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Exploring female frontline health workers’ role and capacities in COVID-19 response in India

Sneha Krishnan
Jindal School of Environment and Sustainability, OP Jindal Global University, Haryana, India

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ABSTRACT
Background: Sendai Framework for Disaster Risk Reduction emphasises building local capacities for disaster risk management. This article asks: What role did female frontline health workers (FFHWs) play in preparing, responding and managing health emergencies in India and how did information and communications technology (ICT) platforms hinder or facilitate their capacities?

Methods: FFHWs’ experiences in providing subnational and local health response to the COVID-19 pandemic in six states in India – Odisha, Bihar, Madhya Pradesh, Uttarakhand, Kerala and Maharashtra – was collected using semi-structured interviews. Data were thematically analysed, and studied within the government policies and guidelines to tackle the emerging concerns in COVID-19.

Results: FFHWs were involved in planning, responding and managing COVID-19 cases, providing awareness and undertaking surveillance within their regions. Moreover they were also responsible to continue with essential health and nutrition service delivery to pregnant women and young infants. They relied on various information and communications technology (ICT) platforms in managing their tasks despite facing several challenges. Besides receiving training from hospitals and health officials, FFHWs received information on COVID-19 and prevention through different channels and modes: majority of them reported TV channels, news coverage, and videos sent on Whatsapp groups.

Conclusions: There are underlying gender inequalities within the health system whereby limited resources and opportunities are available for the FFHWs, which extends to their use of ICT platforms in health emergencies. Using ICT in an equitable and just manner provides an opportunity to support local action for health resilience swiftly and promptly by building capacities and increasing representation of the frontline workers. This understanding can be further grounded around issues of equity, participation, representation in a gender-responsive health system.

1. Introduction
Resilience of health systems is a key objective for global health studies, particularly to withstand shocks and emergencies, and to avoid disruptions of routine service delivery [1]. Community health workers play a critical role as intermediaries between communities and public health systems, for delivering key maternal and child health and nutrition interventions in low and middle-income countries [2].

Abbreviations: FFHW, Female Frontline Health Workers; ASHA, Accredited Social Health Activists; CHW, Community Health Workers; AWW, Anganwadi workers; ANM, Auxiliary Nurse Midwives; ICDS, Integrated Child Development Services; ICT, Information Communication Technology; ETCH, Environment, Technology, Community Health Consultancy Services; VHND, Village Health and Nutrition Day; PHC, Primary Health Care; RCH, Reproductive and Child Health portal; PPE, Personal Protective Equipment; THR, Take home ration.

E-mail address: skrishnan@jgu.edu.in.

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countries [2]. This paper explores the role of the female, community-level health workers in the COVID-19 response, and their preparedness and capacities in using various digital and smartphone applications to coordinate the response. The objective is to understand how information and communications technology (ICT) innovations could better support female frontline health workers (FFHWs) in linking community to public health systems, particularly during the COVID-19 pandemic. Covid 19 reminds us of having strong health systems and equipment, while the major need is to provide the CHW and Frontline workers with digital tools for information sharing, communication, training, surveillance and decision support [3]. This paper asks, “What role did female frontline health workers (FFHWs) play in preparing, responding and managing health emergencies and how did information and communications technology (ICT) platforms hinder or facilitate their capacities?”

In India, the task for managing the health response at community level fell on the shoulders of female frontline health workers (FFHWs), namely the voluntary community health worker (CHW), christened as ASHA (Accredited Social Health Activists), the Anganwadi Workers (AWWs) and Auxiliary Nurse Midwives (ANMs). FFHWs managed the health emergency by reaching out to populations in remote and rural parts of India as part of the disease surveillance, spread awareness, documented returning populations and kept track of patients with symptoms and supporting in isolation for those who tested positive [4]. In light of COVID-19 pandemic response, the work done by FFHWs can provide lessons to inform disaster risk reduction policies nationally and subnationally. An in-depth qualitative study from March–August 2020 was undertaken using interviews with several FFHWs and members of civil society organizations managing the pandemic.

This paper is mainly focused on the role and responsibilities performed by the female front line workers which include ASHAs, AWWs and ANMs. Although these roles were reserved for women, they reinforce the gendered functioning of health systems in India, where ASHAs have been carefully chosen from the most vulnerable and deprived population and expected to work as volunteers [5]. Although a majority of health systems programming at the frontlines is being undertaken by women, some specific roles are carved for men at the grassroots level: Multipurpose Health Worker (Male) is the grass root health functionary for the control of communicable diseases including malaria, tuberculosis, leprosy, water-borne diseases, as well as environmental sanitation, detection of disease outbreaks and their control, and health education [5].

