADRs continues to be one of the primary deterrents to consumption of medicines. Apart from this, unavailability of people was recorded as one of the major challenges to uptake of LF drugs as per both quantitative and qualitative data. Whilst adult male members reportedly went out for work and hence were not present during DA visits, children of different age groups also were unavailable, as they were away at their schools/colleges. Due to the paucity of time and the resource limitations, DAs reportedly are unable to schedule multiple visits to the same HHs.

On the supply side, there has been significant improvement in almost all the variables during the endline survey. The overall motivation of DAs – as well as their training and supervision, the daily reporting of their work, and their knowledge of the appropriate protocol to be followed in case of any incidence of ADR – saw significant improvement. The only major gap reported was in terms of the line listing not being carried out or else being carried out during the MDA rounds, which renders the entire exercise futile, as line listing is supposed to be undertaken prior to administration of drugs so as to ensure sufficient stock of drugs and to generate awareness amongst people regarding LF and MDA. The awareness factor took a beating – especially in Chitrakoot, where a majority of the community influencers and leaders had neither awareness of any ADR associated with LF drugs nor any prior intimation of DA visits to their HHs, which would have helped them ensure availability of all the family members.

Recommendations

The intervention has resulted in major improvement in reach and consumption of LF drugs, so it is essential that the communication activities should be properly conducted before every MDA campaign. However, based on the findings of the endline evaluation, a couple of other measures have been suggested to further bridge the gap in uptake of LF drugs:

- Ensure completion of family survey before the MDA rounds: As was reported during the endline study, a majority of the DAs in both Chitrakoot and Varanasi Districts either did not conduct the family survey or conducted it whilst administering the drugs. This renders the exercise futile. Therefore, sufficient time and resource allocation and/or a management information system needs to be put in place to complete enumeration of beneficiaries at least 15 days prior to the MDA rounds.
- Raise awareness regarding LF: Communication and social mobilisation activities for the LF programme should not be restricted to during the MDA campaign only but should be regular activities throughout the year, using both print and electronic media.
- Hold drug administration camps at schools: Whilst such camps already are being organised in some of the villages in Chitrakoot, they were observed to be extremely helpful and therefore should be scaled up. Such camps not only increased consumption of drugs amongst children but also raised awareness amongst parents at large about LF and MDA campaigns.
- Use information, education, and communication materials: A miniscule proportion of HHs recalled having come across a poster / banner / wall painting / public announcement, etc. with respect to an LF or MDA campaign. Optimal use of these materials could prove essential in increasing awareness amongst people and lending greater credibility to the programme.

Lessons learnt

The important lessons learnt during this study are as follows:

- Build local support by involving community leaders: involving trusted community leaders and influential members is critical to gaining local support for NTD interventions and building better trust and acceptance amongst the community.
- Build relationships with other health groups: Broadening the NTD community reach should include working with other disease-specific advocates to look at the synergies between NTDs and other diseases such as TB, malaria, HIV/AIDS, and diarrhoea. Getting other health advocates talking about NTDs would give the LF programme a greater chance of increasing the pressure on national and state governments to take these diseases more seriously and help remove the 'neglected' tag from NTDs.
- Manage partnerships for better coordination: Developing countries are faced with an array of global health partnerships, but to improve coordination and integration, those partnerships need strengthening. To achieve this, it is important to focus on management and priorities.
- Use learnings from other successful programmes: there is a need to borrow learnings from other successful health programmes, like pulse polio immunisation, and use them to bring innovative ideas into NTD programmes.

Appendices

Appendix 1: Intervention package

The intervention package (must-have) for improving the quality of and compliance for mass drug administration (MDA) of lymphatic filariasis (LF) drugs comprises the following activities:

- **National level:**
 - MDA drugs should be procured and supplied to the state at least three months in advance of an MDA for the state to start planning the MDA.
 - The National Vector Borne Disease Control Programme may be encouraged to procure blister-packed MDA drugs as far as is plausible to enhance drug compliance in the community, as evidenced in the study.
- **State level:**
 - Districts should be notified of the date of the MDA at least two months in advance in adherence to the annual MDA calendar forecasted by the National Vector Borne Disease Control Programme for all states.
 - There should be provision and timely release of funds with relevant guidelines to districts/blocks for information, education, and communication materials and for payment/honorarium to drug administrators (DAs).
 - District MDA preparedness should be assessed by state-level officers/partners using a standardised preparedness assessment checklist, starting two weeks before MDAs.
- **District level:**
 - A Gantt chart with the timeline of key activities leading to the MDA start date in each district must be prepared in advance and adhered to.
 - Block-level master trainers should be trained five to six weeks prior to the MDA date. Participants should include Block Community Process Managers.
 - A district task force must be in place and should be convened at least thrice:
 - 1st to kick off the preparatory phase, one month prior to the MDA date.
 - 2nd to assess the preparedness closer to the MDA date.
 - 3rd to review the MDA campaign at the end of the activity.
 - Media briefing on MDA, the benefits of MDA drug consumption, and risk communication specific to adverse drug reactions (ADRs) and their management should be conducted one week before the MDA campaign for sensitisation of media personnel.
 - Identity cards for all DAs should be issued by the CMO office.
- **Block level:**
 - Training of DAs should be completed one month prior to the MDA start date. The number of participants per batch for training should be around 50. Training of DAs should be done as per a standardised training curriculum and using training modules, both of which will be developed by PATH and shared with the government and partners.

