

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

BMJ Open

Occupational challenges of health care workers during the COVID-19 pandemic. A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-054516
Article Type:	Original research
Date Submitted by the Author:	16-Jun-2021
Complete List of Authors:	<p>Jeleff, Maren; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health</p> <p>Traugott, Marianna; Clinic Favoriten, Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine</p> <p>Jirovsky-Platter, Elena; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health</p> <p>Jordakieva, Galateja; Medical University of Vienna, Department of Physical Medicine, Rehabilitation and Occupational Medicine</p> <p>Kutalek, Ruth; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health</p>
Keywords:	COVID-19, OCCUPATIONAL & INDUSTRIAL MEDICINE, PUBLIC HEALTH, SOCIAL MEDICINE

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 **Occupational challenges of health care workers during the COVID-19 pandemic. A**
4
5 2 **qualitative study**
6

7 3 Maren Jeleff¹, Marianna Traugott², Elena Jirovsky-Platter¹, Galateja Jordakieva³, Ruth
8
9 4 Kutalek¹
10

11
12 5
13
14 6 **Affiliations**

15
16 7 ¹ Unit Medical Anthropology and Global Health, Department of Social and Preventive
17
18 8 Medicine, Center for Public Health, Medical University of Vienna, Austria

19
20 9 ² Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine, Clinic
21
22 10 Favoriten, Vienna, Austria

23
24 11 ³ Department of Physical Medicine, Rehabilitation and Occupational Medicine, Medical
25
26 12 University of Vienna, Austria
27

28
29
30 13
31 14 **Corresponding author**

32 15 Maren Jeleff

33
34 16 Unit Medical Anthropology and Global Health, Department of Social and Preventive
35
36 17 Medicine, Center for Public Health, Medical University of Vienna, Austria

37
38 18 Kinderspitalgasse 15/1

39
40 19 1090 Vienna

41
42 20 maren.jeleff-entscheff@meduniwien.ac.at
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

29 **Abstract**

30 Objectives

31 To address structural determinants and health care workers' physical, mental, emotional and
32 professional challenges of working during the COVID-19 pandemic.

33 34 Design

35 Exploratory qualitative study with semi-structured interviews. Collected data was analyzed
36 using content analysis.

37 38 Setting

39 This qualitative study was undertaken with health care workers (HCWs) mainly working in
40 intensive care units in five public and one private hospital in Vienna, Austria. Data was
41 collected from June 2020 to January 2021.

42 43 Participants

44 30 HCWs (13 medical doctors, 11 qualified nursing staff, 2 nurse assistants, 2
45 physiotherapists, 2 technical/cleaning staff) in direct and indirect contact with COVID-19
46 patients were included.

47 48 Results

49 Three overall themes resulted as relevant: challenges due to lack of preparedness, structural
50 conditions, and physical and mental health of HCWs. Lack of preparedness included delayed
51 infection prevention and control (IPC) guidelines, shortages of personal protective equipment
52 (PPE) combined with structural conditions such as staff shortages and overworked
53 personnel. Physical and mental strains resulted from being overworked and working
54 permanently on alert, facing medical uncertainties and the critical conditions of patients.
55 HCWs lacked recognition on multiple levels and dealt with stigma and avoidance behavior of
56 colleagues.

57 58 Conclusion

1
2
3 59 To mitigate HCWs' occupational health risks and staff turnover, we propose context-specific
4
5 60 recommendations: Required personnel in care of COVID-19 patients, especially nursing
6
7 61 staff, should be carefully planned and increased to avert chronic work overload. Timely
8
9 62 training and education in IPC for all HCWs is important. Providing supportive supervision is
10
11 63 as essential as appropriate recognition by higher level management and the public.
12
13

14 64 15 65 **Article summary**

16 17 66 Strengths and limitations of this study

- 18
19 67 • We outline context-specific challenges of HCWs of different work groups by using an
20
21 68 exploratory qualitative approach.
- 22
23 69 • The research considers changes over time by collecting data during six months, and
24
25 70 therefore includes topics of relevance at the beginning and as the pandemic unfolded.
- 26
27 71 • Female interview participants predominated overall (21 female versus 9 male). The
28
29 72 higher number of female participants was due to the higher number of female staff in
30
31 73 health care in general, and in nursing in particular.
- 32
33 74 • Some interviews may have been shorter than usual or may not have yielded in-depth
34
35 75 information as interviews took place under rushed conditions and with tired HCWs.
- 36
37 76 • There might be more differences in experiences between professions and different
38
39 77 occupational groups which we were not able to consider.
40
41
42

43 78 44 79 **Keywords**

45
46 80 Health care professionals, infectious disease outbreak, preparedness, occupational health,
47
48 81 COVID-19, hospitals, ICU, social sciences
49

50 82 51 83 **Funding**

52
53 84 This article has received funding from The Vienna Science and Technology Fund (WWTF)
54
55 85 (Covid-19 Rapid Response 2020 / EI-COV20-026). The funders did not play a role in the
56
57 86 decision to publish the article.
58
59
60

87
88

1
2
3 89 **Competing interest statement**

4
5 90 The authors declare that they have no competing interests.
6

7 91
8 92 **Ethics approval**

9
10 93 The study was approved by the Ethics Committee of the Medical University of Vienna
11
12 94 (1409/2020) and the Ethics Committee of the Town of Vienna (EK20-093-VK).
13
14

15 95
16 96 **Availability of data and materials**

17
18 97 The data that support the findings of this study are available from the corresponding author,
19
20 98 upon reasonable request.
21
22

23 99
24 100 **Patient consent form**

25 101 Not applicable
26
27

28 102
29 103 **Author contributions**

30
31 104 RK conceptualized the research, MJ, RK and EJ-P conducted the interviews, MJ analyzed
32
33 105 and interpreted the data, MJ wrote the manuscript, MT, GJ, EJ-P and RK reviewed and
34
35 106 edited the manuscript. All authors read and approved the final manuscript.
36
37

38 107
39 108 **Acknowledgements**

40 109 We thank all health care workers who took time to participate in our study. We also thank
41
42 110 The Vienna Science and Technology Fund for funding this research.
43
44

45 111
46 112 **Word count**

47
48 113 3766
49
50

51 116 **1. Introduction**

52
53 117 From early 2020, health care systems have been challenged worldwide due to the COVID-19
54
55 118 pandemic. Multiple factors such as rapid spread and limited treatment options for a formerly
56
57 119 unknown disease, the quantity of contagious patients and prolonged duration of the
58
59
60

1
2
3 120 pandemic pose a burden on health care systems. HCWs are considered a vulnerable group
4
5 121 themselves mainly through continuous exposure while caring for patients and lack of PPE.¹
6
7 122 Particularly in the beginning of the pandemic, HCWs were applauded for and heroized by the
8
9 123 public in many countries. However, many HCWs do not identify themselves as heroes but
10
11 124 are overworked and bear the physical and mental burden of their commitment.² Initially
12
13 125 driven by enthusiasm and optimism, most feel exhausted due to the prolonged pandemic
14
15 126 response.³ HCWs deal with the physical and mental burden of working extensively in a highly
16
17 127 demanding situation, struck by fear of infecting family members as well as social stigma.^{4,5} A
18
19 128 recently published meta-analysis found female HCWs to be especially affected by anxiety
20
21 129 and depression and a higher prevalence of these disorders in nurses than doctors.⁶
22
23 130 Due to the enormous pressure globally, especially nurses are quitting their jobs.⁷ The
24
25 131 situation is exacerbated by structural shortages of qualified nurses, a problem that pre-
26
27 132 existed the pandemic with a bottleneck of 6 million nurses worldwide.⁸
28
29 133 Austria is an illustrative example of how COVID-19 is posing hardship to a relatively
30
31 134 advanced and well-equipped health care system. Austria uses the Bismarck model, with
32
33 135 health expenditures mainly being paid from taxes and mandatory social security
34
35 136 contributions. A fundamental feature is the comprehensive health insurance coverage
36
37 137 (99,9%) and thus accessibility to good quality care.⁹⁻¹¹ In 2017 Austria was amongst the
38
39 138 countries with the highest number of hospital beds (7.4 beds per 1000 people), which is an
40
41 139 indicator for available resources regarding inpatient services.¹⁰
42
43 140 Nevertheless, COVID-19 overwhelmed Austria's health care system and to date the capacity
44
45 141 of intensive care unit (ICU) beds is reaching its limits.¹² Moreover, Austrian hospitals were
46
47 142 little prepared for the pandemic, with the most prominent example of temporary shortages in
48
49 143 PPE.^{13,14} Meanwhile the crisis also shows how the pre-existing lack of qualified personnel
50
51 144 has serious effects in this emergency situation.
52
53 145 HCWs health, well-being and safety is paramount to a functioning health care system and to
54
55 146 ensuring patient safety.⁴ Consequently, it is necessary to mitigate risks on multiple levels –
56
57 147 especially staff turnover and mental health risks.^{6,15}

1
2
3 148 In this study we therefore aim to address structural determinants and HCWs' physical,
4
5 149 mental, emotional and professional challenges of working during the COVID-19 pandemic.
6
7 150 Based on our results, we propose context-specific recommendations.
8

9 151

11 152 **2. Methods**

13
14 153 We conducted an exploratory qualitative study with semi-structured interviews to gain
15
16 154 insights into HCWs' challenges of working with COVID-19 patients in six Viennese hospitals.

17
18 155 MJ, EJ-P and RK are medical anthropologists and qualitative researchers and conducted the
19
20 156 interviews. The data collection took place between June 2020 and January 2021. We
21
22 157 contacted HCWs from five public and one private hospital in Vienna – either directly or by
23
24 158 personal introduction of the chief physician of the concerning wards (work units are detailed
25
26 159 in table 1). In one hospital, we had a key informant who arranged further contacts to other
27
28 160 hospital staff. The aim was to gain a maximum variation in contacts, including qualified
29
30 161 nurses, nurse assistants, cleaning staff, physiotherapists, and medical doctors. All other
31
32 162 contacts were recruited by snowball sampling.

33
34
35 163 Participants were interviewed via telephone, Webex or in person (carried out under
36
37 164 precautionary measures). Those who agreed to take part in the study signed the participant
38
39 165 consent form. All interviews were audio-recorded, except for one who felt more comfortable
40
41 166 not being recorded. Interviews lasted between 30 and 60 minutes and were guided by a topic
42
43 167 guide. However, questions were adapted to the flow of the conversation and the importance
44
45 168 the interviewees gave to a specific topic.

46
47
48 169 We outsourced the transcriptions of the interviews. The transcription service provider signed
49
50 170 a non-disclosure agreement stating that interviews and transcripts are kept confidential. All
51
52 171 transcripts were anonymized, names and personal identifiers were removed, and labeled
53
54 172 using a numerical code. The study was approved by the Ethics Committee of the Medical
55
56 173 University of Vienna and the Ethics Committee of the Town of Vienna.
57
58
59
60

1
2
3 174 Transcripts were imported into Atlas.ti (Version 8.4.4) and analyzed with content analysis,
4
5 175 using inductive and deductive coding. The first author (MJ) performed the analysis of the
6
7 176 interview transcripts. There was a continuous dialogue among MJ and RK throughout the
8
9 177 analysis process. The deductive codes were informed by the topic guide questions; all other
10
11 178 codes derived inductively through repeated examination of the data. Codes were united to
12
13 179 overall themes which include lack of preparedness, overworked personnel, staff shortage
14
15 180 and redeployment, stigma, avoidance behavior and lack of recognition. The research
16
17 181 considers changes over time with e.g. PPE shortages being more important in the beginning
18
19 182 and overworked personnel in the later phase of the pandemic.
20
21
22 183

183

24 184 **Patient and public involvement**

26 185 No patient involved.
27
28 186

186

30 187 **3. Results**

32 188 *3.1. Description of participants*

34 189 We collected data from 30 participants in direct and indirect contact with patients infected
35
36 190 with COVID-19. Thirteen medical doctors, eleven qualified nurses, mainly working in ICUs,
37
38 191 and six other professions were included (table 1). 28 HCWs were employed at public
39
40 192 hospitals and two at a private hospital. Female participants predominated overall (21 female
41
42 193 versus 9 male).
43
44 194

46 194 *Table 1 Characteristics of participants*

Variables	Description	No. of participants
Gender	Male	9
	Female	21
Profession	Qualified nurse	11
	Nurse assistant	2
	Physiotherapist	2
	Cleaning/technical staff	2
	Medical doctors:	
	Infectious disease expert	3
Anesthesiologist	2	
Neurologist	2	
Other physician (e.g. surgeon)	6	

Work units*	COVID-19 intensive care	13
	COVID-19 non-intensive care	5
	COVID-19 intensive care and non-intensive care	2
	COVID-19 other**	4
	Other***	6
Age (years)	21–30	7
	31–40	10
	41–50	8
	51–60	5

*Refers to the units that HCWs were assigned to

**Includes “pop-up” COVID-19 units and intermediate care units

***Non-COVID-19 units with direct or indirect contact with COVID-19 patients

3.2. Lack of preparedness

While confronted with a hitherto unknown pandemic, HCWs were troubled by delayed or unavailable IPC guidelines adapted to a major infectious disease outbreak. This included for example guidelines for proper donning and doffing of PPE, guidelines for medical procedures producing aerosols or, IPC-strategies for patient transfers. Consequently, HCWs faced many uncertainties and those units in charge of treating COVID-19 patients often had to make their own autonomous decisions.

„The department of hygiene gave instructions only after we became a COVID-19 ward, on the same day or maybe two days before, whilst we were already wondering about it for weeks. Examples include which respirator tools to use or the need of different filters, those which would last longer, as we don't want to disconnect the ventilators daily (...) Those points were addressed super delayed by the department of hygiene.” (qualified nurse 4)

Most participants specified that their team and immediate superiors dealt with the situation excellently. However, complaints were made about chaos that arose on higher levels of the hospital hierarchy; participants wished for better guidance from leadership and management:

“It is something you expect to be handled by management and not from the personnel on the ward (...) You expect the hospital pays attention that the work procedures are properly adjusted – not that the employees take care of them.” (medical doctor 1)

Relatedly, one cleaning person narrated that her colleagues did not know much about the virus and consulted her with questions. She wished for simple COVID-19 specific training for her and her colleagues. Further, cleaning staff was often perceived as extremely feared, mainly because of this lack of understanding of transmission pathways.

1
2
3 224 Another demanding factor was lack of coordination between hospitals. Especially in the first
4
5 225 phase there was a lack of clarity on ICU bed capacities and the second phase during
6
7 226 summer was considered as a missed chance to better prepare for the predicted peak phase
8
9 227 in autumn. HCWs felt that other hospitals in Vienna were unprepared to take on COVID-19
10
11 228 patients. One medical doctor concluded: “Well, you do wonder how slow the mills in Austria
12
13 229 are grinding and how little foresight one can have.” (medical doctor 5)
14
15
16 230

17 231 *3.3. Physical protection*

18
19
20 232 During the first phase of the pandemic there was a shortage of facemasks and the fear of
21
22 233 insufficient facemasks. One medical doctor reflected upon how to define shortage of
23
24 234 facemasks in Austria: “Once you start using masks that had expired 14 years ago, which we
25
26 235 did, I would say we ran out of masks.” (medical doctor 5) Others mentioned having used
27
28 236 facemasks of insufficient quality or ones that did not properly fit or having to reuse disposable
29
30 237 masks. Especially FFP3 masks were rare and often only available for rooms with patients on
31
32 238 non-invasive ventilators where circulation of aerosols was highest.
33
34

35 239 Fear of mask shortages led to employees stockpiling masks or that management was
36
37 240 restrictive about their distribution: sometimes cleaning personnel or other medical support
38
39 241 personnel were denied adequate facemasks in one hospital.
40

41 242 However, these were concerns in the early stages of the pandemic. When asked directly if
42
43 243 they felt safe at the workplace most HCWs stated they felt sufficiently protected. Especially
44
45 244 those working at ICUs felt better protected than in wards “outside” because they knew the
46
47 245 infectious status of their patients and worked in protective gear.
48

49
50 246 In addition to shortage of physical protection, there was a quest for supervision, which was
51
52 247 often not sufficiently offered by employers. Though not everyone stated to need supportive
53
54 248 supervision, most considered it important to be provided.
55

56 249 “Of course, there are some things I miss from our employing institution as
57 250 it is its responsibility to protect us. Not only to provide the protective gear
58 251 but also mental protection. (...) It has the responsibility to ensure we do
59 252 not get harmed mentally and physically.” (qualified nurse 23)
60 253

1
2
3 254 *3.4. Overworked personnel, staff shortage and redeployment of staff*
4

5 255 Especially in November 2020, HCWs were working over the limit of their capacities. Many
6
7 256 reported to be mentally and physically exhausted and to need longer regeneration times than
8
9 257 normal. HCWs not only worked extra hours or worked without having proper breaks; they
10
11 258 also functioned in a permanent alarm mode. In addition to dealing with challenges related to
12
13 259 infection risk and changed working procedures, HCWs faced medical uncertainties and
14
15 260 emotional challenges due to the critical condition of patients. The difference to pre-COVID-19
16
17 261 was the quantity of dying patients, as highlighted by the metaphorical sentence “patients are
18
19 262 dying like flies” (qualified nurse 17). Another mental burden was seeing people without
20
21 263 underlying medical conditions or young patients die or having to witness how patients slowly
22
23 264 died in full consciousness and in isolation. What is more is that most HCW were not trained
24
25 265 in palliative care. Further, dealing with the unpredictability of the disease added to being
26
27 266 mentally overburdened.