In 2015, the ASHA programme matured as the National Health Mission, focusing on both rural and urban areas. It involved the selection of one woman per village (approximately 1 per 1000 population) who received an initial 23 days of training on basic health topics and linked community members to health services, provided basic first aid and supplies, and mobilised the community around water, sanitation, nutrition and health issues. Primarily, a female taskforce, NHM considers ASHAs as voluntary community leaders who are provided with financial incentives for undertaking institutional deliveries, vaccinations for pregnant women and young children. The Government of India guidelines provide a roadmap for the selection, compensation and role and responsibilities of ASHAs across India [7].

Bhatia [8] notes that in Maharashtra the functions of the ASHAs were associated with the health services at four levels: ASHA facilitators or supervisors at the villages; MPWs and ANMs at the sub-centres; lady health visitors or senior ANMs, health assistants and medical officers at the Primary Health Centers (PHCs); and the block facilitator and block medical officers at the taluka headquarters. Anganwadi workers, who run the Integrated Child Development Services (ICDS) Scheme, organised themselves to demand for higher wages in 2017. In 2020, ASHAs too went on strike, demanding for a hike in their wages and government employee status [9]. However, the demands for both these workers to get a decent monthly salary and other benefits have been largely ignored. WHO and Amnesty India drafted a set of demands by ASHAs including hike in wages, ‘government worker’ status, maternity scheme, and provision of employee provident fund [10]. These demands did not reflect their technology needs for ease of communications and monitoring, surveillance using digital tools and equipments.

Although this study did not explicitly seek to understand the role of pay and remuneration of the FFHWs, this did emerge to be an important concern both in existing literature and through the emerging evidence. Existing studies have critiqued the dismal pay and status accorded to FFHWs. Central Government declared insurance cover of INR 50 lakhs for COVID-19 responders for 90 days, including community health workers; while Maharashtra has announced a INR 25 lakh insurance cover for AWWs [11]. Before the outbreak, ASHAs were promised a base salary of approximately 2000/- per month varying across states. On April 20, 2020, NHM Director notified that ASHAs should get INR 2000 for their work, over their regular incentives under Janani Suraksha Yojana and other schemes. Academics have criticised the honorarium system for few years now, because their consolidated pay include neither cost-of-living allowance nor ensure structured guidelines for their periodic revision as would be the case in any kind of state employment [11]. There were concerns that the FFHWs were undertaking additional responsibilities for COVID-19, which led to disruption of essential health services, despite the Union health ministry’s March 25, 2020 guidelines to ensure routine immunisation activities and antenatal check-ups for at-risk mothers. The ministry recommended more immunisation sessions with smaller groups mobilised over the phones by ASHA [12].

2. Literature review

Several studies have highlighted the plight of the FFHWs: Scott et al. [13] suggested further research should investigate programme financing and reporting, ASHA grievance redressal or peer communications. Sreelekha [14] extensively studied political economy of AWW’s work in India and found that the status of women workers in state-sponsored social welfare schemes was poor in India. Bhatia [8] urged that an institutionalised response is warranted to meet the aspirations and the vulnerabilities of these women. These studies draw attention to the concerns and questions about the expectations of FFHWs from the public health system ranging from how they are recruited from marginalized social groups, and further exploited within a system that reproduces their vulnerability without building their capacities or offering them just and decent working conditions [5].
A gendered approach to understand the plight of these frontline workers is essential to understand how women use their voice and agency to effect changes in a largely dominant field of male-doctor-led system. The foundational approach on capabilities was first promulgated by Amartya Sen [15] focusing on what people are actually able to do and to be, especially for women who frequently exhibit “adaptive preferences”, preferences that have adjusted to their second-class status. Nussbaum [16] has warned against adopting a normative view of development, which is considered as a state or condition of persons (e.g., a state of satisfaction), and thus understates the importance of agency and freedom in the development process. The capabilities approach could address inequalities that women suffer inside the family and outside: inequalities in resources and opportunities, educational deprivations, the failure of work to be recognized as work, and insults to bodily integrity [17].

Interestingly, how women negotiate and bargain and offer passive resistance to existing norms takes the form of claiming their half of this particular ‘patriarchal bargain’; it provides protection in exchange for submissiveness and propriety [18]. Mabsout and van Staveren [19] go beyond bargaining power at individual and household level to add a third dimension, namely institutional bargaining power defined as freely derived from unequal social norms. This is particularly valid in the context of FFHWs in India, where the consequences of ‘doing development through gender’ doesn’t appear to be effective. This is because the informal nature of employment in the social sector has been formalised to deliver health and education services formally, but the women are recruited to deliver these services informally [20]. These inequities have come to the fore, in times of crises, where they are expected to take on additional burden with little to no additional compensation. This study is in response to an action call to conduct operational and implementation research during health emergencies to understand which interventions, strategies and tools provide the best outcomes for both the acute response and strengthening of health systems and to facilitate immediate policy relevance and scalability [1].

