

# BMJ Open

BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email [info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)

# BMJ Open

## The perceptions and experiences of health-care providers during Covid-19 pandemic in Karachi, Pakistan: an exploratory qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-048984
Article Type:	Original research
Date Submitted by the Author:	28-Jan-2021
Complete List of Authors:	Shahil Feroz, Anam; Aga Khan University, ; University of Toronto Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health Akber Pradhan, Nousheen; Aga Khan University Hussain Ahmed, Zarak; Aga Khan University Shah, Mashal; Aga Khan University, Department of Community Health Sciences Asad, Nargis; Aga Khan University, Psychiatric Department Saleem, Sarah; Aga Khan University, Community Health Sciences Siddiqi, Sameen; Aga Khan University Medical College Pakistan, Community Health Sciences Department
Keywords:	COVID-19, Public health < INFECTIOUS DISEASES, PUBLIC HEALTH

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 1 **Title:**  
4

5 2 The perceptions and experiences of health-care providers during Covid-19 pandemic in  
6  
7 3 Karachi, Pakistan: an exploratory qualitative study  
8  
9

10 4 **Author names and email address**  
11

- 12 5 1. Anam Shahil Feroz (ASF) – [anam.shahil@mail.utoronto.ca](mailto:anam.shahil@mail.utoronto.ca)  
13  
14 6 2. Nousheen Akber Pradhan (NAP) – [nousheen.pradhan@aku.edu](mailto:nousheen.pradhan@aku.edu)  
15  
16 7 3. Zarak Hussain Ahmed (ZHA) - [zarak.ahmed@aku.edu](mailto:zarak.ahmed@aku.edu)  
17  
18 8 4. Mashal Murad Shah (MMS) - [mashal.murad@aku.edu](mailto:mashal.murad@aku.edu)  
19  
20 9 5. Nargis Asad (NA) – [nargis.asad@aku.edu](mailto:nargis.asad@aku.edu)  
21  
22 10 6. Sarah Saleem (SS) -[sarah.saleem@aku.edu](mailto:sarah.saleem@aku.edu)  
23  
24 11 7. Sameen Siddiqi (SSQ) - [sameen.siddiqi@aku.edu](mailto:sameen.siddiqi@aku.edu)  
25  
26  
27

28 12 **Full institution email address**  
29

30 13 <sup>1-4,6,7</sup> Department of Community Health Sciences - The Aga Khan University, Stadium Road,  
31  
32 14 PO Box 3500, Karachi 74800, Pakistan  
33  
34

35 15 <sup>5</sup>Department of Psychiatry - The Aga Khan University, Stadium Road, PO Box 3500, Karachi  
36  
37 16 74800, Pakistan  
38  
39

40 17 **Corresponding author**  
41

- 42 18 1. Anam Shahil Feroz (ASF) – [anam.sahyl@gmail.com](mailto:anam.sahyl@gmail.com)  
43  
44 19 Department of Community Health Sciences - The Aga Khan University, Stadium  
45  
46 20 Road, PO Box 3500, Karachi 74800, Pakistan  
47  
48 21 Phone number- 02134864917  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 **24 Abstract**  
4

5 **25 Objective:** To explore frontline healthcare workers perspectives and experiences of the  
6  
7  
8 **26 barriers and facilitators to treat and manage Covid-19 cases.**

9  
10 **27 Design and Setting:** We conducted an exploratory qualitative study using a purposive  
11  
12 **28 sampling approach, at a private tertiary care teaching hospital in Karachi, Pakistan. Study**  
13  
14 **29 data was analysed manually using the conventional content analysis technique.**

15  
16  
17 **30 Participants:** Key-informant interviews were conducted with senior management and hospital  
18  
19 **31 leadership and in-depth interviews were conducted with frontline healthcare providers.**

20  
21 **32 Results:** A total of 31 interviews (KIIs=19; IDIs=12) were conducted, between April and  
22  
23  
24 **33 May 2020. Three overarching themes emerged. The first was ‘challenges faced by frontline**  
25  
26 **34 healthcare providers working in Covid-19 wards. Healthcare workers experienced increased**  
27  
28 **35 anxiety due to the fear of acquiring infection and transmitting it to their family members.**

29  
30 **36 They felt overwhelmed due to the exhaustive donning and doffing process, intense work, and**  
31  
32 **37 stigmatization. The second theme was ‘enablers supporting healthcare providers to deal with**  
33  
34 **38 Covid-19 pandemic’. Frontliners pointed out several enabling factors that supported hospital**  
35  
36 **39 staff including a safe hospital environment, adequate trainings, strong system of information**  
37  
38 **40 sharing and supportive management. The third theme was ‘recommendations to support**  
39  
40 **41 healthcare workforce during the Covid-19 crisis’. Healthcare workers recommended**  
41  
42 **42 measures to mitigate current challenges including providing risk allowance to frontliners,**  
43  
44 **43 preparing a backup health workforce, and establishing a platform to address the mental health**  
45  
46 **44 needs of the frontliners.**

47  
48 **45 Conclusion:** This study provides initial evidence base of healthcare providers’ experiences of  
49  
50  
51 **46 managing Covid-19 patients in the early stage of the pandemic and highlights measures**  
52  
53 **47 needed to address the encountered challenges. It offers lessons for hospitals in LMICs to**  
54  
55 **48 ensure a safe working environment for frontline workers in their fight against Covid-19.**  
56  
57  
58  
59  
60

1  
2  
3 49 **Keywords:** Covid-19, healthcare providers experiences, exploratory qualitative study,  
4  
5 50 Pakistan  
6

7  
8 51 **Strengths and limitations of this study**  
9

- 10 52 • The frontline healthcare workers are uniquely positioned to address some of the most pressing  
11  
12 53 issues related to the Covid-19 pandemic; thus, this study is positioned well to explore  
13  
14 54 experiences of the barriers and facilitators to treat and manage Covid-19 cases.  
15  
16 55 • One limitation is that to minimise the risk of infection all study respondents were interviewed  
17  
18 56 online over Zoom and hence the authors did not have the opportunity to build rapport with the  
19  
20 57 respondents or obtain non-verbal cues during interviews.  
21  
22  
23 58 • The study was unable to conduct focus group interviews, due to the nature of outbreak  
24  
25 59 prevention, which would have provided in-depth information about personal and group  
26  
27 60 feelings.  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## 61 **Background**

62 Countries around the world are facing unprecedented challenge and are struggling to cope with  
63 the Covid-19 pandemic[1]. First discovered in Wuhan, China; Covid-19 has swiftly travelled  
64 borders over the last couple of months leaving a trail of high morbidity and mortality with  
65 devastating effect on economies[2]. As of June 22, 2020, there have been 9,071,341 confirmed  
66 cases globally, with 471,162 deaths[3]. Moreover, 181,088 Covid-19 cases and 3,590 deaths  
67 have been reported in Pakistan[4].

68  
69 Pakistan share borders with China and Iran; one being the epicentre of the disease and other  
70 has seen exponential increase of cases, respectively[5]. The rapidly evolving pandemic has  
71 stressed the entire healthcare system of Pakistan and outpaced the capacity of hospitals to meet  
72 demand for vital medical resources, such as ventilators, intensive care units (ICU) beds, and  
73 personal protective equipment (PPE) [5]. The hospitals in Pakistan are in the midst of  
74 responding to the pandemic and are adopting urgent and innovative approaches. These include  
75 aspects such as: setting up designated isolation wards for patients diagnosed with Covid-19,  
76 procuring and distributing PPE, conducting screening and performing diagnostic tests, delaying  
77 non-emergency procedures, and shifting from onsite to tele-consultation OPD services[6, 7].

78  
79 Since the time Covid-19 has hit countries, scientific evidence is clustering more around  
80 understanding the disease transmission and its pathogenicity. While disease epidemiology is  
81 important to understand the spread and risk factors, there is also a need to explore and  
82 understand experiences and perceptions of health workforce involved in the Covid-19 crisis[8].  
83 As the numbers are increasing, healthcare providers around the world are playing a central  
84 role and are making great contributions, while simultaneously facing great challenges[9]. The  
85 frontline healthcare workers across the world are uniquely positioned to address some of the

1  
2  
3 86 most pressing issues related to the Covid-19 pandemic such as: physical burnout due to increase  
4  
5 87 workload, mental exhaustion, fear of becoming infected and infecting others, sense of  
6  
7 88 helplessness due to unavailability of personal protective gear, etc[10, 11]. Experiences from  
8  
9 89 previous epidemics showed that while healthcare workers are often resilient, they require the  
10  
11 90 same physical, psychological and social support as others in times of turmoil[12-16]. Initial  
12  
13 91 research into the physical, emotional and psychological effects of Covid-19 on health  
14  
15 92 workforce managing Covid-19 patients in Wuhan showed that intensive work tends to drain  
16  
17 93 frontline healthcare providers physically and emotionally[9, 16].  
18  
19  
20  
21  
22  
23

24 95 It is therefore significant to not only look to our current scientific knowledge but also to collect  
25  
26 96 and interpret data on the specific ways this outbreak influences our frontline healthcare  
27  
28 97 workers. This crises situation necessitates investigating frontline healthcare workers  
29  
30 98 perspectives and experiences of the barriers and facilitators to treat and manage Covid-19  
31  
32 99 cases. This study provides a holistic view of health-care providers' experiences for the  
33  
34 100 international community and emphasises on the factors that are necessary to improve the  
35  
36 101 experiences of health-care providers dealing with Covid-19 pandemic.  
37  
38  
39

## 40 102 **Methods**

### 41 42 103 *Study design and setting*

43  
44 104 This formative research employed an exploratory qualitative research design using semi-  
45  
46 105 structured interviews and a purposive sampling approach. The study was conducted at the  
47  
48 106 private tertiary care teaching hospital in Karachi, Pakistan.  
49  
50

51 107

### 52 53 108 *Data Collection Methods and study participants*

54  
55 109 The data collection methods for this formative research included key-informant interviews  
56  
57 110 (KIIs) and in-depth interviews (IDIs). Key informants were purposively identified and  
58  
59  
60



1  
2  
3 111 recruited from senior management and hospital leadership, directly or indirectly involved with  
4  
5 112 the management of Covid-19 patients. Similarly, participants for In-depth interviews were also  
6  
7 113 purposively recruited and included frontline healthcare providers, directly involved in the care  
8  
9 114 of Covid-19 patients such as, doctors, nurses, and pharmacists.  
10  
11  
12  
13

115

#### 116 *Data Collection Procedure*

117 Semi-structured interview guides were designed for KIIs and IDIs. The interview involved a  
118 discussion on perceptions about Covid-19 outbreak, along with the barriers and facilitators  
119 experienced by healthcare providers while caring for Covid-19 patients. The interview guides  
120 were pilot tested with a non-study sample (2 KIIs & 2 IDIs) with the same characteristics as  
121 the study sample. The pilot testing offered evidenced-base guidance to improve data collection  
122 guides. Before beginning interview, the study investigators explained the study objectives and  
123 procedures to eligible healthcare providers and obtained informed consent for their  
124 participation in the study. Trained researchers, experienced in qualitative research, conducted  
125 online interviews using Zoom. The interviews were conducted in the languages of English  
126 and/or Urdu. Study participants were assured that their anonymity will be maintained. Informed  
127 consent was also obtained for notetaking and audiorecording of the interview.

#### 128 Key-informant interviews (KIIs)

129 A total of 19 KIIs were conducted with senior management and hospital leadership. These KIIs  
130 were conducted to understand the barriers and facilitators faced while managing Covid-19  
131 cases at AKUH. The Key Informants were electronically invited to participate in the qualitative  
132 study. Each KII took approximately between 30 and 45 minutes.

#### 133 In-Depth Interviews (IDIs)

134 IDIs were conducted with frontline healthcare providers including doctors, nurses and  
135 pharmacist who were directly involved in caring for Covid-19 patients. A total of 12 IDIs

1  
2  
3 136 interviews were conducted with group of frontline healthcare providers. The healthcare  
4  
5 137 providers were identified from the AKUH Covid-19 in-patient wards and out-patient screening  
6  
7  
8 138 and testing areas. Frontline healthcare providers were electronically invited to participate in  
9  
10 139 their off-duty hours. Each IDI took approximately between 30 and 45 minutes.

#### 12 140 *Data analysis*

14 141 Study data was analysed manually using the conventional content analysis technique[17].  
16  
17 142 Firstly, the audio recordings from the interviews were transcribed and then translated into  
18  
19 143 English language. No identifying characteristics were included in the transcriptions.  
20  
21 144 Transcripts were read several times by four research investigators to develop an interpretation  
22  
23  
24 145 of the perspectives and experiences of the barriers and facilitators to treat and manage Covid-  
25  
26 146 19 cases. This involved an iterative process where data were coded, compared, contrasted, and  
27  
28 147 refined to generate emergent themes. The transcribed text was divided into ‘meaning units’  
29  
30  
31 148 which was later shortened and labelled with a ‘code’ without losing the study context. Codes  
32  
33 149 were then analysed and grouped into similar categories. In the final step, similar categories  
34  
35 150 were assembled under sub-themes and main themes. Two independent investigators performed  
36  
37  
38 151 the coding, and category creation, and discrepancies were resolved through discussion until a  
39  
40 152 consensus was reached.

42 153

44 154

1  
2  
3 155 *Ethical considerations*  
4

5 156 Ethical approval for this study was obtained from the Aga Khan University Ethical Review  
6  
7  
8 157 Committee (AKU-ERC) – [2020-3694-9056].  
9

10 158 *Patient and Public Involvement*  
11

12 159 Patient public involvement is a relatively new concept in Pakistan. Our data collection tool was  
13  
14 160 piloted through two IDIs to ensure that it is inclusive and comprehensive. Frontline healthcare  
15  
16 161 providers were not involved in the development of research question and design, and data  
17  
18 162 collection decisions.  
19

20  
21 163 **Results**  
22

23  
24 164 In this qualitative study, 19 KIIs and 12 IDIs were conducted, between April and May 2020,  
25  
26 165 with a variety of participants including, residents, registered nurses, head nurses, nurse  
27  
28 166 managers, pharmacists, senior management, and few key individuals from leadership positions.  
29  
30 167 Data collection was ceased once saturation was achieved. The demographic information for the  
31  
32 168 KIIs and IDIs participants are illustrated in Table 1. All the study participants (n=31) who  
33  
34 169 were approached by the study team agreed to participate in the study.  
35  
36

37 170 Table 1: Characteristics of KII and IDI Study Participants (KII=19; IDI=12)  
38  
39

40 171  
41 172

Characteristics of KII participants		N (%) or mean $\pm$ SD	Median (range)
Gender	Female	11 (57.9%)	
	Male	8 (42.1%)	
Age		45.46 $\pm$ 6.97	45 (34-58)
Designation	Professor	5 (26.3%)	
	Associate professor	7 (36.8%)	

	Assistant professor	2 (10.5%)	
	Manager	3 (15.8%)	
	Leadership role	2 (10.5%)	
Years of Experience		17.39 ± 10.95	19 (1-45)

173

Characteristics of IDI participants		N (%) or mean ± SD	Median (range)
Gender	Female	11 (91.7%)	
	Male	1 (8.3%)	
Age		33.7 ± 8.64	31 (22-48)
Designation	Doctor	5 (41.7%)	
	Nurse	6 (50%)	
	Pharmacists	1 (8.3%)	
Years of Experience		9.41 ± 5.99	9 (2-20)

174

175 Based on the data collection and thematic analysis, three overarching themes were identified

176 (I) Challenges faced by frontline healthcare providers working in Covid-19 wards; (II)

177 Enablers supporting healthcare providers to deal with Covid-19 pandemic; and (III)

178 Recommendations to support healthcare workforce during the Covid-19 crisis. The themes and

179 categories are presented in Table 2.

