

# BMJ Open Lesson learnt from the COVID-19 pandemic: a qualitative inquiry into patient and family experiences in Pakistan

Naheed Feroz Ali <sup>1</sup>, Zahira Amir Ali,<sup>1</sup> Mehak Barolia,<sup>2</sup> Sajid Iqbal,<sup>3</sup> Pammla Margaret Petrucka,<sup>4</sup> Rubina Barolia<sup>2</sup>

**To cite:** Feroz Ali N, Amir Ali Z, Barolia M, *et al.* Lesson learnt from the COVID-19 pandemic: a qualitative inquiry into patient and family experiences in Pakistan. *BMJ Open* 2025;**15**:e084175. doi:10.1136/bmjopen-2024-084175

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2024-084175>).

NFA and ZAA are joint first authors.

Received 11 January 2024  
Accepted 15 December 2024



© Author(s) (or their employer(s)) 2025. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ Group.

<sup>1</sup>School of Nursing and Midwifery, Aga Khan University, Karachi, Sindh, Pakistan

<sup>2</sup>Aga Khan University, Karachi, Sindh, Pakistan

<sup>3</sup>Shifa College of Nursing, Shifa Tameer-e-Millat University, Karachi, Sindh, Pakistan

<sup>4</sup>University of Saskatchewan, Saskatoon, Saskatchewan, Canada

## Correspondence to

Naheed Feroz Ali;  
[naheed.golanibscn786@gmail.com](mailto:naheed.golanibscn786@gmail.com)

## ABSTRACT

**Objectives** This study aims to explore the perceptions of patients affected by COVID-19 and their families regarding the challenges faced, coping strategies used and lessons learnt in Pakistan.

**Design** A qualitative exploratory descriptive approach was used to explore the real-time experiences of the participants.

**Setting** The study was carried out in a tertiary care hospital in Karachi, Pakistan.

**Participants** Purposive and snowball sampling methods were used to enrol 22 dyads of adult patients diagnosed with COVID-19 and their respective family members (FMs) (spouse, children, siblings or any other FM sharing a residence in Karachi, Pakistan, with the patient before quarantine). The 44 participants, with 23 females and 21 males, had an average age of 43.2 years.

**Results** We identified five key themes: practising a healthy diet and physical activity to boost immunity; developing workplace policies for job security, safety and mental well-being; encouraging digitalisation of health through teleconsultation and virtual learning; using technology and artificial intelligence to transform healthcare delivery systems; and empowering resilience and community unity to promote mental well-being.

**Conclusion** The study summarises the opinions of people directly affected by COVID-19 and the stakeholders of systemic challenges. The findings of the study can guide further strengthening of the healthcare system and improvements of organisational policies to facilitate better preparation of marginalised communities for future pandemics.

## INTRODUCTION

The COVID-19 pandemic impacted and continues to reverberate across the globe. To date, more than 750 million cases have been reported, contributing to more than 6 million deaths worldwide.<sup>1</sup> Among the top 50 countries most affected by COVID-19, 33 are low-income and middle-income countries (LMICs), with a reported morbidity of 40.5 million cases and a mortality of 968 049 as of January 2021.<sup>2</sup> In Pakistan, 1 million

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study was conducted in a highly restrictive environment—giving participants a comfortable environment to open up regarding their personal experiences.
- ⇒ The sample size of 44 participants ensured the richness of the information.
- ⇒ Facial expressions and field notes were not captured due to the use of telephone interviews.
- ⇒ The study was conducted in one location in Karachi, Pakistan; hence, the results have limited generalisability.

cases were reported, and 30 638 deaths were observed.<sup>1</sup> Although mitigating tactics, such as strict lockdown measures and strategic vaccination drives, considerably lowered mortality and morbidity worldwide, it would be unrealistic to assume that the repercussions were the same for all countries. LMICs struggled to combat the pandemic due to weak economic and healthcare infrastructure, scarcity of human and material resources, lack of awareness of COVID-19 and suboptimal compliance with standard operating procedures (SOPs). Pakistan, as a developing country, faced challenges in addressing COVID-19 due to its economic fragility, cultural and religious resistance and inequitable access to healthcare systems across the nation.<sup>3</sup>

