

Psychological impact of infection with SARS-CoV-2 on health care providers: A qualitative study

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ABSTRACT

Background: Rapid increase in severe acute respiratory syndrome coronavirus 2 (SAR-CoV-2) infection has also affected many health care providers (HCPs). This study aims to understand personal stories of HCPs affected by SARS-CoV-2, which could help with insights about ways to support them. **Methods:** Using a phenomenological approach and purposive sampling method, we recruited participants for semi-structured interviews through a telephone. Data saturation was achieved by the 11th participant and two more interviews were performed to confirm the same. Interviews were transcribed, and a seven-step Colaizzi method was used to identify different themes. **Results:** The psychological impact of SARS-CoV-2 on HCPs who tested positive can be summarized into four broad themes. These are challenges faced by HCPs, social concerns, experience of quarantine period, and positive experiences. Challenges they faced were about dealing with uncertainty, fear of spreading infection, and stigma. In the social concerns theme, what featured was concerns about family, social support from friends and hospital, and stigmatizing experience in neighborhood. In the quarantine experience theme, self-care and desperation to connect prominently colored their emotional and psychological experience. There were positive experiences also, which included personal strength, sense of gratitude, growth, and professional commitment. **Conclusion:** The personal stories of HCPs highlight that while they coped effectively during the recovery process, it may be important to address psychosocial factors of well-being as they worked with patients testing positive for SARS-CoV-2.

Keywords: Health care providers, mental health, psychological impact, qualitative study, SARS-CoV-2

Introduction

As of 6th December, 2020, there were 65,651,683 confirmed cases of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) including 1,519,193 deaths across the world. Data from India pegged the number of cases at 9,644,222. SARS-CoV-2 was declared a global pandemic by the World Health Organization on 11th March, 2020.^[1]

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Health care providers (HCPs) became the frontline workers among others in the fight against the pandemic. This meant that they were at a higher risk of infection due to contact and had long and tiring working hours,^[2] had issues with availability of personal protective equipment (PPE), faced isolation and emotional distance from family while working with SARS-CoV-2 infected patients.^[2,3] Studies have shown that HCPs have reported mental health issues including stress, anxiety, fear of contracting infection, insomnia, depression, burnout, and mental distress.^[2,4-7] A review of reasons why HCPs were infected by SARS-CoV-2^[8] showed that the novel nature of the virus and the vast number of asymptomatic and symptomatic cases put HCPs at a high risk of contracting the infection. Further,

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inadequate or inappropriate use of PPEs and fatigue and stress may be contributors to increased risk for SARS-CoV-2 among HCPs.

The mental health of SARS-CoV-2 patients has been studied, and studies have also been carried out to understand the experience of HCPs working with SARS-CoV-2 patients. However, there is a gap in the literature on the experience of HCPs who tested positive for SARS-CoV-2 themselves.

This study aims to understand the personal stories of HCPs affected by SARS-CoV-2. Such information would help with insights into different ways in which HCPs can be supported. In addition, it would be helpful for HCPs including family physicians to be prepared mentally and identify potential sources of support during this difficult period of practice and provide the same for the fellow professionals.

Materials and Methods

The study followed a phenomenological approach to understand the personal stories of HCPs tested positive for SARS-CoV-2. Using a qualitative approach allowed for an in-depth understanding of their recovery experience from SARS-CoV-2.

Institution Ethics Committee approval was obtained in May 2020 for a study on mental health impact on patients with COVID-19 in India. The current study focused only on the HCPs. In this study, we interviewed 13 HCPs working in hospitals including doctors, allied health professionals, administrative staff, and a nurse who had tested positive for the virus. Data saturation was achieved at 11 and two more were done to confirm the same. Nonrandomized, purposive sampling was used to recruit participants for the study. The following were the inclusion criteria : HCPs working in a hospital and who tested positive for SARS-CoV-2 and recovered and those willing to consent. Participants filled an electronic consent form after the first contact and also provided oral consent at the start of the interview. An interview schedule was prepared after careful consideration of literature and expert opinions. Data was collected through telephonic calls, using the semi-structured interview schedule from mid-July to mid-September 2020. Interviews were carried out by a female psychologist who had an experience in qualitative studies. Her experience may have influenced the way in which she related to the participants and interviews were conducted. The identities of all individuals were masked to maintain confidentiality and anonymity. The length of the interview ranged from 30 min to an hour.

