



Healthcare worker resilience during the COVID-19 pandemic: A qualitative study of primary care providers in India

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Abstract

Since 2020, the world saw a myriad of creative health-care policy responses to the COVID-19 pandemic. This article studied the experience of rural primary care providers (PCPs) in India deputized for COVID-19 care in urban areas. In-depth interviews were conducted with PCPs ($n = 19$), who served at COVID-19 facilities. Lack of epidemic management and intensive tertiary care experience, limited and inadequate training, and fear of infection emerged as the primary sources of distress, in addition to absent systemic mental health support and formalized recognition. Even so, resilience among the respondents emerged as a result of encouragement from their families, peers, and mentors through various means including social media, and from individual recognition from communities and local governments. Rural PCPs expressed an eagerness to serve at the frontlines of COVID-19 and demonstrated indomitable spirit in the face of an acutely understaffed health system, growing uncertainty, and concerns about personal and family health. It is imperative to reconfigure health-care education and continuing professional development, and equip all health-care professionals with mental health support and the ability to deal with public health emergencies and build a more resilient health workforce.

BACKGROUND

Due to its mode of infection through inhaled droplets and rapid transmission, the SARS-COV-2 pathogen has posed several challenges (Kujur & Goswami, 2020), especially for fragile health systems with health-care worker shortages like India (Kamath et al., 2020).

Mahaveer Golechha and Tasneem Bohra contributed equally to this study.

[Correction added on 15 November 2021, after first online publication: The first three words "The SARS-COV-2 pathogen" has been removed from the first line (first paragraph) of the article.]



The first case of COVID-19 in India was reported on 30th January, and by 24th March a large spread had occurred which mandated a nationwide lockdown for 3 months (Bag et al., 2020). As the whole country steeled itself against the impact of the pandemic, health-care worker shortage tested the resilience of the Indian health system, particularly in large cities where COVID-19 was most prevalent. Around the country, several “back-up” measures were put in place to manage the growing patient load, including telemedicine, the use of medical students approaching graduation in support roles, and creating an “on-call” reserve workforce consisting of retired health-care professionals (Jun et al., 2020). Gujarat supplemented the health system in urban areas by deputizing rural primary care providers (PCPs). Under this initiative, about 100 Medical Officers and Staff Nurses employed at Primary Health Centres (PHCs) and Community Health Centres (CHCs) in rural areas were posted to urban health facilities in Rajkot, Ahmedabad, and Surat to meet the demands of the rising COVID-19 caseload.

Resilience in health care can be understood in two ways. The resilience of the health system refers to its capacity to anticipate and respond to shocks such as public health emergencies in an adaptive manner that includes appropriate action against the shock and optimal maintenance of routine core functions (Haldane et al., 2021).

Systemic resilience has two components. Organizational resilience, which exists at multiple levels, from the individual to the health system as a whole, is highlighted during public health emergencies (Epstein & Krasner, 2013). For instance, in the context of COVID-19 in India, this was seen in governance responses such as the formation of war rooms, and the initiative to fast-track the development of PPE to address shortages (Ministry of Health and Family Welfare, 2020), and in quick learning from locally effective models of containment such as those in Kerala, Bhilwara, and Dharavi. On the other hand, the absence of a surge capacity of health-care workers in the urban public health-care system (Sundararaman et al., 2021) which required measures such as the temporary recruitment of medical and nursing students, retired physicians, and including the rural deputation strategy in Gujarat exposed breaches in health system resilience.

The second component, individual resilience, concerns health-care workers' abilities to withstand pressure imposed by the emergent situation without compromise to either the quality of care, or their own health and wellbeing. For PCPs, resilience is described as the ability to persist in managing work demands with determination, and display a sense of fulfillment and high performance (Robertson et al., 2016). The paucity of resources such as ICU beds and ventilators often meant that health-care workers had to make health care decisions on the basis of triage and in the absence of bedside input from family or considerations for patient preference (Rangachari & Woods, 2020; Santarone et al., 2020). In addition to a hectic workload, practical errors due to a lack of evidence-based treatment and rapidly evolving guidelines, these conditions led to a high level of psychological and at times even moral distress for health-care workers.

For cadres of health-care workers new to intensive respiratory care and infectious disease management such as rural PCPs, these issues were compounded. Their training and experience is limited to routine health-care services under national health programs, endemic disease management with established treatment regimens, and managing the overall health of small communities (Directorate General of Health Services, 2012). Further, a large number of health-care worker deaths (Ing et al., 2020; Iyengar et al., 2020) complicated by misinformation and panic on popular and social media (Kadam & Atre, 2020) generated a high-anxiety environment which uniquely tested the resilience of the health system as a whole and PCPs thrust into COVID-19 care settings.

