Impact of COVID-19 Outbreak on Mental Well-Being of Healthcare Workers in Rajasthan:

A Qualitative Study

Master of Public Health Integrating Experience Project

Professional Publication Framework

By

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ABSTRACT

Background: The outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started in China in December 2019 and rapidly evolved into a global public health crisis. WHO declared it a pandemic in March 2020. In the course of the pandemic, there was a lot of pressure on health care workers to contain this disease with the limited resources available, which put a significant amount of strain on their physical and mental health.

Aim: To explore the factors that contributed to mental health strain in healthcare workers dealing with COVID-19 patients in the state of Rajasthan

Methods: This qualitative study was guided by phenomenology. The study population included doctors who dealt with COVID-19 patients in Rajasthan. Convenience and snowball sampling methods were used to recruit the participants. The data was collected through 17 in-depth interviews between February 2022 and May 2022. The interviews were conducted either face-to-face or online via video calls. The questions in the interview guide were based on the theoretical framework of Job Demands and Resources model. Data analysis was a combination of inductive and deductive approaches. Ethical approval for conducting the study was obtained from the American University of Armenia's Institutional Review Board.

Results: Out of the 17 participants, 12 were men and 5 were women. The age of participants ranged from 23 to 40 years. Eight participants worked in a private facility while seven participants worked in a public facility. Two of the participants worked in both public and private facility during COVID. The two main categories of influences on mental well-being of providers were Job Demands and Job Resources. The main negative factors described in Job Demands were increased workload, exhaustion due to working in PPE, fear of infection, isolation, clinical uncertainty and high death toll, stigmatization, dealing with the patients' relatives, and absence of psychological counselling for doctors. A number of positive influences (job resources) buffered the effect of job demands and played a motivational role.

Conclusion: The study showed that the doctors faced multiple stressors while working during the COVID-19 pandemic. The doctors should be given opportunities to avail mental health support and to get enrolled in peer-support groups to help them cope with the strain caused by disease outbreaks. At the same time, there is a need to ensure a better health infrastructure with adequate resources and personnel, and administration of services. Protecting mental well-being of healthcare professionals can enable them to provide their services in an effective manner without compromising their physical or mental health.

1. INTRODUCTION

1.1 COVID-19 Pandemic (Global Situation)

Coronavirus disease 2019 (COVID-19) is a respiratory infectious disease caused by the severe acute respiratory syndrome virus 2 (SARS-CoV-2).[1] China initially reported a few cases of pneumonia on December 31st 2019 in Wuhan,[2] which were later identified to be caused by the novel coronavirus.[3] The main clinical symptoms reported in these cases were fever and difficulty in breathing.[3] The disease spread rapidly across countries and on 30th January 2020, WHO declared COVID-19 as a Public Health Emergency of International Concern (PHIEC)[4] and soon thereafter on 11th March 2020, WHO declared COVID-19 outbreak a pandemic after over 118,000 cases were already detected in 114 countries.[5] As of 15th June 2022, COVID-19 has infected around 534,495,291 people and took 6.3 million lives.[6]

As vaccine could prove to be an effective measure in controlling this pandemic through herd immunity[7], several institutes across different countries started the trials. Pfizer/BioNTech vaccine was the first vaccine to get validation from WHO in December 2020. Later, on 15th February 2021, two versions of the AstraZeneca/Oxford COVID-19 vaccine were also listed by WHO for emergency use.[8] Several new variants of coronavirus have also been detected in different countries.[9] In September 2020, a variant later named as B.1.1.7 was observed in England.[9] Another variant called B.1.351 was discovered in South Africa. There has been some evidence that the new variants might spread faster and might also cause re-infection among patients who previously had COVID-19 infection.[9] The currently circulating variants of concern are Delta (B.1.617.2) and Omicron (B.1.1.529).[10] In March 2021, a third wave of the pandemic

was seen in some European countries[11] and a second wave was seen in India around the same time.[12] The second wave of COVID-19 in India turned out to be the most serious one, resulting in a dramatic increase in the number of cases and number of deaths.[13] The third - mainly, Omicron-caused wave was seen in January 2022 but it was not as deadly as the second one as less number of hospitalizations and fatalities were reported.[14] According to recent estimates from the WHO, approximately 15 million deaths worldwide can be attributed directly or indirectly to COVID-19 in 2020 and 2021.[15]

1.2. Situation in India

In India, the first few cases of COVID-19 were reported on 30th January in the state of Kerala and a nationwide lockdown was declared in India on 24th March 2020 for 21 days and was later expanded for several months.[16] As of 15th June 2022, COVID-19 has infected around 43 million people and has taken more than 524 thousand lives in India.[17]Different states in India adopted different strategies to deal with the pandemic. For example, Maharashtra was the first state to use cluster containment strategy in which areas were divided into Red, Blue and Green clusters on the basis of number of COVID-19 cases.[18] Kerala used its past experiences of floods and NIPAH outbreak to deal with the pandemic.[19] Strengthening the health infrastructure, contact tracing, screening of the passengers and intense testing were some of the important strategies used by the Kerala Government.[19]

In Rajasthan, the first case of COVID-19 was reported on 2nd March 2020[20] and in order to control further spread, the Government imposed section 144 which prohibited gathering of people at public places[21] and on 22nd March, lockdown was declared in the state even before the national lockdown.[22] In May, the districts of Rajasthan were divided into Red, Orange and Green zones based on the severity of the outbreak[23] and the state borders were also sealed.[24]

Although multiple measures were undertaken by the government to control the spread of the disease[25], little was known about the disease during the initial months, and the rapid increase of the number of cases made the situation worse. The strict measures taken by the Government of India during the lockdown had their repercussions. For example, the migrant workers in the big cities working on daily wages lost their jobs and started migrating to their homes in the rural parts of India and as no form of public transport was functional during the lockdown, they had no choice but to walk back home which posed major logistical and health security challenges.[26] Also, the COVID-19 outbreak emerged as a medical mystery with far more questions than answers.[27] The healthcare workers were on the frontline, which was risky for their and family members' health while dealing with COVID-19 positive/suspected patients.[28] There was shortage of Personal Protective Equipment (PPE) for the healthcare workers.[29] Other issues were violence and stigmatization against the healthcare workers dealing with COVID-19 as people held them responsible for spreading the disease.[30]

1.3. Psychological impact of COVID-19

In addition to physical health challenges, the pandemic can have significant mental health consequences. Social impact of the outbreak, precautionary measures such as social distancing and quarantine[31] and threat to life can cause distress in the general population and among the healthcare workers.[32]

Psychological Distress (PD) is a condition that can be identified by the symptoms of depression and anxiety.[33] Depression is a heterogeneous disorder that can be manifested by a variety of symptoms like depressed mood, diminished interest, change in appetite, change in sleeping pattern, fatigue, inability to concentrate, low self-esteem and suicidal thoughts[34] and anxiety is an emotion in which an individual is tensed, has worried thoughts and can have physical changes

like increased blood pressure.[35] The stress-distress model explains the main features of psychological distress, which are exposure to a stressful event, inability to cope with the stressor and the resulting emotions due to ineffective coping.[36] The factors that contribute to psychological distress at workplace are lack of social support and inconsistency between the demand and reward.[37]

Health professionals dealing with COVID-19 cases face multiple stressors like fear of getting infected, fear of transmitting the infection to their family and friends[38], long working hours, shortage of protective equipment[39] and fatigue.[40]