28
29
30 267 HCWs spoke about a missing work-life balance and consequences of being overworked.
31
32 268 Some thought to be more vulnerable to getting infected with COVID-19, others mentioned
33
34 269 physical pain because of chronic overload.

35
36
37 270 “We are now faced with some sick leaves. It is the high adrenalin and
38 271 cortisone levels of this crisis, the ongoing emergency mode that is
39 272 exhausting at some point. Basically, our bodies are giving up. (...) There
40 273 are people that would like to, but they are just sick now. They do not
41 274 have COVID-19, but they are sick. They have digestive issues; one has
42 275 ongoing diarrhea for three weeks and he looks pale as a linen sheet.”
43 276 (medical doctor 27)

44
45 277 Being overworked associated with a shortage or unavailability of staff, especially when
46
47 278 personnel got sick, was mentioned as a main problem by participants. Often it needed
48
49 279 multiple requests to the administration to getting more staff.

50
51
52 280 To remedy staff shortages in one ward, especially qualified nurses were often recruited from
53
54 281 other wards. Those who had free choice and switched on a voluntary basis with the option to
55
56 282 switch back, viewed this more positively. However, many suddenly had to work with COVID-
57
58 283 19 patients without having a professional background in infectious diseases and thus missed
59
60 284 technical knowledge in this regard. Often, qualified nurses found themselves in a new team

1
2
3 285 and there was little time to get proper training. This produced extra stress. Though also
4
5 286 medical doctors from other units – e.g. rheumatologists – were redeployed to COVID-19
6
7 287 units, their situation was perceived as more stable because they could stay as a team at their
8
9 288 unit. However, also these professions experienced a sudden shift to providing care
10
11 289 regardless of their professional background.

13
14 290

16 291 *3.5. Stigma and avoidance*

17
18 292 HCWs experienced stigma in their private lives and observed avoidance behavior in some
19
20 293 colleagues. Especially in the beginning of the pandemic some physicians neglected to attend
21
22 294 patients due to fear of getting infected.

24 295 “We had a patient who was a cardiology patient suffering a heart attack
25 296 and the cardiologists did not want to attend to the patient because they
26 297 were too scared of COVID-19. You end up thinking, this is your patient
27 298 who happens to have COVID-19 but it is simply not adequate patient care.
28 299 Because you are scared of this stupid virus. And I keep on going in every
29 300 day.” (medical doctor 18)

31 301 One qualified nurse did not see the nursing officer during the first months of COVID-19 and
32
33 302 thought her ward was being avoided. Other problems being stated were getting
34
35 303 appointments for Computer Tomography, having X-rays done on COVID-19 patients or
36
37 304 getting blood examined at the laboratory. The situation improved over time mainly by
38
39 305 constantly communicating with the concerning colleagues.

42 306 HCWs were often perceived as high-risk contacts and faced stigma in their social
43
44 307 surroundings. Stigmatization also extended to family members – labels such as “Coronalady”
45
46 308 or “Corona children” give an impression of how HCWs and family members were sometimes
47
48 309 perceived by their social environment. Others reported their children were not invited to
49
50 310 friends, or personal appointments at a doctor’s office were cancelled rudely.

53 311 The predominant fear of many HCWs was to infect family members. This fear sometimes led
54
55 312 to self-stigmatization or avoidance behavior such as sleeping in separate bedrooms or not
56
57 313 kissing the partner. One HCW recounted that she considered herself as a role model. This
58
59 314 had to do with the perception that as a HCW she should know about infection pathways and

1
2
3 315 because she saw the worst consequences of a COVID-19 infection. Thus, she thought that
4
5 316 HCWs had to be especially cautious about their behavior.
6

7 317

8
9 318 *3.6. Lack of recognition*

10
11 319 Gratitude and appreciation were important topics for most HCWs. They positively mentioned
12
13 320 support by direct supervisors and mutual support between team members as encouraging.
14
15 321 However, many participants missed recognition by superiors at higher management levels or
16
17 322 financial rewards (promised by politicians).
18

19
20 323 „You just don't feel valued (...) It does not have to be a monetary reward,
21 324 though that would be something, because it was much more exhausting,
22 325 but frankly a 'thank you' for showing up or saying 'I know it is exhausting'.
23 326 That is something that would qualify a leader.” (qualified nurse 10)
24

25 327 Especially qualified nurses perceived that their work was not recognized and feared their
26
27 328 services (for the public) will fall into oblivion once the crisis is over. Further, for most HCWs
28
29 329 appreciation by the public was largely missing. Many participants thought 'clapping at 6 pm'
30
31 330 did not show real gratitude whereas personalized appreciation was considered as genuine
32
33 331 support (e.g. a banner in front of the hospital from an Austrian football club).
34

35 332

36
37
38 333 **4. Discussion**

39
40 334 This study deals with occupational challenges of HCWs working in six Viennese hospitals
41
42 335 during the COVID-19 pandemic. Our paper is one of only few studies dealing with this topic
43
44 336 in the European Union. By using a qualitative exploratory approach, we outlined context-
45
46 337 specific challenges of HCWs of different work groups. The research considered changes
47
48 338 over time by collecting data during a period of six months, and therefore includes topics of
49
50 339 relevance at the beginning of the crisis and as the pandemic unfolded.
51

52
53 340 Stress factors result from structural conditions and a lack of pandemic planning on
54
55 341 governmental/institutional level as well as clinical challenges and their physical, mental and
56
57 342 emotional implications. Missing recognition and social stigma on a public level add to these
58
59
60

1
2
3 343 stressors. Our findings largely correspond with results from other international studies on
4
5 344 related topics, showing how most experiences are shared on a global level.
6

7
8 345 In the early stage of the pandemic, lack of preparedness played a major role mainly in terms
9
10 346 of PPE shortages and delayed IPC guidelines. PPE shortage was a global phenomenon, and
11
12 347 the usage of inadequate PPE was also addressed in other research.¹⁶⁻¹⁹ According to a study
13
14 348 on HCWs motivation to delivering care during COVID-19, feeling protected by the
15
16 349 government/hospital was related to lower hesitation to work. The authors conclude that more
17
18 350 efforts should be made on governmental/hospital level to protect HCWs, especially when it
19
20 351 comes to preventing infections in HCWs.²⁰ Another study mentions little confidence in
21
22 352 knowledge of IPC as the main barrier to willingness to work in infectious disease outbreaks.²¹
23
24 353 Consequently, providing proper IPC training and adequate PPE is not only indispensable for
25
26 354 providing a safe workplace but also influences workforce availability in the long run.
27

28
29 355 In our research, staff shortage and overworked staff became routine in affecting working
30
31 356 conditions as the pandemic unfolded. Other studies report similar findings.²²⁻²⁴ Depletion of
32
33 357 staff affects HCWs' mental and physical health and carries implications on workplace safety
34
35 358 in the long run. Further, overworked personnel affect quality of care. This increases the need
36
37 359 for more hospital personnel and readjustments of staff schedules to shorter shifts to ensure a
38
39 360 safe work place.^{18,19} We also found that some qualified nurses without professional infectious
40
41 361 disease background or training were recruited from other wards to remedy staff shortages.
42
43 362 Redeployment of staff without specific training may lead to absenteeism, especially once the
44
45 363 crisis is over.²⁵ Therefore, it is even more important that redeployment is based on a
46
47 364 voluntary decision.²⁶ To tackle the problem of nurses with diverse backgrounds, experiences
48
49 365 and skills, a Chinese hospital implemented standardized nursing procedures for work
50
51 366 routines and content. Other hospitals provided clearly defined responsibilities of staff and
52
53 367 training programs for protective measures and handling equipment.^{18,27}
54

55
56
57 368 Stigmatization and self-stigmatization mainly occurred outside the hospital but added to the
58
59 369 mentioned stressors. COVID-19 related stigmatization of HCWs is a global social
60
370 consequence of this pandemic. In many countries HCWs were avoided or insulted and

1
2
3 371 experienced violence or harrassment.²⁸⁻³⁰ This is especially worrisome as HCWs respond to
4
5 372 a health crisis to save lives while exposing themselves to the risk of infection.³¹ Stigma and
6
7 373 self-stigmatization may be exacerbated by the questions of guilt - who is responsible for
8
9 374 another person's infection or death - which seems to be a characteristic of this pandemic.
10
11 375 The governmental measures of social distancing, necessary to diminish infection rates, make
12
13 376 boundaries between social distance and social stigma less tangible.
14
15 377 Another sensitive topic is avoidance of colleagues to treat COVID-19 patients, which was
16
17 378 relevant at the beginning of the pandemic. To our knowledge, this finding has not been
18
19 379 addressed by other authors up to date. This avoidance may stem from anxiety to infect
20
21 380 oneself or family members, from respect of this unknown threat and limited scientific
22
23 381 knowledge available at that time. It may also be the result of not feeling properly prepared to
24
25 382 work in an infectious disease context. While some HCWs are more resilient to working in this
26
27 383 exceptional situation, it may be harder and more burdensome for others. Avoidance behavior
28
29 384 of colleagues needs to be addressed as it led to conflicts, additional workload, under
30
31 385 treatment and delayed care of vulnerable patients.
32
33
34
35 386 HCWs felt a lack of recognition, acknowledgement and appreciation in our context. This
36
37 387 includes financial compensation but also immaterial rewards such as showing gratitude from
38
39 388 higher management levels and personalized appreciation by politicians and the public.
40
41 389 Showing gratitude to HCWs and acknowledging their working conditions is one of the key
42
43 390 elements of protecting mental health of HCWs and is known as fostering resilience.^{32,33}
44
45
46 391 All these mentioned stressors influence HCWs' physical and mental health. One study
47
48 392 concludes that mental health of HCWs should be addressed with a holistic approach and a
49
50 393 socio-ecological understanding of well-being,²³ thereby taking into account multiple aspects
51
52 394 that affect well-being of HCWs besides clinical challenges (e.g. staff shortages, taking
53
54 395 enough rest, access to PPE and external factors such as public support).^{23,24,26} Further,
55
56 396 providing contextualized psychological services which are adjusted to HCWs' specific needs
57
58 397 is important.³⁴ Psychological interventions should also be adapted to sociodemographic
59
60 398 disparities and differences among work groups.²¹ Other studies found that HCWs experience

1
2
3 399 moral injury as a consequence of their commitment.^{35,36} Insufficient protection and other
4
5 400 factors that violate one's ethical principles (e.g. not being able to provide good quality care
6
7 401 due to being overworked), lead to negative self-perception and distrust in the system.³⁵ Once
8
9 402 the crisis is over, a major task should therefore be after care, addressing moral injury in
10
11 403 HCWs and rebuilding trust in the system.^{32,36}
12
13

14 404

16 405 **Limitations**

17
18 406 We focused on the core topics but are aware that stressors of HCWs are more complex.
19
20 407 Doing research during a pandemic posed several challenges, including interviews taking
21
22 408 place under rushed conditions, after clinical work and with overworked or tired HCWs.
23
24 409 Consequently, some interviews may have been shorter than usual or may not have yielded
25
26 410 in-depth considerations. Further, there might be more differences in experiences between
27
28 411 professions and different occupational groups which we were not able to consider.
29
30

31 412

33 413 **5. Conclusions and recommendations**

34
35 414 Despite the medical difficulties and unpredictable aspects of a pandemic can hardly be
36
37 415 prepared for, it is necessary to ensure a structural framework, e.g. with guidelines and
38
39 416 standard operating procedure, in order for HCWs to feel prepared, protected and cared for.
40
41 417 This framework is also needed to ensure optimized psycho-social working conditions of
42
43 418 HCWs and support in these challenging times.

44
45 419 In our context, mainly organizational-level recommendations are necessary to prepare for
46
47 420 later phases of the pandemic or new emerging threats. Managing the shortages on multiple
48
49 421 levels will be paramount. Four themes are important: Firstly, to tackle the shortage of PPE
50
51 422 and therefore ensure physical protection. Secondly, to mitigate shortage of human workforce
52
53 423 and averting chronic occupational overload. Adequate providing of medical personnel,
54
55 424 especially nursing staff, is essential. Voluntarism plays an important role in terms of
56
57 425 redeployment of staff and HCWs should be given the option to switch back or at least take
58
59

1
2
3 426 personal preferences into account. Thirdly, timely providing of necessary IPC guidelines but
4
5 427 also training in palliative care are important. Service staff should receive tailored IPC training
6
7 428 to cope with fears and to be safe. In general, professionally handling and addressing fear is
8
9 429 needed to overcome avoidance behavior. Simulation exercises for both doctors and qualified
10
11 430 nurses and professional debriefing could better prepare HCWs for stressful situations. Lastly,
12
13 431 caring for HCWs mental health is essential, especially offering supportive supervision
14
15 432 convenient to HCWs' working schedule. Gratitude from superiors, politicians and the public
16
17 433 are indispensable for showing support and foster resilience.

19 434

22 435

24 436

26 437

28 438

30 439

32 440

34 441

36 442

38 443

40 444

42 445

44 446

46 447

48 448

50 449

52 450

54 451

56 452

58 453

1
2
3 454
4
5 455
6
7 456
8
9 457
10 458
11
12 459
13 460
14 461
15 462
16 463
17 464
18 465
19 466
20 467
21 468
22 469
23 470
24 471
25 472
26 473
27 474
28 475
29 476
30 477
31 478
32 479
33 480
34 481
35 482
36 483
37 484
38 485
39 486
40 487
41 488
42 489
43 490
44 491
45 492
46 493
47 494
48 495
49 496
50 497
51 498
52 499
53 500
54 501
55 502

References

1. Smith C. The structural vulnerability of healthcare workers during COVID-19: Observations on the social context of risk and the equitable distribution of resources. *Social Science & Medicine* 2020;258.
2. Jacobs A. They Died Saving Others From Covid. Will Anyone Count Them? *The New York Times*. 2021.
3. Bennett P, Noble S, Johnston S, *et al*. COVID-19 confessions: a qualitative exploration of healthcare workers experiences of working with COVID-19. *BMJ Open* 2020;10:e043949.
4. WHO. Keep health workers safe to keep patients safe. Geneva; 2020.
5. Adams JG, Walls RM. Supporting the Health Care Workforce During the COVID-19 Global Epidemic. *JAMA* 2020;323(15).
6. Pappa S, Ntella V, Giannakes T, *et al*. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity* 2020;88:901-7.
7. derStandard. Viele Pflegekräfte wollen wegen zu viel Stress aufgeben. <https://www.derstandard.at/story/2000124953415/viele-pflegekraefte-wollen-wegen-stress-aufgeben>, (accessed 22 March 2021)
8. unknown. COVID-19 pandemic one year on: ICN warns of exodus of experienced nurses compounding current shortages. <https://www.icn.ch/news/covid-19-pandemic-one-year-icn-warns-exodus-experienced-nurses-compounding-current-shortages>, (accessed 23 March 2021)
9. Bundesministerium für Soziales, Gesundheit, Pflege, *et al*. Das Gesundheitswesen im Überblick 2021. <https://www.gesundheit.gv.at/gesundheitsleistungen/gesundheitswesen/gesundheitsssystem>, (accessed 19 April 2021)
10. OECD. Health at a Glance 2019: OECD Indicators. Paris: OECD Publishing; 2019.
11. Mayer S. Austrian health care system [unpublished lecture notes]. notes provided at lecture 15 March 2019 (Unpublished).
12. AGES. AGES Dashboard COVID19 2021. https://covid19-dashboard.ages.at/dashboard_Hosp.html, (accessed 19 April 2021)
13. Redl B. Nur AKH-Bedienstete mit Patientenkontakt bekommen Schutzmasken. <https://www.derstandard.at/story/2000116662263/nur-akh-bedienstete-mit-patientenkontakt-bekommen-schutzmasken>, (accessed 23 March 2021)
14. wien.ORF.at. Spitäler haben „zu wenig Schutzausrüstung“. <https://wien.orf.at/stories/3039633/>, (accessed 23 March 2021)
15. unknown. The Gobal Nursing shortage and Nurse Retention. International Council of Nurses; 2021.
16. Hoernke K, Djellouli N, Andrews L, *et al*. Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. *BMJ Open* 2021;11(1):e046199.
17. Ahmed J, Malik F, Bin Arif T, *et al*. Availability of Personal Protective Equipment (PPE) Among US and Pakistani Doctors in COVID-19 Pandemic. *Cureus* 2020;12(6):e8550.