Despite significant challenges, the pandemic also paved the way to new opportunities and learnings through this journey. The importance of proper nutrition and food hygiene was significantly brought to light as a tool to combat the disease. Sufficient intake of nutrients is thought to have a role in preventing COVID-19 by boosting immunity.<sup>4 5</sup> A systematic review was conducted in 2022 to evaluate the effectiveness of dietary intake to prevent COVID-19. The review highlighted the role of a healthy diet and food

safety during the COVID-19 pandemic. Concurrently, it also reported that unhealthy dietary practices were linked to risk factors related to high mortality.<sup>6</sup> Mental health was another major issue that escalated during the lockdown, including substantial psychological distress, post-traumatic stress disorder, anxiety and depression. Females and younger populations were more prone to acquire the negative mental health outcomes.<sup>7</sup> While addressing the sustainable mental health solutions in their study, Moreno *et al* focused on service user involvement in the development of mental healthcare services and systems. They also suggested community monitoring and mental health screening in vulnerable groups.<sup>8</sup> Lower-middle-income countries also faced the backlash of economic crises leading to unemployment and inflation. Pakistan had only 3.9% of employed population with social security and 11.71 million potential job losses during the pandemic.<sup>9</sup> The governments of South Asian countries implemented short-term measures to sustain their economies and support vulnerable populations. Economic packages and loans were announced to support poor households, small enterprises and export industries.<sup>10</sup>

Although Pakistan continued to address these challenges with assistance from both organisational and community levels, patients' satisfaction and experiences are crucial to our learnings from the COVID-19 era in shaping future policies for such pandemics, as they are the main stakeholders of healthcare during the pandemic. Insight into the experiences of people directly involved in the pandemic can create a transformative and impactful policy trajectory. To the best of our knowledge, no study has explored the perspectives of patients and their families regarding their experience with COVID-19 in Pakistan. Thus, this qualitative inquiry focused on the perceptions of patients and their family members (FMs) about the challenges they faced during the pandemic and lessons learnt that could work as facilitators in the management and control of future pandemics.

## METHODOLOGY

### Study design, setting and population

To explore the lived (real-time) experiences of the participants, we used an exploratory descriptive approach. This design allows researchers to delve into the intricacies of the event and to gain insights into the coping mechanisms used during the COVID-19 pandemic. The study was conducted in a tertiary care hospital in Karachi, Pakistan. The study population included adult patients diagnosed with COVID-19 and their respective FMs (spouse, children, siblings or any other FM sharing a residence with the patient before quarantine) living in Karachi, Pakistan. Additionally, patients who spoke Urdu, English or Sindhi and were willing to participate were enrolled in the study. The study excluded patients who were suffering from severe COVID-19, as well as those diagnosed with hearing deficits and/or mental illnesses.

### Sample size and sampling strategy

Using purposive and snowball sampling methods, the study successfully enrolled 22 patient–family dyads (ie, 44 adult participants, including 22 patients and 22 FMs). The recruitment process considered participant diversity in terms of sex, age, socioeconomic status, education and family structure. Those who agreed and met the inclusion criteria were invited for interviews, based on their availability. All participants, including both patients and their FMs, were requested to provide recorded statements of their consent for participation.

### Data collection

The data were collected via 45–60 min in-depth interviews via telephone or Zoom. We asked the participants and their FMs about their experiences of living in quarantine. We asked them to share their challenges, feelings and thoughts regarding COVID-19. The interviews also explored the coping mechanisms, what they have learnt from their experiences and future recommendations. The interview guide was formulated and reviewed by qualitative experts on the team. The questions and probes were designed and pilot tested on two dyads (ie, four participants, two patients and two FMs), with the data not being included in the analysis. The questions and probes were improved for quality data collection based on the pilot testing. Interviews were conducted at a mutually agreed on time and in Urdu to enable participants to optimally express their thoughts. The interviews were audio recorded and transcribed. Roman Urdu transcripts were used to preserve the linguistic richness and originality of the language. The data collection was completed on achieving data saturation.

### Data analysis

The data were analysed through a manual thematic analysis technique following the steps described by Creswell and Creswell.<sup>11</sup> First, the data were organised and prepared for analysis. This step involved transcribing interviews by the researchers and making sense of the words stated in the local language. Second, the data were read and re-read thoroughly. This step provided a familiarity with the data and an initial opportunity to isolate meaningful statements. Third, all the meaningful statements were colour coded, with significant statements underlined and coded during the analysis. Coding is the process of organising the data by bracketing chunks of text and summarising in a word or word group that represents a potential category in the margins. Fourth, the codes were grouped according to their shared characteristics. Code clusters associated with a certain phenomenon or idea were clustered into subcategories and, subsequently, into categories. Based on the broader meaning of the categories, similar categories were connected, leading to thematic linkages. Finally, the data were presented in the form of codes, subcategories, categories and themes. These themes and categories were studied with the study team, which included research experts and subject-matter experts in

health. This discussion and verification procedure guaranteed that the data analysis accurately reflected the participants' responses. To ensure the study's reliability, Lincoln and Guba (1985)<sup>12</sup> used characteristics such as credibility, transferability, dependability and confirmability. We conducted peer debriefing to strengthen the trustworthiness of the findings. Furthermore, a detailed description of the data (as shown in the excerpts below) was conducted to indicate how well the study fits within the context. Furthermore, appropriate descriptions of the samples, sample environment and outcomes were supplied to allow for the collection of rich data that could be transferred to similar settings and/or contexts.