A study done among the healthcare workers in Beijing, China showed that during the SARS (Severe Acute Respiratory Syndrome) outbreak in 2003, those who were quarantined, working in high-risk areas or had high risk-perception had more post-traumatic stress symptoms.[41] The results of another study conducted in Korea after the 2015 MERS (Middle East Respiratory Syndrome) outbreak showed that healthcare workers involved in MERS-related tasks were at high risk of post-traumatic stress disorder symptoms.[42]

Dealing with COVID-19 patients can have several psychological consequences on the healthcare workers like post-traumatic stress reactions and professional burnout.[43] Post-traumatic stress disorder is a condition that affects people who had exposure to a traumatic event like violence, natural disasters, accidents, war, witnessing death etc.[44,45] Professional burnout is a state of mental exhaustion caused by the professional life of an individual. The three characteristic features of burnout among healthcare professionals are emotional exhaustion, sense of detachment from patients or peers and reduced sense of accomplishment.[46] Excessive workload is one of the main reasons for burnout among physicians.[47] A study done on healthcare workers

in Iran who were dealing with COVID-19 cases directly/indirectly showed that during the early phase of the pandemic, the healthcare workers had high levels of stress, fear and anxiety.[48]

1.4. Theoretical framework

The framework of the Job Demands-Resources Model is used to explain the impact of COVID-19 pandemic on healthcare professionals' mental health. Job demands refer to the physical, psychological, social, or other aspects of the work that require physical or mental contribution. Job resources refer to the same aspects of the work that give motivation and can lead to positive outcomes.[49] Chronic job demands cause energy depletion that results in adverse or negative outcomes on physical and mental health.

Several studies have been done among healthcare professionals during different outbreaks using the framework of JD-R model.[50] The key job demands that emerged as an important risk factors for potential mental health problems among health providers during viral epidemics or pandemics were contact with an infected patient, being quarantined, "heavy workload, hazardous work environment, unclear job instructions, ambiguous infection control policies, lack of feedback, being blamed for mistakes, and lack of appreciation", inadequate PPE and inability to correctly diagnose COVID-19.[50] The job resources that played a motivational role were availability of adequate PPE, social support, organizational support, adequate communication

about issues related to viral epidemic/pandemic and personal resources (e.g. self-efficacy).[50]

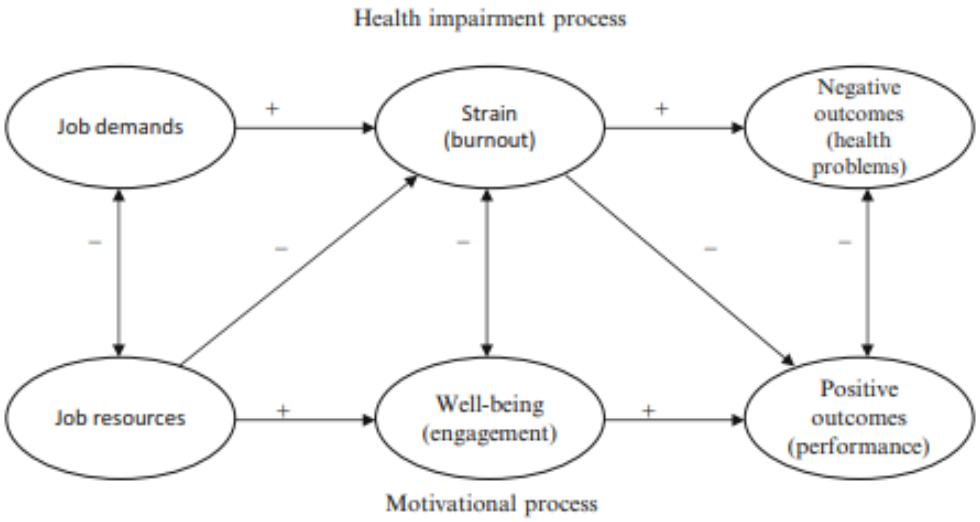

Figure 1. The Job Demands-Resources Model[49]

1.5. Study aims and research questions

Few qualitative studies have been conducted to explore the effects of working with COVID-19 patients on the mental health of healthcare workers in India. The aim of this qualitative study is to explore the factors that contributed to mental health strain in healthcare workers dealing with COVID-19 patients in the state of Rajasthan during the outbreak.

The state of Rajasthan (India) was chosen to conduct the study as no previous studies regarding the topic have been done in the state and because it was feasible to recruit participants from this state using the personal contacts of the student investigator.

The study research questions are the following:

- What are the physical, psychological, social, and organizational aspects of the job that affected psychological wellbeing of healthcare providers during the COVID-19 pandemic?
- What are the job resources available to healthcare professionals that helped them meet the demands during the COVID-19 pandemic?

The findings of this study will contribute to the understanding of how some factors deteriorate and other factors facilitate the mental well-being of healthcare workers during epidemics in different social, cultural, and economic settings. The study can provide evidence for healthcare administrators and policy makers in India for developing effective strategies to address the needs of healthcare professionals during epidemics.

2. METHODS

2.1. Study design

This qualitative study explored the experiences of healthcare workers during the COVID-19 pandemic using in-depth interviews. The study was guided by phenomenology as it examined the experiences of doctors dealing with COVID-19 patients.

2.2. Study population

The study population included healthcare workers (doctors) from several hospitals that were dealing with COVID-19 positive/suspected patients during the COVID-19 outbreak in Rajasthan. Doctors dealing with COVID-19 patients in both inpatient care and outpatient care were included in the study to get a diverse range of opinions to enrich the data obtained. Only those participants were selected who could communicate in English as the student investigator was more comfortable in communicating and interpreting the results in English.

2.3. Sampling

Convenience and snowball sampling strategies were used to recruit the participants. Participants were approached through personal contacts of the student investigator who is a doctor herself and hence has contacts with medical professionals. The participants were first approached through a phone call and if they agreed to participate, they were asked to provide a suitable date

and time for the interview. The recruitment of the participants was done until the data saturation was reached.

2.4. Data collection

The data was collected through in-depth interviews between February 2022 and May 2022. All the interviews were conducted by the student investigator. The interviews that were conducted within the proximity of the student investigator's residence were face-to-face, whereas all other interviews were done through an online video call. Before beginning the interview, the interviewer introduced herself and the aim of the study to the participants. Verbal consent was taken from the participants before starting the interview. The interviews were audio-recorded with consent of the interviewees. A research diary was maintained to keep a record of how the study was conducted in order to make the study more transparent and systematic.

2.5. Study setting and instrument

The two face-to-face interviews were conducted in a private room situated in the hospital where the participants were working. Precautionary measures like wearing a mask and physical distancing were followed during the face-to-face interview. As most of the interviews were done online via video calls, the participants had an opportunity to be interviewed at the place and time of their convenience.

In-depth interview guide was developed in English in accordance with the research questions. The questions were based on the theoretical framework (JD-R model) focusing on the Job Demands and Job Resources. The interview guide was a combination of structure and flexibility and mainly consisted of open-ended questions along with probes (if required). It consisted of four sections. The first section included questions about demographics (see Appendix 1). The

second section started with doctors sharing their experience of first encounter with a COVID-19 patient. Other questions explored various job demands and resources (see Appendix 2). The interview ended with doctors' suggestions and concluding remarks. The guide was modified continuously on the basis of the data collected and issues identified.

Strategies to ensure the credibility of the data included peer-review and member checking (interpretation of the data was reviewed by some of the participants). The dependability and reflexivity of the study was maintained by keeping a research diary.