- 1
2
3 503 18. Stennett J, Hou R, Traverson L, *et al.* Lessons learned from the resilience of
4 504 Chinese hospitals to the COVID-19 pandemic: a scoping review. 2021.
5 505 19. Tabah A, Ramanan M, Laupland K, *et al.* Personal protective equipment and
6 506 intensive care unit health care worker safety in the COVID-19 era (PPE-SAFE): An
7 507 international survey. *Journal of Critical Care* 2020;59:70-5.
8 508 20. Malesza M. Factors informing healthcare workers' willingness to work during
9 509 the COVID-19 pandemic. 2021.
10 510 21. Que J, Shi L, Deng J, *et al.* Psychological impact of the COVID-19 pandemic
11 511 on healthcare workers: a cross-sectional study in China. *General Psychiatry*
12 512 2020;33:e100259.
13 513 22. Liu Q, Luo D, Haase JE, *et al.* The experiences of health-care providers during
14 514 the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*
15 515 2020;8:e790-98.
16 516 23. San Juan NV, Aceituno D, Djellouli N, *et al.* Mental health and well-being of
17 517 healthcare workers during the COVID-19 pandemic in the UK: contrasting guidelines
18 518 with experiences in practice. *BJPsych Open* 2021;7:e15.
19 519 24. Vindrola-Padros C, Andrews L, Dowrick A, *et al.* Perceptions and experiences
20 520 of healthcare workers during the COVID-19 pandemic in the UK. *BMJ Open*
21 521 2020;10:e040503.
22 522 25. Tujjar O, Simonelli M. Absenteeism of Frontline Healthcare Workers During
23 523 Covid-19: the Need for a Framework of Support. *SN Comprehensive Clinical*
24 524 *Medicine* 2020.
25 525 26. Kisely S, Warren N, McMahon L, *et al.* Occurrence, prevention, and
26 526 management of the psychological effects of emerging virus outbreaks on healthcare
27 527 workers: rapid review and meta-analysis. *BMJ* 2020;369:m1642.
28 528 27. Feng M, Wang Q, Su J, *et al.* Nursing management in isolation wards for
29 529 coronaviruses disease 2019 in a general hospital under a joint rescue model. *Chinese*
30 530 *Journal of Nursing* 2020;55:817-21.
31 531 28. Bagcchi S. Stigma during the COVID-19 pandemic. *The Lancet* 2020.
32 532 29. Singh R, Subedi, M. COVID-19 and stigma: Social discrimination towards
33 533 frontline healthcare providers and COVID-19 recovered patients in Nepal. *Asian*
34 534 *Journal of Psychiatry* 2020;53.
35 535 30. Taylor S, Landry C, Rachor G, *et al.* Fear and avoidance of healthcare
36 536 workers: An important, under-recognized form of stigmatization during the COVID-19
37 537 pandemic. *Journal of Anxiety Disorders* 2020;75.
38 538 31. McKay D, Heisler M, Mishori R, *et al.* Attacks against health-care personnel
39 539 must stop, especially as the world fights COVID-19. *The Lancet* 2020;395.
40 540 32. Greenberg N. Mental health of health-care workers in the COVID-19 era.
41 541 *Nature Reviews Nephrology* 2020;16.
42 542 33. McCanlies E, Gu J, Andrew M, *et al.* The effect of social support, gratitude,
43 543 resilience and satisfaction with life on depressive symptoms among police officers
44 544 following Hurricane Katrina. *Int J Soc Psychiatry* 2018;64:63-72.
45 545 34. Chen Q, Liang M, Li Y, *et al.* Mental health care for medical staff in China
46 546 during the COVID-19 outbreak. *The Lancet Psychiatry* 2020;7:e15-6.
47 547 35. Greenberg N. Managing mental health challenges faced by healthcare
48 548 workers during covid-19 pandemic. *BMJ* 2020;368:m1211.
49 549 36. Kreh A, Brancaleoni R, Magalini S, *et al.* Ethical and psychosocial
50 550 considerations for hospital personnel in the COVID-19 crisis: Moral injury and
51 551 resilience. *PLoS ONE* 2021;16(4):e0249609.
52 552
53
54
55
56
57
58
59
60

553

1
2
3 554
4
5 555
6
7 556
8
9 557
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

For peer review only

Supplementary material

Standards for Reporting Qualitative Research (SRQR) checklist

O'Brien, Bridget C. PhD; Harris, Ilene B. PhD; Beckman, Thomas J. MD; Reed, Darcy A. MD, MPH; Cook, David A. MD, MHPE Standards for Reporting Qualitative Research, Academic Medicine: September 2014 - Volume 89 - Issue 9 - p 1245-1251 doi: 10.1097/ACM.0000000000000388

Topic	Page/line
Title and abstract	
Title 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	Page 1 Line 1-2
Abstract Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 2-3 Line 29-63
Introduction	
Problem formulation Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 4-6 Line 116-150
Purpose or research question Purpose of the study and specific objectives or questions	Page 6 Line 145-150
Methods	
Qualitative approach and research paradigm 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	Page 6 Line 153-154
Researcher characteristics and reflexivity 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	Page 6 Line 155-156
Context Setting/site and salient contextual factors; rationale	Page 6 Line 156-159
Sampling strategy How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale	Page 6 Line 160-162
Ethical issues pertaining to human subjects Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 6 Line 169-171
Data collection methods 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	Page 6-7 Line 172-178

1	response to evolving study findings; rationale	
2		
3		
4	Data collection instruments and technologies	Page 6
5	Description of instruments (e.g., interview guides, questionnaires) and	Line 163-168
6	devices (e.g., audio recorders) used for data collection; if/how the	
7	instrument(s) changed over the course of the study	
8		
9	Units of study	Page 7
10	Number and relevant characteristics of participants, documents, or events	Table 1
11	included in the study; level of participation (could be reported in results)	
12		
13	Data processing	Page 6
14	Methods for processing data prior to and during analysis, including	Line 169-173
15	transcription, data entry, data management and security, verification of data	
16	integrity, data coding, and anonymization/de-identification of excerpts	
17		
18	Data analysis	Page 6
19	Process by which inferences, themes, etc., were identified and developed,	Line 174-181
20	including the researchers involved in data analysis; usually references a	
21	specific paradigm or approach; rationale	
22		
23	Techniques to enhance trustworthiness	Page 7
24	Techniques to enhance trustworthiness and credibility of data analysis (e.g.,	Line 176-177
25	member checking, audit trail, triangulation); rationale	
26		
27	Results and findings	
28		
29	Synthesis and interpretation	Page 8-12
30	Main findings (e.g., interpretations, inferences, and themes); might include	Line 196-328
31	development of a theory or model, or integration with prior research or theory	
32		
33	Links to empirical data	Page 8-12
34	Evidence (e.g., quotes, field notes, text excerpts, photographs) to	Line 196-328
35	substantiate analytic findings	
36		
37	Discussion	
38		
39	Integration with prior work, implications, transferability, and	Page 12-15
40	contribution(s) to the field	Line 331-400
41	Short summary of main findings; explanation of how findings and conclusions	
42	connect to, support, elaborate on, or challenge conclusions of earlier	
43	scholarship; discussion of scope of application/generalizability; identification	
44	of unique contribution(s) to scholarship in a discipline or field	
45		
46	Limitations	Page 15
47	Trustworthiness and limitations of findings	Line 402-408
48		
49	Other	
50		
51	Conflicts of interest	Page 4
52	Potential sources of influence or perceived influence on study conduct and	Line 89-99
53	conclusions; how these were managed	
54		
55	Funding	Page 3
56	Sources of funding and other support; role of funders in data collection,	Line 83-86
57	interpretation, and reporting	
58		
59		
60		

BMJ Open

Occupational challenges of health care workers during the COVID-19 pandemic. A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-054516.R1
Article Type:	Original research
Date Submitted by the Author:	18-Jan-2022
Complete List of Authors:	Jeleff, Maren; Medical University of Vienna, Department of Social and Preventive Medicine, Centre of Public Health Traugott, Marianna; Clinic Favoriten, Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine Jirovsky-Platter, Elena; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health Jordakieva, Galateja; Medical University of Vienna, Department of Physical Medicine, Rehabilitation and Occupational Medicine Kutalek, Ruth; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health
Primary Subject Heading:	Occupational and environmental medicine
Secondary Subject Heading:	Qualitative research
Keywords:	COVID-19, OCCUPATIONAL & INDUSTRIAL MEDICINE, PUBLIC HEALTH, SOCIAL MEDICINE

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 **Occupational challenges of health care workers during the COVID-19 pandemic. A**
4
5 **qualitative study**
6

7 Maren Jeleff¹, Marianna Traugott², Elena Jirovsky-Platter¹, Galateja Jordakieva³, Ruth
8
9 Kutalek¹
10

11
12
13
14 **Affiliations**

15
16 ¹ Unit Medical Anthropology and Global Health, Department of Social and Preventive
17
18 Medicine, Center for Public Health, Medical University of Vienna, Austria
19

20
21 ² Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine, Clinic
22
23 Favoriten, Vienna, Austria

24
25 ³ Department of Physical Medicine, Rehabilitation and Occupational Medicine, Medical
26
27 University of Vienna, Austria
28

29
30 **Corresponding author**

31
32 Maren Jeleff

33
34 Unit Medical Anthropology and Global Health, Department of Social and Preventive
35
36 Medicine, Center for Public Health, Medical University of Vienna, Austria

37
38 Kinderspitalgasse 15/1

39
40 1090 Vienna

41
42 maren.jeleff-entscheff@meduniwien.ac.at
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Abstract

Objectives

To address structural determinants and health care workers' physical, mental, emotional and professional challenges of working during the COVID-19 pandemic.

Design

Exploratory qualitative study with semi-structured interviews. Collected data was analyzed using thematic analysis.

Setting

This qualitative study was undertaken with health care workers (HCWs) mainly working in intensive care units in six non-profit hospitals in Vienna, Austria. Data was collected from June 2020 to January 2021.

Participants

30 HCWs (13 medical doctors, 11 qualified nursing staff, 2 nurse assistants, 2 physiotherapists, 2 technical/cleaning staff) in direct and indirect contact with COVID-19 patients were included.

Results

Three overall themes resulted as relevant: challenges due to lack of preparedness, structural conditions, and physical and mental health of HCWs. Lack of preparedness included delayed infection prevention and control (IPC) guidelines, shortages of personal protective equipment (PPE) combined with staff shortages, especially nursing staff, and overworked personnel. Physical and mental strains resulted from being overworked and working permanently on alert, facing medical uncertainties and the critical conditions of patients. HCWs lacked recognition on multiple levels and dealt with stigma and avoidance behavior of colleagues.

Conclusion

To mitigate HCWs' occupational health risks and staff turnover, we propose context-specific recommendations: Essential workers in care of COVID-19 patients, especially nursing staff,

1
2
3 should be carefully planned and increased to avert chronic work overload. Timely training and
4 education in IPC for all HCWs is important. Providing supportive supervision is as essential as
5 appropriate recognition by higher level management and the public.
6
7
8
9

10 **Article summary**

11 Strengths and limitations of this study

- 12
13 • We outline context-specific challenges of HCWs of different work groups by using an
14 exploratory qualitative approach.
- 15
16 • The research considers changes over time by collecting data during six months, and
17 therefore includes topics of relevance at the beginning and as the pandemic unfolded.
- 18
19 • Female interview participants predominated overall (21 female versus 9 male). The
20 higher number of female participants was due to the higher number of female staff in
21 health care in general, and in nursing in particular.
- 22
23 • Some interviews may have been shorter than usual or may not have yielded in-depth
24 information as interviews took place under rushed conditions and with tired HCWs.
- 25
26 • There might be more differences in experiences between professions and different
27 occupational groups which we were not able to consider.
28
29
30
31
32
33
34
35
36
37
38

39 **Keywords**

40
41 Essential workers, infectious disease outbreak, European Union, preparedness, occupational
42 health, qualitative research, hospitals, ICU, social sciences
43
44
45
46

47 **Funding**

48
49 This article has received funding from The Vienna Science and Technology Fund (WWTF)
50 (Covid-19 Rapid Response 2020 / EI-COV20-026). The funders did not play a role in the
51 decision to publish the article.
52
53
54
55
56

57 **Competing interest statement**

58
59 The authors declare that they have no competing interests.
60

Ethics approval

The study was approved by the Ethics Committee of the Medical University of Vienna (1409/2020) and the Ethics Committee of the Town of Vienna (EK20-093-VK).

Availability of data and materials

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Patient consent form

Not applicable

Author contributions

RK conceptualized the research, MJ, RK and EJ-P conducted the interviews, MJ analyzed and interpreted the data, MJ wrote the manuscript, MT, GJ, EJ-P and RK reviewed and edited the manuscript. All authors read and approved the final manuscript.

Acknowledgements

We thank all health care workers who took time to participate in our study. We also thank The Vienna Science and Technology Fund for funding this research.

Word count

4554

1. Introduction

From early 2020, health care systems have been challenged worldwide due to the COVID-19 pandemic. Multiple factors such as rapid spread and limited treatment options for a formerly unknown disease, the quantity of contagious patients and prolonged duration of the pandemic pose a burden on health care systems. HCWs are considered a vulnerable group themselves mainly through continuous exposure while caring for patients and lack of personal protective equipment (PPE).¹

1
2
3 Particularly in the beginning of the pandemic, HCWs were applauded for and heroized by the
4 public in many countries. However, many HCWs do not identify themselves as heroes but are
5 overworked and bear the physical and mental burden of their commitment.² Initially driven by
6 enthusiasm and optimism, most feel exhausted due to the continuation of the pandemic.³
7
8 HCWs deal with the physical and mental burden of working extensively in a highly demanding
9 situation, struck by fear of infecting family members as well as social stigma.^{4, 5} A recently
10 published meta-analysis found female HCWs to be especially affected by anxiety and
11 depression and a higher prevalence of these disorders in nurses than doctors.⁶

12
13
14 Due to the enormous pressure globally, especially nurses are resigning their jobs.⁷ The
15 situation is exacerbated by structural shortages of qualified nurses, a problem that pre-existed
16 the pandemic with a bottleneck of 6 million nurses worldwide.⁸

17
18
19 Austria is an illustrative example of how COVID-19 is posing hardship to a relatively advanced
20 and well-equipped health care system. Austria uses the Bismarck model, with health
21 expenditures mainly being paid from taxes and mandatory social security contributions. A
22 fundamental feature is the comprehensive health insurance coverage (99,9%) and thus
23 accessibility to good quality care.⁹⁻¹¹ In 2017 Austria was amongst the countries with the
24 highest number of hospital beds (7.4 beds per 1000 people), which is an indicator for available
25 resources regarding inpatient services.¹⁰

26
27
28 Nevertheless, COVID-19 overwhelmed Austria's health care system and to date the capacity
29 of intensive care unit (ICU) beds is reaching its limits.¹² Furthermore, Austrian hospitals were
30 ill-prepared for the pandemic. The most prominent example of this being the temporary
31 shortages in PPE.^{13, 14} Meanwhile the crisis also shows how the pre-existing lack of qualified
32 personnel has serious effects in this emergency situation.¹⁵

33
34
35 HCWs health, well-being and safety is paramount to a functioning health care system and to
36 ensuring patient safety.⁴ Consequently, it is necessary to mitigate risks on multiple levels –
37 especially staff turnover and mental health risks.^{6, 16}

1
2
3 In this study we therefore aim to address structural determinants and HCWs' physical, mental,
4 emotional and professional challenges of working during the COVID-19 pandemic. Based on
5 our results, we propose context-specific recommendations.
6
7
8
9

10 11 **2. Methods**

12
13 We conducted an exploratory qualitative study with semi-structured interviews to gain insights
14 into HCWs' challenges of working with COVID-19 patients in six Viennese non-profit hospitals.
15