180 Table 2: Themes and categories

Themes	Categories
--------	------------

Challenges faced by frontline healthcare providers working in Covid-19 wards	<ul style="list-style-type: none"> <li>• Concerns about management of Covid-19 cases</li> <li>• Fear of acquiring infection and transmitting to family members</li> <li>• Overwhelmed and exhausted by the workload and exhaustive donning and doffing process</li> <li>• Stigma associated with healthcare providers working in Covid-19 wards</li> </ul>
Enablers supporting healthcare providers to deal with Covid-19 pandemic	<ul style="list-style-type: none"> <li>• A safe and secured hospital environment</li> <li>• Adequate trainings and drills for dealing with Covid-19 cases</li> <li>• Strong hospital system of information sharing during Covid-19 crisis</li> <li>• Supportive management and leadership</li> </ul>
Recommendations to support healthcare workforce during the Covid-19 crisis	<ul style="list-style-type: none"> <li>• Prepare and train, backup health workforce</li> <li>• Ensuring motivation for frontline health workforce</li> <li>• Anticipate and address the mental health needs of the health workforce</li> </ul>

181

182 **Themes 1: Challenges faced by frontline healthcare providers working in Covid-19 wards**

- 183
- *Concerns about management of Covid-19 cases*

184 While front line HCPs and senior management expressed their determination to offer services  
 185 in these challenging times to manage Covid-19 patients, various concerns related to the  
 186 treatment and management of Covid-19 cases were articulated. Dialogues with hospital senior  
 187 management representatives indicated that standard operating procedures (SOPs) have been  
 188 designed to manage Covid-19 cases, however, few frontlinecare providers believed that the  
 189 presence of SOPs is fairly ambiguous. Expressing similar concerns, a pharmacist stated:

190

---

191 *“I have concerns about how to deal with patients ... We need a clear procedure for*  
192 *dealing with them. For example, when someone comes into the pharmacy, what*  
193 *procedures are we meant to follow” (IDI-08, Pharmacist).*

---

194  
195 During interviews, an insight into the initial practices of managing Covid-19 crisis was also  
196 probed. Senior hospital management mentioned that the hospital was fully prepared to manage  
197 this public health emergency since its epidemic in China. Contrary to this, front line physicians  
198 and nurses verbalized glimpses of an ad hoc management of outpatient hospital area for Covid-  
199 19 screening and testing, during the early phase of the pandemic. Furthermore, on one hand,  
200 senior management generally exhibited their satisfaction over the availability and provision of  
201 PPEs to front line health care providers. While on the other hand, shortages of PPEs were  
202 notified by few health care providers, alongside sanitizers while providing care to the patients.

---

204 *“Sometimes we face shortage of sanitizers and other essential PPEs such as masks. I*  
205 *think that all the PPEs should be available at all times so that we are not worried.*  
206 *Sometimes doctors ask us to bring them a N95 mask and we are unable to do so*  
207 *because we do not have any” (IDI-02, Nurse)*

---

208  
209 Although, respondents appreciated the availability of negative pressure rooms during Covid-  
210 19 pandemic, concerns about the limited capacity of the hospital were verbalized for the  
211 efficient and timely management of Covid-19 cases. Few hospital staff reported that they  
212 experienced violent behaviour by the family in case of refusal to admit new patients.

- 213 • *Fear of acquiring infection and transmitting to family members*

1  
2  
3 214 Due to the highly contagious nature of the coronavirus (SARS-CoV-2) and perceived  
4  
5 215 uncertainty in contracting the disease, interviews with physicians and nurses revealed their  
6  
7 216 apprehension in acquiring the virus while treating patients. The frontline workers face a unique  
8  
9  
10 217 mental health challenge and several respondents experienced feeling guilty about potentially  
11  
12 218 carrying the virus to their families. Highlighting this point, one respondent stated:

14  
15 219

---

17  
18 220 *“It is a stressful situation. By the end of the day when I am taking a break, I have*  
19  
20 221 *many negative thoughts. I worry about carrying this infection to my family...I have a*  
21  
22 222 *young daughter at home and nearly every day I worry about being asymptomatic and*  
23  
24 223 *carrying this infection to my family” (IDI-07, Doctor).*

---

26  
27 224

28  
29  
30 225 The increased likelihood of contracting Covid-19 is also psychologically affecting the senior  
31  
32 226 management team across the hospital. Due to their exposure; their family members are also at  
33  
34 227 risk of acquiring the infection.

---

37  
38 228 *“I work in the emergency department so I always have a fear that the next patient I*  
39  
40 229 *see will need serious treatment and I may have to resuscitate him/her. But now, I*  
41  
42 230 *always have a fear that the next patient will be Covid-19 positive and that they may*  
43  
44 231 *infect me. And if I get infected my family will get infected. So, this fear is a little bit*  
45  
46 232 *different and it will last till the pandemic last” (IDI-12, Doctor)*

---

49  
50 233

51  
52 234 While verbalizing the concerns about the HCPs exposure in getting infected, respondents also  
53  
54 235 voiced their concerns that front line staff is at high risk of getting infected even in non-Covid-  
55  
56 236 19 areas across the hospital setting.

57  
58  
59 237  
60

- 1  
2  
3 238 • *Overwhelmed and exhausted by the workload and exhaustive donning and doffing*  
4  
5 239 *process*  
6  
7

8 240 In order to protect frontline workers against Covid-19, the infection control policy at AKUH  
9  
10 241 mandates that all staff working in areas where Covid-19 patients are suspected wear a full  
11  
12 242 sleeve impervious gown, gloves, and a N95 mask. While this policy is no doubt effective and  
13  
14 243 in line with the best interest of the frontline workers, it poses several challenges. For instance,  
15  
16 244 our interviews revealed that several participants found the N95 mask suffocating to wear for a  
17  
18 245 prolonged period of time. Commenting on the experience of wearing full PPE one frontline  
19  
20 246 worker stated:  
21  
22  
23

24 247

---

27 248 *“We...get tired of wearing full PPE because we have to be in the room with the patient*  
28  
29 249 *for four hours. It gets really hot and the extra layers of protection weigh heavy on the*  
30  
31 250 *body” (IDI-11, Nurse).*  
32  
33  
34

---

35 251

36  
37 252 Moreover, another respondent highlighted how the process of using PPE is complicated when  
38  
39 253 staff are required to visit one patient to another. This occurs because the staff have to  
40  
41 254 meticulously switch in and out of PPEs. Therefore, what was initially a mundane process has  
42  
43 255 now become a critical aspect of infection control. This point was illustrated by a respondent  
44  
45 256 who stated:  
46  
47  
48

49 257

---

52 258 *“It takes around 5-7 minutes to put on our PPEs. We then go to the patient's room...*  
53  
54 259 *come back and spend the same amount of time to switch our PPEs before going to the*  
55  
56 260 *next patient room. This process is a big hassle and is time consuming. But we have to*  
57  
58  
59  
60



1  
2  
3 261 *be extra careful, if this procedure is not done properly, we can pass on the infection”*

4  
5 262 *(IDI-07, Doctor).*

6  
7  
8  
9 263

10  
11 264 While this process is no doubt challenging, one respondent offered an encouraging remark  
12  
13 265 stating:

14  
15  
16 266 *“Initially we felt that our workload has increased, however, with the passage of time*

17  
18 267 *we have become used to it and things feel normal” (IDI-16, Nurse).*

19  
20  
21  
22 268

23  
24 269 • *Stigma associated with healthcare providers working in Covid-19 wards*

25  
26 270 Covid-19 is primarily transmitted from symptomatic people to others through direct contact,

27  
28 271 or by contact with contaminated objects and surfaces. Moreover, a large portion of those

29  
30 272 infected are asymptomatic, meaning they show no overt markers of the infection. As a result

31  
32 273 of this, frontline workers face a unique mental health challenge. Since they work in high risk

33  
34 274 environments many opt to hide details about their work life in fear of being stigmatized by their

35  
36 275 communities.

37  
38  
39  
40 276

41  
42  
43 277 *“I know that in some cases health care workers do not tell their families and*

44  
45 278 *communities that they are working with Covid-19 patients. They fear that this will*

46  
47 279 *cause unnecessary panic and people may view them differently” (KII-19, Associate*

48  
49 280 *Professor).*

50  
51  
52  
53 281

54  
55 282 It is likely that this anxiety within the families and communities of health care workers is

56  
57 283 propagated by the ambiguity of information available on Covid-19. It is possible that the

58  
59  
60

1  
2  
3 284 hospital may address many of these issues by extending its outreach services. During the  
4  
5 285 interviews, a frontline worker was critical of the hospitals current outreach services:  
6  
7  
8 286

---

9  
10 287 *“Our services should be extended to the community. Compared to other institutions*  
11  
12 288 *we have not done enough. Many people have criticized us in this pandemic” (IDI-08,*  
13  
14 289 *Pharmacist).*

---

15  
16  
17  
18  
19 290 By providing more extensive services to surrounding communities, the hospital could not only  
20  
21 291 alleviate the stigma faced by front line workers, but also reduce the surge of false information.  
22  
23 292

## 24 25 293

### 26 294 **Theme 2: Enablers supporting healthcare providers to deal with Covid-19 pandemic**

#### 27 28 295

- 29 296 • *A safe and secured hospital environment*

30  
31  
32  
33 297 Many respondents stated that the hospital has provided a safe environment for employees, and  
34  
35 298 that safety measures have been improved as the hospital administration became more  
36  
37 299 knowledgeable about the nature of this disease. One respondent stated the hospital’s disaster  
38  
39 300 management and incident command system were ensuring adequate training and smooth  
40  
41 301 communication throughout the hospital.  
42  
43  
44  
45  
46  
47  
48

---

49 303 *When the number of cases started increasing, the hospital enacted the Hospital*  
50  
51 304 *Incident Command System, leaders from each of the different areas i.e. logistics,*  
52  
53 305 *communications, medicine, etc came together to make sure that everything was in*  
54  
55 306 *place- . The hospital has now made smaller groups which meet regularly to go over*  
56  
57  
58  
59  
60

1  
2  
3 307 *each of the issues and an executive Operations Command Committee goes over what*  
4  
5 308 *should be done.” (KII-19, Associate Professor)*  
6  
7  
8

---

9 309  
10  
11 310 While provisions are made for availability of PPE for the staff, many noted that implementation  
12  
13 311 of proper usage of PPE and adequate hand hygiene is still a problem that requires behavioral  
14  
15 312 change . It was also stated that health care providers that are considered vulnerable (i.e. elderly  
16  
17 313 and/or have serious pre-existing conditions) are not allowed to work in the Covid-19  
18  
19 314 established areas.  
20  
21  
22

23 315  
24  
25 316 While several precautions are being taken, one respondent claimed that there were many places  
26  
27 317 for improvement. One stated that it is complacent to feel good about any sense of safety and  
28  
29 318 security, and that it is important to remain vigilant in the case of new information about the  
30  
31 319 disease or a high influx of patients.  
32  
33

34 320  
35  
36  
37 321 *“There are several places where things can slip through the cracks, and cause*  
38  
39 322 *problems, and there are several points that will fail if they come under pressure- I am*  
40  
41 323 *not absolutely confident, but it is good so far.” (KII- 16, Professor)*  
42  
43  
44

---

45 324  
46  
47 325 • *Adequate trainings and drills for dealing with Covid-19 cases*  
48

49 326 When questioned about trainings and drills, most respondents stated that everyone who is  
50  
51 327 working for Covid-19 is trained in the usage of PPE, N95 mask, donning and doffing, and  
52  
53 328 taking test samples using nasopharyngeal swabs. Many also said that regular training was being  
54  
55 329 carried out on the job and at the CIME, and that master trainers were being trained to then  
56  
57  
58  
59  
60

1  
2  
3 330 disseminate information and train the rest of the department. Covinars (Covid Webinar)  
4  
5 331 sessions are being conducted to help train and provide information about the disease.  
6  
7  
8 332

---

9  
10  
11 333 *We have completed 2-day training workshops or seminars and get trained every day*  
12  
13 334 *in new technologies and when new guidelines come” (IDI-02, Nurse)*  
14  
15

---

16 335  
17  
18 336 However, some specialists were concerned that very little had been done in the way of training;  
19  
20 337 it was noted that besides guidance on N95 mask fitting test, there were no opportunities to go  
21  
22 338 through any drills. While communications were being carried out, it was not considered  
23  
24 339 sufficient. Others said that while trainings were being conducted, they were not very regular.  
25  
26 340 While they stated that this may be because of the social distancing measures, they insisted on  
27  
28 341 more regular online trainings.  
29  
30  
31  
32  
33  
34

- 35 343 • *Strong hospital system of information sharing during Covid-19 crisis*

36  
37 344 While the outbreak of Covid-19 has put immense pressure and stress on the hospital staff, there  
38  
39 345 are many facilitators that support the hospital staff to deal with the pandemic. Respondents  
40  
41 346 stated that information was being shared through video messages and that helplines and  
42  
43 347 hotlines for staff and the public were effective in screening for Covid-19 symptoms. While  
44  
45 348 many stated that information sharing was difficult at first, it was claimed that this was due to  
46  
47 349 the changing information coming about the disease from international agencies It was  
48  
49 350 reported that the hospital leadership holds weekly meetings with senior management, who then  
50  
51 351 circulate that within their respective departments.  
52  
53  
54  
55  
56  
57  
58  
59  
60

---

1  
2  
3  
4 353 *“I think we have a reasonably good system built for disaster and we have a very*  
5  
6 354 *defined chair of command... There have been different working groups formed for*  
7  
8 355 *Covid-19 and they all have specialized tasks for information sharing, and there is a*  
9  
10 356 *Covid-19 hotline for employees and the public and that is adequate.” (KII-16,*  
11  
12 357 *Professor)*

---

16 358  
17  
18 359 In addition, university-wide town hall meetings were held regularly. It was suggested that more  
19  
20 360 town halls should be carried out, and that regular memos should be sent with information about  
21  
22 361 caring for those with the disease.  
23  
24 362

---

28 363 *“Town halls boosted the morale of the health care providers, and this communication*  
29  
30 364 *was very good.” (KII-3, Professor)*

---

34 365  
35  
36 366 • *Supportive management and leadership*

38 367 Most in-depth interview participants mentioned that senior management and institutional  
39  
40 368 leadership is providing immense support by ensuring appropriate provision of protective  
41  
42 369 equipment (PPE) in the Covid-19 and non Covid-19 wards to ensure safety of frontline  
43  
44 370 healthcare providers. In addition, few participants mentioned that the institutional leadership  
45  
46 371 regularly visit Covid-19 units for staff appreciation and encouragement. Besides, the senior  
47  
48 372 management responds to healthcare providers concerns in a timely manner through a  
49  
50 373 WhatsApp group.  
51  
52 374

---

1  
2  
3  
4 375 *“Initially, we were supposed to remain inside the patient room consecutively for 4*  
5  
6 376 *hours. This was very exhausting for bedside nurses especially since we have to wear*  
7  
8 377 *three layers of PPE. We raised these concerns and senior management has now*  
9  
10 378 *permitted us to exit the room when the patients condition gets stable ... we now*  
11  
12 379 *observe the patients from the mirrored door. This has given us a huge relief” (IDI-*  
13  
14 380 *11, Nurse)*

---

18 381  
19  
20  
21 382 While frontline providers appreciated the support received from management and institutional  
22  
23 383 leadership, they also recognized the efforts of all other support departments who are working  
24  
25 384 together for safety of frontline hospital staff. These support departments include finance, design  
26  
27 385 office, construction, laundry, purchase and supply chain management, safety and security,  
28  
29 386 human resource, information and technology department, nutrition and food services,  
30  
31 387 marketing and communications, travel services, etc.