Existing technology studies use Sen’s capability approach to demonstrate the role of information and communications technology (ICT) in promoting indigenous peoples’ development [21]. Such studies go beyond the categorisation of women under the vulnerability/resilience spectrum and look at the contextual and social aspects of access and capabilities to engage with, own and control technology. Masika and Bailur [22] apply two concepts of agency, namely, “adaptive preference” and “patriarchal bargain” to understand how women decide to adopt ICTs. Empowerment through ICTs is not unproblematic, nor is it impossible; it is, however, illustrative of contextual, situated agency. Gigler [21] presents evidence in how improved access to information and knowledge facilitated by ICTs can enhance the individual and collective capabilities of marginalized groups to better achieve the lifestyles they value. Choudhury [23] studied women’s perceptions about how their use of internet led to positive changes in their lives and contributed to their empowerment. Findings from Chew et al. [24] suggest that mobile phone use plays a significant role in contributing to female entrepreneurs’ perception that they matter.

Focusing on improving the capabilities of the health workforce seems an invariable step in developing health systems resilience, which is often understudied. Existing studies on health in humanitarian settings have used the WHO health system building blocks framework to find that the health workforce is often insufficient and of low capacity resulting in poor service delivery [25]. In India, a systematic review by Scott et al. [13] found that most of the published studies assessed the effectiveness of ASHAs, or programme

![Study area map of FFHWs interviewed across India.](image-url)
delivery with little consideration of health systems dimensions and their roles in emergencies. This study aims to address this gap in literature on what were the experiences of FFHWs in using ICT platforms and applications in COVID-19 response in India.

3. Methods

This study describes FFHWs’ role in subnational and local health response to the COVID-19 pandemic in six states in India – Odisha, Bihar, Madhya Pradesh, Uttarakhand, Kerala and Maharashtra. The objective was to develop a qualitative analysis to explain the engagement between the FFHWs’ and the communities, especially during an health emergency. A trained team undertook semi-structured phone-based interviews in local languages with the help of partner organizations and networks for recruitment, data collection and facilitation as shown in Fig. 1.

3.1. Study objectives

The objectives of this study were to a) understand the role of FFHWs in preparing, responding and managing health emergencies and b) potential of ICT platforms in the pandemic response c) barriers and enablers in FFHWs’ use of ICT platforms in pandemic response.

3.2. Data collection

A multi-sited case study approach was used to examine existing response led by FFHWs in six states. Five teams of local, trained interviewers interviewed the respondents using a topic guide developed in English and translated into Odia, Marathi, Malayalam and Hindi languages. The questions revolved on the topics such as their information channels for COVID-19 messaging, knowledge about protocol for infection prevention control (IPC), use of technology in their work and its impact in their lives, their roles and responsibilities in response to COVID-19 measures, and remuneration received for their additional tasks.

The author trained interviewers before the start of data collection to familiarise them with etiquette of phone-based interviewing. 33 frontline workers in six states were interviewed between March–July 2020 and as well as seven other stakeholders who worked on issues related to health systems delivery across these states as indicated in Table 1. The interviewers called the respondents on numbers received through local NGO partners and set up a suitable time for interview. The interviewees provided verbal consent before the interview began, and these phone conversations were recorded during the call. Data were transcribed and translated in English anonymously.

3.3. Data analysis

Data analysis was undertaken in two phases: thematic analysis and policy review. The interviews were transcribed and analysed using open coding method. These were then organised into themes from emerging ideas and concepts, followed by subsequent analysis based on theoretical concept of capabilities: use of technology, training, operational aspects and response measures. We used a reflexive thematic analysis approach to identify and code themes in the interview transcripts [26].

Thematic network analysis allows researchers to order and synthesize data and grouping them around larger themes. The team developed a coding framework (list of codes with their definitions, grouped by topic), and applied it to all the transcripts using the qualitative data management software ATLAS.ti [34]. Emerging themes included continuation of essential services provided by FFHWs due to COVID-19, access to information on COVID-19, patterns of FFHWs’ mobile ownership, and their usage and reliance of apps and steps taken by government to enhance digital literacy for FFHWs. Systemic challenges such as lack of personal protective equipment (PPE) and the low remuneration for ASHAs were included.

The coded outputs were re-read to identify higher level organizing themes, such as, digital and health literacy, contextual and organizational barriers in the work undertaken by FFHWs. The emerging findings were substantiated with participant quotes in a descriptive report, and contrasted with the guidelines and recommendations for COIVD-19 at the national and state level. The policies regarding financial remuneration for ASHA workers during COVID-19, guidelines for use of PPE in different zones (red, green and containment areas), the precautions and policies implemented by the Ministry of Home and Family Welfare from time to time were reviewed. Additionally, training modules undertaken by each state were also reviewed to understand how health literacy around COVID-19 was promoted for FFHWs across the states.