16 MJ, EJ-P and RK are medical anthropologists and qualitative researchers and conducted the
17 interviews. The data collection took place between June 2020 and January 2021. We
18 interviewed HCWs in direct contact with COVID-19-infected patients and indirect contact,
19 handling contaminated material (work units are detailed in table 1). Only few of the 21 non-
20 profit hospitals in Vienna were designated to admit COVID-19 patients in the beginning of the
21 pandemic. Therefore, we recruited interview partners from these hospitals. In one hospital, we
22 had a key informant who arranged contacts to hospital staff aiming for maximum variation in
23 participants (qualified nurses, nurse assistants, cleaning staff, physiotherapists, and medical
24 doctors). Later, as additional hospitals were designated to care for COVID-19 patients, we
25 broadened our sample and included interview partners through snowball sampling.
26
27
28
29
30
31
32
33
34
35
36
37
38
39

40 Participants were interviewed via telephone, online call (Webex) or in person in a private room
41 at the hospital where they worked (carried out under precautionary measures). Interviews were
42 scheduled during working hours and at times convenient to the participants. Those who agreed
43 to take part in the study signed the participant consent form. All interviews were audio-
44 recorded, except for one who felt more comfortable not being recorded. In this case, written
45 notes were taken which were sent to the participant after the interview for validation and further
46 clarification. Interviews lasted between 30 and 60 minutes and were guided by a topic guide
47 (see supplementary material). However, questions were adapted to the flow of the
48 conversation and the importance the interviewees gave to a specific topic. Interviews were
49 conducted until saturation of data was reached, meaning that no new themes emerged, or new
50 information was discovered and further data collection became redundant.
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6 We outsourced the transcriptions of the interviews. The transcription service provider signed a
7
8 non-disclosure agreement stating that interviews and transcripts are kept confidential. All
9
10 transcripts were anonymized, names and personal identifiers were removed, and labeled using
11
12 a numerical code. The study was approved by the Ethics Committee of the Medical University
13
14 of Vienna and the Ethics Committee of the Town of Vienna.
15

16
17 Transcripts were imported into Atlas.ti (Version 8.4.4) and analyzed with thematic analysis,
18
19 using inductive and deductive coding. We used thematic analysis to recognize, analyze and
20
21 interpret patterns of meaning. The first author (MJ) performed the analysis of the interview
22
23 transcripts. There was a continuous dialogue among MJ and RK throughout the analysis
24
25 process. The deductive codes were informed by the topic guide questions; all other codes
26
27 derived inductively through repeated examination of the data. Codes were united to overall
28
29 themes which include lack of preparedness, overworked personnel, staff shortage and
30
31 redeployment, stigma, avoidance behavior and lack of recognition. The research considers
32
33 changes over time with e.g. PPE shortages being more important in the beginning and
34
35 overworked personnel in the later phase of the pandemic.
36
37
38
39

40 **Patient and public involvement**

41
42 No patient involved.
43
44
45

46 **3. Results**

47 *3.1. Description of participants*

48
49 We collected data from 30 participants in direct and indirect contact with patients infected with
50
51 COVID-19. Thirteen medical doctors, eleven qualified nurses, mainly working in ICUs, and six
52
53 other professions were included (table 1). Female participants predominated overall (21 female
54
55 versus 9 male).
56
57
58
59
60

Table 1 Characteristics of participants

Variables	Description	No. of participants
Gender	Male	9
	Female	21
Profession	Qualified nurse	11
	Nurse assistant	2
	Physiotherapist	2
	Cleaning/technical staff	2
	Medical doctors:	
	Infectious disease expert	3
	Anesthesiologist	2
	Neurologist	2
	Other physician (e.g. surgeon)	6
Work units*	COVID-19 intensive care	13
	COVID-19 non-intensive care	5
	COVID-19 intensive care and non-intensive care	2
	COVID-19 other**	4
	Other***	6
Age (years)	21–30	7
	31–40	10
	41–50	8
	51–60	5

*Refers to the units that HCWs were assigned to

**Includes "pop-up" COVID-19 units and intermediate care units

***Non-COVID-19 units with direct or indirect contact with COVID-19 patients

3.2. Lack of preparedness

While confronted with a hitherto unknown pandemic, HCWs were troubled by delayed or unavailable IPC guidelines adapted to a major infectious disease outbreak. This included for example guidelines for proper donning and doffing of PPE, guidelines for medical procedures producing aerosols or, IPC-strategies for patient transfers. Consequently, HCWs faced many uncertainties and those units in charge of treating COVID-19 patients often had to make their own autonomous decisions.

„The department of hygiene gave instructions only after we became a COVID-19 ward, on the same day or maybe two days before, whilst we were already wondering about it for weeks. Examples include which respirator tools to use or the need of different filters, those which would last longer, as we don't want to disconnect the ventilators daily (...) Those points were addressed super delayed by the department of hygiene.”
(qualified nurse 4)

Most participants specified that their team and immediate superiors dealt with the situation excellently. However, complaints were made about chaos that arose on higher levels of the hospital hierarchy; participants wished for better guidance from leadership and management:

1
2
3 “It is something you expect to be handled by management and not from the
4 personnel on the ward (...) You expect the hospital pays attention that the
5 work procedures are properly adjusted – not that the employees take care
6 of them.” (medical doctor 1)
7

8 Relatedly, one cleaning person narrated that her colleagues did not know much about the virus
9 and consulted her with questions. She wished for simple COVID-19 specific training for her
10 and her colleagues. Further, cleaning staff was often perceived as extremely feared, mainly
11 because of this lack of understanding of transmission pathways.
12
13
14
15

16
17 Another demanding factor was lack of coordination between hospitals. Especially in the first
18 phase (early 2020) there was a lack of clarity on ICU bed capacities and the second phase
19 during summer 2020 was considered as a missed chance to better prepare for the predicted
20 peak phase in autumn. HCWs felt that other hospitals in Vienna were unprepared to take on
21 COVID-19 patients.
22
23
24
25
26
27

28 “It was really badly organized. For example, when our intensive care unit
29 was full for the first time, everyone was taken by surprise. Oh, there are no
30 more intensive care beds, where should they be transferred to now? And
31 then the hospital (XY) took them (*the patients*) and they were completely
32 unprepared. And one would think, folks, you had all summer to worry about
33 this and prepare for it. And now, in autumn, the beds are occupied again
34 and now - once again - we need more wards.” (medical doctor 18)
35

36 One medical doctor concluded: “Well, you do wonder how slow the mills in Austria are grinding
37 and how little foresight one can have.” (medical doctor 5)
38
39
40
41
42

43 *3.3. Physical and mental protection*

44 During the first phase of the pandemic there was a shortage of facemasks and the fear of
45 insufficient facemasks. One medical doctor reflected upon how to define shortage of
46 facemasks in Austria: “Once you start using masks that had expired 14 years ago, which we
47 did, I would say we ran out of masks.” (medical doctor 5) Others mentioned having used
48 facemasks of insufficient quality or ones that did not properly fit or having to reuse disposable
49 masks. Especially FFP3 masks were rare and often only available for rooms with patients on
50 non-invasive ventilators where circulation of aerosols was highest.
51
52
53
54
55
56
57
58

59 “When we ran out of FFP3 masks we received products of minor quality.
60 We had incidents where a colleague was in the room and the elastic cord

1
2
3 of the mask broke. Or the filter of the mask fell out - that happened to me -
4 and thank God it happened before I was in the patient room. But these are
5 all things that shouldn't happen. And then another problem was that these
6 masks didn't fit everyone either (...) I had a colleague who did not want to
7 enter the patient room because the mask didn't fit properly." (qualified nurse
8 10)
9

10 Fear of mask shortages led to employees stockpiling masks or that management was
11 restrictive about their distribution: sometimes cleaning personnel or other medical support
12 personnel were denied adequate facemasks in one hospital.
13
14

15
16 However, these were concerns in the early stages of the pandemic. When asked directly if
17 they felt safe at the workplace most HCWs stated they felt sufficiently protected. Especially
18 those working at ICUs felt better protected than in wards "outside" because they knew the
19 infectious status of their patients and worked in protective gear.
20
21
22
23

24
25 In addition to shortage of physical protection, there was a quest for supervision, which was
26 often not sufficiently offered by employers. Though not everyone stated to need supportive
27 supervision, most considered it important to be provided.
28
29
30

31 "Of course, there are some things I miss from our employing institution as
32 it is its responsibility to protect us. Not only to provide the protective gear
33 but also mental protection. (...) It has the responsibility to ensure we do not
34 get harmed mentally and physically." (qualified nurse 23)
35
36
37

38 *3.4. Overworked personnel, staff shortage and redeployment of staff*

39
40 Especially in November 2020, HCWs were working over the limit of their capacities. Many
41 reported to be mentally and physically exhausted and to need longer regeneration times than
42 normal.
43
44
45

46 "I often thought I got infected with COVID-19 because I am so exhausted.
47 But no, it is this working with the mask and planning all your actions
48 precisely for the moment. You have to think about so many things, what are
49 the next steps. It is really also a mental burden. In cycling they refer to the
50 term 'the red zone' and I would say that we are often in the red zone, but
51 we do not recognize it anymore (...) because you get used to it. You have
52 to get used to it because otherwise you have to resign. Or you will break.
53 So either you are strong and you stick it out or you have to leave." (qualified
54 nurse 17)
55
56

57 HCWs not only worked extra hours or worked without having proper breaks; they also
58 functioned in a permanent alarm mode. In addition to dealing with challenges related to
59 infection risk and changed working procedures, HCWs faced medical uncertainties and
60

1
2
3 emotional challenges due to the critical condition of patients. The difference to pre-COVID-19
4 was the quantity of dying patients, as highlighted by the metaphorical sentence “patients are
5 dying like flies” (qualified nurse 17). Another mental burden was seeing people without
6 underlying medical conditions or young patients die or having to witness how patients slowly
7 died in full consciousness and in isolation. What is more is that most HCW were not trained in
8 palliative care. Further, dealing with the unpredictability of the disease added to being mentally
9 overburdened.
10
11

12
13
14
15
16
17
18 HCWs spoke about a missing work-life balance and consequences of being overworked. Some
19 thought to be more vulnerable to getting infected with COVID-19, others mentioned physical
20 pain because of chronic overload. Figure 1 shows an overworked HCW after a shift in a
21
22
23
24
25 COVID-19 ward.

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
“We are now faced with some sick leaves. It is the high adrenalin and cortisone levels of this crisis, the ongoing emergency mode that is exhausting at some point. Basically, our bodies are giving up. (...) There are people that would like to, but they are just sick now. They do not have COVID-19, but they are sick. They have digestive issues; one has ongoing diarrhea for three weeks and he looks pale as a linen sheet.” (medical doctor 27)

Being overworked associated with a shortage or unavailability of staff, especially when personnel got sick, was mentioned as a main problem by participants. Often it needed multiple requests to the administration to getting more staff.

“(...) and contrary to what we were promised at the beginning, 'no matter what, you get what you need', we didn't get any additional staff and we had to do it with the core team. We all work way over our regular working hours and that is very intense. Somehow it has worked out for the last half year, I mean, especially this department, they are all incredibly motivated and passionate. They are infectiologists with their heart and soul and they love their work, but now you realize slowly, now it's going to the core, it's slowly not working any longer.” (medical doctor 24)

To remedy staff shortages in one ward, especially qualified nurses were often recruited from other wards. Those who had free choice and switched on a voluntary basis with the option to switch back, viewed this more positively. However, many suddenly had to work with COVID-19 patients without having a professional background in infectious diseases and thus missed technical knowledge in this regard. Often, qualified nurses found themselves in a new team and there was little time to get proper training. This produced extra stress.

1
2
3 “The psychological challenge is (...) I actually have nothing to do with
4 infections (...) Of course I believe that I am very good at what I do and that
5 I am able to adjust, but I just don't have this background, this technical
6 knowledge regarding infections.” (qualified nurse 23)
7

8 “We got people (*qualified nurses*) (...) who used to work in an acute
9 geriatric ward with old people who are in rehab, and then they came here
10 (...) They didn't want that, they didn't want to work here, they were afraid.
11 They were used to different work in terms of speed and skills.” (qualified
12 nurse 17)
13

14 Though also medical doctors from other units – e.g. rheumatologists – were redeployed to
15 COVID-19 units, their situation was perceived as more stable because they could stay as a
16 team at their unit. However, also these professions experienced a sudden shift to providing
17 care regardless of their professional background.
18
19
20
21
22

23 24 25 *3.5. Stigma and avoidance* 26

27 HCWs experienced stigma in their private lives and observed avoidance behavior in some
28 colleagues. Especially in the beginning of the pandemic some physicians neglected to attend
29 patients due to fear of getting infected.
30
31
32

33 “We had a patient who was a cardiology patient suffering a heart attack and
34 the cardiologists did not want to attend to the patient because they were
35 too scared of COVID-19. You end up thinking, this is your patient who
36 happens to have COVID-19 but it is simply not adequate patient care.
37 Because you are scared of this stupid virus. And I keep on going in every
38 day.” (medical doctor 18)
39

40 One qualified nurse did not see the nursing officer during the first months of COVID-19 and
41 thought her ward was being avoided. Other problems being stated were getting appointments
42 for Computer Tomography, having X-rays done on COVID-19 patients or getting blood
43 examined at the laboratory. The situation improved over time mainly by constantly
44 communicating with the concerning colleagues.
45
46
47
48
49
50

51 HCWs were often perceived as high-risk contacts and faced stigma in their social
52 surroundings. Stigmatization also extended to family members – labels such as “Coronalady”
53 or “Corona children” give an impression of how HCWs and family members were sometimes
54 perceived by their social environment. Others reported their children were not invited to friends,
55 or personal appointments at a doctor's office were cancelled rudely.
56
57
58
59
60

1
2
3 “We know, for example, that a medical doctor faced tremendous hostility.
4 That’s not that easy to handle. And of course, we are being avoided. I am
5 no longer invited anywhere because I am working in a COVID-19 ward.”
6 (qualified nurse 17)
7

8 The predominant fear of many HCWs was to infect family members. This fear sometimes led
9 to self-stigmatization or avoidance behavior such as sleeping in separate bedrooms or not
10 kissing the partner. One HCW recounted that she considered herself as a role model. This had
11 to do with the perception that as a HCW she should know about infection pathways and
12 because she saw the worst consequences of a COVID-19 infection. Thus, she thought that
13 HCWs had to be especially cautious about their behavior.
14
15
16
17
18
19
20
21
22

23 3.6. Lack of recognition

24 Gratitude and appreciation were important topics for most HCWs. They positively mentioned
25 support by direct supervisors and mutual support between team members as encouraging.
26 However, many participants missed recognition by superiors at higher management levels or
27 financial rewards (promised by politicians).
28
29
30
31
32

33 „You just don’t feel valued (...) It does not have to be a monetary reward,
34 though that would be something, because it was much more exhausting,
35 but frankly a ‘thank you’ for showing up or saying ‘I know it is exhausting’.
36 That is something that would qualify a leader.” (qualified nurse 10)
37
38

39 Especially qualified nurses perceived that their work was not recognized and feared their
40 services (for the public) will fall into oblivion once the crisis is over.
41
42

43 “These are just my fantasies (*to receive a recognition or award*). It would
44 just be nice to acknowledge all the work we have done, but I am afraid that
45 is utopian. The pandemic will pass and no one will give a hoot about it.
46 That’s the reality.” (qualified nurse 17)
47

48 Further, for most HCWs appreciation by the public was largely missing. Many participants
49 thought ‘clapping at 6 pm’ or being identified as a hero did not show real gratitude whereas
50 personalized appreciation was considered as genuine support (e.g. a banner in front of the
51 hospital from an Austrian football club).
52
53
54
55
56
57
58
59
60

4. Discussion

This study deals with occupational challenges of HCWs working in six Viennese hospitals during the COVID-19 pandemic. Our paper is one of only few qualitative studies dealing with this topic in the European Union.^{17, 18} By using a qualitative exploratory approach, we outlined context-specific challenges of HCWs of different work groups. The research considered changes over time by collecting data during a period of six months, and therefore includes topics of relevance at the beginning of the crisis and as the pandemic unfolded.