2.6. Analysis

The data analysis process employed a combination of inductive and deductive approaches. During the first cycle of coding, several codes were identified and during the second cycle of coding, sub-categories were made. The sub-categories were organized under the two main predefined categories which were the Job demands and the Job resources

2.7. Ethical considerations

Before initiating the study, ethical approval was received from the Institutional Review Board (IRB) of the American University of Armenia. An oral consent form (see Appendix 3) was used to inform the participants about the aims and objectives of the study and that their participation is voluntary, and they can refuse to answer any question or stop the interview at any time. The participants were also assured of the confidentiality and were provided with the contact details of a member of the IRB team in case they had any questions or were not satisfied with the interview process.

Participants' permission was taken to record the interview. While transcribing the interview records, any identifiable information was anonymized. The identifiable information of the

participants as well as the audio tapes were kept in a password protected file in the student investigator's computer. In addition, after completion of the project all the audio recordings will be deleted.

3. RESULTS

Twenty-two participants were approached out of which 17 agreed to participate (12 men and 5 women). The reasons for refusal were being busy with work, not interested in the study and having exams.

The average duration of the interviews was 34 minutes ranging from 21 to 52 minutes. Two of the interviews were face-to-face while the others were conducted via video call. All the interviews were audio recorded. The age of the participants ranged from 23 to 40 years with a mean of 29.2 years. Eight of the participants were working in a private facility while seven participants worked in a public facility. Two of the participants worked in both public and private facilities during the different waves of COVID. The participants were working in different districts of Rajasthan during the pandemic (see Table 1).

The main sub-themes identified in the category of Job Demands were increased workload, exhaustion due to working in PPE, fear of infection, isolation, clinical uncertainty and high death toll, stigmatization, dealing with the patients' relatives, and absence of psychological counselling for doctors (see Diagram 1).

JOB DEMANDS

1.1: Physical Aspects

Increased workload

Most of the doctors reported that their working hours and workload during the first and second waves increased substantially resulting in fatigue.

> *"It was like we were working for 24 hours. We would get a call anytime either for treatment or consent (for performing medical procedures or tests, to put the patient on ventilator etc.) or if the oxygen saturation was very low."*
>
> (Pulmonology Resident, Private facility)

A Junior Resident from a government facility said: "*It was very hectic and exhausting both physically and mentally"*, whereas a Medicine resident from a private facility said that his workload increased up to threefold as compared to a regular day at work.

> "*The second COVID wave was the worst time of my whole life because I still remember that I used to start my work at 8 in the morning and in the evening till 9 or 10 pm I used to look after the COVID patients."*
>
> (Pulmonologist, Private facility)

Another issue was that doctors did not get a leave during the pandemic.

> "*The residents working there (hospital), they were really exhausted. They were not getting leave for 7 days."*
>
> (Junior Resident, Government facility)

> *"The government hospitals where my colleagues are still working, they still go (to work) on Sundays. Those who are taking samples or who are working in the vaccination unit still*

go on Sundays. They have not gotten official leave for 3 years [since the COVID outbreak]. *They also have a family; they are also exhausted."*

(Medicine Resident, Private facility)

Some participants indicated that there was a shortage of workforce in the health sector especially in government hospitals, which further increased the workload during the pandemic.

"First things first, the hospital needs to hire more people to work in COVID. Do not overburden the already existing people in the hospital. The management can hire more people; they just have to spend some money. They are taking all the money from the patients, so they don't have any shortage of money."

(Anesthesia Resident, Private facility)

During a time, which required "all hands-on deck", the participants in addition to shortage of doctors also talked about shortage of nursing staff especially in the COVID ICUs.

"They can hire more people, especially the nursing staff. I was the only doctor in 10 bedded COVID ICU and it's too much. Still, I can manage but I need some good, trained nursing staff and there was shortage of nursing staff. Ideally in ICU, there should be one nursing staff per bed. In my hospital, there was one nursing staff for three beds, and it was too much for them. They were working tirelessly. If you don't hire more staff and only the existing staff is working then obviously, a few things will be compromised like patient care or hygiene."

(Anesthesia Resident, Private facility)

A Medicine Resident working in a private facility pointed out the issue of shortage of manpower in government facilities,

> "*There was lack of manpower. In private facilities, the condition was still better but in government hospitals the condition was worse. One of my friends was working in a government hospital and he was really exhausted because government hospitals anyways have less staff."*

Exhaustion due to working in PPE

Since the doctors were in close vicinity of COVID patients and hence at greater risk of contracting the virus, the personal protective equipment acted as shield. The protective gear that includes the gown, head cover, face shield, goggles, gloves, shoe cover and mask was worn by the doctors for long hours at a time because once the doctor wears the PPE, it is not advisable to de-scrub frequently. Excessive sweating, dehydration, vision problems, difficulty in breathing were some of the PPE-related problems that left the doctors feeling exhausted.

> *"I was tired, very tired because putting on PPE and working in that situation continuously for 12 hours without drinking water or using washroom was really exhausting."*
>
> (Anesthesia Resident, Private facility)

> *"I wore PPE kit for the first-time during night duty. There was so much fogging in the specs. It was very difficult to see anything. Also, I had difficulty in breathing in the kit."*
>
> (Pulmonology Resident, Private facility)

1.2: Psychological aspects

Fear of infection

The doctors being the frontline workers were at a higher risk of getting exposed to the virus. Despite the high risk of infection doctors were a little casual about the consequences of infection for their own health but cared significantly for the health of their family members.

The doctors practiced all possible measures to prevent their loved ones getting infected. Two of the statements represent this concern:

> *"The thing I was really stressed about during this situation was my family. The people I love. This one thing was continuously on my mind that if these people will get COVID [from me] then how will I manage to save them."*
>
> (Anesthesia Resident, Private facility)

> "*Actually, I ensured that I remain isolated from my family. My parents said, "you are our son", and they would rather stay close to me but since we are young and if we catch the infection, it won't be as serious as it would be for our parents. My father is diabetic, and my mother is also above 60 so I had to take care of them. They don't know how dangerous it is, but we know that if an old person gets COVID then it can be dangerous. So, I made sure that I isolate myself from them."*
>
> (Medicine Resident, Private facility)

A few doctors also talked about how mild symptoms like cough or sore throat, which could be result of a minor ailment would make them suspicious of COVID.

> *"If I get even a slight rash in the throat after treating COVID patient, I have this feeling that this is COVID. In routine we tend to disregard such mild symptoms but during COVID we started noticing small things."*

(Pulmonology Resident, Private facility)

Isolation: “All by Myself”

Many of the participants had to isolate themselves because of getting COVID positive. Most of the participants got isolated at their home while a few of them who stayed in the hospital campus isolated in the hostel room. During the first wave, the duration of isolation was 14 days which decreased to 5-7 days during the second and third wave. The participants compared isolation to “*being in a different world”* or *“to be locked in a cage”*. It also posed logistical challenges like difficulty in arranging food, medicines etc.

“There were many problems with isolation. It felt like someone has put a bird in a cage. I was in a single room for 24 hours for 14 days. There is a limit up to which we can watch Netflix or TV. I started feeling lonely because I could not meet my family members, I could not go out. I was eating alone. It was a disturbing phase for me.”

(Surgeon, Private facility)

“See isolation is really a tough thing. There were problems of food also. Normally we eat in the mess but that time I was ordering food online. So, I had difficulties getting the food because I myself could not go out of my room. Also, it is tough to be in the same room for 10-14 days.”

