

# BMJ Open Perceived barriers to the process of COVID-19 control among frontline healthcare workers in South Korea: a qualitative study

Sijoung Kwon <sup>1</sup>, Bee-Ah Kang,<sup>2</sup> Myoungsoon You,<sup>3,4</sup> Heeyoung Lee<sup>5</sup>

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<sup>1</sup>Sociology, Seoul National University, Seoul, Korea

<sup>2</sup>Department of Health, Behavior and Society, Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland, USA

<sup>3</sup>Department of Public Health Sciences, Seoul National University Graduate School of Public Health, Seoul, Korea

<sup>4</sup>Institute of Health and Environment, Seoul National University, Seoul, Korea

<sup>5</sup>Center for Preventive Medicine and Public Health, Seoul National University Bundang Hospital, Seongnam, Korea

**Correspondence to**  
Dr Myoungsoon You;  
[msyou@snu.ac.kr](mailto:msyou@snu.ac.kr)

## ABSTRACT

**Objective** This study aimed to explore barriers to disease control perceived by frontline healthcare workers (HCWs) working in community settings during the COVID-19 pandemic in South Korea.

**Design** A qualitative study was conducted using semistructured focus group interviews. All interviews were conducted in Korean on Zoom between October and November 2020, audio-recorded and transcribed for reflexive thematic analysis.

**Setting** All participants were working in Gyeonggi-do, the most populous province in South Korea. The province had the second-highest COVID-19 infection rates at the time of the interview.

**Participants** Participants serving as HCWs in Gyeonggi Province were eligible to participate in the study. A total of 20 HCWs comprised of public health doctors and professional epidemiologists agreed to participate in the study.

**Results** Four themes were generated. Each theme described how these barriers affected a disease control process: (1) 'uncooperative public and unprepared community health centre' delayed the investigation of newly diagnosed COVID-19 cases; (2) 'uncoordinated disease control system' impeded the collection and analysis of digital data; (3) 'the gap between responsibilities and capabilities' hindered the classification of close and casual contacts; and (4) 'conflicts with persons who have different interests and priorities' hampered epidemiological decision-making.

**Conclusions** Our study found that frontline HCWs experienced various challenges disrupting their work performance to control COVID-19. We provide several recommendations, such as providing HCWs with systematic interview skill training, strengthening patient information security systems, providing sufficient resources, securing a regular workforce, collecting the field experiences of HCWs, implementing task-shifting, and having regular stakeholder meetings. These strategies may promote work capacity among the frontline HCWs and subsequently strengthen emergency preparedness.

## INTRODUCTION

Countries worldwide have striven to control the COVID-19 pandemic over the past 2 years. Frontline healthcare workers (HCWs) have

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study recruited the COVID-19 control workforce that is currently at the forefront of the pandemic and explored their work experiences in community settings where diverse needs and interests of the public and stakeholders intersect. Our study design provides timely insights into the improvement of the disease response system.
- ⇒ Participants make up a newly organised pandemic workforce, comprised of public health doctors and professional epidemiologists with various types of medical licences, which may inform workforce planning and management during a health crisis.
- ⇒ Although a process of disease control can be affected by both direct, and indirect factors, this study was designed to explore only the direct barriers to disease control. Disease control could have been affected indirectly by a reduced job satisfaction, motivation and commitment through a lack of social recognition, low salary, and fear of infection.
- ⇒ This study was designed to identify healthcare workers' perceived barriers only. To understand the disease control process more comprehensively, future studies are needed to explore both barriers and facilitators to disease control.

played a crucial role in preventing and controlling COVID-19 through contact tracing and implementing related countermeasures.<sup>1 2</sup> To improve the efficiency of infection prevention and control, numerous studies explored the barriers that HCWs experience in their workplace, such as heavy workloads, insufficient personal protective equipment and psychological distress.<sup>3-5</sup> However, evidence presenting barriers concerning HCWs' work processes is lacking despite the urgent need to address them to accelerate epidemic control during a health crisis.

