

# **Understanding the feasibility of a digital intervention for social behaviour change to prevent COVID-19 and improve health and nutrition outcomes**

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# Abstract

## Background

At the onset of COVID-19, lockdowns and movement restrictions were put in place to control the pandemic, which halted in-person, non-COVID-19 public health and information sharing activities and field visits. To reach beneficiaries during this time, Project Samvad, funded by USAID India and led by Digital Green, implemented a supplementary intervention to share health and nutrition-related advisories among the communities using digital media tools like WhatsApp and interactive voice response (IVR). Digital Green repurposed its videos on health and nutrition in order to share them via digital means. Digital Green evaluated the feasibility of the adapted approaches using digital media tools and capacity building of community-level frontline workers to enhance their knowledge and skills through virtual training programs.

## Methods

A telephonic survey was conducted among community and frontline workers. 299 community members from three Indian states, i.e., Bihar, Jharkhand, and Odisha, where WhatsApp and IVR advisories were sent, and 224 frontline workers were interviewed in five states Bihar, Jharkhand, Chhattisgarh, and Uttarakhand using a quantitative questionnaire developed in ODK.

## Result

Our analysis indicates that the reach of active phone numbers is high (76% of frontline workers and 73% of community members). The exposure to WhatsApp videos is good; 79% of frontline workers and 49% of community members watched videos on WhatsApp. However, only 33% of community members received IVR messages.

## Conclusion

By increasing the size and reach of the phone database, improving frontline workers' training quality, and increase digital literacy among the community, the outreach of digital media tools can be enhanced to improve the health and nutrition outcomes

**Keywords:** Digital Extension, Maternal Child Health, Reach, Utility, Frontline Workers, Evaluation

# Introduction

In India, health and nutrition issues continue to be a concern. India has the greatest number of undernourished children globally [1]; more than half of all women of reproductive age are anemic and more

than 70% of children are anemic [2,3]. To overcome the health and nutrition challenges, the Government of India and donors fund health and nutrition activities, including Project Samvad, which is funded by USAID India and implemented by Digital Green. Project Samvad improves family planning, maternal-child health, and nutrition outcomes by using digital channels to scale gender-sensitive, nutrition-sensitive, and social behavior change communication. The project is implemented in five states: Bihar, Chhattisgarh, Jharkhand, Odisha, and Uttarakhand. The project is implemented in partnership with the National Health Mission, State Nutrition Mission, and State livelihood Missions and nongovernmental organizations (NGOs).

Project Samvad leveraged Digital Green's community video approach, which promotes information sharing through videos disseminated in in-person community groups [4], facilitated by a community-level worker who shared the video, promoted dialogue between community members, and checks if community members adopted changes based on the learnings shared on the videos.

At the onset of the COVID-19 pandemic, in-person gatherings came to a halt given lockdowns and movement restrictions. The traditional in-person community video approach had to be adjusted in order to continue reaching community members with important health and nutrition messages. Project Samvad initiated a supplementary intervention to pilot and evaluate the efficacy of new digital social media tools like WhatsApp and IVR for the dissemination of nutrition and health information among men and women of reproductive age, including mothers of children age two and under.

In terms of the pilot, Digital Green repurposed its health and nutrition videos and layered COVID-19 prevention and safety messages. The videos, covering topics like handwashing, family planning, mother's diet, child's diet, and antenatal care, were shortened to 2-3 minutes in length to make them suitable for sharing through WhatsApp. In addition, COVID-19 voice messages were developed to be shared through IVR. Videos and IVR messages developed in three languages: Hindi, Odiya, and Chhattisgarhi. Ten videos and nine IVR messages were developed in Hindi; twelve videos and ten IVR messages were developed in Odiya, and four videos were developed in Chhattisgarhi.

The repurposed layered videos were shared with either frontline functionaries, and/or community members directly on the available phone numbers. Table 1 contains the numbers of videos and IVR messages shared in each state. Some exceptions include: In Chhattisgarh, four videos in Chhattisgarhi and two in Hindi were with the community and frontline workers. The government partner in Chhattisgarh asked to focus only on videos and not on the IVR; hence, IVR messages were not developed in the Chhattisgarhi language. In Bihar, videos and IVR messages were only shared with frontline workers.

Table 1: Videos and IVR shared with community members and frontline workers (frontline workers)

| State                  |                   | Bihar                                  |     | Jharkhand |     | Odisha |     | Chhattisgarh |            | Uttarakhand |     |
|------------------------|-------------------|--|-----|-----------|-----|--------|-----|--------------|------------|-------------|-----|
| Parameter              |                   | Video                                  | IVR | Video     | IVR | Video  | IVR | Video        | IVR        | Video       | IVR |
| Sharing of videos/ IVR | frontline workers | 8                                      | 8   | 10        | 9   | 14     | 7   | 6 (4C+ 2H)   | Not Shared | 7           | 4   |
|                        | Community         | Not Shared (Jeevika's consent awaited) |     | 10        | 9   | 14     | 7   | 6 (4C+ 2H)   |            | 7           | 4   |

\*4C + 2H= 4 Chhattisgarhi and 2 Hindi videos

## Methodology

Digital Green aimed to understand the efficacy of its pilot approach under Project Samvad, in which COVID-19 prevention and health and nutrition messages were layered and disseminated via digital means.