(Pulmonology Resident, Private facility)

“Isolation was more difficult because you can’t go out, you can’t do anything and people were so scared at that time that if you tell them that you are isolated, they won’t even pick your call. They were scared that they might get the virus through the phone. So, the biggest challenge of isolation was to be all be myself. Since I am a doctor, I am in the habit of

seeing 100-200 people in a day and then suddenly you are locked away in a room where you can't do anything."

(Medicine Resident, Private facility)

Clinical uncertainty and high death toll of COVID-19

The doctors were working with limited knowledge and limited resources during the times of unprecedented crisis. The uncertain nature of the disease without any definitive treatment made the situation worse. Even after trying their best, the doctors were unable to save some of their patients including young people without any comorbidities, which got translated into the doctors feeling helpless. The participants also talked about the personal bond they shared with some of their patients and how it "*broke their heart"* when they were not able to save them. A few participants got so disheartened that they even considered leaving their job. Low mood, feeling stressed, getting disheartened, feeling mentally exhausted and feeling depressed were some of the expressions used by the participants during the course of their interview.

"Every day a young patient was dying. So, it was very difficult. Since some patients were very young, it was hard for us to accept. We were not able to save the patient even after trying everything."

(Pulmonology Resident, Private facility)

"For the first time in my whole life, I was so much mentally exhausted. It was the first time that I saw such a huge number of patients, but I did not know whether they will survive or not."

(Pulmonologist, private facility)

"As far as I know, COVID has impacted a lot of people. I asked my friends who were working in COVID ICU, especially females. They are very emotional, they feel things. So, they used to cry that I have lost my patient and I couldn't do anything. So, it was not only me who was feeling all these things. My batchmates were feeling the same things. So, it was disheartening for me, and we couldn't do anything."

(Anesthesia Resident, Private facility)

1.3: Social aspects

Stigmatization

Social stigma appeared to be a major challenge for the doctors during the COVID-19 pandemic. A considerable number of doctors in this study experienced stigmatization related to COVID. The stigmatization was a result of fear and less knowledge and awareness of the general population regarding COVID. The doctors faced stigmatization in several ways including avoidance by people, being asked to vacate their apartment, being blamed for acquiring the infection etc.

"One of my closest friends and his mother tested Covid positive, eventually he blamed me for all the mishap. He does not have his father, he lost him two years back. He warned me that if something happened to his mother then I would be the one responsible. When I got myself tested, fortunately, I tested negative for Covid and had to share the reports with him to prove that it could be a spread from anyone and not necessarily me or any other doctor. This was an unsettling experience for me as he was my childhood friend, and we don't share personal relations anymore..."

(Surgeon, Private facility)

"In the beginning, people started avoiding my family members too. They thought that since their son is working in a hospital, we better avoid any contact with them. The vegetable vendors also started maintaining distance from us."

(Medicine Resident, Private facility)

"*There was a lady living in front of me. She asked me to move somewhere else since she thought I was putting people at the risk of infection. See, there is not much education and awareness in India, so people at that time started thinking that doctors were spreading the virus."*

(Junior Resident, Government facility)

On the contrary, few doctors mentioned that they themselves avoided people during the pandemic in order to prevent the spread of the disease.

"*At that time, I was the one who was avoiding contact with the people because I knew that at some point of time, I must have gotten exposed to some COVID patient. So, I tried to limit the spread of the infection."*

(Anesthesia Resident, Private facility)

<u>Dealing with the Relatives of the Patients</u>

According to the interviewees, the relatives of the patients experienced as much or sometimes even more anxiety and stress than the patients themselves. The situation worsened due to the visiting restrictions and because the relatives were not able to see the patient. This lead to doctors facing difficulties in counselling the relatives of COVID patients.

"I can tell about a more serious disease in an easy manner to the patient. But in COVID, even if the patient was asymptomatic, it was difficult for me to counsel the patient and

relatives because everyone was very scared. From day one, the relatives would panic a lot even if the (oxygen) saturation of the patient was normal. What I am trying to say is that the counselling part was a bit difficult."

(Pulmonology Resident, Private facility)

According to the interviewees, the conflicts arose because it was a new disease, and the people did not understand the situation thoroughly. They were completely unaware of the contagiousness and the complications involved with COVID 19.

"*Suppose a patient is doing well on BiPAP (Bilevel positive airway pressure) and then at night the condition starts deteriorating suddenly. We call the relatives at 2 am to ask if we can put the patient on ventilator and they don't pick up the call. So, we put the patient on ventilator and sadly the patient dies. Then the relatives would blame the doctors for putting the patient on ventilator without the consent."*

(Medicine Resident, Private facility)

The doctors also mentioned getting numerous phone calls from the relatives of the patient or from influential people, either to know the patient's condition or to arrange a bed in the hospital. The doctors did counsel the relatives face to face. But the fact that they were not allowed to see/visit the patients made them anxious. They would call the doctor multiple times a day, even after the counselling hours to know if the patient was fine. Moreover, the doctors had to address the calls regarding requests of arrangement of beds. Dealing with so many phone calls while treating the patients increased the workload further.

"*We got a lot of phone calls from the relatives and the ministers and all these political personae to know the condition of their known person. So, that was a major challenge for*

me. I still remember I was on COVID duty on that particular day and between 5 pm to 7:30 pm, I got 74 calls. So that was my first experience of that kind of situation."

(Pulmonologist, Private facility)

1.4: Organizational aspects

Shortage of resources

During the COVID-19 pandemic, especially during the second wave, there was shortage of important things like beds, oxygen, drugs, and ventilators. A Pulmonology Resident from a private facility pointed out, "*During the second wave, everything was in shortage. The demand was greater than the supply."*

Shortage of beds for the patients was one of the main concerns for the doctors.

"*It was difficult to get a bed in the hospital during the second wave because at that time, all the beds in the hospital were fully occupied and there were so many critical patients who needed help, but we weren't able to help them."*

(Anesthesia Resident, Private facility)

"*There was even pre-booking of beds in our hospital. So, we would write the names of patients who needed bed and then we would call them as soon as free beds were available."*

(Medicine Resident, Private facility)

During the second wave, the number of critical patients increased many folds which resulted in scarcity of oxygen.

"During the second wave, we did not have enough oxygen and beds. I saw patients dying due to shortage of these things. Doctors were frustrated because they could not do anything in such situation. They were helpless. Actually, we lagged behind in a step-by-step manner. In the first wave we did not have PPE kits. In the second wave we did not have oxygen. The third wave was not that serious, but the thing is, whenever we needed something, we did not have it."

(Junior Resident, Government facility)

The availability of personal protective equipment varied between government and private hospitals. Participants from private hospitals had no difficulties in accessing PPE whereas in government hospitals there was shortage of PPE.

"There was no shortage of PPE. Everyone was provided face shields and gloves were also in adequate quantity. But yes, there was shortage in government facilities in the starting phase when the cases increased suddenly."

(Medicine Resident, Private facility)

The doctors also reported paucity of drugs like Remdesivir, BiPAP machines and ventilators in both public and private facilities.

<u>Absence of psychological counseling services</u>

The concept of psychological counselling sounded new to the doctors and almost all the doctors unanimously denied the availability of such services for the healthcare workers in their facility.

"India is a country where people don't value mental health but there is a dire need of good psychologist, good therapist in India. You can find psychologists in Delhi or Bombay but, in tier 2 cities like Jaipur, Bhopal and Ajmer, you can't find a good psychologist. I

even tried to find some good psychologist in Jaipur for my mental health, but I could not find anyone. Not in my hospital and not even in Jaipur."