### Patient and public involvement

Patients were involved in the design and conduct of this patient-centred research. The questionnaire and probes were initially pilot tested on two dyads (four participants, two patients and two FMs) whose data are not included in the study. Knowledge gained from these efforts was further reviewed by our research team and potential participants. The questions and probes were further moulded to be patient centred.

## RESULTS

### Participant characteristics

We conducted interviews with 22 dyads comprised of quarantined COVID-19 patients (n=22) and their FMs (n=22). The patients' average age was 42.27 years, whereas the FMs' average age was 44.09 years. 13 (50.9%) of the isolated patients were female, whereas a majority of the FM participants were male (54.5%, n=12). The demographic data of the patients are illustrated in [table 1](#).

### Interviews with patients and FMs using dyadic analysis

Following the aggregation of the developed codes and categories, four overarching themes were derived from the qualitative data, as illustrated in [table 2](#). The primary emphasis of the investigation was to understand the

perceptions of the patients and their FMs about the challenges of the pandemic, the dyads' coping strategies and the pathway forward.

### Practising healthy measures to attain wellness

In this section, community members highlighted a healthy diet and physical activity as the most important measures that contribute to rapid recovery from COVID-19 illness. As shown in [table 2](#), this theme emerged from two categories, which are described below.

#### A healthy diet with additional nutritious supplements boosts immunity

Most of the participants acknowledged the significance of a healthy and organic diet to sustain energy during COVID-19 illness. Highlighting the dietary pattern during the disease, FM with pseudonym Natasha articulated that, "I used to feed her healthy foods, dry fruits, which I brought from our village. I used to give her milk and juices regularly... and have a healthy diet." Besides nutritious food, adequate hydration was also considered imperative by most of the study participants. During her interview, an FM with the pseudonym Sobia shared, 'We gave him fruits and juices; .....to drink water frequently, plus gave him soup, kept the diet strong due to which he recovered within 15 days'. Moreover, in the matter of dietary pattern, a few participants also added that the consumption of vitamin C-rich fruits and supplements improved patients' responses against the disease. While discussing the positive effects of vitamin C on the health of COVID-19 patients, one of the patients (Maria) stated that "When a person is quarantined, one should necessarily take vitamin C supplements.... Currently, the seasonal fruit is orange, in which vitamin C is present, as is the strawberry, so the intake of fruits should increase." Similarly, Sara, another patient, indicated the importance of 'consuming water and juice to fulfil the metabolic demands of the body'. Hence, this category highlighted that the patient suffering from COVID-19 and their

**Table 1** Sociodemographic characteristics of the participants (n=44)

Characteristics	Patients (n=22)	Family members (n=22)
Age (average)	42.27 years	44.09 years
Gender	Male: 9 (40.9%) Female: 13 (50.9%)	Male: 12 (54.5%) Female: 10 (45.4%)
Employment status in the pandemic	Students: 6 (27.27%) Employed: 13 (59%) Unemployed: 3 (13.63%)	Employed: 20 (90.90%) Unemployed: 2 (9.09%)
Relationship to the patients	N/A	Father: 7 (31.81%) Mother: 6 (27.27%) Brother: 5 (22.72%) Sister: 4 (18.18%)
Quarantine location	Hospital: 18 (81.81%) Home: 2 (9.09%) Quarantine Centre: 2 (9.09%)	N/A

**Table 2** Thematic categories and subcategories based on qualitative analysis

Codes	Categories	Themes
Healthy diet, exercise and prayers Well-nourished food and exercise Vitamin C supplement, fruits, vegetables Dried fruits and seasonal citrus fruits Safety measures to improve immunity	Healthy diet with additional nutritious supplements boosts immunity  Performing physical and cognitive exercises to achieve resilience	Practising healthy measures to attain wellness
Wear masks Social distance Safety measures Use hand sanitiser Wash hands Dettol for cleaning Employees must be ensured with job security Supportive friends, faculty members and family	Imposing stringent safety protocols  Securing employment in the face of quarantine  Policies for promoting mental well-being	Policies fostering well-being in organisations
Teleclinic Initiation of online programmes Artificial intelligence (the Family Hifazat application) Contact online doctor Local telehealth initiatives Social media platforms E-health application	Initiating teleclinic services for the public  Virtual awareness regarding COVID-19  Revolutionising healthcare through digital health solutions	Enhancing patient connectivity and care
Extending subsidies, financial security and social security Elimination of taxes on enterprises Availability of finance for small business startups Formulation of a task force Hotline number for support Extension of material and financial resources Emotional support from family and neighbours in the face of quarantine Media's role in imparting positivity and avoiding negativity Stigmatisation issues because people suffer mental health problems due to this virus	Positive coping amid crisis  Fostering community utilitarianism  Increasing positivity and avoiding negativity in social media  Reducing stigmatisation and marginalisation	Standing strong together in challenging times

caregivers experienced a positive impact of a healthy diet and adequate hydration on effective management of COVID-19.