The specific objectives of the assessment were:

1. To understand the feasibility of the program, i.e. if the program was rolled out as per the planned strategies.
2. To understand the reach of different social media tools (WhatsApp, IVR) and other channels (mobile phones, community radio) as well as to understand the exposure of community and extension agents by these digital social media tools.
3. To understand the utility of repurposed content like videos and IVR messages to the extension agents and to the community members.
4. To understand effectiveness of the intervention in terms of improving knowledge and bringing role clarity among the frontline workers.
5. To understand issues of program implementation and identifying enablers and barriers of program execution.
6. To recommend the suggestions to overcome the barriers and to achieve the envisaged program outcomes.

### Data collection methods

Since in-person surveys were not possible in August and September 2020 given the COVID-19 pandemic, the data was collected using a phone-based survey. The data from frontline workers was collected in Bihar, Jharkhand, Odisha, Chhattisgarh and Uttarakhand and from community members from Jharkhand, Odisha and Uttarakhand. In Chhattisgarh the videos and advisories were not sent to the communities using the digital media tools, hence there the data was not collected from the community members.

The survey was conducted by a team of independent trained investigators having experience of conducting population-based surveys. Interviews with the frontline workers helped us know the process and challenges of sharing and accessing the videos through WhatsApp, YouTube links and listening to the IVR messages. Interviews with the community members helped understanding the reach of the intervention, their exposure to the videos, utility of content and outcome in terms of knowledge of COVID-19 messages.

In addition, qualitative information was also collected from the program implementation team members about the processes, challenges and learnings of the program implementation.

**Data collection Tools:**

Questionnaires to interview frontline workers and community members were developed using ODK (Open Data Kit, <https://docs.getodk.org/collect-intro/>) which allowed data collection using the android phones and tablets.

We also developed a checklist to get information on program implementation issues from the state program teams who were directly involved in planning and implementation of the intervention.

A detailed orientation for data collectors was done, orienting them to the questionnaire and to use the ODK based tools in the android phones.

**Sample size:**

Out of the available phone numbers of community members whose videos and IVR messages were sent, a sample of 100 community members was selected in each state. The sample size was adequate at 95% confidence interval and 10% precision. A sample of 50 frontline workers, whose phone numbers were available, was also selected in each state. In the states where less than 50 frontline workers are available, all of them were interviewed. This sample was feasible to do the interview and get the required information. The sample was selected randomly from the available phone numbers of frontline workers and community members. The sample was proportionate to the available number of frontline workers and community members in each of the districts in the study states. The required sample was picked up using randomization codes in Stata.

**Indicators of assessment:**

The study focused on the following key indicators related to understanding program fidelity:

1. Community and frontline workers have active phone numbers
2. Reach: Community members have access to different extension channels.
3. Acceptance: Community and frontline workers were exposed to video and IVR messages layering COVID-19 and health and nutrition information
4. Utility of the digital intervention

5. Training imparted to the frontline workers: frontline workers imparted training / orientation or received facilitative videos to access and share COVID layered videos to the community on WhatsApp.

The survey findings and learnings intended to inform and refine the program strategies for more effective implementation and to upscale the program using digital approaches.

#### **Quality Assurance mechanism:**

To ensure the data quality, Digital Green's Monitoring, Evaluation and Learning team carried out rigorous orientation of investigators, involving the mock interviews to ensure that the investigators ask questions and mark answers correctly. In the ODK questionnaire, we built a feature that reminds investigators to recheck the responses before submitting the filled up final questionnaires. In addition, skips and constraints were included in the questionnaires that have also helped investigators to avoid possibilities of asking wrong questions. We also conducted back checks of the interviews and regularly monitored the data quality for each of the investigators.

#### **Work Plan and timelines**

The data was collected during August to September 2020 and the data analysis was carried out in September 2020.

## **Results**

The section describes the results and findings of the study in terms of reach and exposure of frontline workers and community members to the digital information extension channels as well as their utility and barriers in reaching out to the community. It also illustrates the role of the frontline workers, their capabilities and potential of scaling up the digital extension program by the government partners.

**Reach:** The analysis of the survey data indicates that 76% of frontline workers' phones are active, among which 87% are female, and 13% are male while 73% of community members' phones are active (*Table 2*), among which 67% were female, and 34% were male. We have completed 72.4% of interviews during the frontline workers' survey and 58% of community interviews (*Table 3*).