In South Korea, frontline HCWs undertaking COVID-19 control consist of public health doctors and epidemiologists. Public health doctors are temporarily serving as

HCWs to fulfil 3 years of mandatory military service requirements. HCWs are assigned to a community to work in diverse settings, including hospitals, schools and factories, to investigate cluster and sporadic cases in the community. According to the protocol developed by the Korea Disease Control and Prevention Agency, HCWs follow four steps throughout their work procedure. First, they conduct phone interviews with patients to obtain information about their movements, track down transmission routes and identify suspected cases. Second, HCWs access digital data (eg, closed-circuit television (CCTV), the global positioning system (GPS), credit card transactions and medical records) to verify and supplement information from patient interviews. Their rights to access personal data are protected by the Infectious Disease Control and Prevention Act. Next, HCWs classify individuals as close or casual contacts based on the collected information and the guidance provided by the government. Lastly, HCWs implement countermeasures, such as temporary closure of sites, prohibition of public entry into places likely to be contaminated, movement restrictions of the public, and quarantine or hospitalisation of confirmed and suspected cases.<sup>6</sup>

Given the importance of the role this workforce plays during a public health crisis, a sizeable body of research explored various challenges in their workplace, some of which include heavy workload, lack of support and personal protective equipment, rapid change in guidelines, unequal power dynamics between senior management and frontline HCWs, and misinformation about COVID-19 in the community.<sup>3 4 7-9</sup> However, few studies have attempted to understand whether and how these factors influenced specific disease control processes. Understanding barriers to the process of COVID-19 control through the lens of the HCW workforce may provide lessons for policymakers to prioritise identified challenges and subsequently to improve health system efficiency.

Moreover, most prior research has mainly focused on HCWs who primarily work in healthcare settings to ensure patient safety, including hospitals or nursing homes.<sup>8 10</sup> HCWs in these environments faced difficulties in isolating older individuals with morbidity and were affected by a lack of isolation rooms, staff shortages and poor training.<sup>11-14</sup> Understanding the working environment of HCWs in healthcare facilities is imperative, as they are at high risk of infection and psychological distress,<sup>15</sup> but focusing only on this workforce does not fully illuminate the challenges that arise in community settings where large-scale community transmission occurs. Exploring barriers to HCW work procedures in non-healthcare settings may unravel how diverse needs and interests of the public and other stakeholders intersect, thereby informing the improvement of the disease control system.

This research aims to explore the barriers to disease control perceived by HCWs working across varied locations and populations at each stage of work processes

during the COVID-19 pandemic in South Korea. This study will provide insights into developing the infection prevention and control system that is flexible and adaptable to diverse contexts and populations during a health crisis.

## METHOD

### Design

We conducted focus group interviews with HCWs to qualitatively analyse their experiences and identify factors affecting their work, reflecting a specific work process. We recruited participants through purposeful sampling based on the following eligibility criteria: (1) having had work experiences as HCWs during the COVID-19 pandemic, and (2) working in Gyeonggi Province.

### Sampling and recruitment

We used peer recruitment to obtain our sample. One peer HCW uploaded a recruitment flyer to an online chat group, in which all HCWs working for the Gyeonggi Province Office and the Gyeonggi-do Infectious Disease Control Center participated. At the study's outset, we initially had planned to recruit 15 participants; however, we included 20 applicants to achieve sufficient data. In total, 15 Gyeonggi Province Office and 5 Gyeonggi-do Infectious Disease Control Center employees were recruited and interviewed.

The Gyeonggi Province Office participants were public health doctors. South Korea's mandatory military service system allows any person holding a physician's, dentist's or Korean medicine doctor's licence to work as a public health doctor. Since the pandemic, some public health doctors in the country have been voluntarily or involuntarily serving as HCWs to contribute to the implementation of the COVID-19 control protocol. The Gyeonggi-do Infectious Disease Control Center participants were professional epidemiologists who received public health training.