Therefore, to study PCP resilience in the COVID-19 context, it is pertinent to explore various aspects of this program including the factors that contributed to their distress, resources and gaps in the health system, and the various strategies used by this workforce

in dealing with the pandemic. Such an endeavor is also essential to understand the gaps in the health system from the perspective of health-care workers at the grassroots level.

This study aimed to investigate the perspectives and lived experiences of PCPs deputed at urban health-care facilities during COVID-19, to understand the impact of this study on their lives, their mental health, and the systemic and individual factors that shaped their experience. The study also explored the systemic, social, and behavioral resilience mechanisms utilized by this workforce in a rapidly evolving, high-stress, and uncertain work environment.

MATERIALS AND METHODS

The study followed a qualitative approach applying in-depth one-on-one interviews with PCP doctors and nurses in Gujarat deputed to serve at urban health care facilities during the COVID-19 pandemic. A literature review was conducted for the development of a qualitative study tool. Assessments of behavior and mental health among health-care workers, in both community care and critical care settings were utilized to prepare a semi-structured interview guide. Thematic analysis was applied to the data to determine the major themes pertinent to the research question.

Study site and sampling

The study was conducted over a period of 3 months, from September to November in 2020. PHCs and CHCs in rural areas of Gujarat were identified and health-care workers deputed COVID-19 care facilities were purposively selected.

Study procedure

A semi-structured standardized questionnaire was created to explore the experiences and understand the timeline of deputation, arrangements made for the PCPs, training, and other systemic and personal factors that affected their work.

Informed verbal consent was obtained at the time of recruitment. Interviews lasted 30–60 min and notes were taken by the researchers during the interviews as any compulsion for written consent or audio recordings would have biased the data and affected its quality (Sharma et al., 2014). All interviews were telephonic keeping in line with COVID-19 travel restrictions and social distancing measures.

Analysis

Coherent transcripts were generated from the notes and uploaded into NVivo for qualitative analysis. Colaizzi's protocol was followed to analyse the data from each transcript (Morrow et al., 2015). This began with familiarizing and finding statements significant to the underlying phenomenon, followed by ascribing codes to statements by identifying meanings therein. A constant comparison method was used to identify pieces of text representing a similar construct. Codes were subsequently clustered into basic themes common across all responses. This step was repeated to create organizing and global themes and develop a thematic network to describe the phenomena uncovered in the study. The auto-coding feature in the software was also utilized to compare the codes that had been generated manually. This allowed for a robust analysis and ensured that all relevant information from the interviews had been extracted.

RESULTS

A total of 19 PCPs were interviewed for the study, as saturation had been achieved at that point. This included 12 doctors and 7 nurses. Among the respondents, 14 were male and 5 were female. The average age of the respondents was 35 years, and they had been employed in the public health-care system for an average of 9.5 years. One respondent mentioned that they had diabetes. Deputations ranged from 7 to 30 days, with an average duration of 20 days. Table 1 showcases the respondent characteristics.

The codes generated from the interviews were categorized under qualitative aspects such as lack of preparedness and vulnerability which represented individual factors, and management and workload which represented systemic factors. Together, these formed a global theme representing sources of distress. Similarly, training, equipment and supplies, organizational factors, and psychosocial support were the qualitative categories under the theme health system resources. Resilience mechanisms presented a complex structure with categories such as recognition from communities and authorities, professional and family

TABLE 1 Professional and demographic characteristics of study respondents

	(n = 19)
Profession	
Doctor	12
Nurse	7
Gender	
Female	5
Male	14
Average age of respondents	35
Facility	
PHC	10
CHC	9
Average duration of service	9.5
Timeline of first COVID deputation	
April	1
May	6
June	7
August	1
September	4
Average number of days in COVID duty	20
Facility of COVID duties	
AYUSH hospital	1
Civil Hospital	5
COVID Care Centre	4

networks, and self-regulatory behaviors such as faith-based activities and wellness and motivation activities.

A conceptual model (Figure 1) was prepared on the basis of the thematic network analysis showcasing positive and negative inputs that determined the experience of the primary health-care provider during COVID-19 deputation.

Sources of distress

Fear of infection

At the time of deputation, assignment to COVID-19 was done without any information on the health condition of the PCPs being taken into consideration. This was a cause for concern for those with NCDs themselves.