---

34 388  
35  
36  
37 389 *“All the support departments are contributing in the same manner as our frontline*  
38  
39 390 *healthcare providers” (KII-01, Professor)*

---

40 391  
41  
42  
43 392 In addition, the few IDI participants mentioned that institutional leadership has arranged  
44  
45 393 accommodation facilities for the frontline staff who are working in Covid-19 wards but the  
46  
47 394 hospital staff is not availing those services because they have their families and children back  
48  
49 395 home. Few respondents further stated that the senior management has also ensured the  
50  
51 396 provision of shower facilities for the frontline hospital staff; however due to time limitations  
52  
53 397 nurses are unable to make effective use of those facilities.

54 398  
55  
56  
57  
58  
59  
60

1  
2  
3 399 **Theme 3: Recommendations to support healthcare workforce during the Covid-19 crisis.**

4  
5 400

- 6  
7  
8 401 • *Prepare and train, backup health workforce*

9  
10 402 Both IDI and KII participants mentioned that they have been experiencing staff shortages in  
11  
12 403 Covid-19 wards because many of the frontline health care providers have been either  
13  
14 404 quarantined or isolated due to exposure. When asked about recommendations to support  
15  
16 405 frontline health workforce, most IDI respondents suggested that healthcare providers (doctors  
17  
18 406 and nurses) of other sub-specialties (neurology, cardiac, surgery, orthopaedic) need to be  
19  
20 407 trained as a backup to mitigate situations when entire internal medicine teams may be placed  
21  
22 408 in self-quarantine due to Covid-19 exposure. In addition, few key-informants recommended  
23  
24 409 that there should be a central backup plan for staff coverage in both Covid-19 and routine  
25  
26 410 wards.  
27  
28  
29  
30

31 411

32  
33  
34 412 *“Currently, only the healthcare providers of Covid-19 wards have received*  
35  
36 413 *specialized trainings on ventilator code, BIPAP management, and handling body of*  
37  
38 414 *expired Covid-19 patient. However, these trainings should be given to all healthcare*  
39  
40 415 *staff across the institution to prepare a central backup”.* (IDI-03, Nurse)  
41  
42  
43

44 416

- 45  
46 417 • *Ensuring motivation for frontline health workforce*

47  
48 418 To ensure enthusiasm among front liners, study respondents highlighted the need of  
49  
50 419 appreciating and motivating frontline providers for their countless efforts in this pandemic  
51  
52 420 battle.  
53  
54

55 421  
56  
57  
58  
59  
60

1  
2  
3 422 Most IDIs including frontline nurses suggested that risk allowance should be given to all  
4  
5 423 frontline healthcare providers involved in treatment and management of Covid-19 patients.  
6  
7 424 Healthcare providers suggested that instead of giving extra time off, hospital staff should be  
8  
9 425 compensated for taking additional risks, while caring for Covid-19 cases.  
10  
11  
12  
13

---

14  
15 427 *As you know the world is very materialistic and people always need motivation. While*  
16  
17 428 *we are being encouraged by senior management, this form of verbal motivation will*  
18  
19 429 *only work for a time period. If the current situation is going to go on, we will need to*  
20  
21 430 *give people an added incentive in the form of material compensation. This can either*  
22  
23 431 *be more money or additional days off (IDI-04, Nurse).*  
24  
25  
26  
27

---

28 432  
29  
30 433 In addition, respondents verbalized that some activities for staff entertainment should also be  
31  
32 434 thought about to alleviate stress and anxiety associated with this crisis situation among  
33  
34 435 healthcare providers.  
35  
36

- 37 436  
38  
39 437 • *Anticipate and address the mental health needs of the health workforce*

40  
41 438 IDI and KII respondents mentioned that there is no formal platform established where front  
42  
43 439 liners voices are being heard. Such a platform could provide an opportunity to anticipate and  
44  
45 440 address the mental health needs of the frontline health workforce.  
46  
47  
48

49 441  
50  
51  
52 442 *Everyone is very stressed. I see it every time one of my staff has to take care of a*  
53  
54 443 *suspected patient, they are hesitant and scared. Sometimes, I feel the same way myself.*  
55  
56 444 *We need an integrated counselling program. People should not just come for*  
57  
58 445 *counselling when they are mentally struggling. Similar to how we have guidelines for*  
59  
60



1  
2  
3 446 *PPE and social distancing we should have small group talks on ZOOM so that we can*  
4  
5 447 *dispel our anxieties before they build up (KII 06, Associate Professor).*  
6  
7  
8

---

9 448  
10  
11 449 Few study participants particularly KIs appreciated the motivation sessions organized by  
12  
13 450 psychiatric fellows on stress and coping. However, study respondents highlighted the need of  
14  
15 451 arranging more psychiatric sessions for healthcare staff on a daily basis to cope with the stress.  
16  
17 452 More specifically, participants stated that currently there is a blanket approach around mental  
18  
19 453 health; however, more is needed to address varied concerns of the health workforce.  
20  
21  
22

---

23 454  
24  
25 455 *There was a zoom session arranged on stress management, but I was unable to attend*  
26  
27 456 *it due to my duties. I think we need more of these sessions. We can even add more*  
28  
29 457 *innovative things such as breathing exercises, mindfulness, and yoga. There is so*  
30  
31 458 *much anxiety relating to Covid-19 both at work and in our homes. Everyone is so*  
32  
33 459 *panicked and there is so much hype going around. These types of innovative sessions*  
34  
35 460 *would really help (IDI-05, Doctor)*  
36  
37  
38

---

39  
40 461

## 41 42 462 **Discussion**

43  
44  
45 463 To the best of our knowledge, this is the first study to explore perceptions and experiences of  
46  
47 464 health-care providers during the Covid-19 Pandemic in Pakistan. The research identified  
48  
49 465 challenges faced by healthcare providers while managing Covid-19 patients, alongside  
50  
51 466 strategies to cope with these. The frontline healthcare providers pointed out several concerns  
52  
53 467 that influenced their ability and willingness to treat and manage Covid-19 patients. These  
54  
55 468 included shortage of PPEs and hand sanitizers, lack of clear SOPs, ad hoc management of  
56  
57 469 hospital outpatient area for Covid-19 screening and testing, violent behavior by families of  
58  
59  
60

1  
2  
3 470 Covid positive patient, and limited capacity of hospital to treat and manage increasing Covid-  
4  
5 471 19 positive patients. Notwithstanding some challenges that cannot be mitigated by the  
6  
7 472 institution such as the increasing number of Covid positive patients and unexpected violent  
8  
9 473 behavior of families of Covid-19 positive patients, a number of corrective actions that can be  
10  
11 474 taken to lessen the impact of others.  
12  
13  
14  
15 475

16  
17 476 Our results highlight, especially in the initial period of the crisis, differences in the responses  
18  
19 477 received from senior management and frontline providers with regard to availability of PPEs  
20  
21 478 and sanitizers, presence of clear SOPs, preparedness of hospital to manage Covid-19 pandemic.  
22  
23 479 These discrepancies could be partly due to the communication gap between the two group of  
24  
25 480 respondents (whereby senior management and hospital leadership was heavily involved in the  
26  
27 481 process of designing new screening and testing site, procuring PPE, and updating SOPs  
28  
29 482 considering the differential progression of the outbreak). Most have now been addressed  
30  
31 483 through corrective actions by the hospital leadership during the last few weeks and months. As  
32  
33 484 this is a leading private teaching hospital of the country, the senior management and hospital  
34  
35 485 leadership was able to successfully address the gaps to improve the experiences of front liners  
36  
37 486 involved in this pandemic. However, this may not be the case in most public sector hospitals,  
38  
39 487 where front line healthcare workers continue to face challenges. The healthcare systems in  
40  
41 488 LMICs face serious constraints in capacity and accessibility during normal times. This would  
42  
43 489 be aggravated during Covid-19 outbreak, leading to worse clinical outcomes, poor quality  
44  
45 490 healthcare and poor healthcare workers' experiences[18, 19].  
46  
47  
48  
49  
50

51 491  
52  
53 492 Consistently with experiences from previous outbreaks and emergencies[18, 20], frontline  
54  
55 493 healthcare workers providing care to Covid-19 patients experienced increased anxiety and  
56  
57 494 stress. Our study found that the increased exhaustion among HCPs is due to the fear of  
58  
59  
60

1  
2  
3 495 acquiring infection and transmitting it to their family members. Anxiety and burnout among  
4  
5 496 HCPs were also reported by studies conducted in high income countries (HICs) although  
6  
7 497 countries were combating different stages of pandemic[18]. This may be due to standard  
8  
9 498 changes in working hours, shortage in skilled workforce, and inadequate access to PPE[18].  
10  
11 499 The frontline providers in our study felt overwhelmed due to exhaustive donning and doffing  
12  
13 500 process, intense work, and large number of patients, which was consistent with the studies on  
14  
15 501 the outbreak of MERS-Cov[21, 22] and Ebola[23]. Our results undoubtedly show that stigma  
16  
17 502 is a pressing issue for the frontline healthcare workers working in Covid-19 wards. Several  
18  
19 503 studies have reported that there are several potential mechanisms by which stigma could affect  
20  
21 504 HCWs outcomes[24, 25], and HCWs who experience higher levels of stigma reported  
22  
23 505 increased physical (fatigue) and psychological distress (burnout)[26]. These pressures can lead  
24  
25 506 to mental health problems for example burnout, anxiety, depression, insomnia, denial, anger,  
26  
27 507 which not only influence frontline healthcare providers' attention, understanding, and decision  
28  
29 508 making capacity, but could also have a long-lasting impact on their physical and psychological  
30  
31 509 health after the Covid-19 emergency is over[9].  
32  
33  
34  
35  
36  
37  
38  
39

40 511 While the outbreak of Covid-19 put immense pressure and stress on the hospital staff, there  
41  
42 512 were many enabling factors that supported hospital staff to deal with these aspects, which have  
43  
44 513 progressively evolved over the duration of the pandemic. As a result of this pandemic, the  
45  
46 514 entire hospital was able to pull together and many departments across the university hospital  
47  
48 515 coordinated to ensure smooth and efficient operations. Findings suggest that the respondents  
49  
50 516 felt that they were actively encouraged and supported by senior management and the university  
51  
52 517 leadership. More specifically, the research subjects felt that over time the safe and secured  
53  
54 518 hospital environment enabled HCPs to perform their routine tasks and reduce their feeling of  
55  
56 519 uncertainty and fear. Similar findings have been reported by the qualitative study published in  
57  
58  
59  
60

1  
2  
3 520 Lancet Global Health by Qian Liu and colleagues[27]. Our study found that the HCPs were  
4  
5 521 appreciative of the trainings provided to them regarding use of PPE, N95 mask, donning and  
6  
7 522 doffing, and taking test samples using nasopharyngeal swabs. However, it was reported that  
8  
9 523 more drills could be conducted to improve their hand-on skills and reduce the risk of acquiring  
10  
11 524 infection. Health workforce safety is a high priority and therefore it is essentially important to  
12  
13 525 provide sufficient protective supplies and trainings and drills for effective management of  
14  
15 526 Covid-19 cases[27]. A unique yet encouraging finding reported by our study participants was  
16  
17 527 that the hospital developed a strong system of information sharing to keep faculty and staff  
18  
19 528 updated about Covid-19 situation through video messages, hotlines, townhalls, and what are  
20  
21 529 now called Covinars.  
22  
23  
24  
25

26 530

27  
28 531 Our study also reported some recommendations to mitigate current challenges and further  
29  
30 532 improve the experiences of HCPs working in Covid-19 wards. The frontline providers caring  
31  
32 533 for Covid-19 patients felt extreme physical discomfort and fatigue due to long working hours  
33  
34 534 and complicated donning and doffing process and suggested that institution should provide risk  
35  
36 535 allowance to compensate HCPs for the additional risks they take and to motivate staff to  
37  
38 536 continue to work. This finding is consistent with the previous experience from the outbreak of  
39  
40 537 Ebola in western Africa, where risk allowance was adopted as a strategy for motivating and  
41  
42 538 retaining healthcare workers[28]. Our study suggested to prepare and cross-train backup health  
43  
44 539 workforce to effectively respond to staff shortages as many of the frontline HCPs have been  
45  
46 540 either quarantined or isolated due to exposure. Similar recommendations have been provided  
47  
48 541 by a number of studies conducted in diverse settings[29-31]. Our study also showed that a  
49  
50 542 formal platform where front liners voices could be heard did not exist. Respondents reported  
51  
52 543 that such a platform could provide an opportunity to anticipate and address the mental health  
53  
54 544 needs of the frontline health workforce. Experiences from similar outbreaks suggest that early  
55  
56  
57  
58  
59  
60

1  
2  
3 545 psychological intervention and establishment of early support systems is particularly important  
4  
5 546 for frontliners to promote emotional release and improve HCPs mental health[32].  
6  
7  
8 547

9  
10 548 This study was conducted in a leading private tertiary care teaching hospital in Karachi,  
11  
12 549 Pakistan that offers state-of-the-art healthcare. The initial challenges progressively led to a  
13  
14 550 fairly successful story. The same cannot be said for the large number of public and private  
15  
16 551 hospitals in the country. The shortage of PPE has been a frequent occurrence and has even led  
17  
18 552 to public protests, undoubtedly contributing to mental stress and distress. The experience  
19  
20 553 gained from the current study offers lessons for other hospitals in the country to benefit from.  
21  
22 554 There is no doubt that good quality healthcare against Covid-19 can only be ensured if the  
23  
24 555 frontline workers are well taken care of in terms of their mental health and physical needs when  
25  
26 556 asked to serve critically ill patients round the clock.  
27  
28  
29  
30  
31 557

32  
33 558 This study provides an initial evidence base of healthcare providers' experiences of managing  
34  
35 559 Covid-19 patients in an early stage of pandemic when the participants just accepted the  
36  
37 560 antiepidemic tasks. Diverging from the findings of various studies on the experience of  
38  
39 561 negative emotions and barriers encountered during outbreak, we found that facilitators coexist  
40  
41 562 with challenges, which supported front liners to effectively deal with crisis. One of the  
42  
43 563 limitations of this study was that all study respondents were interviewed online, to minimize  
44  
45 564 the risk of infection. The authors did not have the opportunity to build rapport with respondents  
46  
47 565 over Zoom or obtain non-verbal cues during interviews. Secondly, due to the nature of outbreak  
48  
49 566 prevention, the study was unable to conduct focus group interviews, which would have  
50  
51 567 provided detailed information about personal and group feelings. In addition, this was a short-  
52  
53 568 term study and does not include long-term experiences of the research subjects with this  
54  
55 569 pandemic.  
56  
57  
58  
59  
60