### Data collection

Focus group interviews were conducted between October and November 2020. Participants were sorted into five groups depending on their availability. Each focus group interview included four HCWs and two researchers (SK, B-AK). SK and B-AK took turns being a moderator or a notetaker at every interview. Semistructured interview questions were developed by all coauthors. Interview questions mainly focused on (1) what HCWs routinely perform to control COVID-19, and (2) barriers experienced by HCWs in their work routine. Also, self-reported questionnaires were used to collect participants' characteristics, including gender, types of occupation, employment period, medical licences and months of work experience. Upon completion of each interview, coauthors discussed whether the participants had provided any new information. As no new information was identified in the fifth interview, all authors agreed to stop collecting

data. Each interview lasted approximately 120 min. All interviews were conducted in Korean on Zoom, audio-recorded, and transcribed afterwards.

### Patient and public involvement

Patients and/or the general public were not involved. This study aims to explore barriers to disease control through health service provider perspectives.

### Data analysis

We performed a thematic analysis to identify and analyse patterns of meaning in the interview dataset. Data analysis was conducted by SK through manual coding based on the reflexive thematic analysis approach.<sup>16</sup> The following information contains our process of reflexivity. SK is a Ph.D. student in sociology, trained in qualitative research methods. This allowed SK to focus on the existing social problems in the context of disease control. B-AK is a Ph.D. student in public health, trained in qualitative research. MY is a professor in the field of public health, whose expertise lies in infectious disease control systems. B-AK and MY helped SK to reflect on the importance of 'evidence' from the public health perspective and explore the barriers applying this evidence-based approach. Both inductive and deductive analyses were used. The initial codes were inductively identified, refined through an iterative process and finalised upon discussion and consensus among research team members. Then, the codes were deductively divided by the work process of HCWs. Similar codes were categorised into larger themes to illustrate the patterns of meaning generated from the data. All quotations described in this paper were translated into English.

## RESULTS

**Table 1** demonstrates the characteristics of 20 HCWs who participated in the interviews. Fifteen were men, and five were women. Most participants were public health doctors (n=15), and a quarter (n=5) were professional epidemiologists. All participants were serving as temporary HCWs. More than half (n=12) had a Korean medicine doctor's licence and were practising conventional medicine, including herbal medicine, acupuncture and moxibustion. The others had medical licences, including a doctor of medicine (n=2), a doctor of dental medicine (n=1) and a nursing (n=2) licence. Three participants held no licences but each had a master's/doctoral degree in public health. All participants performed the same tasks regardless of their medical licence status. Approximately half of the participants (n=9) had been working for 6–8 months as an HCW.

### Step 1: Investigation of newly diagnosed COVID-19 cases

Theme: Uncooperative public and unprepared community health centre

#### *Patients' incorrect or false reporting of their movement*

Many participants explained that patients often incorrectly reported their movements due to dim memories,

**Table 1** Characteristics of focus group interview study participants

Characteristics	Number (n=20)	Per cent
Gender		
Male	15	75
Female	5	25
Type of occupation		
Public health doctor	15	75
Professional epidemiologist	5	25
Type of employment period		
Temporary	20	100
Permanent	0	0
Type of medical licence		
Doctor of Korean medicine*	12	60
Doctor of medicine	1	5
Doctor of dental medicine	1	5
Nursing	3	15
None	3	15
Months of work experience as HCWs during COVID-19		
0–2	1	5
2–4	2	10
4–6	1	5
6–8	9	45
>8	7	35
The results from Table 1 have been reported and published in an earlier study (see Reference 25)		
*Doctors of Korean medicine practise conventional medicine, including herbal treatments, and acupuncture. HCWs, healthcare workers.		

or they intentionally lied to HCWs due to a fear of privacy invasion. This tendency was more apparent among patients who had engaged in behaviours they wished to hide, such as adultery or affiliation with socially stigmatised groups (eg, sexual minorities, religious cult groups). Some participants stated:

False reporting during interviews is the most serious problem impacting our work. People lie for various reasons, like trying to hide their infidelity. (Participant 11)

The Itaewon infection cluster was a unique case because it was closely linked to the issue of people's sexual identities so confirmed cases lied to HCWs due to a fear of having their sexual orientation disclosed. (Participant 13)