The interviews were transcribed verbatim immediately after the interview and were sent to the participants to cross-check. The seven-step Colaizzi descriptive phenomenological method was used to analyses the data from mid-September to the first week of October.

Results

The sample consisted of 13 participants, out of which 7 were male and 6 were female. The demographics of the sample are presented in Table 1.

We explored the psychological impact of SARS-CoV-2 on HCPs infected with the infection and identified four main themes and subthemes from the interviews.

Theme 1: Challenges faced by HCPs

The HCPs working with patients affected by SARS-CoV-2 shared their personal stories in relation to challenges faced by them in their professional and personal life, before and after testing positive for the infection. There were two subthemes.

Uncertainty, fear of the spread of infection

Most of the participants expressed that the nature of the disease had made them anxious due to uncertainty about the course of recovery. The severity of illness varied from person to person, making it difficult to predict if they would recover or succumb to the disease. They not only feared contracting the virus but also worried about passing it on to family or patients.

Fear of stigma

Owing to the nature of the disease and general fear among people, HCPs feared being stigmatized in their neighborhood. With media showing different instances of attacks on HCPs in different regions of the country, the participants shared that sharing the status of their health might attract stigma. Table 2 has quotes regarding the subthemes under theme 1.

Theme 2: Social issues

It might sound clichéd, but a man indeed is a social animal. HCPs like any other human beings are connected to people around them. They live busy lives but going into quarantine or being in isolation brought back the emphasis on the social dimension in the lives of HCPs. The following are the subthemes of the social dimension

Family concerns

Nine participants out of the 13 spoke about their family while narrating their personal stories of SARS-CoV-2. They were worried and had anxieties related to the health of other family members.

Table 1: Demographic details

S. No	Gender	Age	Marital Status	Occupation
P1	34	Male	Married	Doctor
P2	23	Female	Single	Technician
P3	28	Female	Married	Doctor
P4	31	Male	Married	Social Worker
P5	31	Male	Married	Doctor
P6	31	Male	Single	Administrator
P7	29	Female	Single	Doctor
P8	42	Male	Married	Doctor
P9	31	Female	Married	Doctor
P10	29	Female	Married	Doctor
P11	28	Male	Single	Administrator
P12	29	Male	Married	Technician
P13	25	Female	Single	Nurse

We noted that when there were members of the family who were HCP, the participants received support and had someone to discuss their medical condition. The participants also shared their experience of working with patients and their families. They would share their worries and ask a lot of queries. Families are the major stakeholders and are also a major object of concern for the HCPs.

Social support from friends and hospital

The HCPs identified different sources of support during their recovery. Support came from friends who helped in moving to the hospital or delivering food and necessities during isolation. Four of them mentioned feeling supported through videos of anecdotal experiences of HCPs who had recovered from the disease. Other sources of support for participants included the institution they worked at, nurses in the hospital, other staff members who were admitted with them, extended family, and WhatsApp groups. They helped them in looking at the positive side of the hospitalization experience.

Stigmatizing experience in neighborhood

The HCPs were subjected to discrimination due to their profession and also because of being tested positive for the virus. Being stigmatized made them feel hurt. It also showed that their fears came true through these experiences and also indicated the need for awareness about the disease. Table 3 has quotes regarding the subthemes under theme 2.

Theme 3: Quarantine Experience

Being positive for SARS-CoV-2 meant that the HCPs were quarantined until they recovered completely. During this period, they experienced worries and nightmares. They felt the need to connect with others due to loneliness, but also found ways to care for themselves which **was difficult otherwise.**

Emotional and psychological experiences (worries, nightmares)

All the HCPs had worry or anxiety at least for the first few days when they developed symptoms of SARS-CoV-2. For some,

going into quarantine meant that they were alone with themselves after a long time. It was a sudden change from working to not being engaged in any activity; therefore, they experienced overwhelming emotions. Being alone also brought thoughts and emotions, which they otherwise would not have processed. Health, finances, and fear of death were the reasons for worry among the HCPs. Four HCPs spoke about the nightmares they had related to death and facing severe symptoms.