1  
2  
3 570  
4

5 571 Conclusion:

6  
7  
8 572 This study provides a holistic view of health-care providers' experiences and emphasizes that  
9  
10 573 adequate trainings and drills, sufficient PPE, a safe and secured hospital environment,  
11  
12 574 healthcare providers motivation, supportive hospital management and leadership, strong  
13  
14 575 hospital system of information sharing and psychological support to address mental health  
15  
16  
17 576 needs of frontliners are necessary to improve the overall experiences of health-care providers  
18  
19 577 fighting Covid-19.  
20

21  
22 578  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 579 **Declaration of interests**  
4

5 580 Ethics approval and consent to participate  
6

7  
8 581 Ethical approval for this study was obtained from the Aga Khan University Ethical Review  
9  
10 582 Committee (AKU-ERC) – [2020-3694-9056]. Written informed consent was provided by all  
11  
12 583 study participants. Informed consent included permission to audio record the interviews and  
13  
14 584 use anonymized quotes. Voluntary participation and the right to ask any questions and to  
15  
16 585 decline participation at any time were emphasized during the data collection.  
17

18  
19 586 Consent for publication  
20

21 587 Written informed consent for publication was obtained.  
22

23  
24 588 Competing interests  
25

26 589 We declare no competing interests.  
27

28  
29 590 Availability of data and materials  
30

31 591 The datasets used and/or analysed during the current study are available from the corresponding  
32  
33 592 author on reasonable request.  
34

35 593 Funding  
36

37 594 This is self-funded research and did not receive any funding.  
38

39  
40 595 Authors' contributions  
41

42 596 All authors had full access to all the data in this study and take responsibility for the integrity  
43  
44 597 of the data and the accuracy of the data analysis. SS, SSQ, ASF, NAP, ZHA, NA designed the  
45  
46 598 study. ASF supervised data collection and analysis. ASF, NAP, ZHA, MMS collected the data.  
47  
48 599 ASF, NAP, ZHA, MMS, SS analyzed and interpreted the data. ASF, NAP, ZHA, MMS wrote  
49  
50 600 the first draft of the manuscript. All authors contributed to reviewing and editing the  
51  
52 601 manuscript.  
53

54  
55  
56 602 Acknowledgements  
57  
58  
59  
60

1  
2  
3 603 The authors would like to acknowledge Dean Adil Haider of Medical College, Aga Khan  
4  
5 604 University Karachi, Pakistan for his greater involvement in conceiving the study concept.  
6  
7  
8 605  
9  
10 606  
11  
12 607  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

For peer review only



608 **References**

609

- 610 1. WHO. Rolling updates on Covid.19. [https://www.who.int/emergencies/diseases/novel-](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen)
- 611 [coronavirus-2019/events-as-they-happen](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen).
- 612 2. Tian, H., et al., *An investigation of transmission control measures during the first 50 days of*
- 613 *the COVID-19 epidemic in China*. Science, 2020. **368**(6491): p. 638-642.
- 614 3. World Health Organization. 2020. WHO Coronavirus Disease (COVID-19) Dashboard. Retrieved
- 615 from <https://covid19.who.int/>.
- 616 4. Government of Pakistan. 2020. Pakistan Cases Details. Retrieved from
- 617 <http://covid.gov.pk/stats/pakistan>.
- 618 5. Ministry of National Health Services, Regulation and Coordination, Government of Pakistan.
- 619 *National Action Plan for Corona virus disease (COVID-19) Pakistan*.
- 620 6. Waris, A., et al., *COVID-19 outbreak: current scenario of Pakistan*. New Microbes and New
- 621 *Infections*, 2020: p. 100681.
- 622 7. Saqlain, M., et al., *Is Pakistan prepared to tackle the coronavirus epidemic?* Drugs & Therapy
- 623 *Perspectives*, 2020: p. 1-2.
- 624 8. *At least 5 US health workers have gotten the coronavirus, and hundreds more are in*
- 625 *quarantine. Hospitals may face staffing shortages as cases surge*, in *Business Insider*.
- 626 9. Xiong, Y. and L. Peng, *Focusing on health-care providers' experiences in the COVID-19 crisis*.
- 627 *The Lancet Global Health*, 2020. **8**(6): p. e740-e741.
- 628 10. Sim, M.R., *The COVID-19 pandemic: major risks to healthcare and other workers on the front*
- 629 *line*. 2020, BMJ Publishing Group Ltd.
- 630 11. Chew, N.W., et al., *A multinational, multicentre study on the psychological outcomes and*
- 631 *associated physical symptoms amongst healthcare workers during COVID-19 outbreak*. Brain,
- 632 *behavior, and immunity*, 2020.
- 633 12. *I'm Mentally and Physically Exhausted.' Healthcare Workers Battling Coronavirus Are Running*
- 634 *Out of Protective Gear*, in *TIME*.
- 635 13. *US medical workers self-isolate amid fears of bringing coronavirus home*, in *The Guardian*.
- 636 14. *Nearly 3,400 Chinese healthcare workers have gotten the coronavirus, and 13 have died*, in
- 637 *Business Insider*.
- 638 15. *Doctor dies in Gilgit-Baltistan after contracting coronavirus from patients*, in *International The*
- 639 *News*.
- 640 16. Chang, D., et al., *Protecting health-care workers from subclinical coronavirus infection*. The
- 641 *Lancet Respiratory Medicine*, 2020. **8**(3): p. e13.
- 642 17. Vaismoradi M, Turunen H, Bondas T. *Content analysis and thematic analysis: Implications for*
- 643 *conducting a qualitative descriptive study*. *Nursing & health sciences*. 2013;15(3):398-405.
- 644 18. Semaan, A.T., et al., *Voices from the frontline: findings from a thematic analysis of a rapid*
- 645 *online global survey of maternal and newborn health professionals facing the COVID-19*
- 646 *pandemic*. *MedRxiv*, 2020.
- 647 19. Hopman, J., B. Allegranzi, and S. Mehtar, *Managing COVID-19 in low-and middle-income*
- 648 *countries*. *Jama*, 2020. **323**(16): p. 1549-1550.
- 649 20. McMahon, S.A., et al., *Healthcare providers on the frontlines: a qualitative investigation of the*
- 650 *social and emotional impact of delivering health services during Sierra Leone's Ebola epidemic*.
- 651 *Health Policy and Planning*, 2016. **31**(9): p. 1232-1239.
- 652 21. Kim, Y., *Nurses' experiences of care for patients with Middle East respiratory syndrome-*
- 653 *coronavirus in South Korea*. *American journal of infection control*, 2018. **46**(7): p. 781-787.
- 654 22. Kang, H.S., et al., *Working experiences of nurses during the Middle East respiratory syndrome*
- 655 *outbreak*. *International journal of nursing practice*, 2018. **24**(5): p. e12664.

- 1  
2  
3 656 23. Kraft, C.S., et al., *Serosurvey on healthcare personnel caring for patients with Ebola virus*  
4 657 *disease and Lassa virus in the United States*. Infection Control & Hospital Epidemiology, 2020.  
5 658 **41**(4): p. 385-390.  
6 659 24. Markowitz, F.E., *The effects of stigma on the psychological well-being and life satisfaction of*  
7 660 *persons with mental illness*. Journal of health and social behavior, 1998: p. 335-347.  
8 661 25. The, L., *The health crisis of mental health stigma*. Lancet (London, England), 2016. **387**(10023):  
9 662 p. 1027.  
10 663 26. Ramaci, T., et al., *Social Stigma during COVID-19 and its impact on HCWs outcomes*.  
11 664 Sustainability, 2020. **12**(9): p. 3834.  
12 665 27. Liu, Q., et al., *The experiences of health-care providers during the COVID-19 crisis in China: a*  
13 666 *qualitative study*. The Lancet Global Health, 2020.  
14 667 28. Chersich, M.F., et al., *COVID-19 in Africa: care and protection for frontline healthcare workers*.  
15 668 Globalization and Health, 2020. **16**: p. 1-6.  
16 669 29. Dewey, C., et al., *Supporting clinicians during the COVID-19 pandemic*. 2020, American College  
17 670 of Physicians.  
18 671 30. Hasan, Z. and M. Narasimhan, *Preparing for the COVID-19 Pandemic: Our Experience in New*  
19 672 *York*. Chest, 2020.  
20 673 31. Adams, J.G. and R.M. Walls, *Supporting the health care workforce during the COVID-19 global*  
21 674 *epidemic*. Jama, 2020. **323**(15): p. 1439-1440.  
22 675 32. Sun, N., et al., *A qualitative study on the psychological experience of caregivers of COVID-19*  
23 676 *patients*. American Journal of Infection Control, 2020.  
24 677

# BMJ Open

## The perceptions and experiences of health-care providers during Covid-19 pandemic in Karachi, Pakistan: an exploratory qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-048984.R1
Article Type:	Original research
Date Submitted by the Author:	28-Jun-2021
Complete List of Authors:	Shahil Feroz, Anam; Aga Khan University, ; University of Toronto Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health Akber Pradhan, Nousheen; Aga Khan University Hussain Ahmed, Zarak; Aga Khan University Shah, Mashal; Aga Khan University, Department of Community Health Sciences Asad, Nargis; Aga Khan University, Psychiatric Department Saleem, Sarah; Aga Khan University, Community Health Sciences Siddiqi, Sameen; Aga Khan University Medical College Pakistan, Community Health Sciences Department
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Public health
Keywords:	COVID-19, Public health < INFECTIOUS DISEASES, PUBLIC HEALTH

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

1  
2  
3 **Title:**  
4

5  
6 The perceptions and experiences of health-care providers during Covid-19 pandemic in  
7  
8 Karachi, Pakistan: an exploratory qualitative study  
9

10 **Author names and email address**  
11

- 12  
13 1. Anam Shahil Feroz (ASF) – [anam.shahil@mail.utoronto.ca](mailto:anam.shahil@mail.utoronto.ca)  
14  
15 2. Nousheen Akber Pradhan (NAP) – [nousheen.pradhan@aku.edu](mailto:nousheen.pradhan@aku.edu)  
16  
17 3. Zarak Hussain Ahmed (ZHA) - [zarak.ahmed@aku.edu](mailto:zarak.ahmed@aku.edu)  
18  
19 4. Mashal Murad Shah (MMS) - [mashal.murad@aku.edu](mailto:mashal.murad@aku.edu)  
20  
21 5. Nargis Asad (NA) – [nargis.asad@aku.edu](mailto:nargis.asad@aku.edu)  
22  
23 6. Sarah Saleem (SS) -[sarah.saleem@aku.edu](mailto:sarah.saleem@aku.edu)  
24  
25 7. Sameen Siddiqi (SSQ) - [sameen.siddiqi@aku.edu](mailto:sameen.siddiqi@aku.edu)  
26  
27

28 **Full institution email address**  
29

30  
31 <sup>1-4,6,7</sup> Department of Community Health Sciences - The Aga Khan University, Stadium Road,  
32  
33 PO Box 3500, Karachi 74800, Pakistan  
34

35  
36 <sup>1</sup> Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto,  
37  
38 Ontario, Canada  
39

40  
41 <sup>5</sup>Department of Psychiatry - The Aga Khan University, Stadium Road, PO Box 3500, Karachi  
42  
43 74800, Pakistan  
44

45 **Corresponding author**  
46

- 47  
48 1. Anam Shahil Feroz (ASF) – [anam.shahil@mail.utoronto.ca](mailto:anam.shahil@mail.utoronto.ca)  
49  
50 Department of Community Health Sciences - The Aga Khan University, Stadium Road,  
51  
52 PO Box 3500, Karachi 74800, Pakistan  
53  
54 Phone number- 02134864917  
55  
56  
57  
58  
59  
60

**Abstract**

Objective: To explore healthcare providers' perspectives and experiences of the barriers and facilitators to treat and manage Covid-19 cases.

Design and Setting: We conducted an exploratory qualitative study using a purposive sampling approach, at a private tertiary care teaching hospital in Karachi, Pakistan. Study data were analyzed manually using the conventional content analysis technique.

Participants: Key-informant interviews (KIIs) were conducted with senior management and hospital leadership and in-depth interviews (IDIs) were conducted with frontline healthcare providers.

Results: A total of 31 interviews (KIIs=19; IDIs=12) were conducted, between April and May 2020. Three overarching themes emerged. The first was 'challenges faced by frontline healthcare providers working in Covid-19 wards. Healthcare workers experienced increased anxiety due to the fear of acquiring infection and transmitting it to their family members. They felt overwhelmed due to the exhaustive donning and doffing process, intense work, and stigmatization. The second theme was 'enablers supporting healthcare providers to deal with the Covid-19 pandemic'. Front liners pointed out several enabling factors that supported hospital staff including a safe hospital environment, adequate training, a strong system of information sharing, and supportive management. The third theme was 'recommendations to support the healthcare workforce during the Covid-19 crisis'. Healthcare workers recommended measures to mitigate current challenges including providing risk allowance to frontline healthcare providers, preparing a backup health workforce, and establishing a platform to address the mental health needs of the healthcare providers.

Conclusion: This study provides an initial evidence base of healthcare providers' experiences of managing Covid-19 patients in the early stage of the pandemic and highlights measures needed to address the encountered challenges. It offers lessons for hospitals in low-middle-

1  
2  
3 51 income countries to ensure a safe working environment for frontline workers in their fight  
4  
5 52 against Covid-19.

6  
7  
8 53 **Keywords:** Covid-19, healthcare providers experiences, exploratory qualitative study,  
9  
10 54 Pakistan

11  
12 55 **Strengths and limitations of this study**

- 13  
14  
15 56 • The frontline healthcare workers are uniquely positioned to address some of the most pressing  
16  
17 57 issues related to the Covid-19 pandemic; thus, this study is positioned well to explore  
18  
19 58 experiences of the barriers and facilitators to treat and manage Covid-19 cases.  
20  
21 59 • One limitation is that to minimize the risk of infection all study respondents were interviewed  
22  
23 60 online over Zoom and hence the authors did not have the opportunity to build rapport with the  
24  
25 61 respondents or obtain non-verbal cues during interviews.  
26  
27 62 • The study was unable to conduct focus group interviews, due to the nature of outbreak  
28  
29 63 prevention, which would have provided in-depth information about personal and group  
30  
31 64 feelings.  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## 65 **Background**

66 Countries around the world are facing the unprecedented challenge and are struggling to cope  
67 with the Covid-19 pandemic[1]. First discovered in Wuhan, China; Covid-19 has swiftly  
68 traveled borders over the last couple of months leaving a trail of high morbidity and mortality  
69 with devastating effect on economies[2]. As of June 22, 2020, there have been 9,071,341  
70 confirmed cases globally, with 471,162 deaths[3]. Moreover, 181,088 Covid-19 cases and  
71 3,590 deaths have been reported in Pakistan[4].