*Table 2: Call attempted during frontline workers and Community telephonic interviews*

| Frontline workers   | Bihar     | Chhattisgarh | Jharkhand   | Odisha     | Uttarakhand | All States |
|---------------------|-----------|--------------|-------------|------------|-------------|------------|
| Calls Attempted (N) | 80        | 44           | 79          | 47         | 68          | 318        |
| Active Phone (%)    | 79%       | 82%          | 65%         | 81%        | 82%         | 76%        |
| Community           | Jharkhand | Odisha       | Uttarakhand | All States |             |            |
| Calls Attempted (N) | 225       | 157          | 158         | 540        |             |            |
| Active Phone (%)    | 69%       | 71%          | 78%         | 73%        |             |            |

Table 3: Call completed during frontline workers and Community telephonic interviews

| Frontline workers        | Bihar     | Chhattisgarh | Jharkhand   | Odisha     | Uttarakhand | All States |
|--------------------------|-----------|--------------|-------------|------------|-------------|------------|
| Interviews Completed (N) | 54        | 32           | 50          | 38         | 50          | 224        |
| Interview completed (%)  | 74%       | 77%          | 63%         | 81%        | 74%         | 72%        |
|                          |           |              |             |            |             |            |
| Community                | Jharkhand | Odisha       | Uttarakhand | All States |             |            |
| Interviews Completed (N) | 104       | 100          | 95          | 299        |             |            |
| Interview completed (%)  | 50%       | 64%          | 63%         | 58%        |             |            |

**Medium used for watching video:** In rural areas, information on health and nutrition was disseminated to community and frontline workers through various digital channels as shown below. (Table 4).

Table 4: Medium used by community for watching videos

| Medium used for watching video                                 | Community, N 148 (%) |
|--|----------------------|
| Video sent directly via WhatsApp using a mobile phone          | 95.9%                |
| YouTube link to video shared via WhatsApp using a mobile phone | 12.8%                |
| YouTube link to video on computer/ internet operative TV       | 4.7%                 |
| Video shared using a projector in a community group meeting    | 6.8%                 |
| Video shared using a phone in a community group meeting        | 6.1%                 |

We also tried to explore the percentage of smartphones in the community as our approach to sending these videos was based on the number of people using android phones or featured phones like Reliance Jio (Figure 1). The analysis shows that about 66% of community members use android phones, whereas 10% have a Jio/Reliance feature phone with WhatsApp capabilities. In total, about two-thirds of the targeted population carries phones with access to WhatsApp.

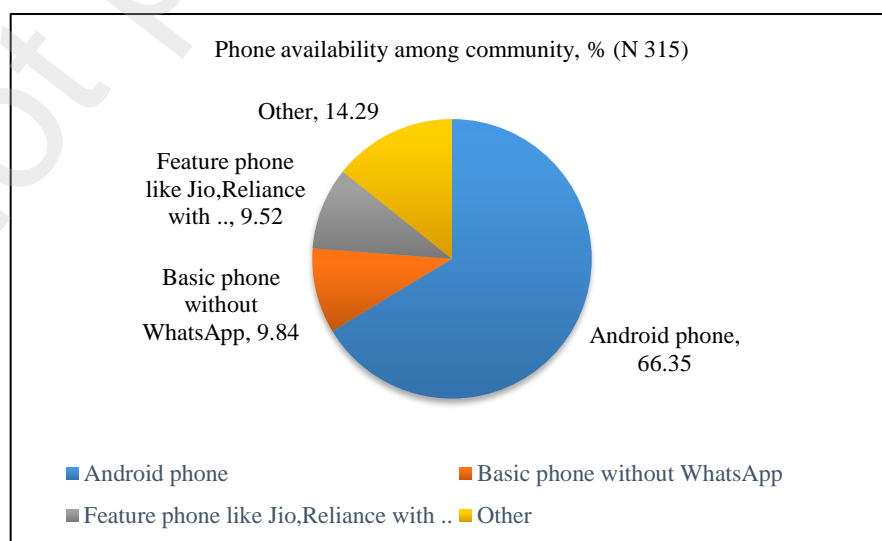


Figure 1: Type of Phone availability among community members

**Exposure by WhatsApp videos:** WhatsApp appears as an emerging and promising channel to directly share the content (short videos) with the frontline workers and community members. Overall, 79% frontline workers and 49% of community members watched videos on WhatsApp. State-wise, the highest percentage

of frontline workers watched videos in Odisha (94.7%) and least in Bihar (64.8%) (Figure 2a). Among all the three states in which a community survey was performed, i.e., Jharkhand, Odisha, and Uttarakhand, the highest percentage of watched videos on WhatsApp was in Odisha (76%) and least in Jharkhand (24%) (Figure 2b). In Odisha, the program was implemented by a more experienced team, having learned of an RCT on improving nutritional outcomes [5], with the help of an NGO partner. This improved programmatic experience and better frontline worker knowledge of NGO partners may be a reason for higher exposure to WhatsApp videos in Odisha.