Self-care

The period of isolation was also a period of self-care. It was rare for the HCPs to get time for themselves. Those HCPs who were asymptomatic viewed the quarantine period as a break for self-care. Some of the activities that they engaged in to take care of themselves were to sleep adequately, eating food on time, watching web series, playing board games, and talking to friends and family.

Desperation to connect with people

The HCPs felt a need for social contact when they were isolated. In the state of loneliness, they felt negative unpleasant emotions including feeling stressed. Those who stayed with family felt bad that in spite of living in the same locality or in two cases, the same house, still they could not meet them. Table 4 has quotes regarding the subthemes under theme 3.

Theme 4. Positive experiences

Getting infected with SARS-CoV-2 helped the HCPs look at their life from a positive perspective. It can be said that they found a silver lining to their experience of testing positive for the virus. Personal strengths, developing a sense of gratitude, reiterating their professional commitment, and growing through the whole process are the experiences, which are described under this theme.

Personal strength

The HCPs drew on their personal strengths to cope with the new situation. The nature of their profession and spirituality were

Table 2: Theme 1

Subtheme	Quotes
a. Uncertainty, fear of spread of infection	<p>“I was confident that I would not contract this infection. I still wonder how I contracted it; I was wearing two layered PPE, three gloves and goggles.” (P8)</p> <p>“The day I was swabbed I realized things can go in either way because there were only two options.” (P2)</p> <p>“I thought if we were to take treatment for one week it would all be fine. However, when I had it, I had to be admitted in ICU. I never expected that I would go so close to death as I am still young.” (P6)</p> <p>“I was quite relieved when we figured out that only we two were affected. It was not our parents who got the infection, that was a big relief.” (P4)</p> <p>“I was worried. After about four days of my admission I came to know that a 16-year-old girl who was admitted for chemotherapy had developed fever. So, I began to worry if I gave my infection to her but she apparently tested negative.” (P5)</p> <p>“When I was in isolation, I didn’t have worries as such. I was in isolation for 15 days after which I got myself tested again. The result was negative. So right now, I’m in my hometown. However, I do worry if I am positive and if I spread infection to my parents.” (P11)</p>
b. Fear of stigma	<p>“I don’t know how it will be if I share with others that I have tested positive. We have seen the news about how people treat others who test positive. Right now, I’m in my hometown. I haven’t told anyone because I don’t know how they will react.” (P11)</p> <p>“If my neighbors will come to know that we were positive they will become aggressive. It’s to be expected. They may tell us to vacate the home. Luckily, we have our own house; if it was a rented one surely, they would have chased us out.” (P8)</p>