Although a larger sample and stronger participation of FFHWs was envisaged, this was found to be challenging since this research was undertaken during the first wave of the pandemic in India. Most of them were unable to participate due to competing priorities.

Table 1
Respondents categories and state for the study on FFHWs in India’s COVID-19 response.

| No | Position of Stakeholders interviewed | State             | Number |
|----|-------------------------------------|-------------------|--------|
| 1  | ASHA Supervisors                     | Maharashtra       | 5      |
| 2  | ASHA Supervisors                     | Bihar             | 4      |
| 3  | Anganwadi workers                    | Odisha            | 7      |
| 4  | ASHA workers                         | Odisha            | 5      |
| 5  | ASHA workers                         | Uttarakhand       | 5      |
| 6  | ASHA workers                         | Madhya Pradesh    | 4      |
| 7  | ASHA workers                         | Kerala            | 3      |
| 8  | Other stakeholders (NGO staff, Government officers, Academics) | Mumbai, Delhi, Bhubaneshwar | 7 |
| TOTAL |                                     |                   | 40     |
during the pandemic. Although 33 interviews could not yield saturation the emerging themes indicated that the challenges being faced in the immediate aftermath of the health emergencies could be generalised to a certain extent, what differed was the state government’s approach and mobilization of the FFHWs within these states. The barriers and enablers in FFHWs’ role in the pandemic response were probed further during our interactions with other stakeholders.

3.4. Ethical issues/Statement

The research design and tools were reviewed by selected institutional experts at ETCH Consultancy, a Mumbai-based institution who provided suggestions and ethically approved the study. Data collection was conducted following informed verbal consent recorded on audio (phone calls) after explaining the purpose of the study. Confidentiality of all participants was maintained during the data analysis and quotations from participants are noted along with their position and state.

4. Results

The exploratory approach of the study highlights the various issues and challenges faced by FFHWs in COVID-19 response in India, which are summarised in Fig. 2.

4.1. Role of FFHWs in COVID-19 response: managing essential services delivery along with COVID-19 responsibilities

Table 1 provides a summary of duties undertaken by FFHWs. Prior to the pandemic the burden of healthcare system fell upon ASHAs, who assisted ANMs to carry out essential health service delivery: maternal and newborn care, child care and nutrition, infectious and non-infectious diseases and social mobilization. When the pandemic erupted, AWWs, ASHAs and ASHA supervisors were tasked with additional responsibilities to trace and isolate people coming to villages from outside. AWWs, who fall under Ministry of Women & Child Development, undertake implementation of ICDS programme in the states. Several AWW respondents across Odisha, Bihar, and Maharashtra reported that along with their regular day to day duties like conducting household surveys, provision and supply of rations to pregnant and lactating women, providing food for Anganwadi children - they were assigned additional COVID-19 related tasks, almost tripling their workload. Two AWW respondents summarise their ‘routine tasks’ that included pandemic duties in the quotes below.

An AWW respondent summarised her routine tasks as follows:

Fig. 2. Analytical Framework for understanding FFHWs’ role in COVID-19 response.
“We do survey of households, provide egg and malt powder to pregnant women and lactating women, take pregnant women to the village health nutrition day (VHND). We provide rations (Dry foods) to pregnant and lactating women of (children) upto 6 months. We are providing cooked food to the Anganwadi children. We organize VHND and Immunization and provide knowledge regarding health and food.” (AWW 1, Odisha)

As a routine activity, VHND is a community-based health service package, which includes early registration of pregnancy, regular antenatal care and postnatal care, growth monitoring and referral of sick children, discussion of health topics to generate awareness, and convergence between health and nutrition. This is organised on a fixed day, usually once or twice every month at the Anganwadi Centre. AWWs were asked to describe protocols maintained for these meetings during the pandemic.

“VHND and Immunization Day is organised following social distancing protocol to disseminate knowledge regarding health and food during pregnancy.” (ASHA 1, Uttarakhand)

“There have been some disruptions. ASHA has to go to each household in her village for these activities, people are scared so they ask her to leave afraid that she will spread the disease to them” (ASHA Supervisor 1, Maharashtra).

Despite the lockdown restrictions ASHA workers across the six states reported carrying out antenatal check-ups, and supporting ANMs in immunization and institutional delivery, health awareness, and regularly meeting pregnant women and mothers.