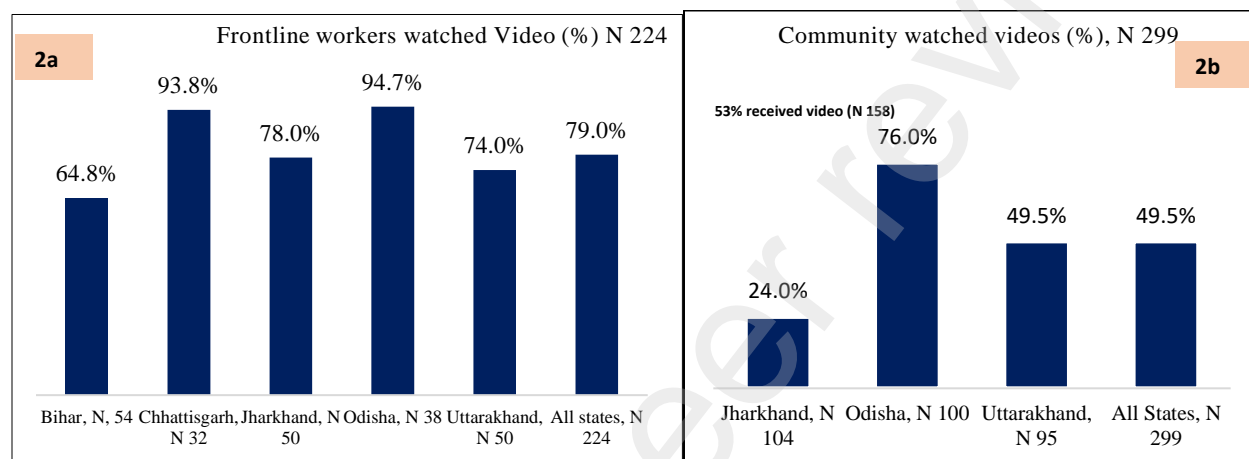


Figure 2 (a & b): frontline workers and community members watched short videos using WhatsApp

Although smartphone penetration in rural India has increased from 9% in 2015 to 25% in 2018 [6], the study results show that there is still a lack of digital literacy and that the community faces challenges in operating a phone. During community survey analysis, we found that only 53% of community members received the WhatsApp message with a video link, and out of that, about 49.5% watched videos using WhatsApp. The community members and frontline workers have low penetration of smart phones and lack understanding of technology, including WhatsApp in remote areas. As there is limited understanding on using WhatsApp, community members sometimes need assistance for watching the videos. Low awareness about the video dissemination program was also observed in the community. The survey shows that major reasons for not watching videos by community members were lack of awareness about such WhatsApp based videos (54.7%), issues with the phone such as not knowing how to use it (7.3%), and community members not paying attention (ignoring alerts/notifications) (6.6%). Similar reasons were also observed with the frontline workers: lack of awareness about videos (65%); problems with the phone (27%) and not paid attention (10%).



### Exposure by IVR messages:

IVR can be used to share information in communities with limited resources [7], as IVR works with feature phones. Project Samvad disseminated IVR messages (calls) in Jharkhand, Odisha, and Uttarakhand. Of the three states, IVR reach was better in Odisha. Overall, in all states, 33% of community members received the messages through IVR (Figure 3b), whereas 58% of frontline workers received IVR messages (Figure 3a). Reasons for low reception of IVR messages among the rural community are low awareness about the IVR program and low ownership of personal phones, and lack of knowledge about how to listen/operate IVR messages.