72 Pakistan shares borders with China and Iran; one being the epicenter of the disease and the  
73 other has seen an exponential increase of cases, respectively[5]. The rapidly evolving pandemic  
74 has stressed the entire healthcare system of Pakistan and outpaced the capacity of hospitals to  
75 meet the demand for vital medical resources, such as ventilators, intensive care units (ICU)  
76 beds, and personal protective equipment (PPE) [5]. The hospitals in Pakistan are in the midst  
77 of responding to the pandemic and are adopting urgent and innovative approaches. These  
78 include aspects such as: setting up designated isolation wards for patients diagnosed with  
79 Covid-19, procuring and distributing PPE, conducting screening and performing diagnostic  
80 tests, delaying non-emergency procedures, and shifting from onsite to tele-consultation out-  
81 patientservices[4, 5].

82 Since the time Covid-19 has hit countries, scientific evidence is clustering more around  
83 understanding the disease transmission and its pathogenicity. While disease epidemiology is  
84 important to understand the spread and risk factors, there is also a need to explore and  
85 understand experiences and perceptions of the health workforce involved in the Covid-19  
86 crisis[6]. As the numbers are increasing, healthcare providers around the world are playing a  
87 central role and are making great contributions, while simultaneously facing great  
88 challenges[7]. The frontline healthcare workers across the world are uniquely positioned to  
89 address some of the most pressing issues related to the Covid-19 pandemic such as: physical



1  
2  
3 90 burnout due to increase workload, mental exhaustion, fear of becoming infected and infecting  
4  
5 91 others, sense of helplessness due to unavailability of personal protective gear, etc[8, 9].  
6  
7 92 Experiences from previous epidemics showed that while healthcare workers are often resilient,  
8  
9 93 they require the same physical, psychological, and social support as others in times of  
10  
11 94 turmoil[10-14]. Initial research into the physical, emotional, and psychological effects of  
12  
13 95 Covid-19 on the health workforce managing Covid-19 patients in Wuhan showed that intensive  
14  
15 96 work tends to drain frontline healthcare providers physically and emotionally[7, 14].  
16  
17 97 It is, therefore, significant to not only look to our current scientific knowledge but also to collect  
18  
19 98 and interpret data on the specific ways this outbreak influences our frontline healthcare  
20  
21 99 workers. This crisis situation necessitates investigating healthcare providers' perspectives and  
22  
23 100 experiences of the barriers and facilitators to treat and manage Covid-19 cases. This study  
24  
25 101 provides an understanding of the factors that are necessary to improve the experiences of  
26  
27 102 healthcare providers dealing with the Covid-19 pandemic.  
28  
29  
30  
31  
32

### 33 **Methods** *Study design and setting*

34  
35 104 This formative research employed an exploratory qualitative research design using semi-  
36  
37 105 structured interviews and a purposive sampling approach. The study was conducted at the  
38  
39 106 private tertiary care teaching hospital in Karachi, Pakistan.  
40  
41  
42  
43  
44

### 45 *Data Collection Methods and study participants*

46  
47 109 The data collection methods for this formative research included key-informant interviews  
48  
49 110 (KIIs) and in-depth interviews (IDIs). Key informants were purposively identified and  
50  
51 111 recruited from senior management and hospital leadership, directly or indirectly involved with  
52  
53 112 the management of Covid-19 patients. Similarly, participants for In-depth interviews were also  
54  
55 113 purposively recruited and included frontline healthcare providers, directly involved in the care  
56  
57 114 of Covid-19 patients such as doctors, nurses, and pharmacists.  
58  
59  
60

115

### 116 *Data Collection Procedure*

117 Semi-structured interview guides were designed for KIIs and IDIs. The interview guides for  
118 KIIs and IDIs are provided in online supplemental annexes 1 and 2. The interview involved a  
119 discussion on perceptions about the Covid-19 outbreak, along with the barriers and facilitators  
120 experienced by healthcare providers while caring for Covid-19 patients. The interview guides  
121 were pilot tested with a non-study sample (2 KIIs & 2 IDIs) with the same characteristics as  
122 the study sample. The pilot testing offered evidenced-base guidance to improve data collection  
123 guides. Before beginning the interview, the study investigators explained the study objectives  
124 and procedures to eligible healthcare providers and obtained informed consent for their  
125 participation in the study. Trained researchers, experienced in qualitative research, conducted  
126 online interviews using Zoom. The interviews were conducted in the languages of English  
127 and/or Urdu. Study participants were assured that their anonymity will be maintained. Informed  
128 consent was also obtained for notetaking and audio-recording of the interview.

### 129 Key-informant interviews (KIIs)

130 A total of 19 KIIs were conducted with senior management and hospital leadership. These KIIs  
131 were conducted to understand the barriers and facilitators faced while managing Covid-19  
132 cases at Aga Khan University Hospital (AKUH). The key informants were electronically  
133 invited to participate in the qualitative study. Each KII took approximately between 30 and 45  
134 minutes.

### 135 In-Depth Interviews (IDIs)

136 IDIs were conducted with frontline healthcare providers including doctors, nurses, and  
137 pharmacists who were directly involved in caring for Covid-19 patients. A total of 12 IDIs  
138 interviews were conducted with a group of frontline healthcare providers. The healthcare  
139 providers were identified from the AKUH Covid-19 in-patient wards and out-patient screening

1  
2  
3 140 and testing areas. Frontline healthcare providers were electronically invited to participate in  
4  
5 141 their off-duty hours. Each IDI took approximately between 30 and 45 minutes.  
6  
7

#### 8 142 *Data analysis*

9  
10 143 Study data were analyzed manually using the conventional content analysis technique[15].  
11  
12 144 Firstly, the audio recordings from the interviews were transcribed and then translated into the  
13  
14 145 English language. No identifying characteristics were included in the transcriptions.  
15  
16 146 Transcripts were read several times by four research investigators to develop an interpretation  
17  
18 147 of the perspectives and experiences of the barriers and facilitators to treat and manage Covid-  
19  
20 148 19 cases. This involved an iterative process where data were coded, compared, contrasted, and  
21  
22 149 refined to generate emergent themes. The transcribed text was divided into ‘meaning units’  
23  
24 150 which were later shortened and labeled with a ‘code’ without losing the study context. Codes  
25  
26 151 were then analyzed and grouped into similar categories. In the final step, similar categories  
27  
28 152 were assembled under sub-themes and main themes. Two independent investigators (NAP and  
29  
30 153 ASF) performed the coding, and category creation and discrepancies were resolved through  
31  
32 154 discussion until a consensus was reached.  
33  
34  
35  
36  
37

#### 38 155 *Trustworthiness of the Study:*

39  
40 156 Tracy et al. [16] and Lincoln and Guba's criteria [17] were used to establishing trustworthiness  
41  
42 157 and methodological rigor. To ensure credibility, the study triangulated data via two basic types  
43  
44 158 of triangulation: data source triangulation (exploring insights of different groups- healthcare  
45  
46 159 providers and key-informants) and investigator triangulation (use of multiple researchers in  
47  
48 160 analysis phase -NAP & ASF)[18]. Study rigor was also be enhanced through member checking  
49  
50 161 of transcripts and synthesized data to confirm whether study results have resonance with the  
51  
52 162 participants’ experience[19]. Since our study used a qualitative approach, it was more  
53  
54 163 interested in gaining an understanding of providers’ experiences of Covid-19 management  
55  
56 164 rather than aiming at singular truth and generalization. Patton and Rolfe emphasize that the  
57  
58  
59  
60

1  
2  
3 165 qualitative inquiry often prioritize depth over breadth through studying smaller samples and  
4  
5 166 even single case and often makes very limited claims about the study external validity[20, 21].  
6  
7

8 167 *Ethical considerations*

9  
10 168 Ethical approval for this study was obtained from the Aga Khan University Ethical Review  
11  
12 169 Committee (AKU-ERC) – [2020-3694-9056].  
13

14 170 *Patient and Public Involvement*

15  
16 171 Patient public involvement is a relatively new concept in Pakistan. Our data collection tool was  
17  
18 172 piloted through two IDIs to ensure that it is inclusive and comprehensive. Frontline healthcare  
19  
20 173 providers were not involved in the development of research questions and design, and data  
21  
22 174 collection decisions.  
23

24  
25  
26 175 **Results**

27  
28 176 In this qualitative study, 19 KIIs and 12 IDIs were conducted, between April and May 2020,  
29  
30 177 with a variety of participants including, residents, registered nurses, head nurses, nurse  
31  
32 178 managers, pharmacists, senior management, and few key individuals from leadership positions.  
33  
34 179 Data collection was ceased once saturation was achieved; saturation refers to the point in the  
35  
36 180 research process when no new information is discovered in data analysis[22]The small number  
37  
38 181 of qualitative interviews allowed us to dug into the depth of each interview to understand the  
39  
40 182 unique perspectives and experiences of healthcare providers regarding Covid-19. The  
41  
42 183 demographic information for the KIIs and IDIs participants is illustrated in Table 1. All the  
43  
44 184 study participants (n=31) who were approached by the study team agreed to participate in the  
45  
46 185 study.  
47  
48  
49  
50

51 186 Table 1: Characteristics of KII and IDI Study Participants (KII=19; IDI=12)  
52  
53

54 187  
55 188

Characteristics of KII participants		N (%) or Median (range)
Gender	Female	11 (57.9%)

	Male	8 (42.1%)
Age		45 (34-58)
Designation	Professor	5 (26.3%)
	Associate professor	7 (36.8%)
	Assistant professor	2 (10.5%)
	Manager	3 (15.8%)
	Leadership role	2 (10.5%)
Years of Experience		19 (1-45)

189

Characteristics of IDI participants		N (%) or Median (range)
Gender	Female	11 (91.7%)
	Male	1 (8.3%)
Age		31 (22-48)
Designation	Doctor	5 (41.7%)
	Nurse	6 (50%)
	Pharmacists	1 (8.3%)
Years of Experience		9 (2-20)

190

191 Based on the data collection and thematic analysis, three overarching themes were identified

192 (I) Challenges faced by frontline healthcare providers working in Covid-19 wards; (II)  
 193 Enablers supporting healthcare providers to deal with Covid-19 pandemic; and (III)  
 194 Recommendations to support healthcare workforce during the Covid-19 crisis. The themes and  
 195 categories are presented in Table 2.

196 Table 2: Themes and categories

Themes	Categories
Challenges faced by frontline healthcare providers working in Covid-19 wards	<ul style="list-style-type: none"> <li>• Concerns about the management of Covid-19 cases</li> <li>• Fear of acquiring infection and transmitting to family members</li> <li>• Overwhelmed and exhausted by the workload and exhaustive donning and doffing process</li> <li>• The stigma associated with healthcare providers working in Covid-19 wards</li> </ul>

Enablers supporting healthcare providers to deal with Covid-19 pandemic	<ul style="list-style-type: none"> <li>• A safe and secured hospital environment</li> <li>• Adequate training and drills for dealing with Covid-19 cases</li> <li>• The strong hospital system of information sharing during the Covid-19 crisis</li> <li>• Supportive management and leadership</li> </ul>
Recommendations to support healthcare workforce during the Covid-19 crisis	<ul style="list-style-type: none"> <li>• Prepare and train backup health workforce</li> <li>• Ensuring motivation for frontline health workforce</li> <li>• Anticipate and address the mental health needs of the health workforce</li> </ul>

### Themes 1: Challenges faced by frontline healthcare providers working in Covid-19 wards

- *Concerns about the management of Covid-19 cases*

While front-line healthcare providers and senior management expressed their determination to offer services in these challenging times to manage Covid-19 patients, various concerns related to the treatment and management of Covid-19 cases were articulated. Dialogues with hospital senior management representatives indicated that standard operating procedures (SOPs) have been designed to manage Covid-19 cases, however, few frontline care providers believed that the presence of SOPs is fairly ambiguous. Expressing similar concerns, a pharmacist stated:

---

*“I have concerns about how to deal with patients ... We need a clear procedure for dealing with them. For example, when someone comes into the pharmacy, what procedures are we meant to follow” (IDI-08, Pharmacist).*

---

During interviews, an insight into the initial practices of managing the Covid-19 crisis was also probed. Senior hospital management mentioned that the hospital was fully prepared to manage

1  
2  
3 213 this public health emergency since its epidemic in China. Contrary to this, front-line physicians  
4  
5 214 and nurses verbalized glimpses of an ad hoc management of outpatient hospital areas for  
6  
7  
8 215 Covid-19 screening and testing, during the early phase of the pandemic. Furthermore, on one  
9  
10 216 hand, senior management generally exhibited their satisfaction over the availability and  
11  
12 217 provision of PPEs to front-line health care providers. While on the other hand, shortages of  
13  
14 218 PPEs were notified by few health care providers, alongside sanitizers while providing care to  
15  
16  
17 219 the patients.

18  
19 220

---

21  
22 221 *“Sometimes we face a shortage of sanitizers and other essential PPEs such as masks.*

23  
24 222 *I think that all the PPEs should be available at all times so that we are not worried.*

25  
26 223 *Sometimes doctors ask us to bring them an N95 mask and we are unable to do so*

27  
28 224 *because we do not have any” (IDI-02, Nurse)*

---

29  
30 225

31  
32  
33  
34 226 Although respondents appreciated the availability of negative pressure rooms during the Covid-  
35  
36 227 19 pandemic, concerns about the limited capacity of the hospital were verbalized for the  
37  
38 228 efficient and timely management of Covid-19 cases. Few hospital staff reported that they  
39  
40 229 experienced violent behavior by the family in case of refusal to admit new patients.