Stress factors result from structural conditions and a lack of pandemic planning on governmental/institutional level as well as clinical challenges and their physical, mental and emotional implications. Missing recognition and social stigma on a public level add to these stressors. Our findings largely correspond with results from other international studies on related topics, showing how most experiences are shared on a global level.¹⁷⁻³¹

In the early stage of the pandemic, lack of preparedness played a major role mainly in terms of PPE shortages and delayed IPC guidelines. PPE shortage was a global phenomenon, and the usage of inadequate PPE was also addressed in other research.¹⁹⁻²² According to a study on HCWs motivation to delivering care during COVID-19, feeling protected by the government/hospital was related to lower hesitation to work. The authors conclude that more efforts should be made on governmental/hospital level to protect HCWs, especially when it comes to preventing infections in HCWs.²³ Another study mentions little confidence in knowledge of IPC as the main barrier to willingness to work in infectious disease outbreaks.²⁴ Consequently, providing proper IPC training and adequate PPE to all HCWs is not only indispensable for providing a safe workplace but also influences workforce availability in the long run.

In our research, staff shortage and overworked staff became routine in affecting working conditions as the pandemic unfolded. Other studies report similar findings.²⁵⁻²⁷ Depletion of staff affects HCWs' mental and physical health and carries implications on workplace safety in the long run. Further, overworked personnel affect quality of care. This increases the need for

1
2
3 more hospital personnel and readjustments of staff schedules to shorter shifts to ensure a safe
4 work place.^{21, 22} We also found that some qualified nurses without professional infectious
5 disease background or training were recruited from other wards to remedy staff shortages.
6
7 Redeployment of staff without specific training may lead to absenteeism, especially once the
8 crisis is over.³² Therefore, it is even more important that redeployment is based on a voluntary
9 decision.³³ To tackle the problem of nurses with diverse backgrounds, experiences and skills,
10 a Chinese hospital implemented standardized nursing procedures for work routines and
11 content. Other hospitals provided clearly defined responsibilities of staff and training programs
12 for protective measures and handling equipment.^{21, 34}

22 Stigmatization and self-stigmatization mainly occurred outside the hospital but added to the
23 mentioned stressors. COVID-19 related stigmatization of HCWs is a global social
24 consequence of this pandemic. In many countries HCWs were avoided or insulted and
25 experienced violence or harrassment.²⁸⁻³⁰ This is especially worrisome as HCWs respond to a
26 health crisis to save lives while exposing themselves to the risk of infection.³¹ Stigma and self-
27 stigmatization may be exacerbated by the questions of guilt - who is responsible for another
28 person's infection or death - which seems to be a characteristic of this pandemic. The
29 governmental measures of social distancing, necessary to diminish infection rates, make
30 boundaries between social distance and social stigma less tangible.

31 Another sensitive topic is avoidance of colleagues to treat COVID-19 patients, which was
32 relevant at the beginning of the pandemic. To our knowledge, this finding has not been
33 addressed by other authors up to date. This avoidance may stem from anxiety to infect oneself
34 or family members, from respect of this unknown threat and limited scientific knowledge
35 available at that time. It may also be the result of not feeling properly prepared to work in an
36 infectious disease context. While some HCWs are more resilient to working in this exceptional
37 situation, it may be harder and more burdensome for others. Avoidance behavior of colleagues
38 needs to be addressed as it led to conflicts, additional workload, under treatment and delayed
39 care of vulnerable patients.

1
2
3 HCWs felt a lack of recognition, acknowledgement and appreciation in our context. This
4 includes financial compensation but also immaterial rewards such as showing gratitude from
5 higher management levels and personalized appreciation by politicians and the public.
6
7 Labelling HCWs as heroes is a well-intended gesture that can backfire once the expectations
8 of perfection cannot be fulfilled. Heroism conceals that most HCWs do not have a choice than
9 do their job (e.g. due to professional work ethics or economic reasons). It leaves other aspects
10 such as HCWs' working conditions (or systemic failures) unaddressed. Showing genuine
11 appreciation and solidarity, e.g. by complying with COVID-19 mitigation measures (reducing
12 personal contacts/distancing, wearing face masks, getting vaccinated) should come more into
13 focus. In addition, showing gratitude to HCWs and acknowledging their working conditions is
14 one of the key elements of protecting mental health of HCWs and is known as fostering
15 resilience.^{35, 36}

16
17
18 All mentioned stressors influence HCWs' physical and mental health and may affect HCWs
19 willingness to continue their work. In the US 18% of HCWs have resigned their job since the
20 pandemic. In Austria a recent survey found that 44% of nurses think about quitting their job
21 monthly or more frequently.^{37, 38} Protecting HCWs directly and indirectly should be a priority
22 during and after this pandemic.

23
24 In terms of "mental protection", one study concludes that mental health of HCWs should be
25 addressed with a holistic approach and a socio-ecological understanding of well-being,²⁶
26 thereby taking into account multiple aspects that affect well-being of HCWs besides clinical
27 challenges (e.g. staff shortages, taking enough rest, access to PPE and external factors such
28 as public support).^{26, 27, 33} Further, providing contextualized psychological services which are
29 adjusted to HCWs' specific needs (e.g. uninterrupted resting) is important.³⁹ Psychological
30 interventions should also be adapted to sociodemographic disparities and differences among
31 work groups.²⁴ Other studies found that HCWs experience moral injury as a consequence of
32 their commitment.^{17, 40} Insufficient protection and other factors that violate one's ethical
33 principles (e.g. not being able to provide good quality care due to being overworked), lead to

1
2
3 negative self-perception and distrust in the system.⁴⁰ Once the crisis is over, a major task
4 should therefore be after care, addressing moral injury in HCWs and rebuilding trust in the
5 system.^{17, 35}
6
7
8
9

10 11 **Limitations**

12 We focused on the core topics but are aware that stressors of HCWs are more complex. Doing
13 research during a pandemic posed several challenges, including interviews taking place under
14 rushed conditions, after clinical work and with overworked or tired HCWs. Consequently, some
15 interviews may have been shorter than usual or may not have yielded in-depth considerations.
16 Further, there might be more differences in experiences between professions and different
17 occupational groups which we were not able to consider.
18
19
20
21
22
23
24
25
26
27

28 29 **5. Conclusions and recommendations**

30 Despite the medical difficulties and unpredictable aspects of a pandemic can hardly be
31 prepared for, it is necessary to ensure a structural framework, e.g. with guidelines and standard
32 operating procedure, in order for HCWs to feel prepared, protected and cared for. This
33 framework is also needed to ensure optimized psycho-social working conditions of HCWs and
34 support in these challenging times.
35
36
37
38
39
40

41 In our context, mainly organizational-level recommendations are necessary to prepare for later
42 phases of the pandemic or new emerging threats. Managing the shortages on multiple levels
43 will be paramount. Four themes are important: Firstly, to tackle the shortage of PPE and
44 therefore ensure physical protection. Secondly, to mitigate shortage of human workforce and
45 averting chronic occupational overload. Adequate providing of medical personnel, especially
46 nursing staff, is essential. Voluntarism plays an important role in terms of redeployment of staff
47 and HCWs should be given the option to switch back or at least take personal preferences into
48 account. Thirdly, timely providing of necessary IPC guidelines but also training in palliative
49 care are important. Service staff should receive tailored IPC training to cope with fears and to
50 be safe. In general, professionally handling and addressing fear is needed to overcome
51
52
53
54
55
56
57
58
59
60

1
2
3 avoidance behavior. Simulation exercises for both doctors and qualified nurses and
4 professional debriefing could better prepare HCWs for stressful situations. Lastly, caring for
5 HCWs mental health is essential, especially offering supportive supervision convenient to
6 HCWs' working schedule. Gratitude from superiors, politicians and the public are
7 indispensable for showing support and foster resilience.
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

Figure caption:

Figure 1: A portrait of a HCW after a shift in a COVID-19 ward (©Günter Valda).

References

1. Smith C. The structural vulnerability of healthcare workers during COVID-19: Observations on the social context of risk and the equitable distribution of resources. *Social Science & Medicine*. 2020;258.
2. Jacobs A. They Died Saving Others From Covid. Will Anyone Count Them? *The New York Times*. 2021.
3. Bennett P, Noble S, Johnston S, Jones D, Hunter R. COVID-19 confessions: a qualitative exploration of healthcare workers experiences of working with COVID-19. *BMJ Open*. 2020;10:e043949.
4. WHO. Keep health workers safe to keep patients safe. Geneva; 2020.
5. Adams JG, Walls RM. Supporting the Health Care Workforce During the COVID-19 Global Epidemic. *JAMA*. 2020;323(15).
6. Pappa S, Ntella V, Giannakes T, Giannakoulis VG, Papoutsi E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*. 2020;88:901-7.
7. derStandard. Viele Pflegekräfte wollen wegen zu viel Stress aufgeben. Available from: <https://www.derstandard.at/story/2000124953415/viele-pflegekraefte-wollen-wegen-stress-aufgeben> (accessed 22 March 2021)
8. unknown. COVID-19 pandemic one year on: ICN warns of exodus of experienced nurses compounding current shortages. Available from: <https://www.icn.ch/news/covid-19-pandemic-one-year-icn-warns-exodus-experienced-nurses-compounding-current-shortages> (accessed 23 March 2021)
9. Bundesministerium für Soziales, Gesundheit, Pflege, Konsumentenschutz. Das Gesundheitswesen im Überblick 2021. Available from: <https://www.gesundheit.gv.at/gesundheitsleistungen/gesundheitswesen/gesundheitsystem> (accessed 19 April 2021)
10. OECD. Health at a Glance 2019: OECD Indicators. Paris: OECD Publishing; 2019.
11. Mayer S. Austrian health care system [unpublished lecture notes]. Medical University of Vienna, Center for Public Health; notes provided at lecture 15 March 2019.
12. AGES. AGES Dashboard COVID19 2021. Available from: https://covid19-dashboard.ages.at/dashboard_Hosp.html (accessed 19 April 2021)
13. Redl B. Nur AKH-Bedienstete mit Patientenkontakt bekommen Schutzmasken. Available from: <https://www.derstandard.at/story/2000116662263/nur-akh-bedienstete-mit-patientenkontakt-bekommen-schutzmasken> (accessed 23 March 2021)
14. wien.ORF.at. Spitäler haben „zu wenig Schutzausrüstung“. Available from: <https://wien.orf.at/stories/3039633/> (accessed 23 March 2021)
15. Schalek K. Online-Umfrage 2018 „Wo drückt der Schuh“. AK Wien; 2019.
16. unknown. The Global Nursing shortage and Nurse Retention. International Council of Nurses; 2021.
17. Kreh A, Brancaleoni R, Magalini S, Chieffo D, Flad B, Ellebrecht N, et al. Ethical and psychosocial considerations for hospital personnel in the COVID-19 crisis: Moral injury and resilience. *PLoS ONE*. 2021;16(4):e0249609.
18. Fernández-Castillo RJ, González-Caro MD, Fernández-García E, Porcel-Gálvez AM, Garnacho-Montero J. Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nurs Crit Care*. 2021;26:397-406.

19. Hoernke K, Djellouli N, Andrews L, Lewis-Jackson S, Manby L, Martin S, et al. Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. *BMJ Open*. 2021;11(1):e046199.
20. Ahmed J, Malik F, Bin Arif T, Majid Z, Chaudhary M, Ahmad J, et al. Availability of Personal Protective Equipment (PPE) Among US and Pakistani Doctors in COVID-19 Pandemic. *Cureus*. 2020;12(6):e8550.
21. Stennett J, Hou R, Traverson L, Ridde V, Zinszer K, Chabrol F. Lessons learned from the resilience of Chinese hospitals to the COVID-19 pandemic: a scoping review. 2021. medRxiv doi: <https://doi.org/10.1101/2021.03.15.21253509>
22. Tabah A, Ramanan M, Laupland K, Buetti N, Cortegiani A, Mellinshoff J, et al. Personal protective equipment and intensive care unit health care worker safety in the COVID-19 era (PPE-SAFE): An international survey. *Journal of Critical Care*. 2020;59:70-5.
23. Malesza M. Factors informing healthcare workers' willingness to work during the COVID-19 pandemic. 2021. medRxiv doi: <https://doi.org/10.1101/2021.03.21.21254048>
24. Que J, Shi L, Deng J, Liu J, Zhang L, Wu S, et al. Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. *General Psychiatry*. 2020;33:e100259.
25. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*. 2020;8:e790-98.
26. San Juan NV, Aceituno D, Djellouli N, Sumray K, Regenold N, Syversen A, et al. Mental health and well-being of healthcare workers during the COVID-19 pandemic in the UK: contrasting guidelines with experiences in practice. *BJPsych Open*. 2021;7:e15.
27. Vindrola-Padros C, Andrews L, Dowrick A, Djellouli N, Fillmore H, Gonzalez EB, et al. Perceptions and experiences of healthcare workers during the COVID-19 pandemic in the UK. *BMJ Open*. 2020;10:e040503.
28. Bagcchi S. Stigma during the COVID-19 pandemic. *The Lancet*. 2020.
29. Singh R, Subedi, M. COVID-19 and stigma: Social discrimination towards frontline healthcare providers and COVID-19 recovered patients in Nepal. *Asian Journal of Psychiatry*. 2020;53.
30. Taylor S, Landry C, Rachor G, Paluszek M, Asmundson G, et al. Fear and avoidance of healthcare workers: An important, under-recognized form of stigmatization during the COVID-19 pandemic. *Journal of Anxiety Disorders*. 2020;75.
31. McKay D, Heisler M, Mishori R, Catton H, Kloiber O. Attacks against health-care personnel must stop, especially as the world fights COVID-19. *The Lancet*. 2020;395.
32. Tujjar O, Simonelli M. Absenteeism of Frontline Healthcare Workers During Covid-19: the Need for a Framework of Support. *SN Comprehensive Clinical Medicine*. 2020.
33. Kisely S, Warren N, McMahon L, Dalais C, Henry I, Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. *BMJ*. 2020;369:m1642. 10.1136/bmj.m1642
34. Feng M, Wang Q, Su J, Cao X, Wang W, Wu X, et al. Nursing management in isolation wards for coronavirus disease 2019 in a general hospital under a joint rescue model. *Chinese Journal of Nursing*. 2020;55:817-21.
35. Greenberg N. Mental health of health-care workers in the COVID-19 era. *Nature Reviews Nephrology*. 2020;16.
36. McCanlies E, Gu J, Andrew M, Violanti J. The effect of social support, gratitude, resilience and satisfaction with life on depressive symptoms among police officers following Hurricane Katrina. *Int J Soc Psychiatry*. 2018;64:63-72.

- 1
2
3 37. Galvin G. Nearly 1 in 5 Health Care Workers Have Quit Their Jobs During the Pandemic
4 2021. Available from: [https://morningconsult.com/2021/10/04/health-care-workers-series-](https://morningconsult.com/2021/10/04/health-care-workers-series-part-2-workforce/)
5 [part-2-workforce/](https://morningconsult.com/2021/10/04/health-care-workers-series-part-2-workforce/) (accessed 22 December 2021)
6
7 38. Schalek K. Online-Umfrage der Offensive Gesundheit „Ich glaub ich krieg die Krise“. AK
8 Wien; 2021.
9 39. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff
10 in China during the COVID-19 outbreak. *The Lancet Psychiatry*. 2020;7:e15-6.
11 40. Greenberg N. Managing mental health challenges faced by healthcare workers during
12 covid-19 pandemic. *BMJ*. 2020;368:m1211.
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

Topic guide: Challenges of health care workers during the COVID-19 pandemic

Demographic data

- Age
- Gender
- Occupation

1. Occupational background

- Could you please tell me about your current work as a medical doctor/qualified nurse/cleaning staff etc.?
 - What are your daily tasks? (optional)

2. Current workplace situation

- How would you describe your work during the pandemic?
 - How has everyday work changed as a result of the pandemic?
 - Are there any work tasks that you now handle differently? (e.g. do you adapt certain tasks or do you leave something out?)
- In your opinion, what are the main challenges at the moment? (Could you please give examples)
 - How do you handle these challenges?
 - In your opinion, are there any specific challenges for male/female health care workers?
- Do you feel adequately protected at your workplace?
 - Are there colleagues who can protect themselves better or worse against an infection with COVID-19? If so, why is that?
 - How do you define protection, when do you feel adequately protected? (optional)
- How do you feel about the communication (on the ward and with the higher management) during the pandemic?

3. Contact and dealing with patients infected with COVID-19

(optional questions for those not working at a COVID-19 ward)

- You had direct contact with a patient infected with COVID-19. How did this contact exactly take place?
 - What steps have you/has the employer taken?

- What was the reaction among your colleagues?
- How did you feel when you realized that you had contact with a patient infected with COVID-19?
- How are you dealing with COVID-19 patients at the moment?
- Which new challenges are you facing with patients infected with COVID-19?
 - Did conflicts arise?
 - How are visits from family members organized?
 - Are there special challenges with seriously ill or dying patients?
 - Are there special challenges due to culture/language?