#### Performing physical and cognitive exercises to achieve resilience

The analysis of the participants' perspectives in the current study underscored the imperative role of physical and cognitive exercises during COVID-19. Most of the participants associated physical and cognitive exercises with an increase in resilience during the isolation period of COVID-19. While highlighting the role of physical exercise among patients affected by mild-to-moderate COVID-19, one of the patients named Shahid suggested, "One should always have breathing exercises, and practice yoga." He also added, "I think to remain positive and optimistic; one can fight back against the disease." Likewise, some of the participants emphasised the pivotal role of stress management in regaining physical and mental well-being during quarantine. As one of the patients Sajjad shared, "Don't take tension; just stay calm and do exercise as much as you can to regain physical and psychological fitness." From the statements of the participants, it was evident that meditation therapy was considered inculcating a sense of optimism and calmness in quarantined people. Moreover, it was also attributed to reduced mental distress and alleviation of negative feelings. As one of the patients, Humaira, expressed, "During quarantine, I used to do yoga with deep breathing exercises early in

the morning that helped me to spend the rest of the day with a sense of positivity."

#### Policies fostering well-being in organisations

This theme emerged from the participants' views pertaining to the role of various organisations in the face of unprecedented times of COVID-19. The theme emerged from three categories centred on the narratives as discussed within and supported by participants' excerpts.

#### Imposing stringent safety protocols

Most participants highlighted the imperative role of implementing safety protocols in ensuring a safe and healthy environment for the citizens, in general, and for employees at the workplace, specifically. Among the safety protocols, the majority of the participants recommended incorporating SOPs at community and organisational levels to contain COVID-19. Moreover, participants also agreed that government measures (implementing and monitoring the SOPs) are crucial for early virus containment during both the current crisis and the evolving pandemic. For example, one of the participants, Sajjad, expressed, "I believe that if the government wishes, it can become very easy to fight this virus. I see many people in our society who don't wear masks and don't take proper precautions, and in my opinion, imposing fines is not enough." Likewise, one of the participants conveyed



the lesson learnt from this pandemic as follows: “The message that I would like to convey to the government is that I think that if lockdowns and proper protocols were initiated during the initial stages of this pandemic, the virus would have been under much more control” (Asif, patient). Likewise, one of the participants, Nazim (FM) suggested, “The government should spread awareness and establish programs to educate people about the importance of wearing masks and taking proper precautions.” Furthermore, a few participants suggested the utilisation of personal protective equipment at the workplace to enhance safety and well-being of the employees. Shahid (patient) responded to a question on safety measures as, “Organizations should introduce earlier standard operating measures (SOPs) policies for virus containment, such as 100% wearing of masks and exercising social distancing among employees during office hours, which can significantly protect the health and save the lives of workers, their families, and communities at large. For example, in some workplaces, employees are required to wear masks to work; this is why 100% of employees wear masks at those workplaces.”

#### Securing employment in the face of quarantine

The study identified a few participants who expressed their challenges during COVID-19 after losing their employment. During quarantine, due to a drop in the world economy and shutting down of many businesses, a significant segment of the population lost their jobs, leading to financial crisis and bringing the stress of change and uncertainty. Reminiscing about the difficulties of quarantine, Sobia (FM) expressed, “My husband lost his job during quarantine, and it became difficult for us to manage finances. I had sent my daughter to my mother’s house, and her aunt took care of her, and WhatsApp was a means of contact between us.” Likewise, Natasha (FM) recalled the help from family and local institutes in the following words, “a problem here is people losing their jobs like my father lost his job. My extended family supported us, and they were there for our help. The local health board and, specifically, the neighbours should help each other with financial or moral support.” A few of the participants highlighted the need for government and institutional interventions to ensure job security for the most vulnerable, as they felt there is a right to have financial support to combat the pandemic. One of the FMs, Shahnaz, suggested that “All public and private sector employees must be ensured of job security which help them to cope up with economic repercussions while also assisting in sustaining their physical and psychological well-being amid crises.”

#### Policies for promoting mental well-being

Along with financial stability and physical health issues, mental health was greatly affected during quarantine, especially in patients who were forced to live in isolation. However, many institutions adopted policies and practices to ensure physical and moral support to their

employees under isolation. Recognising her office’s policies, one of the patients, Farzana, articulated, “My office had given me a great deal of help, while I was tested positive, they aligned me with a health practitioner, and she was constantly monitoring me.” Similarly, Sara (patient) mentioned, “My fellow students and my research supervisor were concerned. The university was keeping a check on our wellbeing as students and looking for our status. The program director was extending as much help as he could to support me.” Moreover, appreciating the proactive mental health support from the universities, one of the participants, Maria (patient), stated “I received phone calls from my university, and they supported me emotionally, so my stress was initially relieved... My assignments and clinicals of my university were at its peak and so all those were stuck. My supervisor also supported me a lot.” The participants also realised and stated the need for constructing more formal systems of moral support within the society through creating helpline numbers, encouraging community work for seniors and people who live alone. Providing a few ideas, one of the participants, Inara (FM) addressed, “People can also make a help line number for people to support others with deficiencies, they can give masks, sanitizers or stuff for personal and home hygiene...”