41  
42  
43  
44 230 • *Fear of acquiring infection and transmitting to family members*

45  
46 231 Due to the highly contagious nature of the coronavirus (SARS-CoV-2) and perceived  
47  
48 232 uncertainty in contracting the disease, interviews with physicians and nurses revealed their  
49  
50 233 apprehension in acquiring the virus while treating patients. The frontline workers face a unique  
51  
52 234 mental health challenge and several respondents experienced feeling guilty about potentially  
53  
54 235 carrying the virus to their families. Highlighting this point, one respondent stated:

55  
56  
57  
58 236

1  
2  
3  
4 237 *“It is a stressful situation. By the end of the day when I am taking a break, I have*  
5  
6 238 *many negative thoughts. I worry about carrying this infection to my family...I have a*  
7  
8 239 *young daughter at home and nearly every day I worry about being asymptomatic and*  
9  
10 240 *carrying this infection to my family” (IDI-07, Doctor).*  
11  
12  
13

---

14 241

16 242 The increased likelihood of contracting Covid-19 is also psychologically affecting the senior  
17  
18 243 management team across the hospital. Due to their exposure; their family members are also at  
19  
20 244 risk of acquiring the infection.  
21  
22

---

24 245 *“I work in the emergency department so I always have a fear that the next patient I*  
25  
26 246 *see will need serious treatment and I may have to resuscitate him/her. But now, I*  
27  
28 247 *always have a fear that the next patient will be Covid-19 positive and that they may*  
29  
30 248 *infect me. And if I get infected my family will get infected. So, this fear is a little bit*  
31  
32 249 *different and it will last till the pandemic last” (IDI-12, Doctor)*  
33  
34

---

36 250

38  
39 251 While verbalizing the concerns about the healthcare providers' exposure in getting infected,  
40  
41 252 respondents also voiced their concerns that front line staff is at high risk of getting infected  
42  
43 253 even in non-Covid-19 areas across the hospital setting.  
44  
45

46 254

48 255 • *Overwhelmed and exhausted by the workload and exhaustive donning and doffing process*

50 256 To protect frontline workers against Covid-19, the infection control policy at AKUH mandates  
51  
52 257 that all staff working in areas where Covid-19 patients are suspected wear a full sleeve  
53  
54 258 impervious gown, gloves, and an N95 mask. While this policy is no doubt effective and in line  
55  
56 259 with the best interest of the frontline workers, it poses several challenges. For instance, our  
57  
58 260 interviews revealed that several participants found the N95 mask suffocating to wear for a  
59  
60



1  
2  
3 261 prolonged period of time. Commenting on the experience of wearing full PPE one frontline  
4  
5 262 worker stated:

6  
7  
8 263

9  
10  
11 264 *“We...get tired of wearing full PPE because we have to be in the room with the patient*  
12  
13 265 *for four hours. It gets really hot and the extra layers of protection weigh heavy on the*  
14  
15 266 *body” (IDI-11, Nurse).*

16  
17  
18  
19 267

20  
21 268 Moreover, another respondent highlighted how the process of using PPE is complicated when  
22  
23 269 staff is required to visit one patient to another. This occurs because the staff has to meticulously  
24  
25 270 switch in and out of PPEs. Therefore, what was initially a mundane process has now become a  
26  
27  
28 271 critical aspect of infection control. This point was illustrated by a respondent who stated:

29  
30 272

31  
32  
33 273 *“It takes around 5-7 minutes to put on our PPEs. We then go to the patient's room...*  
34  
35 274 *come back and spend the same amount of time to switch our PPEs before going to the*  
36  
37 275 *next patient's room. This process is a big hassle and is time-consuming. But we have*  
38  
39 276 *to be extra careful, if this procedure is not done properly, we can pass on the*  
40  
41 277 *infection” (IDI-07, Doctor).*

42  
43  
44  
45 278

46  
47  
48 279 While this process is no doubt challenging, one respondent offered an encouraging remark  
49  
50 280 stating:

51  
52  
53 281 *“Initially we felt that our workload has increased, however, with the passage of time*  
54  
55 282 *we have become used to it and things feel normal” (IDI-16, Nurse).*

56  
57  
58  
59 283  
60

- 1  
2  
3 284 • *The stigma associated with healthcare providers working in Covid-19 wards*  
4

5  
6 285 Covid-19 is primarily transmitted from symptomatic people to others through direct contact,  
7  
8 286 or by contact with contaminated objects and surfaces. Moreover, a large portion of those  
9  
10 287 infected is asymptomatic, meaning they show no overt markers of the infection. As a result of  
11  
12 288 this, frontline workers face a unique mental health challenge. Since they work in high-risk  
13  
14 289 environments many opt to hide details about their work-life in fear of being stigmatized by  
15  
16  
17 290 their communities.  
18

19 291

---

22 292 *“I know that in some cases health care workers do not tell their families and*  
23  
24 293 *communities that they are working with Covid-19 patients. They fear that this will*  
25  
26 294 *cause unnecessary panic and people may view them differently” (KII-19, Associate*  
27  
28 295 *Professor).*  
29

---

32 296

33  
34 297 It is likely that this anxiety within the families and communities of health care workers is  
35  
36 298 propagated by the ambiguity of information available on Covid-19. It is possible that the  
37  
38 299 hospital may address many of these issues by extending its outreach services. During the  
39  
40 300 interviews, a frontline worker was critical of the hospital’s current outreach services:  
41  
42 301

43  
44 301

---

47 302 *“Our services should be extended to the community. Compared to other institutions*  
48  
49 303 *we have not done enough. Many people have criticized us in this pandemic” (IDI-08,*  
50  
51 304 *Pharmacist).*  
52

---

55 305 By providing more extensive services to surrounding communities, the hospital could not only  
56  
57 306 alleviate the stigma faced by front-line workers but also reduce the surge of false information.  
58  
59 307

1  
2  
3 3084  
5 309 **Theme 2: Enablers supporting healthcare providers to deal with Covid-19 pandemic**6  
7 310

- 8
- 
- 9 311
- *A safe and secured hospital environment*

10  
11 312 Many respondents stated that the hospital has provided a safe environment for employees and  
12  
13 313 that safety measures have been improved as the hospital administration became more  
14  
15 314 knowledgeable about the nature of this disease. One respondent stated the hospital's disaster  
16  
17 315 management and incident command system were ensuring adequate training and smooth  
18  
19 316 communication throughout the hospital.  
20  
21  
22  
23

24 317

---

25  
26  
27 318 *When the number of cases started increasing, the hospital enacted the Hospital*  
28  
29 319 *Incident Command System, leaders from each of the different areas i.e. logistics,*  
30  
31 320 *communications, medicine, etc came together to make sure that everything was in*  
32  
33 321 *place-. The hospital has now made smaller groups which meet regularly to go over*  
34  
35 322 *each of the issues and an executive Operations Command Committee goes over what*  
36  
37 323 *should be done.” (KII-19, Associate Professor)*  
38  
39  
40

---

41 324

42  
43  
44 325 While provisions are made for the availability of PPE for the staff, many noted that  
45  
46 326 implementation of proper usage of PPE and adequate hand hygiene is still a problem that  
47  
48 327 requires behavioral change. It was also stated that health care providers that are considered  
49  
50 328 vulnerable (i.e. elderly and/or have serious pre-existing conditions) are not allowed to work in  
51  
52 329 the Covid-19 established areas.  
53  
5455 330  
56  
57  
58  
59  
60

1  
2  
3 331 While several precautions are being taken, one respondent claimed that there were many places  
4  
5 332 for improvement. One stated that it is complacent to feel good about any sense of safety and  
6  
7 333 security and that it is important to remain vigilant in the case of new information about the  
8  
9 334 disease or a high influx of patients.  
10  
11  
12

13 335

---

15 336 *“There are several places where things can slip through the cracks, and cause*  
16  
17 337 *problems, and there are several points that will fail if they come under pressure- I am*  
18  
19 338 *not absolutely confident, but it is good so far.” (KII- 16, Professor)*  
20  
21  
22

23 339

- 25 340 • *Adequate training and drills for dealing with Covid-19 cases*

27 341 When questioned about training and drills, most respondents stated that everyone who is  
28  
29 342 working for Covid-19 is trained in the usage of PPE, N95 mask, donning and doffing, and  
30  
31 343 taking test samples using nasopharyngeal swabs. Many also said that regular training was being  
32  
33 344 carried out on the job and at the CIME, and that master trainers were being trained to then  
34  
35 345 disseminate information and train the rest of the department. Covinars (Covid Webinar)  
36  
37 346 sessions are being conducted to help train and provide information about the disease.  
38  
39  
40

41 347

---

44 348 *We have completed 2-day training workshops or seminars and get trained every day*  
45  
46 349 *in new technologies and when new guidelines come” (IDI-02, Nurse)*  
47  
48  
49

50 350

51  
52 351 However, some specialists were concerned that very little had been done in the way of training;  
53  
54 352 it was noted that besides guidance on the N95 mask fitting test, there were no opportunities to  
55  
56 353 go through any drills. While communications were being carried out, it was not considered  
57  
58 354 sufficient. Others said that while training were being conducted, they were not very regular.  
59  
60

1  
2  
3 355 While they stated that this may be because of the social distancing measures, they insisted on  
4  
5 356 more regular online training.  
6  
7  
8 357

9  
10 358 • *The strong hospital system of information sharing during the Covid-19 crisis*

11  
12 359 While the outbreak of Covid-19 has put immense pressure and stress on the hospital staff, many  
13  
14 360 facilitators support the hospital staff to deal with the pandemic. Respondents stated that  
15  
16 361 information was being shared through video messages and that helplines and hotlines for staff  
17  
18 362 and the public were effective in screening for Covid-19 symptoms. While many stated that  
19  
20 363 information sharing was difficult at first, it was claimed that this was due to the changing  
21  
22 364 information coming about the disease from international agencies It was reported that the  
23  
24 365 hospital leadership holds weekly meetings with senior management, who then circulate that  
25  
26 366 within their respective departments.  
27  
28  
29  
30

31 367

---

32  
33  
34 368 *“I think we have a reasonably good system built for disaster and we have a very*  
35  
36 369 *defined chair of command... There have been different working groups formed for*  
37  
38 370 *Covid-19 and they all have specialized tasks for information sharing, and there is a*  
39  
40 371 *Covid-19 hotline for employees and the public and that is adequate.” (KII-16,*  
41  
42 372 *Professor)*  
43  
44  
45

---

46 373

47  
48 374 In addition, university-wide town hall meetings were held regularly. It was suggested that more  
49  
50 375 town halls should be carried out and that regular memos should be sent with information about  
51  
52 376 caring for those with the disease.  
53  
54  
55

56 377  
57  
58  
59  
60

---

378 *“Town halls boosted the morale of the health care providers, and this communication*  
379 *was very good.” (KII-3, Professor)*

---

380

381 • *Supportive management and leadership*

382 Most in-depth interview participants mentioned that senior management and institutional  
383 leadership is providing immense support by ensuring appropriate provision of protective  
384 equipment (PPE) in the Covid-19 and non-Covid-19 wards to ensure the safety of frontline  
385 healthcare providers. In addition, few participants mentioned that the institutional leadership  
386 regularly visits Covid-19 units for staff appreciation and encouragement. Besides, the senior  
387 management responds to healthcare providers' concerns in a timely manner through a  
388 WhatsApp group.

389

---

390 *“Initially, we were supposed to remain inside the patient room consecutively for 4*  
391 *hours. This was very exhausting for bedside nurses especially since we have to wear*  
392 *three layers of PPE. We raised these concerns and senior management has now*  
393 *permitted us to exit the room when the patient's condition gets stable ... we now*  
394 *observe the patients from the mirrored door. This has given us a huge relief” (IDI-*  
395 *11, Nurse)*

---

396

397 While frontline providers appreciated the support received from management and institutional  
398 leadership, they also recognized the efforts of all other support departments who are working  
399 together for the safety of frontline hospital staff. These support departments include finance,  
400 design office, construction, laundry, purchase and supply chain management, safety and

1  
2  
3 401 security, human resource, information, and technology department, nutrition and food services,  
4  
5 402 marketing and communications, travel services, etc.  
6  
7  
8 403

---

9  
10 404 *“All the support departments are contributing in the same manner as our frontline*  
11  
12  
13 405 *healthcare providers” (KII-01, Professor)*  
14  
15

---

16 406  
17  
18 407 In addition, the few IDI participants mentioned that institutional leadership has arranged  
19  
20 408 accommodation facilities for the frontline staff who are working in Covid-19 wards but the  
21  
22 409 hospital staff is not availing those services because they have their families and children back  
23  
24 410 home. Few respondents further stated that the senior management has also ensured the  
25  
26 411 provision of shower facilities for the frontline hospital staff; however, due to time limitations,  
27  
28 412 nurses are unable to make effective use of those facilities.  
29  
30  
31  
32  
33  
34

35 414 **Theme 3: Recommendations to support the healthcare workforce during the Covid-19**  
36  
37 415 **crisis.**  
38

- 39 416  
40  
41  
42 417 • *Prepare and train backup health workforce*  
43

44 418 Both IDI and KII participants mentioned that they have been experiencing staff shortages in  
45  
46 419 Covid-19 wards because many of the frontline health care providers have been either  
47  
48 420 quarantined or isolated due to exposure. When asked about recommendations to support the  
49  
50 421 frontline health workforce, most IDI respondents suggested that healthcare providers (doctors  
51  
52 422 and nurses) of other sub-specialties (neurology, cardiac, surgery, orthopedic) need to be trained  
53  
54 423 as a backup to mitigate situations when entire internal medicine teams may be placed in self-  
55  
56  
57  
58  
59  
60

1  
2  
3 424 quarantine due to Covid-19 exposure. In addition, a few key informants recommended that  
4  
5 425 there should be a central backup plan for staff coverage in both Covid-19 and routine wards.  
6  
7  
8 426

---

9  
10  
11 427 *“Currently, only the healthcare providers of Covid-19 wards have received*  
12  
13 428 *specialized training on ventilator code, BIPAP management, and handling body of*  
14  
15 429 *expired Covid-19 patient. However, these training should be given to all healthcare*  
16  
17 430 *staff across the institution to prepare a central backup”.* (IDI-03, Nurse)  
18  
19

---

20  
21 431

22  
23 432 • *Ensuring motivation for frontline health workforce*

24  
25 433 To ensure enthusiasm among front liners, study respondents highlighted the need of  
26  
27 434 appreciating and motivating frontline providers for their countless efforts in this pandemic  
28  
29 435 battle.  
30  
31

32  
33 436

34  
35 437 Most IDIs including frontline nurses suggested that risk allowance should be given to all  
36  
37 438 frontline healthcare providers involved in the treatment and management of Covid-19 patients.  
38  
39 439 Healthcare providers suggested that instead of giving extra time off, hospital staff should be  
40  
41 440 compensated for taking additional risks while caring for Covid-19 cases.  
42  
43

44  
45 441

---

46  
47 442 *As you know the world is very materialistic and people always need motivation. While*  
48  
49 443 *we are being encouraged by senior management, this form of verbal motivation will*  
50  
51 444 *only work for a time period. If the current situation is going to go on, we will need to*  
52  
53 445 *give people an added incentive in the form of material compensation. This can either*  
54  
55 446 *be more money or additional days off* (IDI-04, Nurse).  
56  
57  
58

---

59  
60 447



1  
2  
3 448 In addition, respondents verbalized that some activities for staff entertainment should also be  
4  
5 449 thought-about to alleviate stress and anxiety associated with this crisis situation among  
6  
7 450 healthcare providers.  
8  
9

10 451

- 11  
12 452 • *Anticipate and address the mental health needs of the health workforce*

13  
14 453 IDI and KII respondents mentioned that there is no formal platform established where front  
15  
16 454 liners' voices are being heard. Such a platform could provide an opportunity to anticipate and  
17  
18 455 address the mental health needs of the frontline health workforce.  
19  
20  
21

22 456

---

23  
24  
25 457 *Everyone is very stressed. I see it every time one of my staff has to take care of a*  
26  
27 458 *suspected patient, they are hesitant and scared. Sometimes, I feel the same way myself.*

28  
29 459 *We need an integrated counseling program. People should not just come for*  
30  
31 460 *counseling when they are mentally struggling. Similar to how we have guidelines for*  
32  
33 461 *PPE and social distancing we should have small group talks on ZOOM so that we can*  
34  
35 462 *dispel our anxieties before they build up (KII 06, Associate Professor).*  
36  
37  
38

---

39 463

40  
41 464 Few study participants particularly KIs appreciated the motivation sessions organized by  
42  
43 465 psychiatric fellows on stress and coping. However, study respondents highlighted the need of  
44  
45 466 arranging more psychiatric sessions for healthcare staff on a daily basis to cope with the stress.  
46  
47 467 More specifically, participants stated that currently there is a blanket approach around mental  
48  
49 468 health; however, more is needed to address varied concerns of the health workforce.  
50  
51  
52

53 469

---

54  
55  
56 470 *There was a zoom session arranged on stress management, but I was unable to attend*  
57  
58 471 *it due to my duties. I think we need more of these sessions. We can even add more*  
59  
60

1  
2  
3 472 *innovative things such as breathing exercises, mindfulness, and yoga. There is so*  
4  
5 473 *much anxiety relating to Covid-19 both at work and in our homes. Everyone is so*  
6  
7 474 *panicked and there is so much hype going around. These types of innovative sessions*  
8  
9  
10 475 *would really help (IDI-05, Doctor)*  
11  
12