4. Current health situation

- Are you part of a risk group?
If yes:
 - How do you deal with this risk (due to previous illness) while working during the pandemic?
 - How has your employer dealt with this risk (your previous illness) during the pandemic so far?
 - How have your colleagues dealt with this risk during the pandemic so far?
 - In your opinion, what do you think could go better?

5. Social situation

- How are your family members/relatives/friends dealing with the fact that you are an essential worker during the pandemic?
 - How do you handle care and nursing tasks at home?
 - What kind of support do you have from your employer with regard to care or nursing tasks?
 - Is this a good solution?

6. Coping strategies

- What are the coping strategies in the team to deal with the situation?
- What are your coping strategies to deal with this situation?
- Do you think that concerns of certain groups are less “heard”? If so, please elaborate
- Is there anything else you would like to discuss or share that we haven't talked about yet?

Thank you very much for taking part in this interview.

Supplementary material

Standards for Reporting Qualitative Research (SRQR) checklist

O'Brien, Bridget C. PhD; Harris, Ilene B. PhD; Beckman, Thomas J. MD; Reed, Darcy A. MD, MPH; Cook, David A. MD, MHPE Standards for Reporting Qualitative Research, Academic Medicine: September 2014 - Volume 89 - Issue 9 - p 1245-1251 doi: 10.1097/ACM.0000000000000388

Topic	Page/line
Title and abstract	
Title 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	Page 1 Line 1-2
Abstract Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 2-3 Line 29-63
Introduction	
Problem formulation Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 4-6 Line 116-150
Purpose or research question Purpose of the study and specific objectives or questions	Page 6 Line 145-150
Methods	
Qualitative approach and research paradigm 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	Page 6 Line 153-154
Researcher characteristics and reflexivity 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	Page 6 Line 155-156
Context Setting/site and salient contextual factors; rationale	Page 6 Line 156-159
Sampling strategy How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale	Page 6 Line 160-162
Ethical issues pertaining to human subjects Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 6 Line 169-171
Data collection methods 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	Page 6-7 Line 172-178

1	response to evolving study findings; rationale	
2		
3		
4	Data collection instruments and technologies	Page 6
5	Description of instruments (e.g., interview guides, questionnaires) and	Line 163-168
6	devices (e.g., audio recorders) used for data collection; if/how the	
7	instrument(s) changed over the course of the study	
8		
9	Units of study	Page 7
10	Number and relevant characteristics of participants, documents, or events	Table 1
11	included in the study; level of participation (could be reported in results)	
12		
13	Data processing	Page 6
14	Methods for processing data prior to and during analysis, including	Line 169-173
15	transcription, data entry, data management and security, verification of data	
16	integrity, data coding, and anonymization/de-identification of excerpts	
17		
18	Data analysis	Page 6
19	Process by which inferences, themes, etc., were identified and developed,	Line 174-181
20	including the researchers involved in data analysis; usually references a	
21	specific paradigm or approach; rationale	
22		
23	Techniques to enhance trustworthiness	Page 7
24	Techniques to enhance trustworthiness and credibility of data analysis (e.g.,	Line 176-177
25	member checking, audit trail, triangulation); rationale	
26		
27	Results and findings	
28		
29	Synthesis and interpretation	Page 8-12
30	Main findings (e.g., interpretations, inferences, and themes); might include	Line 196-328
31	development of a theory or model, or integration with prior research or theory	
32		
33	Links to empirical data	Page 8-12
34	Evidence (e.g., quotes, field notes, text excerpts, photographs) to	Line 196-328
35	substantiate analytic findings	
36		
37	Discussion	
38		
39	Integration with prior work, implications, transferability, and	Page 12-15
40	contribution(s) to the field	Line 331-400
41	Short summary of main findings; explanation of how findings and conclusions	
42	connect to, support, elaborate on, or challenge conclusions of earlier	
43	scholarship; discussion of scope of application/generalizability; identification	
44	of unique contribution(s) to scholarship in a discipline or field	
45		
46	Limitations	Page 15
47	Trustworthiness and limitations of findings	Line 402-408
48		
49	Other	
50		
51	Conflicts of interest	Page 4
52	Potential sources of influence or perceived influence on study conduct and	Line 89-99
53	conclusions; how these were managed	
54		
55	Funding	Page 3
56	Sources of funding and other support; role of funders in data collection,	Line 83-86
57	interpretation, and reporting	
58		
59		
60		

BMJ Open

Occupational challenges of health care workers during the COVID-19 pandemic. A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-054516.R2
Article Type:	Original research
Date Submitted by the Author:	31-Jan-2022
Complete List of Authors:	Jeleff, Maren; Medical University of Vienna, Department of Social and Preventive Medicine, Centre of Public Health Traugott, Marianna; Clinic Favoriten, Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine Jirovsky-Platter, Elena; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health Jordakieva, Galateja; Medical University of Vienna, Department of Physical Medicine, Rehabilitation and Occupational Medicine Kutalek, Ruth; Medical University of Vienna, Unit Medical Anthropology and Global Health, Department of Social and Preventive Medicine, Centre of Public Health
Primary Subject Heading:	Occupational and environmental medicine
Secondary Subject Heading:	Qualitative research
Keywords:	COVID-19, OCCUPATIONAL & INDUSTRIAL MEDICINE, PUBLIC HEALTH, SOCIAL MEDICINE

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 **Occupational challenges of health care workers during the COVID-19 pandemic. A**
4
5 **qualitative study**
6

7 Maren Jeleff¹, Marianna Traugott², Elena Jirovsky-Platter¹, Galateja Jordakieva³, Ruth
8
9 Kutalek¹
10

11
12
13
14 **Affiliations**

15
16 ¹ Unit Medical Anthropology and Global Health, Department of Social and Preventive
17
18 Medicine, Center for Public Health, Medical University of Vienna, Austria
19

20
21 ² Department of Internal Medicine IV with Infectious Diseases and Tropical Medicine, Clinic
22
23 Favoriten, Vienna, Austria

24
25 ³ Department of Physical Medicine, Rehabilitation and Occupational Medicine, Medical
26
27 University of Vienna, Austria
28

29
30 **Corresponding author**

31 Maren Jeleff

32
33 Unit Medical Anthropology and Global Health, Department of Social and Preventive
34
35 Medicine, Center for Public Health, Medical University of Vienna, Austria

36
37 Kinderspitalgasse 15/1

38
39 1090 Vienna

40
41
42 maren.jeleff-entscheff@meduniwien.ac.at
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Abstract

Objectives

To address structural determinants and health care workers' physical, mental, emotional and professional challenges of working during the COVID-19 pandemic.

Design

Exploratory qualitative study with semi-structured interviews. Collected data was analysed using thematic analysis.

Setting

This qualitative study was undertaken with health care workers (HCWs) who mainly worked in intensive care units in six nonprofit hospitals in Vienna, Austria. Data was collected from June 2020 to January 2021.

Participants

A total of 30 HCWs (13 medical doctors, 11 qualified nursing staff, 2 nurse assistants, 2 physiotherapists, and 2 technical/cleaning staff) who were in direct and indirect contact with COVID-19 patients were included.

Results

Three overall themes resulted as relevant: challenges due to lack of preparedness, structural conditions, and physical and mental health of HCWs. Lack of preparedness included delayed infection prevention and control (IPC) guidelines, shortages of personal protective equipment (PPE) combined with staff shortages (especially of nursing staff), and overworked personnel. Physical and mental strains resulted from HCWs being overworked and working permanently on alert to face medical uncertainties and the critical conditions of patients. HCWs lacked recognition on multiple levels and dealt with stigma and avoidance behaviour of colleagues.

Conclusion

To mitigate HCWs' occupational health risks and staff turnover, we propose context-specific recommendations: The number of available essential workers in care of COVID-19 patients,

1
2
3 especially nursing staff, should be carefully planned and increased to avert chronic work
4 overload. Timely training and education in IPC for all HCWs is important. Providing supportive
5 supervision is as essential as appropriate recognition by higher level management and the
6 public.
7
8
9
10

11 **Article summary**

12 **Strengths and limitations of this study**

- 13 • We outline context-specific challenges faced by HCWs of different work groups by
14 using an exploratory qualitative approach.
- 15 • The research considers changes over time by collecting data over a six-month period;
16 therefore, the data includes topics relevant to both the beginning of the pandemic and
17 as the pandemic unfolded.
- 18 • Female interview participants predominated the participant group (21 females versus
19 9 males). This was due to there being a higher number of female staff in the health
20 care field in general, particularly in nursing.
- 21 • Some interviews may have been shorter than usual or may not have yielded in-depth
22 information because interviews took place under rushed conditions and with tired
23 HCWs.
- 24 • We were unable to consider any additional differences in experiences between
25 professions and different occupational groups.
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

46 **Keywords**

47
48 Essential workers, infectious disease outbreak, European Union, preparedness, occupational
49 health, qualitative research, hospitals, ICU, social sciences
50
51
52

53 **Funding**

54
55 This article has received funding from The Vienna Science and Technology Fund (WWTF)
56 (Covid-19 Rapid Response 2020 / EI-COV20-026). The funders did not play a role in the
57 decision to publish the article.
58
59
60

Competing interest statement

The authors declare that they have no competing interests.

Ethics approval

The study was approved by the Ethics Committee of the Medical University of Vienna (1409/2020) and the Ethics Committee of the Town of Vienna (EK20-093-VK).

Availability of data and materials

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Patient consent form

Not applicable

Author contributions

RK conceptualized the research, MJ, RK and EJ-P conducted the interviews, MJ analyzed and interpreted the data, MJ wrote the manuscript, MT, GJ, EJ-P and RK reviewed and edited the manuscript. All authors read and approved the final manuscript.

Acknowledgements

We thank all health care workers who took time to participate in our study. We also thank The Vienna Science and Technology Fund for funding this research.

Word count

4554

1. Introduction

Since early 2020, the COVID-19 pandemic has been challenging health care systems worldwide. Multiple factors such as rapid spread, limited treatment options for a formerly unknown disease, high quantity of contagious patients, and prolonged duration of the

1
2
3 pandemic pose a burden on health care systems. People consider HCWs a vulnerable group,
4 mainly because HCWs are continuously exposed while caring for patients and often lack
5 appropriate personal protective equipment (PPE).¹
6
7

8
9 Particularly in the beginning of the pandemic, the public applauded and heroized HCWs in
10 many countries. However, many HCWs do not identify themselves as heroes. Still, they are
11 overworked and bear the physical and mental burden of their commitment.² Initially driven by
12 enthusiasm and optimism, most HCWs feel exhausted due to the continuation of the
13 pandemic.³ Dealing with the physical and mental burden of working extensively in a highly
14 demanding situation, they are struck by fear of both infecting family members and dealing with
15 social stigmas.^{4,5} Additionally, a recently published meta-analysis found that female HCWs are
16 especially affected by anxiety and depression, and a higher prevalence of these disorders is
17 seen in nurses than in doctors.⁶
18
19
20
21
22
23
24
25
26
27
28

29 Due to the enormous pressure globally, many nurses are resigning their jobs.⁷ The situation is
30 exacerbated by structural shortages of qualified nurses, a problem that preexisted the
31 pandemic with a bottleneck of six million nurses worldwide.⁸
32
33
34

35
36 Austria is an illustrative example of how COVID-19 is posing hardship to a relatively advanced
37 and well-equipped health care system. Austria uses the Bismarck model, with health
38 expenditures mainly being paid from taxes and mandatory social security contributions. A
39 fundamental feature of this system is its comprehensive health insurance coverage (99.9%)
40 and thus accessibility to good quality care.⁹⁻¹¹ In 2017, Austria was amongst the countries with
41 the highest number of hospital beds (7.4 beds per 1000 people), which is an indicator for
42 available resources regarding inpatient services.¹⁰
43
44
45
46
47
48
49

50
51 Nevertheless, COVID-19 overwhelmed Austria's health care system and to date the capacity
52 of intensive care unit (ICU) beds is reaching its limits.¹² Furthermore, Austrian hospitals were
53 ill-prepared for the pandemic; the most prominent example of this is the temporary shortages
54 of PPE.^{13, 14} Meanwhile, the crisis also shows how the preexisting lack of qualified personnel
55 has serious effects in this emergency situation.¹⁵
56
57
58
59
60

1
2
3 HCWs' health, well-being, and safety are paramount for a well-functioning health care system
4 and for ensuring patient safety.⁴ Consequently, mitigating risks on multiple levels—especially
5 regarding staff turnover and mental health—is necessary.^{6, 16}
6
7
8

9
10 In this study, we therefore aim to address the structural determinants as well as the physical,
11 mental, emotional, and professional challenges that affect HCWs when working during the
12 COVID-19 pandemic. Based on our results, we propose context-specific recommendations.
13
14
15

16 17 18 **2. Methods**

19
20 We conducted an exploratory qualitative study with semi-structured interviews to gain insights
21 into HCWs' challenges of working with COVID-19 patients in six Viennese nonprofit hospitals.
22

23
24 MJ, EJ-P, and RK are medical anthropologists and qualitative researchers who conducted the
25 interviews. The data collection took place between June 2020 and January 2021. We
26 interviewed HCWs who were either in direct contact with COVID-19-infected patients or in
27 indirect contact through handling contaminated material (work units are detailed in Table 1). In
28 the beginning of the pandemic, only a few of the 21 nonprofit hospitals in Vienna were
29 designated to admit COVID-19 patients; therefore, we recruited interview partners from these
30 hospitals. In one hospital, we had a key informant who arranged contacts from hospital staff,
31 aiming for maximum variation in participants (qualified nurses, nurse assistants, cleaning staff,
32 physiotherapists, and medical doctors). Later, as additional hospitals were designated to care
33 for COVID-19 patients, we broadened our sample and included interview partners through
34 snowball sampling.
35
36
37
38
39
40
41
42
43
44
45
46
47

48
49 Participants were interviewed via telephone, online call (Webex), or in person in a private room
50 at the hospital where they worked (carried out under precautionary measures). Interviews were
51 scheduled during working hours and at times convenient to the participants. Those who agreed
52 to take part in the study signed the participant consent form. All interviews were audio-
53 recorded, except for one with a participant who felt more comfortable not being recorded. In
54 this case, we took written notes and sent them to the participant for validation and further
55
56
57
58
59
60

1
2
3 clarification after the interview. Interviews lasted between 30 and 60 minutes and were led by
4 a topic guide (see supplementary material). However, questions were adapted to the flow of
5 the conversation and the importance the interviewees gave to a specific topic. We conducted
6 the interviews until saturation of data was reached, meaning that no new themes emerged or
7 no new information was discovered, so further data collection would have been redundant.

8
9
10
11
12
13
14 Upon the conclusion of the interview process, we outsourced the transcriptions of the
15 interviews. The transcription service provider signed a non-disclosure agreement stating that
16 interviews and transcripts are kept confidential. All transcripts were anonymized and labelled
17 using numerical code names, and personal identifiers were removed. Both the Ethics
18 Committee of the Medical University of Vienna and the Ethics Committee of the Town of Vienna
19 approved this study.

20
21
22
23
24
25
26
27 We imported transcripts into ATLAS.ti (Version 8.4.4) and analysed them with thematic
28 analysis using inductive and deductive coding. We used thematic analysis to recognize,
29 analyse, and interpret patterns of meaning. The first author (MJ) performed the analysis of the
30 interview transcripts. There was a continuous dialogue between MJ and RK throughout the
31 analysis process. We informed the deductive codes by the topic guide questions; all other
32 codes we derived inductively through repeated examination of the data. Codes were united to
33 overall themes that included lack of preparedness, overworked personnel, staff shortage and
34 redeployment, stigma, avoidance behaviour, and lack of recognition. The research considers
35 changes over time; for example, PPE shortages were more influential in the beginning of the
36 pandemic, while overworked personnel was more influential in the later phase of the pandemic.

50 51 **Patient and public involvement**

52
53 No patient involved.

54 55 56 57 **3. Results**

58 59 *3.1. Description of participants*

60

We collected data from 30 participants in direct and indirect contact with patients infected with COVID-19. A total of 13 medical doctors, 11 qualified nurses (mainly working in ICUs), and 6 other professions were included (Table 1). Female participants predominated overall (21 females versus 9 males).