#### Enhancing patient connectivity and care

This theme emerged based on participants’ acknowledgements of the impacts of digital health solutions on strengthening the country’s healthcare system. Moreover, the theme also reflects participants’ recommendations to scale up digital health solutions in Pakistan. The codes extracted from meaningful statements of the participants are reflected across three categories.

#### Initiating teleclinic services for the public

Digital health solutions, such as telemedicine clinic, the Family Hifazat mobile application and a patient online portal, were incorporated by a few organisations in Karachi, Pakistan. These digital health initiatives extended significant support to the people managing of COVID-19. While appraising the impacts of telehealth, one of the family caregivers, Sanam, highlighted that, “Sure, as we were going through all this hardship, the teleclinic played an important role in our life during that period; if we had any questions, we simply called them, and the team they had was so helpful.” Likewise, one of the patients named Ali also commented, “Having all these worries in mind was not truly helping us in that situation [Quarantine], but then we got in touch with our doctor via teleclinic, and they were quite helpful.” Additionally, some participants also appreciated the processes of conducting a teleclinic in terms of data storage, prompt response and medical support. As one of the participants, Anwar (FM) stated, “I mean these tele-clinics and hot lines were very positive for us and very helpful; they had made notes for every individual so that when we called them and gave them our name and address, they knew who we are and the

problems we are going through.” Besides, many participants advised implementing telehealth in public healthcare sectors to improve the continuity of treatment and provide individuals with equitable and efficient healthcare. As one of the family caregivers, Sobia, suggested, “the government must take measures to initiate online consultation programs in local hospitals to improve the coverage of primary and secondary healthcare services in semi-urban and rural communities of Pakistan.”

### Virtual awareness regarding COVID-19

The study highlighted the effectiveness of online programmes as one of the best strategies for public health awareness towards COVID-19 prevention and treatment. Most of the participants in the current study were aware of the online programmes, especially through the avenues social media generated, to raise awareness about COVID-19 within the community.

While appreciating the positive impacts of social media in her life, Maria (FM) stated that “There had been few social media platforms that imparted a positive effect on communities. For example, while I was quarantined, I approached... WhatsApp and Facebook to build comfort and emotional support and seek relevant guidance.” Similarly, participants were engaged in the online awareness programmes to seek updated information and prevention guidelines perpetually. While sharing experiences with online awareness sessions, one of the patients, Karim, reported that, “... Also, the online program, I was also registered in that and they said that it would take around 15 days and don’t worry about that, but you can do maximum precautionary measures like drink warm water, do wash the hands, the room should be neat and clean.” Moreover, another participant (patient) appreciated the private and government healthcare sectors in the dissemination of COVID-19 preventive guidelines with the approach of active community engagement and service delivery systems. Reminiscing on the experience of quarantine and having an online consultation, one of the family caregivers stated that “In XYZ hospital, the online programs were going on, so I used to ask questions there and they responded to us.....Sindh government calls every next day and ask how your son is and how is your daughter... Such programs that are done are appreciated.”

### Revolutionising healthcare through digital health solutions

A few participants highlighted advancing practices towards digitalisation to extend healthcare services in the face of unprecedented times. Discussing the impacts of artificial intelligence applications, Ali (FM) articulated, “Artificial intelligence helps us to know about various medical conditions and treatment strategies very swiftly.” Similarly, Farzana (patient) also reported that “The *Family Hifazat application* (an electronic medical record system for patients and families) is very useful for me and my family to check our medical records, laboratory tests, and other diagnostic evaluations, doctor’s notes/summaries

at any point in time. This is a very feasible way to check trends in our health status and seek medical attention whenever needed.” Some of the participants also identified the need to develop convenient digital health applications for the citizens. As Sara (patient) shared, “such user-friendly (*Family Hifazat application*) applications should be more accessible to patients and their families and should be widely used by all healthcare sectors in Pakistan.”

### Standing strong together in challenging times

Social cohesiveness was one of the main approaches the community opted to enhance their adaptability during COVID-19. This theme surfaced with participants’ appreciation of the extensive community support to the underprivileged citizens in the face of adversity. Moreover, this theme holds few participants’ recommendations to the stakeholders to build a more resilient and stronger community. As shown in [table 2](#), this theme emerged from four categories which are discussed below.