- One Anganwadi Worker / volunteer from each village (preferably a woman) should be identified to support the DA in the community and trained along with the DA.
- An information kit for DAs should be developed for use in the community during interpersonal communication (IPC).
- ADR management protocol must be in place at the block level and an ADR management kit made available to all supervisors.
- RRT should be constituted at the planning unit, and this RRT should be functional and able to respond to any ADRs reported in the field during the MDA campaign.
- After the training the DA should complete the family survey by visiting each family in the area/village, using this opportunity for IPC to reinforce the MDA date and the importance of drug compliance.
- On completion of the family survey, microplanning covering all households (HHs) of the villages, small hamlets, hard-to-reach areas, and high-risk populations/groups (like migratory groups, brick kilns / factory / construction site workers, rag pickers, etc.) should be completed two weeks prior to the MDA and submitted by the block medical officer to the district for review.
- **Community level:**
 - The MDA campaign should be launched/inaugurated by a village leader / *pradhan* / *sarpanch* / MLC / MLA / Panchayati Raj Institution representative.
 - DAs should revisit the missed HHs in the evening to administer drugs to those who were unavailable during the day.
 - DAs should make a list of those houses that were only partially covered / were locked / had resistant members / had families who were away from village during the first round and prepare a second round to cover those missed.
 - Each village should establish a drug subdepot/subcentre – either at the ASHA's house / Anganwadi centre / HSC – for anyone from the village to come and receive medications beyond working hours throughout the MDA campaign.
- **Partner level:**
 - All partners should make a comprehensive monitoring plan of the preparatory phase and MDA campaign and submit it to the state programme officer.

The following should be developed / optimally utilised for better MDA coverage:

- Available standardised checklist for assessment of MDA preparedness.
- Modified/revised standardised training curriculum for DAs with agenda and training methods.
- Information kit with FAQs in Hindi for DAs to use for effective IPC.
- ADR management kit and protocol for DAs/supervisors.

Appendix 2: Socioeconomic profiling of respondents (baseline)

Tables 7 through 13 provide summaries of the socioeconomic profiling of respondents in each study district by various indicators, as at the baseline survey.

Table 7. Respondent profiling at baseline by mean age.

	Varanasi	Chitrakoot	Total
Mean age	38	38	38

Table 8. Respondent profiling at baseline by gender.

	Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%
Male	194	29.3	319	48.5	513	38.8
Female	469	70.7	338	51.4	807	61.1
Transgender	0	0.0	1	0.2	1	0.1

Table 9. Respondent profiling at baseline by educational qualification.

	Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%
No formal education	250	37.7	272	41.3	522	39.5
Education up to class 5/8/10/12	125	18.9	96	14.6	221	16.7
Graduate	98	14.8	105	16.0	203	15.4
Postgraduate	83	12.5	110	16.7	193	14.6
Professional (BE/BTech/MTech/MBBS/MD/BDS)	107	16.1	75	11.4	182	13.8

Abbreviations: BDS, bachelor of dental surgery; BE, bachelor of engineering; BTech, bachelor of technology; MBBS, bachelor of medicine and bachelor of surgery; MD, doctor of medicine; MTech, master of technology.

Table 10. Respondent profiling at baseline by marital status.

	Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%
Married	597	90.0	591	89.8	1188	89.9
Unmarried	66	10.0	67	10.2	133	10.1

Table 11. Respondent profiling at baseline by occupation.

	Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%
Government job	36	5.4	16	2.4	52	3.9
Private job	242	36.5	186	28.3	428	32.4
Farmer	184	27.8	336	51.1	520	39.4
Business	199	30.0	113	17.2	312	23.6
Unemployed	2	0.3	7	1.1	9	0.7
Retired	0	0.0	0	0.0	0	0.0

Table 12. Respondent profiling at baseline by type of housing structure.

	Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%
Kutcha house	80	12.1	364	55.3	444	33.6
Semi-pucca house	233	35.1	166	25.2	399	30.2
Pucca house	350	52.8	128	19.5	478	36.2

Table 13. Respondent profiling at baseline by mean household income, in Indian rupees.