Table 1 Characteristics of Participants

Variables	Description	No. of Participants
Gender	Male	9
	Female	21
Profession	Qualified nurse	11
	Nurse assistant	2
	Physiotherapist	2
	Cleaning/technical staff	2
	Medical doctors:	
	Infectious disease expert	3
	Anaesthesiologist	2
	Neurologist	2
	Other (e.g., surgeon)	6
	Work units*	COVID-19 intensive care
COVID-19 non-intensive care		5
COVID-19 intensive care and non-intensive care		2
COVID-19 other**		4
Other***		6
Age (years)	21–30	7
	31–40	10
	41–50	8
	51–60	5

*Refers to the units that HCWs were assigned to

**Includes "pop-up" COVID-19 units and intermediate care units

***Non-COVID-19 units with direct or indirect contact with COVID-19 patients

3.2. Lack of preparedness

While confronted with a hitherto unknown pandemic, HCWs were troubled by delayed or unavailable IPC guidelines that were adapted to a major infectious disease outbreak. This included guidelines for proper donning and doffing of PPE, guidelines for medical procedures producing aerosols, and IPC strategies for patient transfers. Consequently, HCWs faced many uncertainties, and those units in charge of treating COVID-19 patients often had to make autonomous decisions:

"The department of hygiene gave instructions only after we became a COVID-19 ward, on the same day or maybe two days before, whilst we were already wondering about it for weeks. Examples include which respirator tools to use or the need of different filters, those which would last longer, as we don't want to disconnect the ventilators daily [...] Those points

1
2
3 were addressed super delayed by the department of hygiene” (Qualified
4 Nurse 4).
5

6 Most participants specified that their team and immediate superiors dealt with the situation
7 excellently. However, some complained about chaos that arose on higher levels of the hospital
8 hierarchy; participants wished for better guidance from leadership and management:
9
10

11
12 “It is something you expect to be handled by management and not from the
13 personnel on the ward [...] You expect the hospital pays attention that the
14 work procedures are properly adjusted—not that the employees take care
15 of them” (Medical Doctor 1).
16

17 Relatedly, one cleaning person stated that her colleagues did not know much about the virus
18 and consulted her with questions. She wished for simple COVID-19-specific training for her
19 and her colleagues. Further, cleaning staff often perceived that they were extremely feared,
20 mainly because of a lack of understanding about transmission pathways.
21
22
23
24
25

26
27 Another demanding factor was lack of coordination between hospitals. Especially in the first
28 phase of the pandemic (early 2020), there was a lack of clarity on ICU bed capacities. Medical
29 Doctor 18 considered the second phase a missed chance to better prepare for the predicted
30 peak phase in autumn and felt that other hospitals in Vienna were unprepared to take on
31 COVID-19 patients:
32
33
34
35
36

37 “It was really badly organized. For example, when our intensive care unit
38 was full for the first time, everyone was taken by surprise. Oh, there are no
39 more intensive care beds, where should they be transferred to now? And
40 then the hospital [XY] took them [the patients] and they were completely
41 unprepared. And one would think, folks, you had all summer to worry about
42 this and prepare for it. And now, in autumn, the beds are occupied again
43 and now—once again—we need more wards” (Medical Doctor 18).
44
45

46 One medical doctor concluded, “Well, you do wonder how slow the mills in Austria are grinding
47 and how little foresight one can have” (Medical Doctor 5).
48
49
50

51 52 *3.3. Physical and mental protection* 53

54 During the first phase of the pandemic, there was a shortage of facemasks and the fear of
55 insufficient facemasks. One medical doctor reflected upon how to define shortage of
56 facemasks in Austria: “Once you start using masks that had expired 14 years ago, which we
57 did, I would say we ran out of masks” (Medical Doctor 5). Others mentioned having to use
58
59
60

1
2
3 facemasks of insufficient quality, wear masks that did not properly fit, or reuse disposable
4
5 masks. FFP3 masks were especially rare and often only available for rooms with patients on
6
7 noninvasive ventilators where circulation of aerosols was highest:
8

9
10 “When we ran out of FFP3 masks we received products of minor quality.
11 We had incidents where a colleague was in the room and the elastic cord
12 of the mask broke. Or the filter of the mask fell out—that happened to me—
13 and thank God it happened before I was in the patient room. But these are
14 all things that shouldn't happen. And then another problem was that these
15 masks didn't fit everyone either [...] I had a colleague who did not want to
16 enter the patient room because the mask didn't fit properly” (Qualified
17 Nurse 10).
18

19 Fear of mask shortages led employees to stockpile masks and management to restrict their
20
21 distribution. In one hospital, cleaning personnel or other medical support personnel were often
22
23 denied adequate facemasks.
24
25

26 However, these were concerns in the early stages of the pandemic. When asked directly
27
28 whether they felt safe at their workplace, most HCWs stated they felt sufficiently protected.
29
30 Those working at ICUs especially felt better protected than those working in wards “outside”
31
32 because they knew the infectious status of their patients and worked while wearing protective
33
34 gear.
35
36

37 In addition to increased availability of physical protection, participants requested supervision,
38
39 which employers rarely offered. Though not everyone mentioned needing supportive
40
41 supervision, most considered its provision important:
42
43

44 “Of course, there are some things I miss from our employing institution as
45 it is its responsibility to protect us. Not only to provide the protective gear
46 but also mental protection. [...] It has the responsibility to ensure we do not
47 get harmed mentally and physically” (Qualified Nurse 23).
48
49

50 *3.4. Overworked personnel, staff shortage and redeployment of staff*

51
52 Especially in November 2020, HCWs were working over the limit of their capacities. Many
53
54 reported being mentally and physically exhausted and needing longer regeneration times than
55
56 usual:
57

58
59 “I often thought I got infected with COVID-19 because I am so exhausted.
60 But no, it is this working with the mask and planning all your actions
precisely for the moment. You have to think about so many things, what are

1
2
3 the next steps. It is really also a mental burden. In cycling they refer to the
4 term 'the red zone' and I would say that we are often in the red zone, but
5 we do not recognize it anymore [...] because you get used to it. You have
6 to get used to it because otherwise you have to resign. Or you will break.
7 So either you are strong and you stick it out or you have to leave" (Qualified
8 Nurse 17).
9

10 HCWs not only worked extra hours or worked without having proper breaks, but also functioned
11 in a permanent state of alarm. In addition to dealing with challenges related to infection risk
12 and altered working procedures, HCWs faced medical uncertainties and emotional challenges
13 due to the critical condition of patients. The difference from pre-COVID-19 was in the quantity
14 of dying patients, as highlighted by the metaphorical phrase, "Patients are dying like flies"
15 (Qualified Nurse 17). Another mental burden was seeing young people and people without
16 underlying medical conditions die or having to witness how patients slowly died in full
17 consciousness and isolation. Additionally, most HCWs were not trained in palliative care, and
18 dealing with the unpredictability of the disease added to being mentally overburdened.
19
20
21
22
23
24
25
26
27
28
29

30 HCWs also spoke about a missing work-life balance and the consequences of being
31 overworked. Some thought being overworked made them more vulnerable to getting infected
32 with COVID-19, and others mentioned the physical pain of chronic overload:
33
34
35
36
37

38 "We are now faced with some sick leaves. It is the high adrenalin and
39 cortisone levels of this crisis, the ongoing emergency mode that is
40 exhausting at some point. Basically, our bodies are giving up. [...] There
41 are people that would like to, but they are just sick now. They do not have
42 COVID-19, but they are sick. They have digestive issues; one has had
43 ongoing diarrhea for three weeks and he looks pale as a linen sheet"
44 (Medical Doctor 27).
45

46 Participants further mentioned that being overworked combined with a shortage or
47 unavailability of staff, especially when personnel got sick, was a primary problem. Many often
48 needed to make multiple requests to the administration to procure more staff:
49
50
51

52 "Contrary to what we were promised at the beginning, 'no matter what,
53 you get what you need,' we didn't get any additional staff and we had to
54 do it with the core team. We all work way over our regular working hours
55 and that is very intense. Somehow it has worked out for the last half year,
56 I mean, especially this department, they are all incredibly motivated and
57 passionate. They are infectiologists with their heart and soul, and they
58 love their work, but now you realize slowly, now it's going to the core, it's
59 slowly not working any longer" (Medical Doctor 24).
60

1
2
3 To remedy staff shortages in one ward, qualified nurses were often recruited from other wards.
4
5 Those who had free choice and switched on a voluntary basis with the option to switch back
6
7 viewed this more positively. However, many suddenly had to work with COVID-19 patients
8
9 without having a professional background in infectious diseases and thus lacked technical
10
11 knowledge in this regard. Often, qualified nurses found themselves in a new team with little
12
13 time for proper training, which produced extra stress:

14
15
16 “The psychological challenge is [...] I actually have nothing to do with
17
18 infections. [...] Of course I believe that I am very good at what I do and
19
20 that I am able to adjust, but I just don't have this background, this technical
21
22 knowledge regarding infections” (Qualified Nurse 23).

23
24 “We got people (qualified nurses) [...] who used to work in an acute
25
26 geriatric ward with old people who are in rehab, and then they came here
27
28 [...] They didn't want that, they didn't want to work here, they were afraid.
29
30 They were used to different work in terms of speed and skills” (Qualified
31
32 Nurse 17).

33
34 Though medical doctors from other units (e.g., rheumatologists) were also redeployed to
35
36 COVID-19 units, their situation was perceived as more stable because they could stay as a
37
38 team at their unit. However, these professions experienced the same sudden shift to providing
39
40 care regardless of their professional background.

41 42 3.5. *Stigma and avoidance*

43
44 HCWs experienced stigma in their private lives and observed avoidance behaviour in some
45
46 colleagues. Especially in the beginning of the pandemic, some physicians neglected to attend
47
48 to patients due to fear of becoming infected:

49
50 “We had a patient who was a cardiology patient suffering a heart attack and
51
52 the cardiologists did not want to attend to the patient because they were
53
54 too scared of COVID-19. You end up thinking, this is your patient who
55
56 happens to have COVID-19 but it is simply not adequate patient care.
57
58 Because you are scared of this stupid virus. And I keep on going in
59
60 everyday” (Medical Doctor 18).

61
62 One qualified nurse did not see the nursing officer during the first months of COVID-19 and
63
64 thought her ward was being avoided. Other challenges participants mentioned were getting
65
66 appointments for computer tomography, having X-rays done on COVID-19 patients, and

1
2
3 getting blood examined at the laboratory. The situation improved over time, mainly because of
4
5 constant communication with the concerned colleagues.
6

7
8 HCWs were often perceived as high-risk contacts and faced stigma in their social
9
10 surroundings. Stigmatization also extended to family members: Labels such as “Coronalady”
11
12 or “Corona children” give an impression of how HCWs and family members were sometimes
13
14 perceived by their social environment. Others reported that their children were not invited to
15
16 their friends’ homes, and their personal appointments at a doctor’s office were rudely
17
18 cancelled:
19

20
21 “We know, for example, that a medical doctor faced tremendous hostility.
22 That’s not that easy to handle. And of course, we are being avoided. I am
23 no longer invited anywhere because I am working in a COVID-19 ward”
24 (Qualified Nurse 17).
25

26 The predominant fear of HCWs was that they might infect family members. This fear
27
28 sometimes led to self-stigmatization or avoidance behaviour such as sleeping in separate
29
30 bedrooms or not kissing their partner. One HCW recounted that she considered herself a role
31
32 model. This had to do with the perception that as an HCW she should know about infection
33
34 pathways and because she saw the worst consequences of a COVID-19 infection. Thus, she
35
36 thought that HCWs had to be especially cautious about their behaviour.
37
38
39

40 3.6. Lack of recognition

41
42 Gratitude and appreciation were important topics for most HCWs. They positively mentioned
43
44 support from direct supervisors and between team members was encouraging. However,
45
46 many participants missed receiving recognition by higher management levels or securing
47
48 financial rewards as promised by politicians:
49

50
51 “You just don’t feel valued [...] It does not have to be a monetary reward,
52 though that would be something, because it was much more exhausting,
53 but frankly a ‘thank you’ for showing up or saying, ‘I know it is exhausting.’
54 That is something that would qualify a leader” (Qualified Nurse 10).
55

56 Qualified nurses especially perceived that their work was not recognized and feared their
57
58 services (for the public) will fall into oblivion once the crisis is over:
59

60
“These are just my fantasies [to receive a recognition or award]. It would
just be nice to acknowledge all the work we have done, but I am afraid that

1
2
3 is utopian. The pandemic will pass, and no one will give a hoot about it.
4 That's the reality" (Qualified Nurse 17).
5

6 Further, most HCWs largely missed receiving appreciation from the public. Many participants
7
8 thought 'clapping at 6 p.m.' or being identified as a hero did not show sincere gratitude and
9
10 considered personalized appreciation as genuine support (e.g., a banner in front of the hospital
11
12 from an Austrian football club).
13
14

15 16 17 **4. Discussion**

18
19 This study focuses on occupational challenges faced by HCWs working in six Viennese
20
21 hospitals during the COVID-19 pandemic. Our paper is one of only few qualitative studies
22
23 addressing this topic in the European Union.^{17, 18} By using a qualitative exploratory approach,
24
25 we outlined context-specific challenges experienced by HCWs of different work groups. The
26
27 research considered changes over time by collecting data during over a period of six months,
28
29 and therefore includes topics relevant to both the beginning of the crisis and as the pandemic
30
31 unfolded.
32
33

34 Findings indicate that stress factors result from poor structural conditions, a lack of pandemic
35
36 planning at governmental and institutional levels, and clinical challenges resulting from
37
38 physical, mental, and emotional implications. Lacking recognition from upper-level
39
40 management and facing social stigmas from the public add to these stressors. Our findings
41
42 largely correspond with results from other international studies on related topics,
43
44 demonstrating how most experiences are shared on a global level.¹⁷⁻³¹
45
46

47 In the early stages of the pandemic, lack of preparedness played a major role, mainly in terms
48
49 of PPE shortages and delayed IPC guidelines. PPE shortage was a global phenomenon, and
50
51 the usage of inadequate PPE was also addressed in other research.¹⁹⁻²² According to a study
52
53 on HCWs' motivation for delivering care during COVID-19, not feeling protected by the
54
55 government or hospital was related to lower hesitation to work. The authors conclude that more
56
57 efforts should be made on governmental and hospital levels to protect HCWs, especially when
58
59 it comes to preventing infections in HCWs.²³ Another study cites low confidence in knowledge
60

1
2
3 of IPCs as the main barrier to willingness to work during infectious disease outbreaks.²⁴
4
5 Consequently, providing proper IPC training and adequate PPE to all HCWs is not only
6
7 indispensable for providing a safe workplace but also influential to workforce availability in the
8
9 long run.
10

11
12 In our research, staff shortage and overworked staff became routine factors that affected
13
14 working conditions as the pandemic unfolded. Other studies report similar findings.²⁵⁻²⁷ In the
15
16 long run, depletion of staff affects the mental and physical health of HCWs and carries with it
17
18 negative implications on workplace safety. Further, overworked personnel factor inversely
19
20 affects quality of care. This increases the need for more hospital personnel and readjustments
21
22 of staff schedules to shorter shifts to ensure a safe work place.^{21, 22} We also found that some
23
24 qualified nurses without professional infectious disease background or training were recruited
25
26 from other wards to remedy staff shortages. Redeployment of staff without specific training
27
28 may lead to absenteeism, especially once the crisis is over.³² Therefore, it is even more
29
30 important that redeployment is based on voluntary decision.³³ To tackle the problem of nurses
31
32 not having diverse backgrounds, experiences, and skills, one Chinese hospital implemented
33
34 standardized nursing procedures for work routines and content. Other hospitals provided
35
36 clearly defined responsibilities of staff and training programs for protective measures and
37
38 handling equipment.^{21, 34}
39
40

41
42 Stigmatization and self-stigmatization mainly occurred outside the hospital but added to the
43
44 mentioned stressors. COVID-19-related stigmatization of HCWs is a global social
45
46 consequence of this pandemic. In many countries HCWs were avoided or insulted and
47
48 experienced violence or harrassment.²⁸⁻³⁰ This is especially worrisome since HCWs respond
49
50 to health crises to save lives while exposing themselves to the risk of infection.³¹ Stigma and
51
52 self-stigmatization may be exacerbated by questions of guilt (e.g., who is responsible for
53
54 another person's infection or death), which seems to be a characteristic of this pandemic.
55
56 However, the governmental measures of social distancing, necessary for diminishing infection
57
58 rates, make the boundaries between social distance and social stigma less tangible.
59
60

1
2
3 Another sensitive topic was avoidance of colleagues who treat COVID-19 patients, which was
4 most relevant at the beginning of the pandemic. To our knowledge, this finding has not yet
5 been addressed by other authors. This avoidance may stem from the anxiety of possibly
6 infecting oneself or family members, respect of this then unknown threat, and limited scientific
7 knowledge that was available at the time. It may also be the result of not feeling properly
8 prepared to work in an infectious disease context. While some HCWs are more resilient to
9 working in this exceptional situation, others found it more difficult and burdensome. Avoidance
10 behaviour of colleagues needs to be addressed because it leads to conflict, additional
11 workloads, and undertreatment and delayed care of vulnerable patients.
12
13