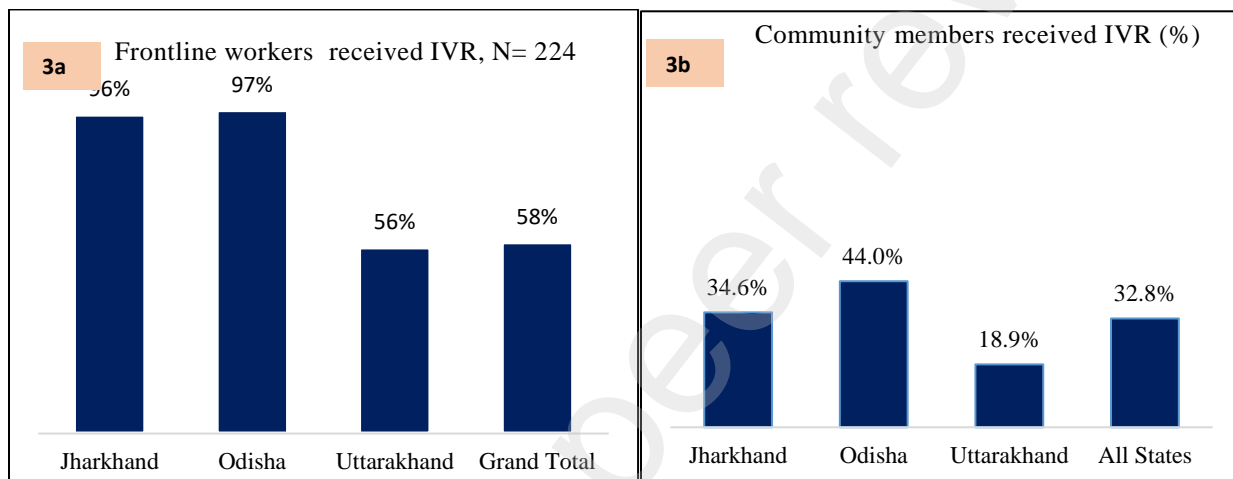


Figure 3 (a & b): Percentage of frontline workers and Community members received IVR in each state

### How community members recognized IVR:

As the IVR approach is new, we tried to understand how community members recognize when they were receiving a call with an IVR messages. The IVR messages are sent by phone numbers with fixed start and end digits on a particular day of the week. The percentage of those community members who receive the IVR and not recognized these as IVR messages is relatively low (3%). Recognizing IVR messages, the incoming number's starting and end digit is most helpful (42%) for the community. Another most important factor of recognition is that call comes on a fixed day of the week (23%), and frontline workers have been made aware of this (22%) (Figure 4).

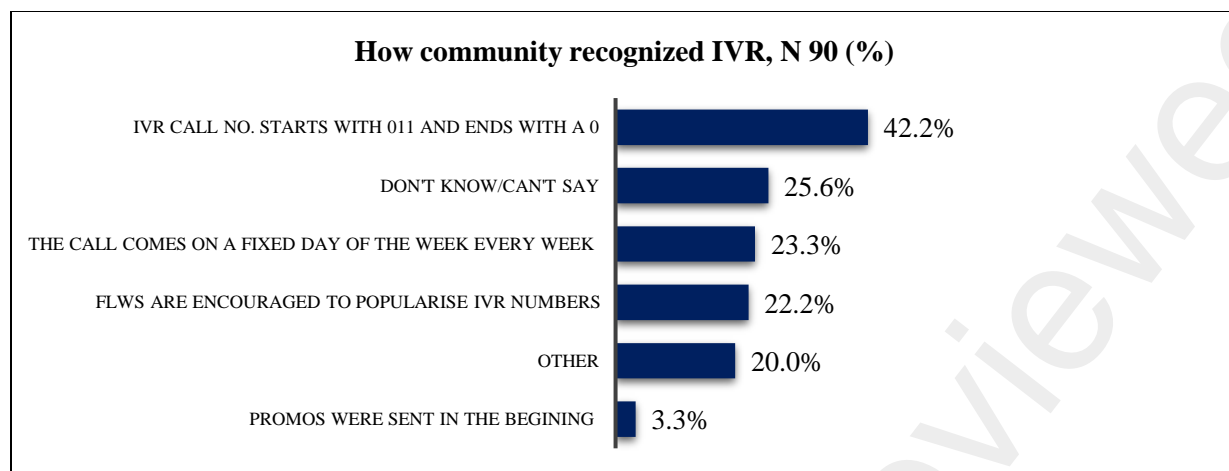


Figure 4: How community recognized IVR messages/calls

### Exposure by sources other than WhatsApp video and IVR:

The frontline workers also get information from television, radio, health workers or other frontline workers, family or community members, and through video disseminations in in-person community groups by using handheld projectors or mobile phones. When we compare these other sources, results indicate that television is the most used source (83%), and radio/community radio is the least preferred among community members (Figure 5). Due to COVID-19, initially, video dissemination through PICO projector in community groups was suspended, but after the government removed the restrictions, some of the frontline workers started disseminating videos in smaller groups using phones or handheld projectors, but their reach is low (~7%).