---

13 476

15 477 **Discussion**

17  
18 478 To the best of our knowledge, this is the first study to explore perceptions and experiences of  
19  
20 479 healthcare providers during the Covid-19 Pandemic in Pakistan. The research identified  
21  
22 480 challenges faced by healthcare providers while managing Covid-19 patients, alongside  
23  
24 481 strategies to cope with these. The frontline healthcare providers pointed out several concerns  
25  
26 482 that influenced their ability and willingness to treat and manage Covid-19 patients. These  
27  
28 483 included shortage of PPEs and hand sanitizers, lack of clear SOPs, ad hoc management of  
29  
30 484 hospital outpatient area for Covid-19 screening and testing, violent behavior by families of  
31  
32 485 Covid positive patient, and limited capacity of the hospital to treat and manage increasing  
33  
34 486 Covid-19 positive patients. Notwithstanding some challenges that cannot be mitigated by the  
35  
36 487 institution such as the increasing number of Covid positive patients and unexpected violent  
37  
38 488 behavior of families of Covid-19 positive patients, a number of corrective actions that can be  
39  
40 489 taken to lessen the impact of others.  
41  
42  
43  
44

45 490

47  
48 491 Our results highlight, especially in the initial period of the crisis, differences in the responses  
49  
50 492 received from senior management and frontline providers with regard to the availability of  
51  
52 493 PPEs and sanitizers, presence of clear SOPs, preparedness of hospital to manage Covid-19  
53  
54 494 pandemic. These discrepancies could be partly due to the communication gap between the two  
55  
56 495 group of respondents (whereby senior management and hospital leadership was heavily  
57  
58 496 involved in the process of designing new screening and testing site, procuring PPE and  
59  
60

1  
2  
3 497 updating SOPs considering the differential progression of the outbreak). Most have now been  
4  
5 498 addressed through corrective actions by the hospital leadership during the last few weeks and  
6  
7 499 months. As this is a leading private teaching hospital in the country, the senior management  
8  
9 500 and hospital leadership was able to successfully address the gaps to improve the experiences  
10  
11 501 of front liners involved in this pandemic. However, this may not be the case in most public  
12  
13 502 sector hospitals, where front-line healthcare workers continue to face challenges. The  
14  
15 503 healthcare systems in low-middle-income countries face serious constraints in capacity and  
16  
17 504 accessibility during normal times. This would be aggravated during the Covid-19 outbreak,  
18  
19 505 leading to worse clinical outcomes, poor quality healthcare, and poor healthcare workers'  
20  
21 506 experiences[23, 24].  
22  
23  
24  
25

26 507

27  
28 508 Consistently with experiences from previous outbreaks and emergencies[23, 25], frontline  
29  
30 509 healthcare workers providing care to Covid-19 patients experienced increased anxiety and  
31  
32 510 stress. Our study found that the increased exhaustion among healthcare providers is due to the  
33  
34 511 fear of acquiring infection and transmitting it to their family members. Anxiety and burnout  
35  
36 512 among healthcare providers were also reported by studies conducted in high income countries  
37  
38 513 (HICs) although countries were combating different stages of the pandemic[23]. This may be  
39  
40 514 due to standard changes in working hours, shortage in a skilled workforce, and inadequate  
41  
42 515 access to PPE[23]. The frontline providers in our study felt overwhelmed due to the exhaustive  
43  
44 516 donning and doffing process, intense work, and a large number of patients, which was  
45  
46 517 consistent with the studies on the outbreak of MERS-Cov[26, 27] and Ebola[28]. Our results  
47  
48 518 undoubtedly show that stigma is a pressing issue for the frontline healthcare workers working  
49  
50 519 in Covid-19 wards. Several studies have reported that there are several potential mechanisms  
51  
52 520 by which stigma could affect healthcare providers' outcomes[29, 30], and HCPs who  
53  
54 521 experience higher levels of stigma reported increased physical (fatigue) and psychological  
55  
56  
57  
58  
59  
60

1  
2  
3 522 distress (burnout)[31]. These pressures can lead to mental health problems for example  
4  
5 523 burnout, anxiety, depression, insomnia, denial, anger, which not only influence frontline  
6  
7 524 healthcare providers' attention, understanding, and decision-making capacity but could also  
8  
9 525 have a long-lasting impact on their physical and psychological health after the Covid-19  
10  
11 526 emergency is over[7].  
12  
13  
14  
15  
16

527

17 528 While the outbreak of Covid-19 put immense pressure and stress on the hospital staff, many  
18  
19 529 enabling factors supported hospital staff to deal with these aspects, which have progressively  
20  
21 530 evolved over the duration of the pandemic. As a result of this pandemic, the entire hospital  
22  
23 531 was able to pull together and many departments across the university hospital coordinated to  
24  
25 532 ensure smooth and efficient operations. Findings suggest that the respondents felt that they  
26  
27 533 were actively encouraged and supported by senior management and the university leadership.  
28  
29 534 More specifically, the research subjects felt that over time the safe and secured hospital  
30  
31 535 environment enabled healthcare providers to perform their routine tasks and reduce their  
32  
33 536 feeling of uncertainty and fear. Similar findings have been reported by the qualitative study  
34  
35 537 published in Lancet Global Health by Qian Liu and colleagues[32]. Our study found that the  
36  
37 538 healthcare providers were appreciative of the training provided to them regarding the use of  
38  
39 539 PPE, N95 mask, donning and doffing, and taking test samples using nasopharyngeal swabs.  
40  
41 540 However, it was reported that more drills could be conducted to improve their hands-on skills  
42  
43 541 and reduce the risk of acquiring infection. Health workforce safety is a high priority and  
44  
45 542 therefore it is essentially important to provide sufficient protective supplies and training and  
46  
47 543 drills for effective management of Covid-19 cases[32]. A unique yet encouraging finding  
48  
49 544 reported by our study participants was that the hospital developed a strong system of  
50  
51 545 information sharing to keep faculty and staff updated about the Covid-19 situation through  
52  
53 546 video messages, hotlines, town halls, and what are now called Covinars.  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 547  
4  
5 548 Our study also reported some recommendations to mitigate current challenges and further  
6  
7 549 improve the experiences of healthcare providers working in Covid-19 wards. The frontline  
8  
9 550 providers caring for Covid-19 patients felt extreme physical discomfort and fatigue due to long  
10  
11 551 working hours and complicated donning and doffing process and suggested that institutions  
12  
13 552 should provide risk allowance to compensate healthcare providers for the additional risks they  
14  
15 553 take and to motivate staff to continue to work. This finding is consistent with the previous  
16  
17 554 experience from the outbreak of Ebola in western Africa, where risk allowance was adopted as  
18  
19 555 a strategy for motivating and retaining healthcare workers[33]. Our study suggested preparing  
20  
21 556 and cross-train a backup health workforce to effectively respond to staff shortages as many of  
22  
23 557 the frontline healthcare providers have been either quarantined or isolated due to exposure.  
24  
25 558 Similar recommendations have been provided by a number of studies conducted in diverse  
26  
27 559 settings[34-36]. Our study also showed that a formal platform where front liners' voices could  
28  
29 560 be heard did not exist. Respondents reported that such a platform could provide an opportunity  
30  
31 561 to anticipate and address the mental health needs of the frontline health workforce. Experiences  
32  
33 562 from similar outbreaks suggest that early psychological intervention and establishment of early  
34  
35 563 support systems are particularly important for front liners to promote the emotional release and  
36  
37 564 improve healthcare providers' mental health[37].  
38  
39  
40  
41  
42  
43  
44  
45

46 565  
47 566 This study was conducted in a leading private tertiary care teaching hospital in Karachi,  
48  
49 567 Pakistan that offers state-of-the-art healthcare. The initial challenges progressively led to a  
50  
51 568 fairly successful story. The same cannot be said for a large number of public and private  
52  
53 569 hospitals in the country. The shortage of PPE has been a frequent occurrence and has even led  
54  
55 570 to public protests, undoubtedly contributing to mental stress and distress. The experience  
56  
57 571 gained from the current study offers lessons for other hospitals in the country to benefit from.  
58  
59  
60

1  
2  
3 572 There is no doubt that good quality healthcare against Covid-19 can only be ensured if the  
4  
5 573 frontline workers are well taken care of in terms of their mental health and physical needs when  
6  
7 574 asked to serve critically ill patients round the clock.  
8  
9

10 575  
11  
12 576 This study provides an initial evidence base of healthcare providers' experiences of managing  
13  
14 577 Covid-19 patients in an early stage of the pandemic when the participants just accepted the  
15  
16 578 anti-epidemic tasks. Diverging from the findings of various studies on the experience of  
17  
18 579 negative emotions and barriers encountered during the outbreak, we found that facilitators  
19  
20 580 coexist with challenges, which supported front liners to effectively deal with the crisis. The  
21  
22 581 findings from this study can be directly used for improving preparedness and response for  
23  
24 582 possible future Covid-19 waves or other outbreaks. Future research could be conducted to  
25  
26 583 perform an in-depth analysis of before-and-after pandemic conditions and their influence on  
27  
28 584 healthcare providers' experiences.  
29  
30

31  
32  
33 585 *Methodological Limitations:* The study sample was small, particularly when considering the  
34  
35 586 AKUH employs over 6300 healthcare providers, yet our study intent was to be dug into the  
36  
37 587 depth of each interview to understand unique perspectives and experiences of healthcare  
38  
39 588 providers regarding Covid-19. Bengtsson et al. suggest that the qualitative researcher has often  
40  
41 589 to choose depth over breadth to gain a rich understanding of a phenomenon [38]. However,  
42  
43 590 there remains a possibility that our sample belongs to a particular subgroup of healthcare  
44  
45 591 providers who were motivated to engage with the study to inform a particular story for their  
46  
47 592 Covid-19 experience. Another limitation of this study was that all study respondents were  
48  
49 593 interviewed online, to minimize the risk of infection. The authors did not have the opportunity  
50  
51 594 to build rapport with respondents over Zoom or obtain non-verbal cues during interviews. Due  
52  
53 595 to the nature of outbreak prevention, our study was unable to conduct focus group interviews,  
54  
55 596 which would have provided detailed information about personal and group feelings. Lastly,  
56  
57  
58  
59  
60

1  
2  
3 597 this was a short-term study and does not include long-term experiences of the research subjects  
4  
5 598 with this pandemic.  
6

7  
8 599 Conclusion:  
9

10 600 This study provides an in-depth understanding of the healthcare providers' experiences of the  
11  
12 601 Covid-19 outbreak and emphasizes that adequate training and drills, sufficient PPE, a safe and  
13  
14 602 secured hospital environment, healthcare providers motivation, supportive hospital  
15  
16 603 management and leadership, strong hospital system of information sharing and psychological  
17  
18 604 support to address mental health needs of front liners are necessary to improve the overall  
19  
20 605 experiences of health-care providers fighting Covid-19.  
21  
22  
23  
24 606  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 **607 Declaration of interests**  
4

5 **608 Ethics approval and consent to participate**  
6

7  
8 **609** Ethical approval for this study was obtained from the Aga Khan University Ethical Review  
9  
10 **610** Committee (AKU-ERC) – [2020-3694-9056]. Written informed consent was provided by all  
11  
12 **611** study participants. Informed consent included permission to audio record the interviews and  
13  
14 **612** use anonymized quotes. Voluntary participation and the right to ask any questions and to  
15  
16 **613** decline participation at any time were emphasized during the data collection.  
17

18  
19 **614** Consent for publication  
20

21 **615** Written informed consent for publication was obtained.  
22

23  
24 **616** Competing interests  
25

26 **617** We declare no competing interests.  
27

28  
29 **618** Availability of data and materials  
30

31 **619** The datasets used and/or analysed during the current study are available from the corresponding  
32  
33 **620** author on reasonable request.  
34

35  
36 **621** Funding  
37

38 **622** This is self-funded research and did not receive any funding.  
39

40  
41 **623** Authors' contributions  
42

43 **624** All authors had full access to all the data in this study and take responsibility for the integrity  
44  
45 **625** of the data and the accuracy of the data analysis. SS, SSQ, ASF, NAP, ZHA, NA designed the  
46  
47 **626** study. ASF supervised data collection and analysis. ASF, NAP, ZHA, MMS collected the data.  
48  
49 **627** ASF, NAP, ZHA, MMS, SS analyzed and interpreted the data. ASF, NAP, ZHA, MMS wrote  
50  
51 **628** the first draft of the manuscript. All authors contributed to reviewing and editing the  
52  
53 **629** manuscript.  
54

55  
56 **630** Acknowledgements  
57  
58  
59  
60



1  
2  
3 631 The authors would like to acknowledge Dean Adil Haider of Medical College, Aga Khan  
4  
5 632 University Karachi, Pakistan for his greater involvement in conceiving the study concept.  
6  
7  
8 633  
9  
10 634  
11  
12 635  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

For peer review only

636 **References**

637

- 638 1. Organization, W.H. *Rolling updates on Covid.19.*  
639 [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen.](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen)  
640 2020.
- 641 2. Tian, H., et al., *An investigation of transmission control measures during the first 50 days of*  
642 *the COVID-19 epidemic in China.* *Science*, 2020. **368**(6491): p. 638-642.
- 643 3. Corrigan, P., *On the Stigma of COVID-19. Let's separate the illness from the patient.* Retrieved  
644 from [https://www.psychologytoday.com/us/blog/the-stigma-effect/202004/the-stigma-](https://www.psychologytoday.com/us/blog/the-stigma-effect/202004/the-stigma-covid-19)  
645 *covid-19.* 2020.
- 646 4. Saqlain, M., et al., *Is Pakistan prepared to tackle the coronavirus epidemic?* *Drugs & Therapy*  
647 *Perspectives*, 2020: p. 1-2.
- 648 5. Waris, A., et al., *COVID-19 outbreak: current scenario of Pakistan.* *New Microbes and New*  
649 *Infections*, 2020: p. 100681.
- 650 6. Mahar, I., *Pakistan: Covid-19: Rhetoric and Reality.* Retrieved from  
651 [http://southasiajournal.net/pakistan-covid-19-rhetoric-and-reality/.](http://southasiajournal.net/pakistan-covid-19-rhetoric-and-reality/) 2020.
- 652 7. Xiong, Y. and L. Peng, *Focusing on health-care providers' experiences in the COVID-19 crisis.*  
653 *The Lancet Global Health*, 2020. **8**(6): p. e740-e741.
- 654 8. Sim, M.R., *The COVID-19 pandemic: major risks to healthcare and other workers on the front*  
655 *line.* 2020, BMJ Publishing Group Ltd.
- 656 9. Chew, N.W., et al., *A multinational, multicentre study on the psychological outcomes and*  
657 *associated physical symptoms amongst healthcare workers during COVID-19 outbreak.* *Brain,*  
658 *behavior, and immunity*, 2020.
- 659 10. Teti, M., E. Schatz, and L. Liebenberg, *Methods in the Time of COVID-19: The Vital Role of*  
660 *Qualitative Inquiries.* 2020, SAGE Publications Sage CA: Los Angeles, CA.
- 661 11. Faulkner, S.L. and S.P. Trotter, *Data saturation.* *The international encyclopedia of*  
662 *communication research methods*, 2017: p. 1-2.
- 663 12. Hsieh, H.-F. and S.E. Shannon, *Three approaches to qualitative content analysis.* *Qualitative*  
664 *health research*, 2005. **15**(9): p. 1277-1288.
- 665 13. Abdelhafiz, A.S., et al., *Knowledge, perceptions, and attitude of egyptians towards the novel*  
666 *coronavirus disease (COVID-19).* *Journal of Community Health*, 2020: p. 1-10.
- 667 14. Chang, D., et al., *Protecting health-care workers from subclinical coronavirus infection.* *The*  
668 *Lancet Respiratory Medicine*, 2020. **8**(3): p. e13.
- 669 15. Li, L.q., et al., *COVID-19 patients' clinical characteristics, discharge rate, and fatality rate of*  
670 *meta-analysis.* *Journal of medical virology*, 2020. **92**(6): p. 577-583.
- 671 16. Tracy, S.J., *Qualitative quality: Eight "big-tent" criteria for excellent qualitative research.*  
672 *Qualitative inquiry*, 2010. **16**(10): p. 837-851.
- 673 17. Lincoln, Y.S. and E.G. Guba, *Naturalistic inquiry (vol. 75).* 1985, Sage Thousand Oaks, CA.
- 674 18. Hussain, T., P. Smith, and L.M. Yee, *Mobile Phone-Based Behavioral Interventions in*  
675 *Pregnancy to Promote Maternal and Fetal Health in High-Income Countries: Systematic*  
676 *Review.* *JMIR mHealth and uHealth*, 2020. **8**(5): p. e15111.
- 677 19. Henry, P., *Rigor in qualitative research: Promoting quality in social science research.* *Research*  
678 *Journal of Recent Sciences*  
679 

---

ISSN, 2015.  
680 **2277**: p. 2502.
- 681 20. Patton, M.Q., *Qualitative evaluation methods.* 1980.
- 682 21. Rolfe, G., *Validity, trustworthiness and rigour: quality and the idea of qualitative research.*  
683 *Journal of advanced nursing*, 2006. **53**(3): p. 304-310.