“I have diabetes so I was quite scared and my family was also opposed to my COVID duties. This caused a lot of stress at home and to me even while I was working”—Staff Nurse

Respondents also expressed that they were worried about infecting families. For this reason, some respondents chose to isolate themselves from their families, leading to further distress.

“My parents are comorbid with hypertension and cardiac issues. For this reason, I have not gone home for a long time”—Medical Officer

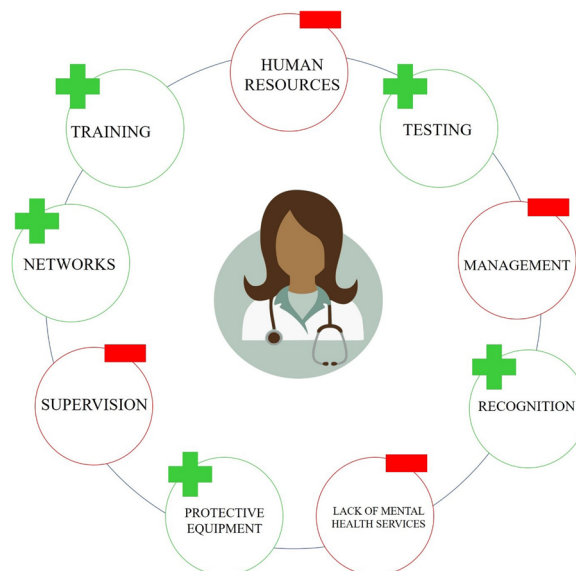


FIGURE 1 Conceptual Model of the inputs received by primary health-care providers. This figure describes the inputs received by primary health-care providers in COVID-19 duties with their positive or negative effect on the provider's resilience



Systemic shortcomings

As PCPs, public health emergencies of this magnitude were outside the scope of their previous training and experience.

“I deal with routine maternal and child health services and I was unprepared for COVID-19. I have no experience in dealing with an infectious disease pandemic and I was quite anxious due to this”—Medical Officer

This was compounded by poor supervision, human resource shortages despite deputation, and a lack of standardization in management across COVID facilities, which often meant that health-care workers were working long hours of continuous shifts without being able to take a break.

“The Nodal Officer would assign us to different wards every day. This caused a lot of instability and we had to spend a longer time to understand the new rules and how to work.”—Staff Nurse

“We got a night off only after receiving a notice from the health department in the capital. Before this, we were assigned to continuous duty, and those tasked with managing the on-duty staff were very ineffective”—Medical Officer

Another issue which created uncertainty were the frequently changing guidelines for testing and admission due to the lack of analytical capacity for carrying out tests. This also raised a concern among health-care providers about the rational allocation of treatment resources.

“At the OPD in one hospital, there was no testing, symptomatic patients were being admitted and then tested”—Medical Officer

Resource availability and adequacy

Training

A lack of standardization was seen in training across areas, and health care facilities. While webinars were made available by the district authorities, several respondents felt that these were insufficient. The duration of the training was also a significant issue. Training periods varied from 1 week to 10-min orientations received on the day of joining. Further, a large portion of the training focused on infection control and waste disposal, whereas treatment and patient management training was often delivered after deputation, hands-on, by residents in hospitals.

“The district authorities organized online training and webinars, mainly on testing, treatment guidelines, and PPE management and disposal”—Medical Officer

Equipment and supplies

Protective equipment has been the most important tangible resource in the COVID-19 pandemic. Respondents often had to source the required materials themselves as well as

use them beyond a reasonable duration. While this situation improved as manufacturing increased and supply chains disrupted due to the lockdown were reinstated, issues with quality were reported. Many respondents said that at times they chose to work without wearing the PPE kit, since it was a hindrance in providing effective care.

“Some kits caused suffocation and significant discomfort. For this reason, at the subdistrict hospital, we simply wore a white apron and not the complete PPE kit while caring for patients”—Staff Nurse

Psychosocial support

Since they were thrust into unfamiliar care settings with little preparation and often long and arduous duty schedules, the absence of mental health support from the health system was acutely felt by respondents. There were no on-site or remote counselors and the short preparatory training that the PCPs received also lacked a stress management component. Rather, the PCPs faced a dual burden of mental health as they also often provided support to patients and families, and alleviated the concerns of subordinate staff, in addition to administering and monitoring treatment.