(Anesthesia Resident, Private facility)

"There were no counselling services as such. We could talk with our colleagues. If you have a personal bonding with someone in the hospital, then you could talk to them."

(Junior resident, Government facility)

There were two opinions when asked if the psychological counselling services would be helpful for the doctors or not. Some of the participants said that it should have been available while another group of participants said that these services would not be of much help.

Lack of financial incentives

There were no monetary incentives for the doctors despite of working for extra-hours. Some doctors mentioned that they got appreciation in the form of food-packets, certificate, memento etc. but when asked about the salary, there was no increment in their basic pay. The participants seemed upset about getting the same salary even after risking their lives during the pandemic.

"I have one complaint that everyone, in every country, even in some states of India, COVID allowance was given to the staff and the doctors, but we haven't been given any kind of COVID allowance. We are keeping our life at risk; we are the ones working in ICU, but the senior doctors were getting all the money."

(Anesthesia Resident, Private facility)

JOB RESOURCES

Supportive supervisors and colleagues

The participants talked about the positive work environment and the support that they received from their colleagues and supervisors.

> *"In the beginning I did not know anything about the situation, so I started to talk with them (supervisors), and they were fully supportive. They knew the situation; they had worked in such situation, so they were helping me in every aspect."*
>
> (Anesthesia Resident, Private facility)

> *"At that time, everyone was supportive. If any doctor or other staff got mild fever, the administration would not deny your leave and even colleagues were ready to cover our duties. If you call a senior doctor even at midnight for some query, they will always respond. Our ICU consultants, we would call them at 1 or 2 in the morning and they never complained."*
>
> (Medicine Resident, Private facility)

The participants also talked about how they offered help to their fellow colleagues whenever needed.

> *"I still remember that I offered my services to my colleague to admit his patients under my care because he was having too many patients at that time. He was taking care of 50 patients single handedly. So, I suggested that if he wants, he can shift some patients under my care so that the burden can be lowered on him. This is just one example of how we worked as a family."*
>
> (Pulmonologist, Private facility)

Clear communication

The participants were informed routinely about the protocols and guidelines regarding the treatment of COVID patients and the participants faced no difficulties in following them as well.

> *"So, in our community they made a group of people who were treating COVID patients, which included Shreya (name changed) ma'am in infection control, a microbiologist, etc. So, as soon as they got any information, they would immediately give that to us."*
>
> (Medicine Resident, Private facility)

> *"Yes, there was a protocol regarding the condition of the patient. The patient is categorized as mild, moderate, or severe. So, the treatment protocol was different for these categories. If there was any individualized patient, then we would discuss their treatment regimen."*
>
> (Medicine Resident, Private facility)

Also, there was proper flow of information regarding the hospital directives and precautions being taken in order to limit the spread of the disease. Every hospital had a clear set of instructions that had to be followed by the doctors and other healthcare professionals treating COVID patients.

> *"They (hospital) provided all the information regarding COVID and they had strict protocol regarding COVID. Like we had to put on N-95 mask plus 3-layer mask also. We had to wash our hands routinely. We had to tell the hospital if we had any symptoms of COVID."*
>
> (Anesthesia Resident, Private facility)

Adequate infection control measures

The doctors seemed contented by the infection control measures taken by their respective hospitals during the COVID outbreak. Since COVID is highly infectious and hospital transmission can be a major contributor to the spread of the disease, strict measures were taken to prevent and control hospital transmission. Firstly, the COVID patients were separated from other patients in the hospital by keeping them in separate wards or floors. Other measures like repetitive cleaning, timely sanitization, physical distancing, and use of sanitizers were also taken by the hospital.

> "*There were two separate floors in our hospital for COVID. Isolated lifts would go to those floors. Anyone going to those two floors had to go to a room in order to change clothes and wear PPE and while exiting those floors, you had to remove those PPE kit and take a shower."*
>
> (Medicine Resident, Private facility)

There was special emphasis on hand hygiene during the pandemic.

> *"There was a lot of focus on hand hygiene. "During COVID, a new protocol was circulated for hand hygiene. Every 2 hours, a code was broadcasted in the hospital premises as "Code for Go Green". As soon as the announcement was made, everyone including the nursing staff, doctors, cleaners had to immediately go and wash their hands. If you touch the patient, the surroundings of the patient, any body-fluid, or the bed of the patient then you have to sanitize the hands. The nurse in infection control team would calculate the percentage of hand hygiene and the healthcare professionals having highest*

percentage of hand hygiene were awarded every month. So, our hospital was making a lot of efforts to promote hand hygiene as it was the main source of infection."

(Medicine Resident, Private facility)

Due to the strict infection control measures, the number of secondary infections decreased significantly in the hospitals.

"Everything has become more hygienic in the hospital. Cleaning, handwashing, sterilization etc. have improved which has decreased the number of secondary infections in the ICU. The infection control team is more active now."

(Medicine Resident, private facility)

Support from family and friends

The participants talked about the social support received from their significant others, family members and friends. The main coping mechanism for most of the doctors during the pandemic was to talk to a family member or a friend. The family members and friends were also very helpful during the time of participants' isolation. They were constantly communicating with the participants during the isolation period and also helped in arranging the necessary supplies like food and medicine.

"At times when I used to feel alone or when I was concerned about the state of my parents or devastated by seeing the patients dying in front of my eyes. So, yes obviously it hurt me. I cried every day. I also lost weight. It was not good for my mental health, but I used to hang out with my friends, and they were all really supportive. They used to come at my place. We maintained social distancing, but they were there for me."

(Anesthesia Resident, Private facility)

"They (family) were really supportive. Actually, my wife is also a doctor. She is a gynecologist working in the same hospital. In the first wave it was a little bit easy but in the second wave I really appreciate my family members for giving mental support to me. They knew that I was going through tough times, so they were fully supportive."

(Pulmonologist, Private facility)

Although the participants' parents were concerned about them working with COVID patients, they were also very supportive of their work and encouraged them to be positive during the difficult times.

"All the parents are protective. They asked me to take care of myself. They told me that you need to prioritize your health first; only then you can take care of the patients."

(Medicine Resident, Private facility)

Finding gratification in saving patients

In this category, the participants talked about the feeling of gratification they achieved when they were able to save their patient's life. Inspite of working tirelessly, the doctors had a smile on their face when they talked about how they managed to treat a critical patient or when a patient's parents gave them blessings for saving their son's life. This sense of gratification motivated them to keep working during the pandemic.

"There was some fear in the beginning but the satisfaction we got after seeing the relatives of the patients was priceless. The relatives would say that we can't be with the patient, but you treated the patient like a family member."

(Medicine Resident, Private facility)

COVID-19 as a challenge and opportunity for improvement

COVID 19 has been the peak of responsibilities in the life of doctors of this era. It made them work at the maximum possible capabilities and stretch beyond their point of saturation. This might have brought a lot of challenges along, but it rather prepared them to work in the worse conditions possible, for the worst scenarios imaginable. The doctors rather showed a positive outlook and took this phase as a learning for a lifetime. They feel more comfortable and decisive in the most serious cases possible, compared to the pre-COVID phase. They have taken this challenge as an opportunity to grow and become better with their responsibilities.