#### Positive coping amid crisis

Many participants shared the importance of community support and spirituality in building resilience and positive coping during the pandemic. Sharing the experience of social isolation, one of the patients expressed, “My family and neighbours gave me essentials I needed to survive, as well as extended financial and emotional support, which helped me to be resilient and strong enough to fight the virus.” Social support amid isolation contributed to reduced psychological distress and affective disorders among students. Appreciating the emotional support of family and faculty members amid quarantine, Maria (patient) expressed, “I received phone calls from my university, and they supported me emotionally, so my stress was initially relieved. I appreciate the emotional support and motivation too. This helped me cope with my stress.” Some of the participants believed that religious practices, such as recitation of Quranic verses or prayers helped them to reduce physical suffering and make them comfortable and relaxed. Highlighting the positive impact of spirituality to survive through difficult times, Sara (patient) recalled, “While I was in my room, I felt lonely and helpless. It was my spiritual prayers that helped me gain strength and willpower.”

#### Fostering community resilience

Some participants discussed strategies to enhance resilience and strength in the community to effectively prepare for and manage future pandemics. Advocating for universal social security and financial protection to underprivileged citizens, Shahid suggested, “The government must provide wage subsidies and financial and social security for the unemployed and vulnerable people of society.” Additionally, one of the family caregivers also recommended, “People’s financial security and stability would be significantly increased in the future if taxes on enterprises were eliminated, and finance was made

available for small business startups.” Besides, a few of the participants also underscored the vitality of personnel assistance to citizens in crisis situations. According to these participants, such assistance was essential for vulnerable populations. To meet their essential needs amid quarantine, Sara (patient) suggested, “A task force would be established to assist the elderly and the sick in receiving the necessities of life at their doorsteps.” Personnel assistance could be mobilised through telephonic contacts, as proposed by Farzana (patient), who stated, “People can also make a helpline number for people to support others with deficiencies. This approach will be quite helpful and will aid in helping those who live alone or are senior citizens and have no one to care for them.”

### Reducing stigmatisation and marginalisation

Most of the participants felt marginalised and stigmatised during COVID-19 infection. They reported feelings of embarrassment and mental distress with regard to the COVID-19 perceptions generated within the community. Recalling their experience of quarantine, Asif expressed, “They stigmatized us and said we can also catch the disease, and when my neighbours had the disease, I was always there to help. We were left all alone. I was depressed to find that my neighbour has had no mercy on us.” Social stigmatisation was attributable to fear of discrimination among COVID-19 patients. Sharing the experience of being labelled by society, Farzana (patient) lamented that “I thought people would stay away from me and would run away. I wanted a very limited group of people to know about it [COVID-19].” Likewise, one of the participants (patient) stated, “So, the fear of people hate for you and the social stigma makes you stand alone.” To reduce the experiences of stigmatisation and marginalisation endured by quarantined people, one of the participants (patient) suggested, “stigmatization was at its peak in the community. I would recommend that there should be awareness of psychological and stigmatization issues because people suffer mental health problems due to this virus” (Maria).

### Increasing positivity and avoiding negativity in social media

This study depicted the influence of social media on the lives of patients, families and their caregivers. Some participants shared concerns regarding the dissemination of inauthentic and unnecessary information through social media platforms, consequently flaring fear among people. Recalling unpleasant experiences with social media, Asif (FM) verbalised, “I think that the media should do proper investigation and confirm the validity of any news before it is published so that fear is not spread for no reason. Like some of the news was published without any investigations and validity.” Likewise, while experiencing isolation, stress and anxiety about the ongoing sensationalism on social media, one of the participants, (patient) expressed that, “I was terrified, obviously, because we saw on television how people were dying and were seriously ill in the hospital...I am experiencing a phobia associated

with hospital fear of living locked in the room.” Besides, few participants believed in the association of social media with culture and environment on the overall well-being of the community. While sharing an experience with social media community group chats, one participant (patient) reported that “COVID has just been hyped. I saw videos on YouTube, our bodies are immune to it as Asians eat healthy and different from Europeans where the disease has adverse effects.” During the peak time of the COVID-19 pandemic, along with the negativity through social media, a few participants suggested the positive role of social media in pandemics. While sharing thoughts and feelings, one of the participants (FM) reinforced the responsibility of the media agencies to disseminate relevant and authentic information and stated that, “I think we should get the correct information from the media, because already so much anxiety exists with such horrifying news... The media companies should condemn wrong information from social media platforms, and share correct websites, databases so that we can view reliable information about COVID-19 updates.”