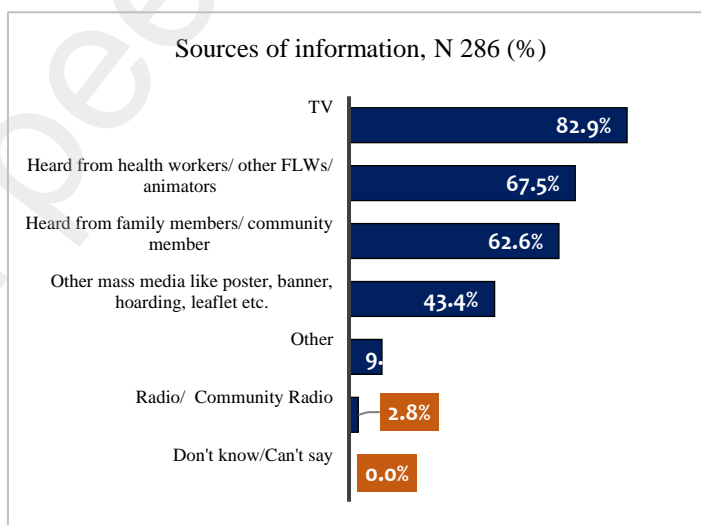


Figure 5: Source of Information among community members

**Utility of repurposed videos and IVR:** Frontline workers, as well as community members, liked the short videos and IVR messages. Frontline workers indicate that repurposed videos and IVR messages were useful in terms of informative content (73%), easily understandable language (70%), messages are short and easy to explain to the community (64%), required less time to watch/listen (59%), and it is easy to open on WhatsApp (55%) (Figure 6).

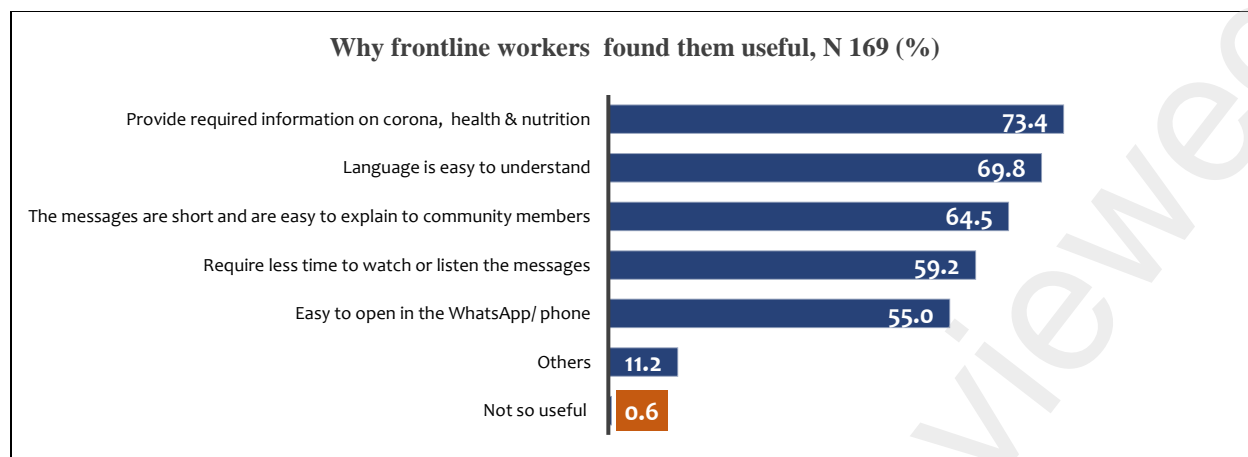


Figure 6: Utility of repurposed videos & IVR messages/calls

Community members also found these videos useful because they are easy to open in WhatsApp (76%), the language is easy to understand (71%), and it provides the required information on COVID-19, health and nutrition (68%). Similarly, they find IVR messages very useful as it provides the required information (65%), messages are easy to understand (80%), and IVR works well with users having feature phones (41%) (Figure 7).