14
15 In our study's context, HCWs felt a lack of recognition, acknowledgement, and appreciation.
16 This includes not only financial compensation but also immaterial rewards such as gratitude
17 from higher management levels and personalized appreciation by politicians and the public.
18 Labelling HCWs as heroes is a well-intended gesture that can backfire once the expectations
19 of perfection cannot be fulfilled. The concept of heroism conceals the fact that most HCWs do
20 not have a choice other than to do their jobs (e.g., due to professional work ethics or economic
21 reasons). It leaves other aspects, such as HCWs' working conditions or systemic failures,
22 unaddressed. Showing genuine appreciation and solidarity by complying with COVID-19
23 mitigation measures (e.g., reducing personal contact, social distancing, wearing face masks,
24 getting vaccinated) should come into better focus. In addition, showing gratitude to HCWs by
25 acknowledging their working conditions is a key element of protecting the mental health of
26 HCWs; this is known as fostering resilience.^{35, 36}
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

50 All mentioned stressors influence HCWs' physical and mental health and may affect HCWs'
51 willingness to continue their work. In the US, 18% of HCWs have resigned their jobs since the
52 pandemic began.³⁷ A recent survey in Austria found that 44% of nurses think monthly or more
53 frequently about quitting their jobs.³⁸ Protecting HCWs directly and indirectly should be a
54 priority during and after this pandemic.
55
56
57
58
59
60

1
2
3 In terms of “mental protection,” one study concludes that the mental health of HCWs should
4 be addressed with a holistic approach and a socio-ecological understanding of well-being.²⁶
5
6 Such an approach considers multiple aspects that affect the well-being of HCWs besides
7 clinical challenges (e.g., staff shortages, taking enough rest, access to PPE, and external
8 factors such as public support).^{26, 27, 33} Further, providing contextualized psychological services
9 that are adjusted to HCWs’ specific needs (e.g., uninterrupted resting) is important.³⁹
10
11 Psychological interventions should also be adapted to sociodemographic disparities and
12 differences among work groups.²⁴ Other studies found that HCWs experience moral injury as
13 a consequence of their commitment.^{17, 40} Insufficient protection and other factors that violate
14 one’s ethical principles (e.g., not being able to provide good quality care due to being
15 overworked) lead to negative self-perception and distrust in the system.⁴⁰ Once the crisis is
16 over, a major task should therefore be aftercare of HCWs to address moral injury and rebuild
17 trust in the system.^{17, 35}
18
19
20
21
22
23
24
25
26
27
28
29
30
31

32 **Limitations**

33
34 For this study, we focused on the core topics but are aware that stressors of HCWs are more
35 complex. Doing research during a pandemic posed several challenges, including interviews
36 took place under rushed conditions, after clinical work, and with overworked or tired HCWs.
37
38 Consequently, some interviews may have been shorter than usual or may not have yielded in-
39 depth considerations. Further, there are likely more differences in experiences between
40 professions and different occupational groups that we were unable to consider.
41
42
43
44
45
46
47
48
49

50 **5. Conclusions and recommendations**

51
52 Despite the medical difficulties and unpredictable aspects of preparing for a pandemic,
53 preparation (e.g., with guidelines and standard operating procedures) is necessary to ensure
54 a structural framework that enables HCWs to feel prepared, protected, and cared for. This
55 framework is also needed to ensure optimized psychosociological working conditions for
56 HCWs and support them during these challenging times.
57
58
59
60

1
2
3 In our context, mainly organizational-level recommendations are necessary to prepare for later
4 phases of the pandemic or new emerging threats. Managing the shortages on multiple levels
5 will be paramount. Four thematic actions emerge as important. First is tackling the shortages
6 of PPE to ensure physical protection. Second is mitigating the shortages of human workforces
7 to avert chronic occupational overload. For this, adequate provision of medical personnel,
8 especially nursing staff, is essential. Voluntarism also plays a key role in terms of redeployment
9 of staff; HCWs should be given the option of switching back or at least have their personal
10 preferences considered. Third is timely provision of necessary IPC guidelines and training in
11 palliative care. Service staff should receive tailored IPC training to both cope with fears and
12 remain safe. In general, professionally handling and addressing fear is necessary for
13 overcoming avoidance behaviour. Simulation exercises for both doctors and qualified nurses,
14 along with professional debriefing, could better prepare HCWs for stressful situations. Finally,
15 caring for the mental health of HCWs is vital, especially by offering supportive supervision that
16 is convenient to HCWs' work schedules. Gratitude from superiors, politicians, and the public is
17 indispensable for showing support and fostering resilience.
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

References

1. Smith C. The structural vulnerability of healthcare workers during COVID-19: Observations on the social context of risk and the equitable distribution of resources. *Social Science & Medicine*. 2020;258.
2. Jacobs A. They Died Saving Others From Covid. Will Anyone Count Them? *The New York Times*. 2021.
3. Bennett P, Noble S, Johnston S, Jones D, Hunter R. COVID-19 confessions: a qualitative exploration of healthcare workers experiences of working with COVID-19. *BMJ Open*. 2020;10:e043949.
4. WHO. Keep health workers safe to keep patients safe. Geneva; 2020.
5. Adams JG, Walls RM. Supporting the Health Care Workforce During the COVID-19 Global Epidemic. *JAMA*. 2020;323(15).
6. Pappa S, Ntella V, Giannakes T, Giannakoulis VG, Papoutsis E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*. 2020;88:901-7.
7. derStandard. Viele Pflegekräfte wollen wegen zu viel Stress aufgeben. Available from: <https://www.derstandard.at/story/2000124953415/viele-pflegekraefte-wollen-wegen-stress-aufgeben> (accessed 22 March 2021)
8. unknown. COVID-19 pandemic one year on: ICN warns of exodus of experienced nurses compounding current shortages. Available from: <https://www.icn.ch/news/covid-19-pandemic-one-year-icn-warns-exodus-experienced-nurses-compounding-current-shortages> (accessed 23 March 2021)
9. Bundesministerium für Soziales, Gesundheit, Pflege, Konsumentenschutz. Das Gesundheitswesen im Überblick 2021. Available from: <https://www.gesundheit.gv.at/gesundheitsleistungen/gesundheitswesen/gesundheitsystem> (accessed 19 April 2021)
10. OECD. Health at a Glance 2019: OECD Indicators. Paris: OECD Publishing; 2019.
11. Mayer S. Austrian health care system [unpublished lecture notes]. Medical University of Vienna, Center for Public Health; notes provided at lecture 15 March 2019.
12. AGES. AGES Dashboard COVID19 2021. Available from: https://covid19-dashboard.ages.at/dashboard_Hosp.html (accessed 19 April 2021)
13. Redl B. Nur AKH-Bedienstete mit Patientenkontakt bekommen Schutzmasken. Available from: <https://www.derstandard.at/story/2000116662263/nur-akh-bedienstete-mit-patientenkontakt-bekommen-schutzmasken> (accessed 23 March 2021)
14. wien.ORF.at. Spitäler haben „zu wenig Schutzausrüstung“. Available from: <https://wien.orf.at/stories/3039633/> (accessed 23 March 2021)
15. Schalek K. Online-Umfrage 2018 „Wo drückt der Schuh“. AK Wien; 2019.
16. unknown. The Global Nursing shortage and Nurse Retention. International Council of Nurses; 2021.
17. Kreh A, Brancaleoni R, Magalini S, Chieffo D, Flad B, Ellebrecht N, et al. Ethical and psychosocial considerations for hospital personnel in the COVID-19 crisis: Moral injury and resilience. *PLoS ONE*. 2021;16(4):e0249609.
18. Fernández-Castillo RJ, González-Caro MD, Fernández-García E, Porcel-Gálvez AM, Garnacho-Montero J. Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nurs Crit Care*. 2021;26:397-406.

19. Hoernke K, Djellouli N, Andrews L, Lewis-Jackson S, Manby L, Martin S, et al. Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. *BMJ Open*. 2021;11(1):e046199.
20. Ahmed J, Malik F, Bin Arif T, Majid Z, Chaudhary M, Ahmad J, et al. Availability of Personal Protective Equipment (PPE) Among US and Pakistani Doctors in COVID-19 Pandemic. *Cureus*. 2020;12(6):e8550.
21. Stennett J, Hou R, Traverson L, Ridde V, Zinszer K, Chabrol F. Lessons learned from the resilience of Chinese hospitals to the COVID-19 pandemic: a scoping review. 2021. medRxiv doi: <https://doi.org/10.1101/2021.03.15.21253509>
22. Tabah A, Ramanan M, Laupland K, Buetti N, Cortegiani A, Mellinshoff J, et al. Personal protective equipment and intensive care unit health care worker safety in the COVID-19 era (PPE-SAFE): An international survey. *Journal of Critical Care*. 2020;59:70-5.
23. Malesza M. Factors informing healthcare workers' willingness to work during the COVID-19 pandemic. 2021. medRxiv doi: <https://doi.org/10.1101/2021.03.21.21254048>
24. Que J, Shi L, Deng J, Liu J, Zhang L, Wu S, et al. Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. *General Psychiatry*. 2020;33:e100259.
25. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*. 2020;8:e790-98.
26. San Juan NV, Aceituno D, Djellouli N, Sumray K, Regenold N, Syversen A, et al. Mental health and well-being of healthcare workers during the COVID-19 pandemic in the UK: contrasting guidelines with experiences in practice. *BJPsych Open*. 2021;7:e15.
27. Vindrola-Padros C, Andrews L, Dowrick A, Djellouli N, Fillmore H, Gonzalez EB, et al. Perceptions and experiences of healthcare workers during the COVID-19 pandemic in the UK. *BMJ Open*. 2020;10:e040503.
28. Bagcchi S. Stigma during the COVID-19 pandemic. *The Lancet*. 2020.
29. Singh R, Subedi, M. COVID-19 and stigma: Social discrimination towards frontline healthcare providers and COVID-19 recovered patients in Nepal. *Asian Journal of Psychiatry*. 2020;53.
30. Taylor S, Landry C, Rachor G, Paluszek M, Asmundson G, et al. Fear and avoidance of healthcare workers: An important, under-recognized form of stigmatization during the COVID-19 pandemic. *Journal of Anxiety Disorders*. 2020;75.
31. McKay D, Heisler M, Mishori R, Catton H, Kloiber O. Attacks against health-care personnel must stop, especially as the world fights COVID-19. *The Lancet*. 2020;395.
32. Tujjar O, Simonelli M. Absenteeism of Frontline Healthcare Workers During Covid-19: the Need for a Framework of Support. *SN Comprehensive Clinical Medicine*. 2020.
33. Kisely S, Warren N, McMahon L, Dalais C, Henry I, Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. *BMJ*. 2020;369:m1642. 10.1136/bmj.m1642
34. Feng M, Wang Q, Su J, Cao X, Wang W, Wu X, et al. Nursing management in isolation wards for coronavirus disease 2019 in a general hospital under a joint rescue model. *Chinese Journal of Nursing*. 2020;55:817-21.
35. Greenberg N. Mental health of health-care workers in the COVID-19 era. *Nature Reviews Nephrology*. 2020;16.
36. McCanlies E, Gu J, Andrew M, Violanti J. The effect of social support, gratitude, resilience and satisfaction with life on depressive symptoms among police officers following Hurricane Katrina. *Int J Soc Psychiatry*. 2018;64:63-72.

- 1
2
3 37. Galvin G. Nearly 1 in 5 Health Care Workers Have Quit Their Jobs During the Pandemic
4 2021. Available from: [https://morningconsult.com/2021/10/04/health-care-workers-series-](https://morningconsult.com/2021/10/04/health-care-workers-series-part-2-workforce/)
5 [part-2-workforce/](https://morningconsult.com/2021/10/04/health-care-workers-series-part-2-workforce/) (accessed 22 December 2021)
6
7 38. Schalek K. Online-Umfrage der Offensive Gesundheit „Ich glaub ich krieg die Krise“. AK
8 Wien; 2021.
9 39. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff
10 in China during the COVID-19 outbreak. *The Lancet Psychiatry*. 2020;7:e15-6.
11 40. Greenberg N. Managing mental health challenges faced by healthcare workers during
12 covid-19 pandemic. *BMJ*. 2020;368:m1211.
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

Topic guide: Challenges of health care workers during the COVID-19 pandemic

Demographic data

- Age
- Gender
- Occupation

1. Occupational background

- Could you please tell me about your current work as a medical doctor/qualified nurse/cleaning staff etc.?
 - What are your daily tasks? (optional)

2. Current workplace situation

- How would you describe your work during the pandemic?
 - How has everyday work changed as a result of the pandemic?
 - Are there any work tasks that you now handle differently? (e.g. do you adapt certain tasks or do you leave something out?)
- In your opinion, what are the main challenges at the moment? (Could you please give examples)
 - How do you handle these challenges?
 - In your opinion, are there any specific challenges for male/female health care workers?
- Do you feel adequately protected at your workplace?
 - Are there colleagues who can protect themselves better or worse against an infection with COVID-19? If so, why is that?
 - How do you define protection, when do you feel adequately protected? (optional)
- How do you feel about the communication (on the ward and with the higher management) during the pandemic?

3. Contact and dealing with patients infected with COVID-19

(optional questions for those not working at a COVID-19 ward)

- You had direct contact with a patient infected with COVID-19. How did this contact exactly take place?
 - What steps have you/has the employer taken?

- What was the reaction among your colleagues?
- How did you feel when you realized that you had contact with a patient infected with COVID-19?
- How are you dealing with COVID-19 patients at the moment?
- Which new challenges are you facing with patients infected with COVID-19?
 - Did conflicts arise?
 - How are visits from family members organized?
 - Are there special challenges with seriously ill or dying patients?
 - Are there special challenges due to culture/language?

4. Current health situation

- Are you part of a risk group?
If yes:
 - How do you deal with this risk (due to previous illness) while working during the pandemic?
 - How has your employer dealt with this risk (your previous illness) during the pandemic so far?
 - How have your colleagues dealt with this risk during the pandemic so far?
 - In your opinion, what do you think could go better?

5. Social situation

- How are your family members/relatives/friends dealing with the fact that you are an essential worker during the pandemic?
 - How do you handle care and nursing tasks at home?
 - What kind of support do you have from your employer with regard to care or nursing tasks?
 - Is this a good solution?

6. Coping strategies

- What are the coping strategies in the team to deal with the situation?
- What are your coping strategies to deal with this situation?
- Do you think that concerns of certain groups are less “heard”? If so, please elaborate
- Is there anything else you would like to discuss or share that we haven't talked about yet?

Thank you very much for taking part in this interview.

Supplementary material

Standards for Reporting Qualitative Research (SRQR) checklist

O'Brien, Bridget C. PhD; Harris, Ilene B. PhD; Beckman, Thomas J. MD; Reed, Darcy A. MD, MPH; Cook, David A. MD, MHPE Standards for Reporting Qualitative Research, Academic Medicine: September 2014 - Volume 89 - Issue 9 - p 1245-1251 doi: 10.1097/ACM.0000000000000388

Topic	Page/line
Title and abstract	
Title 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	Page 1 Line 1-2
Abstract Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 2-3 Line 29-63
Introduction	
Problem formulation Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 4-6 Line 119-154
Purpose or research question Purpose of the study and specific objectives or questions	Page 6 Line 152-154
Methods	
Qualitative approach and research paradigm 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	Page 6 Line 157-158
Researcher characteristics and reflexivity 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	Page 6 Line 159-160
Context Setting/site and salient contextual factors; rationale	Page 6-7 Line 170-178
Sampling strategy How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale	Page 6 Line 160-169
Ethical issues pertaining to human subjects Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 7 Line 181-186
Data collection methods Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative	Page 6-7 Line 160-180

process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale	
Data collection instruments and technologies 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	Page 7 Line 176-178
Units of study Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Page 8 Table 1
Data processing 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	Page 7 Line 181-184
Data analysis 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	Page 8 Line 187-196
Techniques to enhance trustworthiness Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale	Page 7 Line 187-196
Results and findings	
Synthesis and interpretation Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Page 8-12 Line 196-328
Links to empirical data Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Page 7-14 Line 201-397
Discussion	
Integration with prior work, implications, transferability, and contribution(s) to the field 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	Page 14-17 Line 399-486
Limitations Trustworthiness and limitations of findings	Page 17 Line 488-494
Other	
Conflicts of interest Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Page 4 Line 91-92
Funding Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Page 3 Line 85-88