“ASHAs have been monitoring more than 25 homes on a daily basis, to check for symptoms related to fever, cough, or if people have returned from cities. (She) makes a note of them (people) and shares with the doctor to check for the symptoms of corona”

AWWs in Odisha, Bihar and Maharashtra reported that despite lockdown measures, their work has increased:

“We have declared holiday for the anganwadi, so I am (supposed to be) at home. Yet, I have to go for Corona duty, monitor people coming from outside the village. We have to stay alert due to Corona. We have to take dry food to homes of children registered at Anganwadi, also provide awareness on Corona. There’s too much pressure on us‘. (AWW 2, Odisha)

Although the age range of frontline workers who participated in this study was from 26 to 55 years of age, most of the workers who rose to COVID-19 duty were more experienced or in other ways willing to take on these tasks. However, age also played a significant role in the ease and comfort while using digital platforms, as seen in other studies on digital learning platforms [27].

4.2. Use of ICT platforms in the pandemic response

FFHWs received information on COVID-19 and prevention through different channels and modes: majority of them reported TV channels, news coverage, and videos sent on Whatsapp groups. Others received training from health officials, which were considered to be more authoritative and valid:

“There was a meeting on 26th March in the PHC [Primary Health Centre], Medical officer gave us all the information on Corona for both us and ASHAs. We have compulsory monthly meetings”. (ASHA Supervisor 2, Maharashtra).

ANM and doctor at the Primary Health Centre were considered reliable for accurate and valid information. ASHA undertook dissemination activities – distributing pamphlets provided by PHC, or show videos received via Whatsapp to pregnant women, elderly members, putting up posters of community walls or slogans – to generate awareness of proper preventive measures for COVID-19.

FFHW respondents articulated a range of protective measures they took to prevent getting affected themselves while undertaking their responsibilities. “I cover my face and stand at distance from others, wash hands when come from outside” (ASHA 3, Madhya Pradesh), while another respondent from same state mentioned:

“I use gloves, mask, rub my hands with sanitizer frequently; I talk from a distance of 1m from everybody, and do not sit in anybody’s home while on visit. Once I come back home, I take bath and change clothes” (ASHA 1, Madhya Pradesh).

Another respondent described her knowledge and practice to prevent Corona as follows:

“Use mask while going out, keep sanitizer, don’t shake hands, if someone is coughing then tell them to use mask and maintain distance, inform PHC to check them, if necessary then quarantine them, using mask and gloves and sanitizer for ourselves while going to field.” (ASHA supervisor 2, Bihar)

“These three measures (wearing masks, washing hands and social distancing) are elementary and complimentary to each other. But we should provide good awareness too. Because we have experience that even very after of such awarenesses people don’t actually care about the aforementioned measures. During the initial days people were vigilant, but now they seriously don’t care about all these.” (ASHA 1, Kerala)

When probed to mention how will they know if a patient would require testing for Corona, FFHWs generally looked for symptoms for people who came from outside their village in the last two weeks, and then referred them to nearest health centre.

“We just ask if someone has any fever, or cough or cold or body pain; has anybody come from outside like Delhi or Bombay, if yes, we tell them to go to health centre for check-up” (ASHA 1, Uttarakhand)

To summarise, Table 3 lists and describes the functions of the various digital apps and platforms that were recorded during the study.

4.3. Barriers in FFHWs’ role in the pandemic response

a) Mobile ownership, use of apps and digital literacy for FFHWs
In Osmania, Maharashtra, online training on COVID-19 was provided in Zoom app.

“Once the Corona started, Zoom meetings were conducted, where we received online training. From Playstore we downloaded this zoom app. We got the zoom id and password, from which attended the meeting. The training was given in Marathi. This was organized by officers in district level.” (ASHA Supervisor 2, Maharashtra).

Some respondents were part of Facebook and Whatsapp groups to immediately share information, reporting to the PHC on a daily basis. Although respondents had a mobile phone, not all of them owned smartphones, they relied on family members – son or husband – who owned a smartphone to send photographs of daily reports to PHC, or to download apps for training, or for monitoring. In Maharashtra, ANMs used the Reproductive and Child Health (RCH) portal for maintaining records of pregnant women and mothers of young children in the villages. ASHA assisted in this record-keeping by transferring these records from paper registry to app. One respondent mentions:

“All ASHAs and Supervisors have been asked to download Aarogya Setu app. Not everyone has smartphone, more than 6 ASHAs under me do not own a smartphone. 25 ASHAs have a phone. They can watch videos as well on the phone. ANM has RCH portal. ASHA five registers with her – RCH (reproductive child health) register, ANC (antenatal check-ups) monitoring register. Child immunization register, and Births-deaths register. These are reported to ANM and is reported twice monthly” (ASHA Supervisor 1, Maharashtra).

“We were added to a whatsapp group for ASHA workers in our Panchayat. It was primarily created to share the numbers of people who are in quarantine, also for the community kitchen arrangements, and to know about the movement of labourers from our states returning from outside” (ASHA 2, Kerala).