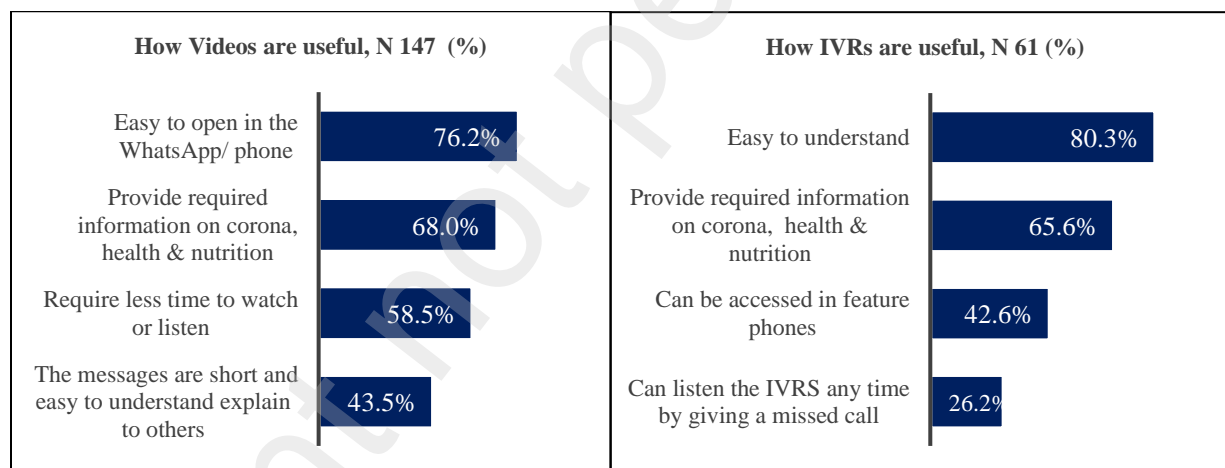


Figure 7: Community response in terms of usefulness of video and IVR

**Role of frontline workers:** Frontline workers play a prominent role in WhatsApp video/IVR dissemination approach. Digital Green shared the video via the frontline workers WhatsApp group and they further disseminate them to the community. Frontline workers formed WhatsApp groups with community members. The table below shows the details of group formation and percent of videos shared by them. WhatsApp groups formed and videos shared by frontline workers was comparatively high in Odisha (92%) and low in Bihar (33%). Chhattisgarh's frontline workers formed the maximum WhatsApp group (69%), followed by Odisha (60%) (Table 5). In Odisha Frontline workers are not managed by government

partner but by a NGO partner. Therefore, they are more active and formed more WhatsApp groups and they also received more training on WhatsApp group formation.

Table 5: State wise groups formed and videos shared by frontline workers

| Formation of group       | Group formation and inclusion of members   |   | Sharing of videos   |
|--------------------------|--|---|---|
|                          | % frontline workers formed WhatsApp groups | Average number of community members in each group | Frontline workers who shared videos via WhatsApp groups (%) |
| Bihar, N 54              | 9.3%                                       | 6   | 33.3%   |
| Chhattisgarh, N 32       | 68.8%                                      | 18  | 87.5%   |
| Jharkhand, N 50          | 48.0%                                      | 14  | 68.0%   |
| Odisha, N 38             | 60.5%                                      | 39  | 92.1%   |
| Uttarakhand, N 50        | 20.0%                                      | 27  | 56.0%   |
| <b>All states, N 224</b> | <b>37.5%</b>                               | <b>27</b>   | <b>63.8%</b>  |

As part of this study, we tried to understand whether frontline workers were aware of their role and responsibility during COVID-19 phase. The analysis of the data shows that frontline workers were quite aware of their responsibilities.

A large number (72%) of frontline workers reported their role to make the community aware about taking precautions to keep safe from COVID-19 infection, but lesser number of frontline workers (19% and 5%) were aware of their role to bust the myths and rumors and sensitize the community to respect and support health workers (Figure 8).

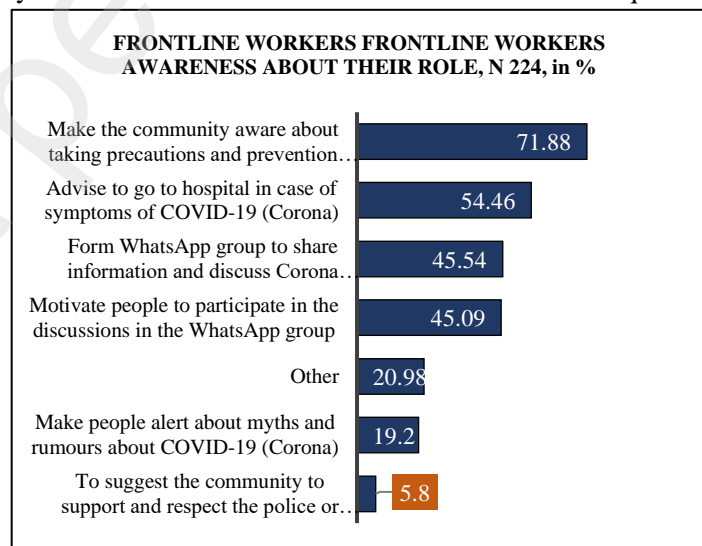


Figure 8: Frontline workers awareness about their roles and responsibilities

### Frontline workers participation in

**training/orientation:** Frontline workers received various trainings and orientations on video dissemination and WhatsApp group formation delivered in-person and/or via virtual training approaches. Odisha frontline workers received more training on WhatsApp group formation (82%) and video dissemination (95%) as compared to other states (Figure 9 a & b). The analysis shows that Uttarakhand frontline workers received less training on WhatsApp group formation (16%) (Figure 9a) and video dissemination (18%) (Figure 9b). Digital Green also provided training on the role of frontline workers. In Odisha, nearly three-fourths of

frontline workers watched self-guided learning videos, but this number is less in other states. The main reasons for low participation in some states are lack of information about the training (72%) and not organizing virtual or in-person training sessions (52%).