> *"This was a new challenge for us as the disease was new to us. Every 7-8 days there was a new guideline for the treatment. I took it all as a challenge. I did not feel much fatigue. No doubt that the workload was more but since it was challenging, I enjoyed working in those conditions."*
>
> (Medicine Resident, Private facility)

> *"Sometimes I had such thoughts that I am working too much, and I am dealing with a lot of patients. But I took the situation positively. I thought that the situation could be worse during the next pandemic. If I need an expertise in this, then I need to understand how to make my work easy."*
>
> (Pulmonology Resident, Private facility)

The doctors had a positive outlook towards the doctor-patient relationship and the difficult working conditions were not a hindrance to that relationship.

> *"I used to have such thoughts that I am working so much for the hospital and if the hospital cannot provide a bed for our relatives, then what's the use. But when the patient is in front*

of us, such thoughts go away because the problem is between us and the hospital, the patients should not suffer."

(Medicine Resident, Private facility)

The participants saw the pandemic as an opportunity to improve their skills, which involved better communication skills, being emotionally mature and acquiring a positive outlook towards life.

"I have become more positive, and I have become more spiritual because this pandemic has showed me my strengths and weaknesses. As I said I did not know whether my patient is going to survive or not with the best available treatment. So, this pandemic showed me that we can only help a patient. We can only guide a patient."

(Medicine Resident, Private facility)

"I have learnt that in this profession, you have to be humble. You have to be patient with your patients. You have to be patient because sometimes the patient or the patient's relatives are in depression, they are in total denial. They think that the patient will be fine. My observation and my communication skills got better with time. I can counsel a dying patient's relatives without irritating them. I can handle their issues; I can handle their anger. I can better deal with these things now than previously."

(Anesthesia Resident, Private facility)

4. DISCUSSION

COVID-19 led to dramatic disruption of many aspects of human life worldwide. At the heart of the crisis, healthcare providers have faced numerous hazards which affected their physical, mental and social health. This study tried to explore the factors that affected psychological well-

being of the doctors who dealt with COVID patients in the state of Rajasthan (India). The results obtained from the interviews were organized into two predefined categories according to the JD-R model i.e., Job Demands and Job Resources.

Increased workload and exhaustion due to working in PPE were the physical aspects of the job that caused significant psychological distress among the doctors. Lack of manpower, no official leaves and long working hours were responsible for the increased workload which resulted in burnout. Physician burnout can have several physical and psychological consequences which includes feeling exhausted, fatigued, mood disorders and depression.[53,54,55,56]

In a study done among healthcare workers in Turkey during the COVID pandemic, increased workload was positively associated with the risk of developing depression, anxiety, and stress.[57]

Wearing a PPE kit is an essential step in protecting doctors from getting infected, but the protection comes at a price. The participants faced excessive sweating, impaired vision, breathing difficulties, fatigue, and difficulties in performing their routine duties. Some doctors discontinued the use of PPE kits after a few weeks because of the problems mentioned above. The findings of effects of PPE kit are in line with similar studies done during the pandemic.[58,59]

Doctors pursue a profession that involves extensive social interaction on a daily basis; in terms of counselling their patients, talking to the hospital staff or even their own personal relations. They tend to have a highly interactive lifestyle and long periods of isolation proved to be a lot more challenging for them than it might have been expected. It invoked the feelings of disguise, and to them, physical isolation meant alienation. Studies have shown that isolation and quarantine can have detrimental effects on the psychological well-being of people.[60,61]

Many doctors faced adverse social reaction during COVID-19 pandemic. Doctors and their family members were avoided by the general population. Some were asked to vacate their apartments and even accused of spreading the virus. Such incidences created a sense of emotional isolation among the doctors. Other studies have also shown that in countries like India and Bangladesh, healthcare providers faced significant stigmatization which impacted their mental health.[62,63]

Counselling the relatives of the patients was a noteworthy issue for doctors due to lack of awareness and panic about this disease. The visitors were not allowed to see the patients which made the situation more ambiguous and at times resulted in conflicts. This added to the challenges of the whole situation, making it more haywire. Several studies have confirmed that visiting restrictions during the COVID-19 pandemic have had substantial impacts on patients' and family members' health and well-being, as well as affected the provision of care. For health care providers in particular, visiting restrictions mean additional ethical dilemmas and an increased need for information, regular updates, and social support to both family members and patients.[64] The damage caused due to such restrictions should be explored and evaluated further and the provision of care should be adapted to compensate for negative effects.

Despite vigilant precautionary measures taken by the doctors, the necessity to safeguard the health of their loved ones resulted in considerable stress and anxiety. For example, due to this concern, some of the participants started living separately from their families. A study conducted in Pakistan found out that the most common cause of stress and anxiety among healthcare workers treating COVID patients was the fear of infecting family members and getting infected.[65] Other studies have also shown how the fear of infection adversely affects the psychological health of healthcare providers.[66,67]

The pandemic highlighted that many healthcare facilities in Rajasthan were not adequately prepared for the new demands imposed by COVID-19. This was highlighted by many participants as they talked about shortage of necessary resources like beds for the patients, oxygen, drugs, and ventilators. The provision of healthcare during COVID required the above-mentioned resources and their shortage made doctors feel overwhelmed. Similarly, shortage of supplies in hospitals during the SARS outbreak was one of the reasons of stress and anxiety among the healthcare workers.[68] Several other studies found the same effects during the COVID-19 outbreak.[69,70]

There was an outpouring appreciation for the commendable work doctors did during COVID, but this did not translate into monetary incentives that the doctors deserved for their hard work and commitment, which adversely affected their morale.

Even after trying all the possible treatment methods, the uncertain nature of the disease made it difficult for the doctors to predict if their patient would survive or not. It was mentally exhausting for the doctors to accept the fact that even young patients without any co-morbidities were dying due to COVID. The “feeling of helplessness” prevailed in most of the interviews, and this finding is in accordance with the international literature. It has been shown that health care providers’ tolerance of uncertainty can affect patient outcomes, as well as healthcare resource use.[71] The uncertainty might result in making clinical decisions that the health care providers feel uncomfortable about or disagree with, which can result in stress, depression and post-traumatic stress disorder.[71] Many studies have reported feelings of frustration in doctors who are unable to save their patients.[72,73]

According to the WHO, worldwide anxiety and depression increased by 25% during the first year of the pandemic.[74] One of the main reasons for occurrence of mental health issues is when

people are not able to cope with the stressors of life. COVID emerging as a pandemic is a stressor that very few people would have imagined coping with. The frontline workers were profoundly struck with the effects of COVID. A phase when mental support was required the most for the frontline workers, the hospitals paid least attention to the provision of psychological counselling services to the doctors.

There is a need to acknowledge the important role played by the doctors during the COVID pandemic and the amount of stress and anxiety they underwent. Many participants reported stress and burnout which is potentially dangerous not only for them but also for the patients.[75] The doctors need to be supported as healthcare professionals and as individuals.[76]

This study described many challenges associated with job demands which exerted negative influence on healthcare providers' mental wellbeing; at the same time, it revealed several factors that possibly buffered those job demands. One such factor was the supportive work environment. The healthcare professionals worked as a team where the residents received guidance from their seniors and the colleagues extended their support wherever needed.

Thoughtful and transparent communication by the healthcare facilities regarding the protocols and guidelines to be followed during COVID created a sense of control and trust among the doctors. The hospital management ensured that adequate infection control measures are taken to control the hospital transmission of COVID, which in turn ensured safety of the healthcare professionals.