	Varanasi	Chitrakoot	Total
Mean monthly household income (₹)	11474	7397	9443

Appendix 3: HHs with complete and partial consumption

Table 14 summarises the number and percentage of HHs visited by DAs with complete, partial, or no consumption of drugs, by district and study phase.

Table 14. HH consumption of drugs (for houses visited by DA), by study phase and district.

	Baseline						Endline					
	Varanasi		Chitrakoot		Total		Varanasi		Chitrakoot		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
HHs with complete consumption	234	44.6	185	69.3	419	52.9	332	62.4	230	44.9	562	53.8
HHs with partial consumption	233	44.4	52	19.5	285	36.0	161	30.3	240	46.9	401	38.4
HHs wherein no member consumed the drugs	58	11.0	30	11.2	88	11.1	39	7.3	42	8.2	81	7.8
Total	525		267		792		532		512		1044	

Abbreviations: DA, drug administrator; HH, household.

Appendix 4: DAs' individual motivational scores

Table 15 summarises the ranking for the DAs' individual motivational scores, by study phase.

Table 15. Motivational assessment ranking for DAs.

Motivational assessment question	Phase	N =	Mean rank	Sum of ranks
Q34.1: My role as a DA is important to the success of the MDA programme	Baseline	60	44.88	2693.00
	Endline	60	76.12	4567.00
	Total	120		
Q34.2: I have clear goals that I work towards during MDA	Baseline	60	45.25	2715.00
	Endline	60	75.75	4545.00
	Total	120		
Q34.3: I feel confident when I carry out MDA programme activities	Baseline	60	55.45	3327.00
	Endline	60	65.55	3933.00
	Total	120		
Q34.4: I feel I have the tools and job aids required to engage with the community before and during MDA	Baseline	60	54.70	3282.00
	Endline	60	66.30	3978.00
	Total	120		
Q34.5: I am satisfied with the training I received to perform my job as a DA	Baseline	60	48.09	2885.50
	Endline	60	72.91	4374.50
	Total	120		
Q34.6: I am happy with the honorarium that the MDA programme provides me for my pocket expenses	Baseline	60	58.58	3515.00
	Endline	60	62.42	3745.00
	Total	120		
Q34.7: I feel appreciated and supported by the MDA programme	Baseline	60	56.96	3417.50
	Endline	60	64.04	3842.50
	Total	120		
Q34.8: My involvement as DA in MDAs has improved in community awareness on health services	Baseline	60	55.08	3305.00
	Endline	60	65.92	3955.00
	Total	120		
Q34.9: I think that the drugs I give to the community are effective	Baseline	60	54.70	3282.00
	Endline	60	66.30	3978.00
	Total	120		
Q34.10: I am motivated by the positive attitude of the community towards me	Baseline	60	55.44	3326.50
	Endline	60	65.56	3933.50
	Total	120		
Q34.11: For me to be effective, no extra support is required from the MDA programme	Baseline	60	57.00	3420.00
	Endline	60	64.00	3840.00
	Total	120		
Q34.12: I feel supported and appreciated by the community	Baseline	60	54.79	3287.50
	Endline	60	66.21	3972.50

	Total	120		
Q34.13: I get supportive feedback from my supervisor during MDA to improve my work	Baseline	60	53.16	3189.50
	Endline	60	67.84	4070.50
	Total	120		
Q34.14: My good performance is recognised by my supervisor	Baseline	60	50.45	3027.00
	Endline	60	70.55	4233.00
	Total	120		
Q34.15: I believe that the community follows my advice on the importance of taking the medicines	Baseline	60	58.06	3483.50
	Endline	60	62.94	3776.50
	Total	120		
Q34.16: I feel safe when I go door to door to distribute medicines	Baseline	60	45.64	2738.50
	Endline	60	75.36	4521.50
	Total	120		
Q34.17: The community thinks that the medicines are safe and effective	Baseline	60	55.88	3352.50
	Endline	60	65.13	3907.50
	Total	120		
Q34.18: My responsibilities as a DA do not interfere with my responsibilities at home or with my primary	Baseline	60	59.63	3577.50
	Endline	60	61.38	3682.50
	Total	120		
Q34.19: I do not feel stressed and emotionally drained at the end of each MDA day	Baseline	60	50.96	3057.50
	Endline	60	70.04	4202.50
	Total	120		
Q34.20: I know what to do if there are ADRs during an MDA campaign	Baseline	60	54.73	3283.50
	Endline	60	66.28	3976.50
	Total	120		

Abbreviations: ADR, adverse drug reaction; DA, drug administrator; MDA, mass drug administration.

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