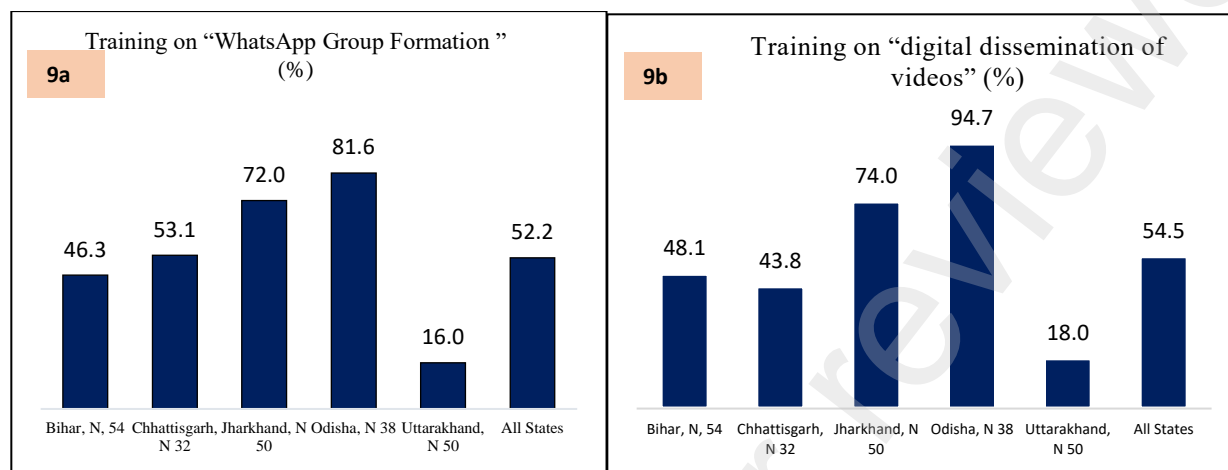


Figure 9 (a & b): State wise frontline workers trained in WhatsApp group formation and video dissemination

## Discussion and Conclusion

Our approach was to bring change in social behaviors related to family planning, maternal and child health, and nutrition in rural communities using digital technology. The goal of assessing our approach was to understand the reach of using different digital channels to share messages, training needs, the knowledge of frontline workers about their roles and responsibilities, and utility of the repurposed short videos.

The survey results show that videos are mostly shared via digitally, mainly through WhatsApp. Frontline workers have shown a preference for short duration videos, and sharing short videos on different themes is a useful practice that may continue with regular videos. The contact phone numbers for many community members was unavailable; hence sharing information via phone (WhatsApp or IVR) was limited to those who have access to phones. Major barriers to video sharing are network connectivity issues especially during adverse weather conditions and poor access to smartphones and WhatsApp among the target beneficiaries. In some cases, even when a phone is available in the household, it is not handled by the target beneficiary (woman of reproductive age), and mainly by their husbands or children. This is a barrier to using digital extension channels to reach target beneficiaries. In order to reach out to a wider community, the phone number database needs to be updated using data from all possible sources, e.g., partner's database, ASHA (health frontline worker) register, etc.

IVR is the second most preferred option of information sharing. However, IVR's reach is low compared to videos because IVR is new, awareness about the program is low, and access to phone numbers among the people is also limited. During the IVR data analysis, we also found a similar reason for people not found messages as their phones belonged to someone else. Several community members do not know how to listen to/operate the IVR message, so they ignore the message or consider it spam.

Frontline workers and community members find digital intervention useful in general. However, digital literacy in a rural area remains a challenge. There is low penetration of smartphones and more training programs are needed to improve awareness about the program and digital information sharing channels (WhatsApp videos & IVR). This will help in generating awareness and increase penetration of the program benefits to the grass root levels. In some of the states, very few (16-18%) frontline workers received training. A major reason for not receiving training is lack of information about the training schedules. As part of the survey, suggestions were sought regarding training program improvement and increasing the participation. Key suggestions from the participants are advanced information on the training schedule (77%) and clear explanations on training objectives (25%). A refresher training through virtual training institute or self-guided learning videos may help frontline workers become aware of their role in WhatsApp group formation and video sharing.

This approach of layering Covid-19 prevention messages with health and nutrition messages was regularly reviewed at the block, district, and state levels, strengthening service delivery. Information on the performance of this approach was also shared regularly with districts and state-level authorities. Since frontline workers and community members find the repurposed short videos very useful, we tried to scale this approach with the support of our government partners. The states of Bihar, Odisha and Uttarakhand have already begun scaling this approach.

As a way forward, we need to review our video dissemination approach to plug the loopholes and ensure that the digital content reaches the beneficiaries without any miss. We have to strengthen our monitoring and evaluation processes by improving data collection techniques and analytics. We also need to build capability on data analytics on WhatsApp and conduct regular meetings and feedback sharing with partners to scale up the approach and need to work upon skilling up our frontline workers to enhance the quality of dissemination and data collection.

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