Participants also stated that some patients hid their information, strongly believing in a conspiracy theory that the current democratic administration fabricated COVID-19

test results to confine right-wing party members to hospitals. One of the participants mentioned:

[Patients] believed that the government manipulated the results of COVID-19 testing. They did not trust us because we are working for the government, so they didn't tell us about their movements. (Participant 16)

### *Poor work environment and heavy workloads*

HCWs were assigned to a community health centre (CHC) in the province to focus on controlling cases within the community. The majority of HCWs reported that insufficient essential supplies in CHC, such as personal protective equipment, work phones and laptops, impeded the speed of investigations. In particular, participants used personal mobile phones due to a lack of work phones, which exposed their phone numbers to the public. This ultimately resulted in extra work handling frequent complaints and questions from patients and the public. One of the participants mentioned:

I've asked for a work phone many times because it's necessary for HCWs to use it in the field...I had no choice but to use my personal cell phone, which made my number exposed. I received phone calls from the public many times, and it made me uncomfortable. (Participant 12)

In my case, work is never finished receiving phone calls even in dawn and night. (Participant 7)

Additionally, participants reported working in inadequate workspaces where ambient noise caused disruption in the interviews with patients. Moreover, participants suffered from heavy workloads derived from personnel shortages. Some participants stated:

The worst experience was when I conducted a phone interview with patients in a (noisy) cafeteria in a CHC. (Participant 9)

Some CHCs don't even have a separate workspace for HCWs so we have to share a public space with CHC staff. Then noise interrupts our interviews. I had to walk around the building just to find a place to do my interviews. (Participant 10)

### **Step 2: Collection and analysis of digital data**

Theme: Uncoordinated disease control system

#### *Lack of support from CHC staff*

Participants stated that CHC staff did not provide proper administrative support, especially when they needed a CHC-issued document to request and access data from CCTV, GPS, medical records and credit card records; the staff also kept participants waiting for long hours even during emergencies. Since CHC staff work on the local community's diverse health issues in addition to the pandemic response, HCWs and CHC staff priorities inevitably conflicted. One participant reported:

I must submit an official document to certain businesses to access their CCTV footages, but sometimes CHC staff did not prepare it on time, which often caused conflicts with the business owners. (Participant 15)

A participant added that the lack of technical support hampered prompt data collection. While the government developed and distributed an automatised epidemic investigation support system across CHCs for HCWs to access data faster, (s)he did not receive technical support from CHC staff in a timely manner, and had difficulty in using the system. A participant stated:

With the introduction of the digitized system, each designated CHC staff was in charge of applying the new system ... However, the staff told me, 'You better learn and use it by yourself'. (Participant 11)

### **Step 3: Classification of close and casual contacts**

Theme: The gap between responsibilities and capabilities

#### *Lack of work experience and COVID-19 knowledge*

Even though the government offers basic training for participants, they often felt some tasks exceeded their capacity. Particularly, they were not confident in accurately assessing infection risk due to uncertain factors, including disease exposure time, location of ventilation systems and the duration of mask-wearing among people. HCWs reported being hesitant to classify close and casual contacts, as they were concerned about missing high-risk contacts or making false-positive classifications. Several participants stated:

Although the guidance exists, no one can guarantee that it will prevent the spread of the virus completely. ... I thought it exceeded my capacity when large-scale cluster infections occurred all at once. (Participant 1)

I was concerned about making mistakes because it could lead to larger infections. I was so stressed. (Participant 18)

#### *The gap between guidance and reality*

Participants stated that the guidance did not always reflect reality. Sometimes other healthcare professionals' clinical opinions were incompatible with the guidance. Moreover, persons with physical vulnerabilities were unable to comply with the self-isolation mandate enforced by the guidance. It was hard for HCWs to make flexible classifications due to fears of taking on responsibility. One participant mentioned:

It was difficult to communicate with hospital staff especially those working in the field of infectious disease. They told me certain cases have low infection probability, so quarantine is not necessary. It makes sense, but HCWs have to comply with the government protocol and take a conservative approach to contact classifications to prevent the worst-case scenario... I got a lot of stress when I classified a

person as a close contact (for self-isolation) but (s)he cannot live alone. (s)he needed a caregiver. (Participant 16)

#### Step 4: Epidemiological decision-making

Theme: Conflicts with persons who have different interests and priorities

##### *Economic issues*

Participants reported that the general public, particularly self-employed workers, day labourers and organisation leaders, continuously complained that some measures (e.g., self-quarantine and business closure) enforced by HCWs were too stringent. Some people often pressured HCWs to withdraw such countermeasures, explaining that they were unable to comply with the rigid decision given their need to earn a livelihood. HCWs faced a dilemma over the extent of the measures. Some participants said:

In the logistic center, I ordered 4400 workers to self-quarantine. Most of them were day laborers so they complained to me by saying, 'I live paycheck to paycheck. Are you going to take care of my living during self-quarantine?' (Participant 10)

The hospital chief personally contacted and cursed at me, 'How dare you order us cohort isolation? How dare you cause damage to my hospital?' (Participant 6)

##### *Political issues*

In South Korea, if HCWs ordered a person to get tested, the government defrays costs for the testing. Many participants reported that politicians pressured them to expand the number of individuals required to get COVID-19 testing, including even those with a low risk of infection, to represent their public image as 'saviours' who lifted financial burdens for citizens. Such political interruption forced HCWs to take unnecessarily rigorous countermeasures. One participant mentioned:

Even though I explained that there is no need to make people with low risk of infection get tested, politicians pressured me [to expand the range of people getting tested]. (Participant 6)

In addition, one participant stated that politicians asked HCWs to draft a report for political use, specifically for negative campaigning against the current administration. HCWs have a duty to submit a report upon receiving an official request from a member of the National Assembly. This made HCWs hesitant about taking flexible countermeasures to avoid being blamed politically.

Epidemiological investigation has become a political fight. A politician asked for a report to collect evidence on the governor's faults in controlling the spread of COVID-19. (Participant 10)

##### *Bureaucratic issues*

Participants reported that individuals in charge of public institutions demanded more across-the-board and stringent action without taking account of actual field

circumstances in order to manage the institutions at their convenience and avoid responsibility and criticism for passively responding to the pandemic. Such tendencies prevented HCWs from taking adequate countermeasures based on epidemiological evidence. Some participants said:

The school principal claimed that all students should self-quarantine [instead of having only a few students in quarantine] so that the school can have remote classes for two weeks. The principal complained about my countermeasure decision being too complicated for them. (Participant 5)

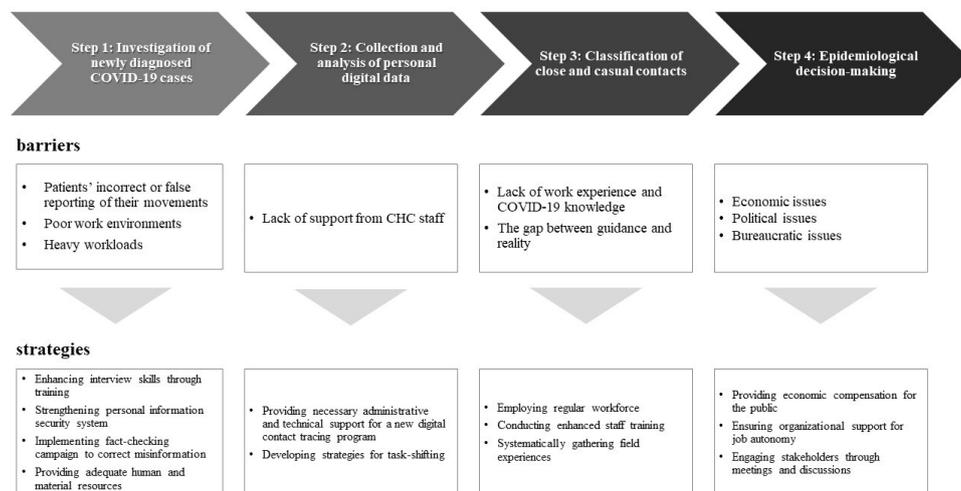
In the case of kindergarten infection, parents are concerned about their kids, so principals want HCWs to take overly stringent actions to avoid complaints from the parents. (Participant 16)