Family and friends of the doctors also extended their support, which enabled them to overcome their personal and professional challenges. Despite being concerned about the conditions under which the doctors were working, their families kept their morale high and supported them throughout. The doctors experienced gratification in saving lives of the patients and the same

thing also kept their spirit high. The motto of every doctor is to always evolve professionally, and the pandemic served as an opportunity for them to learn new skills to better perform their duties and to better serve their patients.

5. STUDY STRENGTHS AND LIMITATIONS

Strengths

COVID-19 is likely to leave a long-lasting impact on the mental health of frontline workers including doctors. To the best of our knowledge, this is the first study in Rajasthan to explore psychological effects of COVID-19 on doctors. The needs and expectations of doctors revealed by the study can guide the policy makers' decisions in the course of future outbreaks of infectious diseases.

Since the participants were aware that the interviewer herself is a doctor, they were more comfortable while sharing the technical aspects and complexities of their job which led to a comprehensive understanding of their work experience.

The whole process of conducting the study was documented in a step-by-step manner with the help of a research diary to ensure the dependability and trustworthiness of the findings.

Member checking was done to ensure that the findings are the actual representation of the participants' original views. This ensured credibility.

Limitations

Firstly, as the interviews were conducted almost after two years since the onset of the pandemic, there is a possibility that the participants did not remember their initial experiences accurately or omitted some details leading to recall problems. As only the doctors were interviewed and the nurses, patients and patients' relatives were not included in the study, there was no possibility of between group triangulation. Even though face-to-face interviews are considered gold-standard

in qualitative research, only two of the interviews were face-to-face while the others were conducted online via video calls due to time and resource constraints which might have undermined the quality of data obtained.

6. CONCLUSION

This study explored the factors that resulted in psychological distress among the doctors in Rajasthan during COVID-19. It showed that the doctors not only faced increased workload, but they also had to cope with the exhaustion and fatigue encountered due to wearing PPE for prolonged periods of time. These factors, coupled with pressure to protect their families, counselling the relatives of the patients, and facing the stigmatization, drastically affected their mental health. Psychologically it was a triggering experience because the doctors had to provide care in the situations of uncertainty and lived with the guilt of not being able to save their patients. It was a completely new disease to cure with minimal research, knowledge, and resources available.

Self-isolation or quarantine was a repetitive situation for most of the doctors, pressurizing their social health. The need to have a better organizational support was highlighted by many doctors, who cited shortage of resources, absence of psychological counseling for doctors and lack of financial incentives even after overstretched working hours.

All factors revealed in this study should be accounted for, while catering to the needs of healthcare professionals to safeguard their health.

Some of the recommendations for supporting doctors during the pandemic are:

1. Provision of fixed working hours for the doctors
2. Ensuring appropriate infrastructure with adequate resources to serve the needs of healthcare professionals

3. Timely provision of adequate protective equipment

4. Encouraging the use of protective gear but discouraging its use for prolonged periods of time

5. To build an emotionally safe space for doctors by provision of regular psychological counselling services for them

6. Peer support groups for providing support to doctors during the time of isolation

7. Educating the general public about COVID without increasing panic in order to reduce the stigmatization and to make the counselling process of relatives easier

8. Increasing the salary of doctors working during the pandemic

Although particularly helpful during a pandemic, these recommendations can be considered best practice to support healthcare workers at all times.

The amalgamation of above-mentioned approaches will ensure that the caregivers are being cared for. There is a need for wider recognition that increased responsibilities and complexities of health care provision during pandemics can result in substantial psychological distress, and that more research is necessary in this area.

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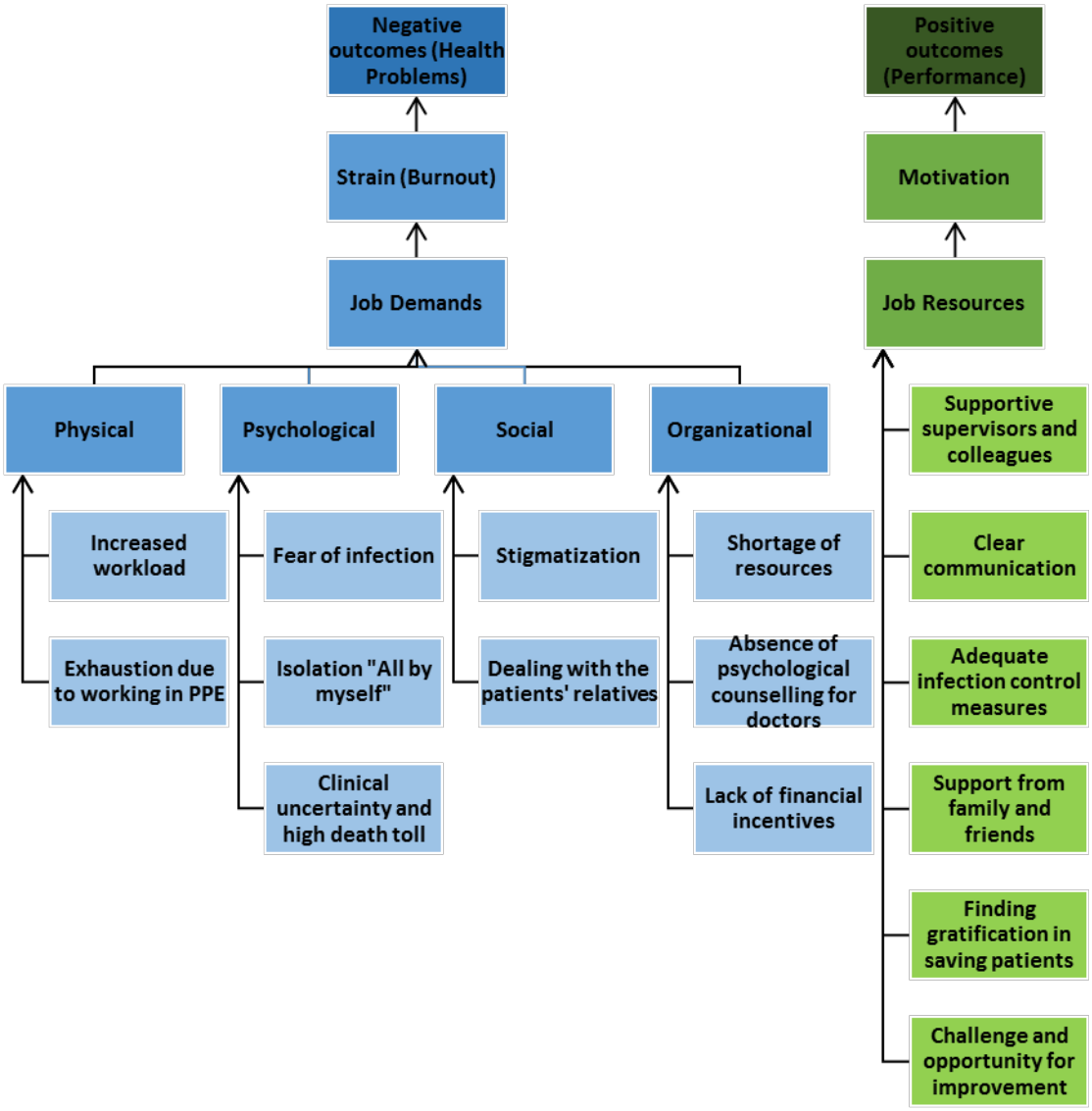
Table 1