- 1  
2  
3 684 22. Saunders, B., et al., *Saturation in qualitative research: exploring its conceptualization and*  
4 685 *operationalization*. *Quality & quantity*, 2018. **52**(4): p. 1893-1907.
- 5 686 23. Semaan, A.T., et al., *Voices from the frontline: findings from a thematic analysis of a rapid*  
6 687 *online global survey of maternal and newborn health professionals facing the COVID-19*  
7 688 *pandemic*. *MedRxiv*, 2020.
- 8 689 24. Hopman, J., B. Allegranzi, and S. Mehtar, *Managing COVID-19 in low-and middle-income*  
9 690 *countries*. *Jama*, 2020. **323**(16): p. 1549-1550.
- 10 691 25. McMahan, S.A., et al., *Healthcare providers on the frontlines: a qualitative investigation of the*  
11 692 *social and emotional impact of delivering health services during Sierra Leone's Ebola epidemic*.  
12 693 *Health Policy and Planning*, 2016. **31**(9): p. 1232-1239.
- 13 694 26. Kim, Y., *Nurses' experiences of care for patients with Middle East respiratory syndrome-*  
14 695 *coronavirus in South Korea*. *American journal of infection control*, 2018. **46**(7): p. 781-787.
- 15 696 27. Kang, H.S., et al., *Working experiences of nurses during the Middle East respiratory syndrome*  
16 697 *outbreak*. *International journal of nursing practice*, 2018. **24**(5): p. e12664.
- 17 698 28. Kraft, C.S., et al., *Serosurvey on healthcare personnel caring for patients with Ebola virus*  
18 699 *disease and Lassa virus in the United States*. *Infection Control & Hospital Epidemiology*, 2020.  
19 700 **41**(4): p. 385-390.
- 20 701 29. Markowitz, F.E., *The effects of stigma on the psychological well-being and life satisfaction of*  
21 702 *persons with mental illness*. *Journal of health and social behavior*, 1998: p. 335-347.
- 22 703 30. The, L., *The health crisis of mental health stigma*. *Lancet (London, England)*, 2016. **387**(10023):  
23 704 p. 1027.
- 24 705 31. Ramaci, T., et al., *Social Stigma during COVID-19 and its impact on HCWs outcomes*.  
25 706 *Sustainability*, 2020. **12**(9): p. 3834.
- 26 707 32. Liu, Q., et al., *The experiences of health-care providers during the COVID-19 crisis in China: a*  
27 708 *qualitative study*. *The Lancet Global Health*, 2020.
- 28 709 33. Chersich, M.F., et al., *COVID-19 in Africa: care and protection for frontline healthcare workers*.  
29 710 *Globalization and Health*, 2020. **16**: p. 1-6.
- 30 711 34. Dewey, C., et al., *Supporting clinicians during the COVID-19 pandemic*. 2020, American College  
31 712 of Physicians.
- 32 713 35. Hasan, Z. and M. Narasimhan, *Preparing for the COVID-19 Pandemic: Our Experience in New*  
33 714 *York*. *Chest*, 2020.
- 34 715 36. Adams, J.G. and R.M. Walls, *Supporting the health care workforce during the COVID-19 global*  
35 716 *epidemic*. *Jama*, 2020. **323**(15): p. 1439-1440.
- 36 717 37. Sun, N., et al., *A qualitative study on the psychological experience of caregivers of COVID-19*  
37 718 *patients*. *American Journal of Infection Control*, 2020.
- 38 719 38. Bengtsson, M., *How to plan and perform a qualitative study using content analysis*.  
39 720 *NursingPlus Open*, 2016. **2**: p. 8-14.  
40 721

## Annex -1

Assessing Tertiary Care Hospital's (AKU's) Readiness to Cope with Covid.19 and Future Preparedness to  
Manage Emergencies in Karachi, Pakistan  
Key Informant Interview Guide

**Basic Information**

S.no	Name (Confidential)	Age	Sex	Designation	Institution	Years of experiences	Specialty
1							
2							
3							

**Knowledge, attitude and perceptions**

- How do you feel about your level of knowledge regarding COVID-19?  
Probes: Spread of COVID-19, management, prevention
- What are your perceptions about managing COVID cases at AKUH?  
Probes: Facilities for screening, testing, patient isolation, treatment and patient and family education
- Do you have concerns with the prospect of managing/treating cases at AKUH?  
Probes: inadequate screening facilities, less testing kits, inadequate capacity of healthcare providers to manage COVID-19 cases, lack of isolation wards
- What are your views on the safety measures currently in place at AKUH?
- How do you feel about being in a very responsible position, and working under tremendous pressure with COVID-19 situation?

**Perceptions on Emergency Plan**

- What are your perceptions about AKUH emergency plan for dealing with COVID-19 pandemic? and also specific to your department or position?  
Probe: Satisfaction with the hospital emergency plan, whether or all imp aspects are covered, reducing employee exposure etc/.
- Do you feel a sense of safety for hospital staff in the hospital's emergency plans, which are currently in place?  
Probe: what can be done more, what else is needed related to your department? for young persons, old people of more than 50 years, children, pregnant women or delivering COVID-19 affected patients

**Perceptions on Hospital Capacity**

- How do you feel about the AKUH capacity to deal with COVID-19 patients?

1  
2  
3 Probes: access to required equipment/ resources

- 4 2. What are some of the barriers that hospital staff face while caring for COVID-19 cases?  
5 3. How these barriers could be handled efficiently, in spite of limited resources at AKUH?  
6 4. Do you think that your service domain/ specialty is prepared to manage COVID-19 affected  
7 patients?

8 Probes: if yes how, if no why?

- 9  
10 5. In your opinion, what precautions should be acquired for carrying out a routine procedure such  
11 as in ER surgeries, intubation, delivery care, C-section planned or otherwise  
12 6. At AKUH, what are the facilitators, that provided support to deal with COVID-19 situation?  
13 Probes: Trainings, drills, PPEs availability, management support, etc.  
14 7. Based on your experience on COVID-19, what are your suggestions to improve hospital's capacity  
15 to manage COVID-19  
16  
17  
18  
19

### 20 **Training and Drills**

- 21 1. How should nurses be trained/doctors be trained? Should this training be specialty specific or  
22 some forms of basic training to all staff?  
23 2. In your opinion, are sufficient training and drills provided to the healthcare providers for dealing  
24 with this emergency?  
25 3. What aspects were covered in the training?

26 Probes: medical treatment procedures, personal protective measures, information system  
27 management, disinfection and sterilization and principles of quarantine and isolation  
28  
29  
30

### 31 **Information sharing for crisis communication**

- 32 1. What are your thoughts on the hospitals system of information sharing for crisis communication?  
33 2. In your opinion, what special arrangements have been made at AKUH to facilitate information  
34 sharing for crisis communication

35 Probes: COVID Hotline for staff, COVID helpline for public  
36  
37  
38

### 39 **Future Preparedness**

- 40  
41 1. In your opinion, what are the needs for future preparedness for any outbreak or natural disaster  
42 for AKUH?

43 Probes: staff trainings, special wards, equipment, protective gears, emergency drills, etc.  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## Annex-2

Assessing Tertiary Care Hospital's (AKU's) Readiness to Cope with COVID-19 and Future  
Preparedness to Manage Emergencies in Karachi, Pakistan

## In-Depth Interview Guide

**Basic Information**

S.no	Name (Confidential)	Age	Sex	Designation	Institution	Years of experiences	Specialty/Ward
1							
2							
3							

**Knowledge, attitude and practice**

- How do you feel about your level of knowledge regarding COVID-19?  
Probes: Spread of COVID-19, management, prevention
- What are your perceptions about managing COVID cases at AKUH?  
Probes: Facilities for screening, testing, patient isolation, treatment and patient and family education
- Do you have concerns with the prospect of managing/treating cases at AKUH?  
Probes: inadequate screening facilities, less testing kits, inadequate capacity of healthcare providers to manage COVID-19 cases, lack of isolation wards
- What are your views on the safety measures currently in place at AKUH?
- Are you using PPE while caring for COVID-19 cases, as guided during the trainings?

**Perceptions on Hospital Emergency Plan for COVID-19**

- What are your perceptions about AKUH emergency plan for dealing with COVID-19 pandemic?  
Probe: Were you briefed on the emergency plan for COVID-19 - by whom, when, any refreshers given?
- Do you feel a sense of safety in the hospital's emergency plan, which are currently in place?  
Probe: for your safety, healthcare providers' safety, family members' safety

**Training and Drills**

- Were you provided with sufficient trainings and drills for dealing with this emergency?  
Probes: satisfaction with training (content, duration, etc.),
- What aspects were covered in the training?

1  
2  
3 Probes: medical treatment procedures, personal protective measures, information system  
4 management, disinfection and sterilization and principles of quarantine and isolation  
5  
6

### 7 **Perceptions on Hospital Capacity**

- 8 1. How do you feel about the AKUH capacity to deal with COVID-19 patients?  
9 Probes: access to required equipment/ resources  
10  
11 2. What are some of the barriers that hospital staff face while caring for COVID-19 cases?  
12  
13 3. How these barriers could be handled efficiently, in spite of limited resources at AKUH?  
14  
15 4. Do you think your service domain/ specialty is prepared to manage COVID-19 affected patients?  
16 Probes: if yes how, if no why?  
17  
18 5. In your opinion, what precautions should be acquired for carrying out a routine procedure such  
19 as in ER surgeries, intubation, delivery care, C-section planned or otherwise  
20  
21 6. At AKUH, what are the facilitators, that provided support to deal with COVID-19 situation?  
22 Probes: Trainings, drills, PPEs availability, management support, etc.

### 23 **Information sharing for crisis communication**

- 24 1. What are your thoughts on the hospitals system of information sharing for crisis communication?  
25 Probes: Are you getting the information that you need?  
26  
27 2. Do you feel like you are able to talk about your concerns?  
28 Probes: through hotline for employees  
29

### 30 **Stress & coping**

- 31 1. How do you feel about working under tremendous pressure with COVID -19 situation?  
32 Probes: working at odd hours, weekends in addition to routine responsibilities, wearing PPEs for  
33 long periods  
34  
35 2. What kind of relief you look for yourself to manage with these pressures?  
36 Probes: compensation/overtime, sufficient PPEs, adequate rest periods, etc.  
37  
38 3. Can you share some of your apprehensions while dealing with COVID -19 suspected or positive  
39 patient's?  
40 Probes: Family members/ colleagues getting infected?  
41  
42 4. How do you cope with anxiety and fear related to managing COVID-19 inpatients?  
43 Probes: Coping strategies  
44  
45 5. Do you have suggestions on how institution could provide support services for coping with stress  
46 related to this crisis situations?  
47

### 48 **Future Preparedness**

- 49  
50 1. In your opinion, what are the needs for future preparedness for any outbreak or natural disaster  
51 for AKUH?  
52 Probes: staff trainings, special wards, equipment, protective gears, emergency drills, etc.  
53  
54  
55  
56  
57  
58  
59



## Standards for Reporting Qualitative Research (SRQR)\*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

### Title and abstract

<p><b>Title</b> - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	<p>Pape no. 1/line no. 2-3</p>
<p><b>Abstract</b> - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	<p>Pape no. 2-3/line no. 27-52</p>

### Introduction

<p><b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	<p>Pape no. 4-5/line no. 66-98</p>
<p><b>Purpose or research question</b> - Purpose of the study and specific objectives or questions</p>	<p>Pape no. 4-5/line no. 100-107</p>

### Methods

<p><b>Qualitative approach and research paradigm</b> - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	<p>Pape no. 5/line no. 109-111</p>
<p><b>Researcher characteristics and reflexivity</b> - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	<p>Pape no. 5/line no. 109-111</p>
<p><b>Context</b> - Setting/site and salient contextual factors; rationale**</p>	<p>Pape no. 5/line no. 109-112</p>
<p><b>Sampling strategy</b> - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	<p>Pape no. 5-6/line no. 109-120</p>
<p><b>Ethical issues pertaining to human subjects</b> - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	<p>Pape no. 9/line no. 173-175</p>
<p><b>Data collection methods</b> - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	<p>Pape no. 5-7/line no. 114-147</p>



1 2 3 4 5	<b>Data collection instruments and technologies</b> - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Pape no. 6/line no. 123
6 7 8	<b>Units of study</b> - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Pape no. 9-10/line no. 188-192
9 10 11 12	<b>Data processing</b> - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Pape no. 7/line no. 148-160
13 14 15 16	<b>Data analysis</b> - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Pape no. 7/line no. 148-160
17 18 19 20	<b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Pape no. 7-8/line no. 161-171

### Results/findings

23 24 25 26	<b>Synthesis and interpretation</b> - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Pape no. 11-23/line no. 200-479
27 28 29 30	<b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Pape no. 11-23/line no. 200-479

### Discussion

33 34 35 36 37 38	<b>Integration with prior work, implications, transferability, and contribution(s) to the field</b> - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Pape no. 23-27/line no. 480-582
39 40 41	<b>Limitations</b> - Trustworthiness and limitations of findings	Pape no. 28/line no. 589-602

### Other

44 45 46	<b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Pape no. 29/line no. 622
47 48	<b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Pape no. 29/line no. 627

\*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

\*\*The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014  
DOI: 10.1097/ACM.0000000000000388

For peer review only