## DISCUSSION

Our study aimed to understand frontline HCWs' perceived barriers to a series of COVID-19 control processes in South Korea. Previous qualitative studies discovered several challenges faced by HCWs during the pandemic, such as lack of personal protective equipment, fear of infection, heavy workload, insufficient information, and physical and mental health problems.<sup>3 4 7 17 18</sup> Although the evidence enhances our understanding of the nature of HCWs' work environment, viewing their task as a fixed and monolithic entity does not elucidate how their challenges arise in their workplace, which barriers should be prioritised and where to intervene to improve the issues.

Our findings discovered various problems experienced by HCWs throughout a series of work steps that entail investigating patients, collecting their information, classifying contacts and taking proper measures within all relevant settings in their work communities. In the following, we will discuss how specific barriers could be alleviated. **Figure 1** illustrates the barriers and recommended strategies.

The success of epidemiological investigation builds upon the ability to obtain accurate patient information to find transmission routes and assess the risk of transmission.<sup>19</sup> In line with the Centers for Disease Control and Prevention recommendations,<sup>20</sup> we suggest offering training for HCWs to systematically improve their interview skills. It is a prerequisite to achieving cooperation with patients for successful contact tracing. Patients' false reporting derived from privacy concerns or fear of stigma was one of the biggest challenges encountered by HCWs. The reasoning behind this concern is well founded. Recent research showed that over 70% of publicly available personal data of 970 confirmed patients in South Korea had risks of disclosing personal information, excessively collected in favor of 'public safety'.<sup>21</sup> Therefore, strengthening the patient information security system and training HCWs to avoid asking non-essential questions may prevent issues related to privacy invasion,



**Figure 1** Perceived barriers and strategies for reducing the barriers within a COVID-19 control process. CHC, community health centre.

which may help encourage people to cooperate in HCWs' work. Additionally, our results showed that case investigation was affected by public mistrust of the workforce stemming from a false belief that HCWs colluded with the government in fabricating COVID-19 testing results. Such misconception is not merely limited to South Korea. A conspiracy theory about nasal swab testing that spread in the UK led people to refuse to get tested.<sup>22</sup> According to empirical studies, correcting misinformation through fact-checking initiatives significantly reduced false beliefs about COVID-19.<sup>23 24</sup> Thus, the government may consider implementing fact-checking campaigns to share transparent information about disease control efforts with the public by employing diverse communication platforms including social media.

Our data also revealed that poor work environments and heavy workloads disrupted the process of case investigation. Our prior research found that these factors negatively affected health workers' performance and caused burnout and embitterment.<sup>25</sup> Hence, organisations should secure more workforce to alleviate heavy workloads derived from inadequate staffing and provide HCWs with sufficient resources, including personal protective equipment, to help HCWs accomplish their duties, and protect them from mental health burdens in the workplace.

Our findings emphasised the importance of coordination with CHCs. Although South Korea has proactively adopted digital technologies to rapidly obtain and analyse personal data, we discovered that a lack of administrative and technical support from CHCs impeded the utilisation of technologies in practice. This resulted from priority conflicts between HCWs working for pandemic response and CHC staff who handle the local community's diverse health needs along with the pandemic response. This shows uncoordinated disease control systems between the newly employed workforce and the existing system. Although it has not been extensively studied in the context of COVID-19, "task-shifting" may

be a viable strategy for resolving this issue in workplaces where professions and the level of skills vary among health workers.<sup>26–30</sup> Systematically delegating tasks from higher-skilled to lower-skilled workers or from workers with general training to those with specific training may increase productivity, reduce time and costs, and enhance team functioning.<sup>26 29</sup>