Characteristics	Categories	n
Age (years), mean (range)		29.2 (23-40)
Sex	Men	12
	Women	5
Type of facility	Public	7
	Private	8
	Both	2
Types of services provided	Inpatient	4
	Outpatient	0
	Both	13
Place of work	Jaipur	4
	Udaipur	3
	Alwar	2
	Ajmer	1
	Jobner	1
	Jodhpur	1
	Kota	1
	Hingoniya	1
	Bikaner	2
	Barmer	1

Diagram 1


Negative outcomes (Health Problems)
Strain (Burnout)
Job Demands
Positive outcomes (Performance)
Motivation
Job Resources
Physical
Psychological
Social
Organizational
Increased workload
Exhaustion due to working in PPE
Fear of infection
Isolation "All by myself"
Clinical uncertainty and high death toll
Stigmatization
Dealing with the patients' relatives
Shortage of resources
Absence of psychological counselling for doctors
Lack of financial incentives
Supportive supervisors and colleagues
Clear communication
Adequate infection control measures
Support from family and friends
Finding gratification in saving patients
Challenge and opportunity for improvement

Appendix 1

Sociodemographic questionnaire for study participants

1. Participant ID _____
2. Age (completed years) _____
3. Gender _____
4. Level of education _____
5. Type of facility

   ☐ 1. Public

   ☐ 2. Private
6. Type of services

   ☐ 1. Inpatient

   ☐ 2. Outpatient
7. Position _____
8. Marital Status

   ☐ 1. Married

   ☐ 2. Single

   ☐ 3. Divorced

   ☐4. Widowed
9. Place of working _____

Appendix 2

Topic Guide

ID: _____

Date: _____

Interview start time: _____

Introduction of the topic: As I already mentioned in the consent form, this study aims to explore factors that contributed to psychological distress, PTSD and burnout among healthcare workers dealing with COVID-19 patients. So, I would like to discuss with you questions regarding your work experiences. The answers provided by you will be very valuable in understanding those factors in order to address the needs of healthcare professionals during an epidemic/pandemic.

1. Could you please share with me the experience of your first encounter with COVID-19 patient? What were your feelings about coming in contact with a COVID-19 patient?

Job Demands

2. Could you please share with me your usual working-pattern at your workplace? Like what are your responsibilities on a normal day at work?
3. Did you have to quarantine yourself after coming in contact with a COVID-19 patient? If yes, how was your experience? Probe: what were the challenges that you experienced due to being on quarantine? How did you overcome those?

   What concerns you had about how it might affect your health or your family's health? How did you deal with those thoughts?

4. Could you tell me about your workload during COVID-19? Has it increased or decreased, what were the changes?

   Were you working for extra hours? If yes, do you think it had any impact on your physical or mental health and how?

5. Could you tell me about the instructions that were provided by your facility to deal with the pandemic? Were they helpful to the health workers at your facility and how? Could you bring some examples? Could you describe the challenges you had with following the instructions (if any)?

   Were there any instructions from the government regarding COVID-19 control?

   If yes, were the instructions complete and clear and what is your opinion about those instructions?

6. According to you, to what extent you were able to engage and treat COVID-19 patients? What were your feelings when you saw your patients suffering or when any of your patient died? How did you deal with your emotions at that time?

7. What do you have to say about the availability of personal protective equipment in your facility like masks, face shields, goggles, gloves, apron etc. required for undertaking your role with patients?

   What are your views about the other infection control measures in your facility like use of sanitizers, regular hand washing, physical distancing, disinfection etc.

   What is your opinion about the preparedness of your facility to cope with the emergency situation that arouse due to COVID?

8. Were there any instances of conflicts with patients or their caregivers? If yes, how did your deal with that situation?

Did you face any stigmatization in or outside your facility? If yes, what was the reason for it and how did you cope with it?

9. Were there any other challenges that you would like to discuss about?

   What about the overall organization of work at your setting? Were your experiences and issues considered by your colleagues and administration and was feedback provided to you?

   Were there any instances of conflicts with colleagues or administration due to the COVID-19 situation? If yes, what kind of effect it had on your mental health?

10. What according to you was the biggest challenge that you faced while dealing with COVID-19 patients? For example, was it shortage of PPE or lack of communication or some other factor?
11. How did the challenges that you discussed changed over the course of the epidemic? Did you notice any improvement in the conditions in which you were working? Could you bring some examples?

Job Resources

12. What is your opinion about the work environment at your facility during the pandemic? Were your supervisors and colleagues supportive? If yes, what kind of support you received? If no, what could have been done to have a supporting work environment?
13. What was your family's reaction of you dealing with COVID-19 patients? Were there any conflicting opinions or was your family supportive? What impact their rection had on you?

14. Could you provide me some information regarding the availability of counselling services for healthcare workers at your facility? Were there any instances when you used those services?
15. What were your coping strategies to deal with the pandemic situation? For example, what did you do in situations when you felt extremely stressed or exhausted?
16. What changes have you noticed since the beginning of the pandemic till now, that have brought a positive change in your work.

    Ideally, what could have been done to bring about some positive changes in your work during this pandemic?

Suggestions and Concluding questions

17. According to you what key steps should be taken by the hospital authorities or the Government in order to improve the conditions of work of healthcare professionals dealing with COVID-19 patients? Probe: for example, do you think the workload should be reduced and how? Other measures?
18. What do you think about the consequences of working with COVID-19 patients on the physical and mental health of healthcare workers?
19. Would you like to add something? Or would you like to expand further on any of the topics discussed above?

Thank you so much for your participation.

Interview end time: _____

Appendix 3

American University of Armenia

Turpanjian School of Public Health

Institutional Review Board #1

Oral Consent Form for Participants

Psychological Impact of COVID-19 Outbreak on Healthcare Workers in Rajasthan: A Qualitative Research

Hello, my name is Priyanka Choudhary. I am a final year medicine student and a second-year student of the Master of Public Health program at the American University of Armenia. As a part of my thesis project, I with my advising team members are conducting a study which aims to explore the factors that influenced the psychological well-being of healthcare workers dealing with COVID-19 patients in the state of Rajasthan. You as well as approximately 12-15 others are invited to participate in this study since you are a healthcare professional in Rajasthan and dealt with COVID-19 patients during the pandemic. You were selected as I know you personally/ I got your contact information from a personal contact. I would like to ask you to participate in this study and share your experiences about the factors that resulted in psychological distress and factors that helped you to cope up with stressful situations at your work. Your participation in this study is completely voluntary and will involve an online interview which will last for 30-60 minutes. You may refuse to answer any of the questions or can stop the interview at any time. Your participation in the study poses no potential risk for you. There is no direct benefit from the participation; however, your participation will contribute to better understanding of factors that either exacerbated or facilitated the mental health status of healthcare workers who were dealing with COVID-19 patients. I would ask for your permission to audio record this interview in order

not to miss any important information provided by you, but it is your right to request turning off the recorder at any time during the interview. The file containing your name and contact information and the audio recordings will be destroyed upon the completion of the study. The information provided by you is fully confidential and only the study team will have access to this information. Your name, contact information and other identifiable information will not appear on the final report. Only the aggregate findings will be included in the final report. Also, some quotes will be presented in the general findings without indicating your name or other identifiable information. If you have any questions regarding this study, you can contact the Principal Investigator, Dr. Tsovinar Harutyunyan via email (tsovinar@aua.am). If you feel you have not been treated fairly during this study or think you have been hurt by joining the study, you should contact Ms. Varduhi Hayrumyan (vhayrumyan@aua.am), the Human Protections Administrator of the American University of Armenia.

Do you agree to participate? Can I audio-record the interview? Thank you.