Aarogya Setu was launched by the Government of India as a contract tracing app that could provide detailed information of people who have been in contact with Corona-positive patients. The Centre’s sent directives for the mandatory use of its contact tracing app. Aarogya Setu by all government staff. Some FFHWs were asked to use the Aarogya Setu app by their supervisors, but they were not able to articulate how it will help them. In Kodungallur, Kerala, one of our respondents said, “Yes, our majority tasks are offline duties. We don’t have too much of online work or tasks.” (ASHA 3, Kerala).

In Bihar, ASHA supervisors reported using Diksha app for training. FFHWs relied on phone to receive messages from their colleagues, peers and community members, as well as disseminate urgent warnings or reports to their community members. They communicate with their supervisors, access health services such as ambulances, and communicate with peers using phone. “In case of emergency, ambulance is available on call, if we can communicate on phone, otherwise we arrange private vehicles. We also talk to pregnant women over phone and give them essential information for diets” (ASHA Supervisor 2, Madhya Pradesh).

b) Unsafe working conditions: lack of personal protective equipment (PPE) for FFHWs

Another barrier that emerged was lack of safety measures and equipment while undertaking surveillance for COVID-19. PPE is a protective gear – goggles, face-shield, mask, gloves, coverall/gowns (with or without aprons), head cover and shoe cover – designed to safeguard the health of workers by minimizing the exposure to a biological agent. These are to be used based on the risk settings where the health staff work. Ministry of Home and Family Welfare provides guidelines on PPE use for ASHA workers, who conduct surveillance in low risk settings. Despite the sensitivity of the nature of their work, ASHAs are recommended to wear a triple-layered mask and gloves, while maintaining a distance of 1 m. The other stakeholders interviewed here observed that, “PPE provided to ASHA workers are basic, inadequate and inappropriate. We are putting their lives at risk just because their work is of voluntary nature” (Academic 1, New Delhi).

The provision of PPE was not been uniform across the states. In some districts in Uttarakhand, and Maharashtra they received gloves, caps and sanitisers, elsewhere they received cloth masks and sanitiser. In Madhya Pradesh, Odisha and Bihar, ASHA workers bought masks and gloves from their own money as nobody provided these. These were neither cheap, not easily available, given their low earnings. In Kerala, one participant mentioned, “We didn’t get access to Aprons and gloves yet, but masks yes. We participated in a campaign recently and we got gloves from there, and occasionally from the side of panchayat. Most of the time we purchase masks for ourselves.” (ASHA 1, Kerala).

The lack of safety equipment and infrastructure for frontline workers has been one of the reasons for high numbers of positive cases amongst healthcare workers. Triple layered masks and gloves are not adequate protection while FFHWs go door-to-door in containment zones to identify infected persons, thereby putting themselves at risk. The chances of ASHA workers contracting the infection are very high, because of their interaction with large population [28]. The out-of-pocket expenditures incurred by ASHAs actually added to their economic burden in light of non-payments and inappropriate or lack of remunerations.

c) Lack of appropriate financial remunerations and systemic irregularities in recruitment and payment of ASHAs

There was a huge disparity in financial remuneration provided for FFHWs in each state for undertaking COVID-19 work. In Maharashtra, ASHAs received an additional Rs 1000 per month (for 2 months) by the Gram Panchayat, while ASHA supervisor were assurred but yet to receive Rs 500. In Odisha and Uttarakhand, Anganwadi workers did not receive any compensation. While in Bihar and Madhya Pradesh they reported hearing about getting additional payment but not receiving it yet. An elderly FFHW from Uttrakhand notes, “I am not doing this for money, people respect me where I go, come to me with their problems < I do this for the community”
ASHA across the states reported the necessity to reach out to pregnant women, young mothers and children during floods and cyclones. This occurred despite taking precautionary measures: wearing masks or gloves, washing hands with soap. Most information on phone. They respect us. (ASHA 2, Uttarakhand). In Odisha AWW commented, “People know me, that Didi (sister) will definitely come; it’s her duty. We also give information on phone. They respect us.” (AWW 2, Odisha). This shows that most FFHWs are doing it as a community service and are motivated by taking on leadership role in their village.

ASHA workers from Kerala reported getting timely payments:

“Yes, we receive them properly, even if it is less. It was 4500 earlier and from last April they have increased it to 5000. we did have a lot of conditions earlier for that, like participation in campaigns regularly and all, but now, due to the situation, we get the salary without any condition. For the last four months, we have been getting an additional 1000 pay.” (ASHA 2, Kerala)

4.4. Enablers in FFHWs’ role and use of ICT platforms in pandemic response

One of the biggest facilitators that strengthened the role of FFHWs in the pandemic response was their personal motivation and dedication to their role as health workers. Despite the lockdown measures in place, ASHAs relied on personal transport, or walked several kilometres daily. Some reported having family support, when a male family member – son or husband – accompanied them to the PHC. They continued to provide household support despite social stigma, which was seen and appreciated by many NGOs and government stakeholders.