Moreover, our study found that HCWs' lack of knowledge and experience impeded the classification of close and casual contacts, leading them to struggle with the gap between their responsibilities and capabilities. Most HCWs employed by the South Korean COVID-19 response programme are supplemental workers who only received basic training due to their immediate deployment. Furthermore, since the majority of HCWs are public health doctors, temporarily serving mandatory military duties, it may be challenging to systematically gather evidence on their field experiences to inform the improvement of pandemic control systems. The practical wisdom of current HCWs may not be passed on to other health workers to prepare them for future pandemics. This implies that recruiting transient HCWs may only serve as a stopgap without ensuring their long-term vocational capacity. We recommend employing regular HCWs and consistently training them for epidemic response to foster their professionalism and efficiently mobilise the workforce during a pandemic.

Finally, our findings revealed that economic, political and bureaucratic issues in the community were perceived to reduce HCWs' ability to make evidence-based decisions because different parties were constantly interfering with their decision-making processes. When HCWs conflict with these stakeholders, vulnerable population including socioeconomically disadvantaged may not be fully considered. Social policies need to ensure that people could comply with HCWs' decision without negative impact on their daily lives, and to reduce inequalities during the COVID-19 pandemic. To reduce the economic impact of health mandates and subsequent non-conformity among

the public, proper government compensation may alleviate economic damage and motivate people to adhere to health policies, including self-quarantine.<sup>31</sup> Furthermore, strategies for engaging stakeholders are necessary to achieve consensus on epidemiological measures. Cooperation among multilevel stakeholders, including health workers, politicians, public officials, and the public, may contribute to evidence-based and viable pandemic responses and ultimately ensure democratic decision-making in the health system.

### Strengths and limitations

The study recruited the COVID-19 control workforce currently at the forefront of the pandemic and explored their work experiences in community settings where diverse needs and interests of the public and stakeholders intersect. Our study design provides timely insights into the improvement of the disease response system. Moreover, participants in this study make up a newly organised pandemic workforce, comprised of public health doctors and professional epidemiologists with various types of medical licence, which may inform workforce planning and management during a health crisis.

Despite these strengths, there were two limitations. This study explored only the direct barriers to disease control. However, HCWs' work could be affected indirectly by a reduction in job satisfaction, motivation and commitment through a lack of social recognition, low salary and fear of infection. Therefore, future studies may explore both direct and indirect barriers and facilitators. This would foster our understanding of comprehensive disease control processes to improve the overall quality of healthcare and the health system.

### CONCLUSIONS

Our study illustrated conceptual connections between HCWs' barriers and their work procedures. Four themes were generated: (1) uncooperative public and unprepared CHC; (2) uncoordinated disease control system; (3) the gap between responsibilities and capabilities; (4) conflicts with persons who have different interests and priorities. These themes show the problems HCWs encountered in each step of the COVID-19 control process. We recommend implementing enhanced training opportunities, supplying sufficient resources, securing regular workforces, collecting field experience, and improving workforce planning and management strategies to promote work capacity among HCWs in epidemic control.

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**Contributors** SK, B-AK and MY conceptualised the study and designed interview questions. Data were collected by SK and B-AK. SK conducted data analysis and wrote the first draft of the manuscript. SK, B-AK, MY and HL contributed to data interpretation, review and editing of the manuscript. MY takes full responsibility for the work, and the conduct of the study, had access to the data, and controlled the decision to publish as a guarantor.

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**Competing interests** None declared.

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

**Patient consent for publication** Not required.

**Ethics approval** Ethical approval was obtained from the Institutional Review Board of Seoul National University (no. 2009/002-011) on 14 September 2020. All participants who expressed their intention to participate provided written informed consent and received incentives for participating in the interviews (100 000 KRW=US\$75).

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

**Data availability statement** Data are available upon reasonable request. The data that support the findings of this study are available on request from the corresponding author (MY). The data are not publicly available due to them containing information that could compromise research participant privacy/consent.

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### ORCID iD

Sijoung Kwon <http://orcid.org/0000-0002-4822-3057>

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