## DISCUSSION

The study explored individuals’ experiences related to the impacts of COVID-19 and the lessons learnt to inform future patient-centred strategic planning in pandemic management. The study scrutinised four overarching themes, suggesting strategies for the management and control of the evolving pandemic in Pakistan and other LMICs. One of the most important and novel lessons learnt is the enhancement of the continuity of care through digital health platforms, which includes initiating teleclinics and virtual educational programmes across the primary to tertiary continuum in Pakistan. Digital health has been transformative in public education, healthcare services and pandemic control; however, there continue to be major gaps in governance of digital health enhancement and deployment programmes as well as inadequate infrastructure and professional competencies.<sup>13</sup> Research from high-income countries validates the effective use of teleconsultations, as they are user-friendly, improve patient satisfaction and promote population health with digital endurance.<sup>14</sup> Understanding the limitations of health informatics and re-strategising technology to advance health literacy would extend the scope of population health within glocalisation (globalisation and localisation).

The pandemic presented health, an economic environment and social crises at the national and organisational levels. Participants in the study emphasised the dire need to develop national policies to guarantee a safe workplace, stable employment and physical and emotional well-being. High-income and middle-income countries have adopted different policies to mitigate the physical, psychosocial and financial turmoil associated with COVID-19. For example, Italy and New Zealand imposed stringent containment measures as early interventions,

which significantly curbed the spread of the virus by more than 90%, reducing health risks and economic loss during the pandemic.<sup>15</sup> However, the resurgence of the virus was high in the USA and European countries due to the poor implementation of containment protocols. From an LMIC perspective, the governments of India and Bangladesh allocated US\$22.6 billion and US\$29 million, respectively, to fund COVID-19 preparedness and response and support their low-income wagers. In contrast, Pakistan invested US\$7 billion in COVID-19 preparedness and mitigation measures, which were necessary for implementing containment measures and providing psychological and financial support to people.<sup>10</sup> Thus, the current situation appeals to increase the traditional budget allocated to the healthcare sectors to ensure access, quality and sustainability of health provision in hospital and community settings.<sup>16</sup>

Participants expressed mixed opinions when sharing their perspectives on the impacts of social media in spreading knowledge about the COVID-19 pandemic. Some participants appreciated the positive role of social media in promoting comprehensive public health campaigns, verifiable information and financial assistance. In contrast, others expressed unfavourable experiences, such as receiving erroneous information and increasing public anxiety and nervousness due to the messaging. Moreover, a few participants acknowledged the role of artificial intelligence and telemedicine in facilitating continuity of care amid challenging times. In Pakistan, limited healthcare organisations offer telemedicine services and artificial intelligence applications to provide primary healthcare to the public. Hence, this study suggested the need for research on the implementation of telemedicine services and artificial intelligence in the government and private healthcare organisations of Pakistan, to improve the accessibility of care, human and material resource management and the containment of infectious disease outbreaks.

This current study revealed that to effectively combat a pandemic, community engagement is essential because it builds community resilience, promotes a sense of shared responsibility and supports public health initiatives. Active communities have higher rates of symptom reporting, testing compliance and public health guideline observance, which facilitates early outbreak detection and containment.<sup>17</sup> Communities that are actively involved are more likely to take part in resource mobilisation initiatives, such as donation drives, volunteers and networks of mutual assistance.<sup>18</sup> Another important lesson learnt was the imperative of practising healthy measures, such as diet modification, nutritional supplementation and physical activity, to optimise holistic well-being. The literature affirms that a well-balanced diet of vitamins and minerals bolsters immunity, enhancing rapid recovery from COVID-19<sup>4</sup>; whereas an unhealthy diet causes systemic inflammation during active COVID-19 infection.<sup>6</sup> Vitamin C has been proven to be a significant nutritional supplement for boosting immunity.<sup>5</sup> Furthermore, eating fruits,

vegetables, whole grains, nuts and meat is the food of choice, with at least 8–10 glasses of water; however, foods that must be avoided include saturated fats, added sugars and salts, fizzy and carbonated juices, overcooked vegetables and raw or undercooked animal products.<sup>5 6</sup> Thus, healthcare workers need to educate individuals, families and communities about healthy living, through primary prevention strategies.

### Recommendations

Based on these results, the current study suggests developing and training a task force to facilitate vulnerable communities in providing essential resource mobilisation for daily living during future pandemics. Inclusion of safe and secure employment policies with provision of financial and social security should be incorporated into organisations to fulfil the physical and psychological needs of people in challenging times. Additionally, the study recommends developing a contextually relevant pandemic response management framework for risk mitigation, planning and prompt action to address the challenges of future pandemics.

### Strengths and limitations

This study has several strengths. This study was conducted in a highly restrictive environment where people feared disclosing their COVID-19 illness due to stigmatisation and marginalisation. Moreover, inclusion of both patients and their FM enriches the data to provide a holistic view of the situation. In addition, the sample size of 44 participants ensured the richness of the information. This study has several limitations. The study was conducted in one setting in Karachi, Pakistan; hence, the results are limited in terms of their generalisability. Additionally, facial expressions and field notes were not captured due to telephone interviews, which may limit the understanding and the prompting of participants.