Table 3: Theme 2

Subthemes	Quotes
a. Family concerns	<p>“Reassuring family was one big thing (challenge) and especially explaining all these details” (P10)</p> <p>“My parents were mentally prepared. Every time a friend of mine was positive, I was told by them to be honest with the family. They didn’t want me to make them believe that things were all rosy.” (P2)</p> <p>“We were all scared, my father was so scared actually he was wondering whether I would come back home (alive) or not.” (P6)</p> <p>“My parents were very concerned. They were also scared. They were ok with me but my mom used to call my friends and check on my status.” (P3)</p> <p>“My parents are also HCPs. So, they knew about covid. They knew when to worry and when not to worry. So, they were aware of my situation. So they were not worried as such.” (P11)</p> <p>“More than the patient the relatives will be tensed” (P5)</p>
b. Social support from friends and hospital	<p>“My roommate was really helpful. She didn’t back away even on the day I wanted to get tested; on the day I was going to get admitted, she was sitting with me even when I was positive. She helped me with packing and my friends were also my strength, they used to cook for me and come and stand at a distance to talk to me during my quarantine.” (P2)</p> <p>“When I was in the hospital my wife was alone with a kid. So for bringing things, my friends were there. I was really happy because they did it without any expectations.” (P5)</p> <p>“My extended family was really helpful like my father’s sister and all were helping because since my parents were also affected, they were providing us with food and supported us a lot.” (P6)</p> <p>“Social or peer support (whatsapp group), network of praying friends and chatting with recovered individuals who were supplying food for people in the ward was a source of support for me” (P9)</p> <p>“My friends helped me in getting home supplies during quarantine without expecting anything from us.” (P13)</p> <p>“I felt good when I saw a few of my seniors, who were also admitted with me.” (13)</p> <p>“We had a friendly environment over there (at the hospital). Nurses were really good. They were not hesitating to help us even in the middle of the night. They were more than flexible to help us.” (P1)</p> <p>“The people who were admitted with me were all doctors. They were having fun in the ward. This reduced my anxiety” (P10)</p> <p>“Frankly speaking, in the hospital I was fine, probably because I am a staff here and I felt I belonged in the place, I had people to talk to and the institution will back me. It was very cool to have a roommate I could relate to.” (P3)</p>
c. Stigmatizing experience in neighborhood	<p>“I went to buy fruits and vegetables in the street after I finished my duty. I still had my ID card. One lady accidentally touched me in a queue in a shop. She freaked out when she realized I was working in a hospital. I had a shock of my life not realizing what is going on. Later the shopkeeper told me the possible explanation.” (P2)</p> <p>“There were other relatives who were very scared, once they came near my house and just left the food on the road and went away, not even willing to step inside the gate. So, getting back into society is again difficult. Sometimes it hurts a lot.” (P6)</p> <p>“They (neighbors) weren’t coming out, everybody was stuck in the house. In the initial one week they were hesitant.” (P9)</p>

Table 4: Theme 3

Subthemes	Quotes
a. Emotional and psychological experiences (Worries, Nightmares)	<p>“When I came to quarantine facility everything was empty. I was just left all alone. Obviously, all the emotions came out and then I sat back and processed through. I had to cry one or two times and then I became fine.” (P2)</p> <p>“When you are busy in your routine work and suddenly you are pushed into state of doing nothing, the change is not easy to accept. We should note that it was an unexpected change: I was pushed into something I don’t wish to do. I was compelled to do it, but for a good reason.” (P4)</p> <p>“I was actually having quite bad dreams as if I was fighting with my death in my sleep and probably, I would wake and find myself frightened with all these thoughts.” (P6)</p> <p>“I had the worst nightmare ever. It was as if I’m going to ventilator and I’m going into sudden death. I wondered what would happen to my family, family circumstances, family economic problems. Worry regarding these was very common when I was in hospital.” (P8)</p> <p>“I was thinking what if my sense of smell is not back then it’s a problem” (P10)</p>
b. Self-care	<p>“We have been continuously working since the start of COVID duty and suddenly when there was a break. it was good, really good.” (P2)</p> <p>“I didn’t skip any meals I ate properly ... I had time to eat properly otherwise I usually don’t get time” (P5)</p> <p>“I had a good amount of sleep, talking to a lot of relatives and friends (which used to be rare), and I spent time watching movies, reading books and praying.” (P1)</p> <p>“There were board games like carrom board, ludo and all the stuff, I kept myself engaged with it” (P12)</p>
c. Desperation to connect with people	<p>“Quarantine was very stressful because I was all alone like there was nobody and it was away. The only people I saw were people who came to deliver food. There was no social interaction except for the phone.” (P2)</p> <p>“I was counting days and talking on video calls is not sufficient for a family; that was also a bad feeling for me. Even though they were near I was not able to go home” (P5)</p> <p>“I was missing my family and kids. They were missing me a lot more than me missing them.” (P12)</p>

two factors that almost every HCP mentioned as their personal strength. Along with that optimism and resilience were other strengths that were seen in the HCPs.