“I provided emotional support to patients who were unable to eat, either due to physical discomfort or because they were mentally exhausted. Similarly, the ward boys and other support staff were very fearful and along with the doctors we had to address their concerns and motivate them”—Staff Nurse

Resilience mechanisms

Local and community recognition

In some communities, the PCP had been instrumental in the successful recovery not only from COVID-19, but also those suffering from other critical conditions and unable to access advanced facility-based care. This led to widespread appreciation, which in turn contributed to respondents' resilience and increased their motivation. Respondents also noted that verbal and written tokens of appreciation from local government representatives and immediate supervisors helped to counteract the stress they had faced.

“When people in my community recovered from COVID, their faith in government healthcare was renewed and they appreciated my efforts a lot. This has made me feel very valued and has considerably reduced stress. I feel mentally stronger and motivated to serve”—Medical Officer

“The Tehsildar presented me with me a letter of recognition for my work which made me quite happy and I felt that I had accomplished something good despite the stress I experienced”—Medical Officer



Networks and support systems

Family and friends emerged as important resilience promoters for the respondents during long deputation periods away from home, especially through networks on social media.

“I received a constant stream of encouragement and appreciation from friends and family members on WhatsApp groups and through Facebook posts, while I was at the COVID hospital. It took my stress away at the end of the day”—Staff Nurse

A number of respondents also reported high levels of structural capital (Salas-Vallina et al., 2020) in the form of support and fraternal encouragement from their colleagues and academic mentors, which helped cultivate confidence in their work.

“My classmates from my post-graduate program were quite supportive and sharing case experiences with them was helped to reduce anxiety, and I did not feel lost”—Medical Officer

Self-care and reflection

Respondents mentioned a variety of individual measures to take care of their mental health, including wellness activities and faith-based activities which allowed them to continually build resilience against the rigors of COVID-19 duties.

“Prayer was an important part of keeping myself calm and motivated towards my work. It allowed me to encourage others as well”—Staff Nurse

“I used to do yoga, and exercise to prevent fatigue, and meditation so as to feel in control of my own physical and mental health. When I was posted to a facility with a large campus, my colleague and I used to jog in the morning as well”—Medical Officer

Interestingly, resilience mechanisms had come into play even as health-care workers prepared for their COVID-19 postings. A strong sense of duty and patriotic spirit emerged as a common motivator.

“I knew before the posting that I would be in a high-stakes environment. I felt it was my duty towards the people as a doctor, and towards my country in this difficult time”—Medical Officer

“I truly believed that I was a Corona warrior and in difficult situations, this thought helped me to cope and perform my duty well without feeling dejected”—Staff Nurse

DISCUSSION

This study documented the experiences, challenges, and resilience mechanisms employed by rural PCPs in Gujarat deputized to provide COVID care in urban tertiary care facilities at the frontlines of the pandemic. While quantitative studies evaluating the psychological impact



of COVID-19 on health-care workers across the country have been published (Nair et al., 2020; Spoorthy, 2020), in-depth qualitative assessments enrich the context by providing detailed insight into the issues faced by individual doctors and nurses. Comprehensive qualitative data also delineate the gap between policy and implementation, especially when turnaround times are very short, to meet the demands of large-scale public health emergencies such as the COVID-19 pandemic.

Self-perceived vulnerability to infection and transmission to family emerged as correlates of poor mental well-being among health-care workers, which has also been seen in other studies during the COVID-19 pandemic (Hong et al., 2021). Similarly, poor health system preparedness was showcased in the lack of sufficient training and equipment for care and safety, which is reflective of the state of resource-constrained health systems during public health (Raven et al., 2018). The distance between health-care workers' existing experience and training and what is asked of them can often be a significant hindrance to resilience, and is an example of a lack of systemic learning which is reflected in the lack of updates or revisions to the description of duties for rural PCPs in the past decade. On the other hand, similar to experiences from Ebola (Schreiber et al., 2019), self-inoculation against stress was seen among study respondents in the form of a strong Hippocratic spirit and even a sense of duty towards the country. Individually, wellness and faith-based activities, and communicating with family were also found to reduce distress. These behaviors are similar to the self-care, reflection, and mindfulness activities identified in interventions for health-care worker resilience both within and independent of an epidemic context (Rogers, 2016; Schreiber et al., 2019). We also discovered that professional networks like alumni and mentor groups functioned as promoters of resilience (Matheson et al., 2016) and provided a space to discuss ideas for patient care. These can be thought of as adaptations to the small-group problem-solving approach and tiered knowledge sharing seen in the health-care worker resilience literature. (Rangachari & Woods, 2020; Rogers, 2016)