### CONCLUSION

The current study highlights important key lessons learnt during the pandemic from members of the patient and patient families in the Pakistani context. Among the lessons learnt were practising a healthy diet and physical activity for boosting immunity; devising workplace policies for job security, safety and mental well-being; encouraging the digitalisation of health through teleconsultation and virtual learning; using technology and artificial intelligence to transform healthcare delivery systems; and empowering resilience and community unitedness for promoting mental well-being. All of these important lessons could catalyse future national healthcare research, policy, practice and education to help prevent and prepare for future pandemics and other disasters.

**Contributors** RB conceptualised the theme and along with SI and NFA formed the design of the study. ZAA and NFA contributed to the analysis and interpretation of the results. MB, ZAA and NFA contributed to writing the manuscript. MB designed



the tables and formatted the manuscript. The whole process was supervised by RB and NFA. Guarantor: RB.

**Funding** This research received funding from Sigma Theta Tau International, Aga Khan School of Nursing and Midwifery, Karachi, Pakistan.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Consent obtained directly from patient(s).

**Ethics approval** This study involves human participants and was approved by ethical review committee of Aga Khan University, 2020-4789-1406. The confidentiality of the data was always maintained. The participants were assigned pseudonyms to remove biases and to enhance confidentiality. The hard copy data were stored in locked table drawers, and the soft copies were in encrypted password-protected files, with only analysts from the research team having access to the data. Informed consent was obtained from the participants, who received an explanation on the modes in which their data were used (research papers, conferences, etc). Participants were also informed of their right to withdraw from the study at any point in time without consequences to care services. Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All data relevant to the study are included in the article or uploaded as online supplemental information. All data analysed during this study are included in this published article.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

# ORCID iD

Naheed Feroz Ali <http://orcid.org/0000-0002-5880-9887>

# REFERENCES

- COVID-19 cases. WHO COVID-19 dashboard. 2020 Available: <https://data.who.int/dashboards/covid19/cases?n=c>
- Choi EM. COVID-19 vaccines for low- and middle-income countries. *Trans R Soc Trop Med Hyg* 2021;115:447–56.
- Jahan Y, Rahman A. COVID-19: Challenges and viewpoints from low-and-middle-income Asian countries perspectives. *JSSR* 2020;1:70–2.
- Althubaiti H, Althubaiti H. The Role of Healthy Diet (HD) on Covid-19 Pandemic during and after. *Health (London)* 2022;14:96–103.
- Aman F, Masood S. How Nutrition can help to fight against COVID-19 Pandemic. *Pak J Med Sci* 2020;36:S121–3.
- Mirzay-Razaz J, Hassanghomi M, Ajami M, et al. Effective food hygiene principles and dietary intakes to reinforce the immune system for prevention of COVID-19: a systematic review. *BMC Nutr* 2022;8:53.
- Talevi D, Socci V, Carai M, et al. Mental health outcomes of the CoVID-19 pandemic. *Riv Psichiatri* 2020;55:137–44.
- Moreno C, Wykes T, Galderisi S, et al. How mental health care should change as a consequence of the COVID-19 pandemic. *Lancet Psychiatry* 2020;7:813–24.
- UN.ESCAP. COVID-19 and South Asia: national strategies and subregional cooperation for accelerating inclusive, sustainable and resilient recovery. 2020. Available: <https://repository.unescap.org/handle/20.500.12870/895>
- Rasul G, Nepal AK, Hussain A, et al. Socio-Economic Implications of COVID-19 Pandemic in South Asia: Emerging Risks and Growing Challenges. *Front Sociol* 2021;6:629693.
- Creswell JW, Creswell JD. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 5th Edition. *JERML* 2022;19:54–5. Available: <https://www.tandfonline.com/doi/abs/10.1080/15424065.2022.2046231>
- Nowell LS, Norris JM, White DE, et al. Thematic Analysis. *Int J Qual Methods* 2017;16.
- Bui LV, Ha ST, Nguyen HN, et al. The Contribution of Digital Health in the Response to Covid-19 in Vietnam. *Front Public Health* 2021;9:672732.
- Baudier P, Kondrateva G, Ammi C, et al. Digital transformation of healthcare during the COVID-19 pandemic: Patients' teleconsultation acceptance and trusting beliefs. *Technovation* 2023;120:102547.
- Deb P, Furceri D, Ostry J, et al. The Economic Effects of COVID-19 Containment Measures. *IMF Working Papers* 2020;20.
- Hanedar E, Walker S, Brollo F. Pakistan: Spending Needs for Reaching Sustainable Development Goals (SDGs). *IMF Working Papers* 2021;2021:1.
- Laverack G. The Challenge of Behaviour Change and Health Promotion. *Challenges* 2017;8:25.
- Chandra A, Acosta J, Howard S, et al. Building Community Resilience to Disasters: A Way Forward to Enhance National Health Security. *Rand Health Q* 2011;1:6.