Sense of gratitude

The experience of being quarantined allowed the HCPs to reflect on small joys of their lives and to value moments and people

in their lives. The recovery process taught them that as nature protected humans, it was imperative for humans to show respect towards nature too. Personal experiences of HCPs revealed that there were factors in their immediate environment as well as in the existential realm that they felt gratitude towards.

Personal and Professional Growth

The recovery experience from SARS-CoV-2 has also been a period of growth for the HCPs. Growth is in terms of knowledge, personal commitment to work, and also seeing a new side of life. Going through the illness helped some participants gain more empathy for the patients.

Professional commitment

All the HCPs in the study shared that their professional commitment remained the same or improved due to the experience. Making a choice to work in this field meant that there would be challenges and they have to be open to facing them. They attributed meaning to their life through their profession. Table 5 has quotes regarding the subthemes under theme 4.

Discussion

This study aimed to understand the personal stories of HCPs working with patients in hospitals who tested positive for SARS-CoV-2. Therefore, the experiences of participants encompass the time from before they were tested to being recovered completely. The following four themes emerged : challenges faced by HCPs, quarantine experience, social issues, and positive experiences.

The HCPs experienced uncertainty about the disease and also feared passing on the infection to their families or patients. This is consistent with findings from studies conducted in the context of severe acute respiratory syndrome (SARS),^[9,10] Middle East respiratory syndrome (MERS),^[11,12] and the current SARS-CoV-2 pandemic.^[4,13,14]

HCPs were afraid of being discriminated against and treated differently. These fears were present as they worked and also when they were tested positive, which has also been shown in different studies.^[2,10,12] Fear of stigma may be exacerbated by watching videos on social media, as seen in the experience of the HCPs in this study.^[15]

Family members play a role in maintaining the health of an individual due to the psychological and emotional connect that they share within themselves. Our study showed that concerns in families are bi-directional^[13] that is, while families are concerned about the health and well-being of the individual, individuals are concerned about protecting their families from getting infected. While families provided reassurances that “everything will be okay,” the HCPs had to reassure their families that “I am okay.” This showed that family support formed a pillar of strength in the time of adversity.

Emotional responses ranged from feeling overwhelmed and scared to feeling glad to have experienced it. The range of emotions varied in different stages. All participants mentioned feeling scared or anxious initially when they showed symptoms;

Table 5: Theme 4

Subthemes	Quotes
a. Personal strength	“I have been here working with infected and suspected patients. It was not meant to be daunting for me.” (P2) “Since I’m a health professional and treating a lot of patients, I was mentally prepared that I can contact the disease at one point or the other.” (P10) “My strength is my belief in god. He has made every cell of mine. He has made me in my mother’s womb. And he is in control.” (P6) “I know I will get out of it.” (P12) “I’m happy that I went through it and I came out of it stronger.” (P3) “I was comforting them while I was in quarantine.” (P9)
b. Sense of gratitude	“To be more present in the moment more grateful not take anything small for granted” (P2) “Be thankful for small things. I came to know about people who really care for me and who won’t like” (P8) “So, nature has given us lots of chances, even if you destroy it, it just gives you a fruitful life. Like now this epidemic is like a restart for mankind, including me.” (P4) “Something that I was taking for granted all my life is now in the oxygen pipe, that’s when I actually felt I often missed out the important things like breath and all that. We basically miss out the most valuable things in life.” (P6)
c. Personal and Professional Growth	“I have never seen this dark side of life. I have always been a happy person. I have never been admitted in the hospital so far. When suddenly I was in a hospital as a patient, I realized that I am still learning about life.” (P2) “Even when I was in ICU, I was thinking I should not forget this experience throughout my life.” (P6) “I got a true picture of COVID-19xxxxxxx pneumonia, I thought pneumonia will be only for elderly or for others having a comorbid condition, even though I had a strict diet and my sugar was at control, I had pneumonia... I have a clear picture of the disease.” (P8) “I have confidence that since I can get through, I can take better care of patients who have gone through COVID or are going through now” (P3)
d. Professional commitment	“In March, when there was such a hike in cases, all I decided was that if I’m scared, I won’t be able to give my full potential in working so I need to get over this fear and whatever happens will happen.” (P2) “I voluntarily come to this profession and I have no one to blame. If you are a HCP you should be in a state to accept anything.” (P12) “I was working only during duty hours but now I’m just available before duty hours, I’m not seeing it as duty but as a responsibility by contributing my part to the society.” (P4)