The COVID-19 pandemic has clearly highlighted the need for an health-care worker resilience framework in the Indian health system. This should be carried out through the delivery of established educational interventions, in the form of resilience workshops (Heath et al., 2020; Rogers, 2016). These could be delivered through the Integrated Government Online Training (iGOT) portal launched by the government during the pandemic (Ministry of Education, 2020), thus ensuring standardized training for all health-care workers at costs that would not place further strain on the health system (Maunder et al., 2010). While these measures would address individual resilience, it is also important to build resilience within health-care organizations, especially urban tertiary care facilities which were the epicenter of COVID-19 care. This should be an intensive multilevel capacity-building exercise targeting individual doctors and nurses, teams, managers, and senior health officials, so as to enable robust communication structures thereby providing real-time updates and a source of reassurance to all health-care workers (Rangachari & Woods, 2020). In addition, the Indian Public Health Standards guidelines for PHCs and CHCs, which incorporate both the types of services offered at these facilities and a description of the duties of health-care workers employed, should be updated and components related to addressing public health emergencies should be included. Efforts to address health-care worker mental health have already been implemented in some states and public-private partnership initiatives are also in place to provide mental health and psychosocial support to frontline health-care workers (UNICEF, 2020). Adapting state initiatives and mainstreaming such programs will be a decisive step in building a resilience framework for the emerging health-care workforce in India.

While resilience interventions are essential, human resource shortage is among the fundamental causes of distress for health-care workers in India. This should be addressed by enhancing recruitment at all levels, especially in the urban public health-care system, and boosting the importance of infectious disease management and public health training for all



health-care workers. From a governance approach, strategies should be developed at state, district, and block levels, to capture events in the outbreak stage, through effective community surveillance and case monitoring, and create an articulated flow of referrals without choking secondary and tertiary care facilities.

Routine implementation of health emergency management training for all health-care professionals including rural doctors and nurses is the most important learning from COVID-19. The Medical Council of India announced that going forward, undergraduate medical training would include a component on pandemic management, which can be said to be a step towards creating a learning and adapting health system. Emergency pulse training programs should be uniform and appropriate for all health-care professionals (Zhou et al., 2020). There is also a need to evaluate whether existing models of health-care education and training adequately focus on sources of distress and resilience-building mechanisms (Matheson et al., 2016). Training and awareness programs should also extend to the public and include a strong sensitization component against misinformation and mass hysteria to prevent discrimination against affected individuals and health-care professionals (Kakar & Nundy, 2020).

CONCLUSION

Health disasters have become an increasingly frequent side effect of increased global connectivity and rapid urbanization. Understaffed health systems in low- and middle-income countries were severely hit by COVID-19, leading to inventive solutions such as the rural PCP deputation strategy followed in Gujarat, India. This study showed that rural PCPs utilized a variety of resilience mechanisms including support from mentors, constant communication and encouragement from peer networks and families through social media, acknowledgment from communities, and self-care practices, even in the absence of formal recognition and systemic mental health support. While this strategy was effective in addressing health-care worker shortages in the first wave, it revealed several gaps in the public health emergency response. From this point onward, two things will be essential; training in public health disaster management, and a robust infrastructure to support the mental health and psychosocial needs of all health-care workers, including PCPs in rural areas. Such measures will ensure a strong and responsive Indian health system with a resilient emerging health-care workforce.

LIMITATIONS AND BIAS

Since this study was conducted after respondents had completed their deputations, recall bias is possible. However, duty hours during the deputation period were long and it was not feasible to conduct in-depth interviews at this time. To address this, interviews were conducted soon after the deputations ended and the tool design and interview technique were optimized to obtain as much information as possible. This was seen as respondents described their experience in rich detail. Since the deputation of rural PCPs was a strategy followed in Gujarat, the results of this study can be generalized to an extent. It would also be beneficial to study other strategies used by states to address the human resource shortage during the COVID-19 pandemic. While it was preferable to conduct telephonic interviews due to travel restrictions and distancing norms, this may have impacted the researchers' rapport with respondents, and nonverbal cues that are important to build context may have been missed (Liu et al., 2020). Since job security is a major concern among government health-care providers (Purohit & Bandyopadhyay, 2014) their responses can be said to be affected by social desirability.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

ETHICS STATEMENT

This study was conducted according to the principles of the Declaration of Helsinki (Cho et al., 2016) and approved by the Institutional Ethics Committee of the Indian Institute of Public Health Gandhinagar, India. Participation was voluntary and all participants were informed that they could stop or refuse at any time. Patient confidentiality was ensured by anonymizing all data.

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