“ASHA has to go to most households for these activities, but people are scared so they ask her to leave afraid that she will spread the disease to them”. (NGO official, Maharashtra)

The COVID-19 lockdown measures complicated not only their routine activities, but also their personal situation as families struggle to access basic amenities:

I am not able to take pregnant women for checkup, due to unavailability of vehicles, I am not able to visit kids who used to come to anganwadi (ASHA 2, Madhya Pradesh)

“My family is suffering too, we cannot go out, there is shortage of food, supervisor is not doing visits and meetings so we are facing problems in providing information, and distributing dry food packets from anganwadi, even though cooking in anganwadi has stopped”. (ASHA 1, Madhya Pradesh)

ASHAs faced stigma from community members, because people are apprehensive that she will spread the disease while doing household surveys. This occurred despite taking precautionary measures: wearing masks or gloves, washing hands with soap. Most respondents perceived that the threat of COVID-19 will persist, and social distancing measures will have to continue at least for 2 more months. Moreover, workers in Maharashtra expressed concerns that despite taking precautionary measures, in the summer and monsoons there will be an increase in other infectious diseases and hence measures should be in place to mitigate these.

“Dehydration and other waterborne diseases will increase. We provide awareness on keeping water clean, boiling water for consumption.” (ASHA 2, Odisha)

“We are demonstrating people how to wash their hands with proper techniques” (ASHA 5, Madhya Pradesh)

“Immunizations are still taking place, we maintain distance (of 1ms) and continue with these efforts. Pregnant woman’s 3 antenatal check-ups are also continued: some are asked to come in next month. We are doing these in 2 batches.” (ASHA Supervisor 4, Maharashtra)

The FFHWs were rooted within their communities and were able to predict and monitor seasonal challenges and trends in women and children’s health in their areas. When probed further on what preparedness was required to tackle the oncoming monsoon season, ASHA across the states reported the necessity to reach out to pregnant women, young mothers and children during floods and cyclones.

“There are certain minor issues to be corrected. Mainly the environment. I think once we start discussing it with people, we will be able to overcome it soon. As the land is a bit prone to floods and all, we have to be a bit conscious especially in the time of a pandemic like COVID-19”. (ASHA 3, Kerala)

FFHWs were able to systematically link the challenges they found in healthcare settings with their environment and structural issues. They highlighted several situational and context-specific challenges which posed challenges to adoption of preventive measures.

“My field is based on a colony space which is a colony of Tsunami rehabilitated people. It consists of 185 rehabilitation homes where around 120 homes are occupied. Even the households have basic facilities and all they have very little space for day to day things, like the sanitation and toilet facilities are not proper, and the space is very congested and badly engineered to take care of the hygiene. The drainage and waste disposal system is also weak there. The spaces between the rehabilitation homes are very less and unhygienic. I tried to the maximum of my capacity for their betterment but the situations are still bad and invited less attention from the superior authorities.” (ASHA 1, Kerala)

5. Discussion

This is the first study to understand the role and participation of women in the frontline of India’s COVID-19 response in the first wave. Drawing upon gendered implications of health system resilience, this study explored the influence of broader contextual barriers on the forms of agency that women are able to exercise: access to information, resources and technologies to reduce their workload, improvements in service delivery and supporting the communities affected by an health emergency. These include an understanding of gender and institutional factors that shape FFHWs’ experiences, their capabilities in health and digital literacy and resources available.
The policymakers argue that a fixed salary could lead to complacency, as well as entitle ASHA workers to national government pensions, among other benefits [28]. Hence, in several regions, their honoraria are less than the minimum wages of unskilled workers. The financial compensation for such overwhelming work burden puts an unequal burden on women, and is a determining factor of their stress levels. A study carried out in South Italy, found that the prolongation of the epidemic—alongside technical and training support. There were disparities across states in how each state relied upon ICT for disseminating and training the FFHWs. Telephone emerged as a primary mode of communication, along with digital whatsapp and facebook groups to view content and awareness videos on COVID-19. The findings show that for optimal use of technologies by FFHWs, a thorough analysis of gendered mechanisms at household and community level is necessary for engagement, along with ongoing training and on-field support.