it moved to feeling irritable and loneliness creating desperation to connect. Studies have shown long-term mental health implications of being under quarantine and therefore it is necessary to address the same.^[16,17] With the experience of negative emotions, the participants also felt a sense of gratitude for life and for social support that they received. These are positive states of mind, which were also seen in a study with nurses caring for COVID-19 patients.^[6,13] Having a personal experience gave the HCPs an opportunity to be more empathically attuned to their patients; however, this may pave way for more compassion fatigue among the HCPs.^[18]

Since the start of the pandemic in March 2020, HCPs have been facing long working hours due to increased caseload. Long working hours are associated with fatigue and stress.^[13] Participants in this study showed that testing positive but being asymptomatic allowed them to recuperate from fatigue.

Personal strengths such as optimism, resilience,^[19] and spirituality^[20] are predictors of well-being. These factors of well-being help individuals look at any experience as that of learning and growth. This highlights that one may experience growth after traumatic or adverse events. A study^[21] that looked at experiences post-SARS epidemic showed post-traumatic growth and positive psychological outcomes. An interplay of personal strengths and professional strengths was seen when participants expressed that their faith in God and their understanding of the disease helped them cope with the disease. Faith in a higher power plays an important role in keeping hope alive in adverse situations, while knowledge and information allow for clarity and confidence in recovery.^[22]

HCPs feel a professional commitment to continuing to serve people despite getting infected themselves.^[13] This is a marker of resilience as well as a sense of duty. Developing resilience has been shown to limit the anxiety and fear in HCPs.^[23]

Only one participant in this study expressed receiving a visit from a mental health professional. No formal mental health support was provided to the HCPs. It may be with the assumption that they can manage their mental health without any support, given their personal strengths. We are still not at the end of the pandemic. The intensity of emotions that HCPs faced and the persisting risk of infection suggest that HCPs should be provided with mental health support. Quantitative studies may be needed to determine the extent of the need. There is also a need to investigate the type of interventions that might benefit them. Findings of this study indicate that HCPs in general can develop a resilient perspective towards facing pandemic. HCPs play an important role in managing physical and mental health issues of patients, in general, they struggle to seek help for themselves^[24] so it is important to address the mental health issues of HCPs themselves. One may look at ways to implement programs such as online workshops, individual and group counseling sessions, organizing webinars of HCPs on mental health issues, creating networks within the

community for information sharing and emotional support,^[25] encouraging HCPs to share their recovery stories, and having “support calls” for HCPs where they talk about their lives during the pandemic and also help them evaluate their strengths and coping strategies^[24] and support groups to address mental well-being from a holistic perspective.^[6]

Limitation

This study focused on limited HCPs. Future studies are required to understand and compare experiences of different individual HCPs, which can provide insights on addressing mental well-being from a holistic perspective. The nature of the disease prevents us from conducting focus group discussions and in-depth interviews in person.

Conclusion

The experiences of HCPs show a wide range of emotional and psychological impacts. We found through their personal stories, that social support and personal strengths allowed them to cope through their recovery journey. The mental health needs of HCPs who test positive for SARS-CoV-2 should not be ignored. Primary care physicians and other HCPs can look at the suggestions given in this paper and adapt to improve their mental well-being and help fellow professionals.

Key Messages

The following four broad themes were identified from the personal stories of HCPs: challenges faced by HCPs, social concerns, experience of quarantine period, and positive experiences. Social support and personal strengths allowed them to cope through their recovery journey. There is a need to look at ways to implement programs such as online workshops, individual and group counselling sessions, and support groups to address mental well-being from a holistic perspective.

SARS-CoV-2 Severe acute respiratory syndrome coronavirus 2
PPE- personal protective equipment
HCP- health care providers
ICU- intensive care unit

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Conflicts of interest

There are no conflicts of interest.

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