Findings show that FFHWs depended on local resource persons and social networks to undertake their tasks efficiently in their communities. Therefore, developing similar cadre of workers at the frontline is strongly encouraged. In Odisha, the Odisha Livelihoods Mission has been active in leveraging nutrition and livelihoods, where *Poshan sakhi* (part of the National Rural Livelihoods Mission) are employed to work with ASHAs and ANMs delivering THR [12]. Odisha also relies on multipurpose workers, traditionally male volunteers who support development activities at the village level. However, these workforces require security and financial support, alongside technical and training support. During the 1st phase of the COVId-19, FFHWs lacked basic knowledge about the virus and did not have access to resources like PPE kits. Their workload increased three-fold as they continued with the precautionary measures despite the fear of getting infected by the virus. As a result several FFHWs suffered from mental health issues such as burnout, insomnia, anxiety, depression, illness, anxiety, and PTSD [29]. During the second and third waves in 2020–22, majority of the FFHWs had received vaccination and booster doses, as a result their stress levels reduced significantly. A study carried out in South Italy, found that the prolongation of the epidemic—with workload levels that were higher than at the baseline without time to devote to family, sports, or meditation and persistent uncertainty about the correctness and effectiveness of safety procedure—has led to a significant increase in symptoms of depression amongst the frontline health workers [30]. This study also highlights financial remuneration as the most pressing concern for FFHWs like ASHAs. ASHAs have been demanding to be included within the cadre of permanent health staff with a fixed pay of 18,000 per month along with social security and maternity benefits, fixed tasks and work hours [31]. FFHWs have to balance not only personal safety and family responsibilities but also undertake tasks for routine health service delivery, alongside COVID-19 prevention and management measures. It was observed that the Indian government has done a great job by providing the protection kits to the health workers but still, they face a lot of risk to their lives and the Personal Protection Equipment (PPE) kits are not enough to save their lives. This is the greatest worry for the health workers as well as the Indian government [32].

The financial compensation for such overwhelming work burden puts an unequal burden on women, and is a determining factor of their bargaining power with the institutional set up. This is line with Bhatia [8]; who found linkages between absenteeism/attrition and remuneration. There were discrepancies in what they were promised for undertaking additional COVID-19 work and whether they received the payments, lesser pay and remuneration standards also varied across states. When their work is not recognized and appropriately remunerated with possibilities of a secure job, this overwhelming burden on ASHAs becomes inconvenient as they are expected to do several other non-compensatory activities to engage with communities and build rapport to achieve increasingly difficult goals of improving institutional delivery, reducing infant mortality, controlling spread of infection [20].

ASHAs have also been demanding testing for themselves for the fear of infecting their families. They are also demanding separate quarantine facilities [31]. ASHAs are facing threats and abuse, and exploitation not only in the hands of the communities they serve but also by an exploitative employer. Most of these women look for encouragement as they belong to low-income families and contribute to society from altruistic...
attitudes. A just remuneration and provision of other benefits to the health warriors is important for empowering FFHWs and their families and enhancing gender justice and bargaining power within community and institutional set up. Women’s active participation in community health stems from conducive factors such as personal motivation, service and altruistic attitudes, being part of a community tackling an unseen danger, and being part of a wider network of health workers. For women to engage in this sphere, a supporting family is key – perhaps indicating social capital and extra-household support leaving women with time to undertake more work – are all important over and above their household duties as mother, wife and daughter-in-law.

This study benefits from a wide range of respondents to capture plurality of approaches in supporting female workforce. There are some important limitations. The sample size is small, restricted by the limitations of movement in the first wave of the pandemic. It was difficult to compare and contrast examples from these six states. Since these interviews were conducted over phone, respondents’ non-verbal reactions and responses could not be observed. Future research can indicate what components of training enabled FFHWs to undertake all the work outlined in Table 2. The role played by language as a barrier and enabler and how linguistic complexity of communication in the wide territories of India is an issue during a large-scale crisis as the COVID-19 pandemic has been documented elsewhere [33]. Further areas of research identified in this study include – analysing the trade-offs between online training or face-to-face training and support on the job to promote changes in behaviour.

6. Conclusions

The gendered experiences of the FFHWs in COVID-19 response in India has emphasised FFHW’s role and importance of their workplace dignity. Using a capability approach, this study illustrates that digital and health literacy of FFHWs for COVID-19 is a growing area of application and requires further scaffolding to sustain their ongoing operations. Using ICT in an equitable and just manner provides an opportunity to support local action for health resilience swiftly and promptly by building capacities and increasing representation of the frontline workers. This understanding can be further grounded around issues of equity, participation, representation in a gender-responsive health system. This study demonstrates that gender differences may be accommodated in crises through changes to local policies and practices that enable women to access resources.

It is essential to recognise FFHWs’ role inside of the health system, improving their working conditions and enabling enhanced usage of information, communication and technology. Concerted efforts by policy-makers are required to recalibrate how FFHWs are empowered as leaders of change with systems-level change and impetus through recognition and rewards.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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