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Experience of Nurses Responding to the COVID-19 Outbreak at a Long-term Care Hospital in Korea

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Purpose: The COVID-19 pandemic uncovered the fundamental vulnerability of Long-term Care Hospitals (LTCHs) regarding infection control. This study aimed to describe the experiences of nurses who responded to the COVID-19 outbreak on the front lines while working at a LTCH.
Methods: This qualitative study was conducted with nine nurses. The data from in-depth individual interviews using semi-structured questions was analyzed thematically.
Results: Three themes and 11 sub-themes were extracted. The first theme, "the sudden onset of the outbreak," included finding themselves desensitized to COVID-19 as the pandemic persisted; embarrassed by the unavoidable occurrence; and worried about becoming a spreader and aggravating the outbreak. The second theme, "physically and mentally worn out," involved increased fatigue from overtime work; exhaustion from responding to inquiry calls pouring in; tension while monitoring and controlling infection control compliance among nursing assistants, caregivers, and elderly patients with cognitive impairment; and increased discomfort while taking on all the extra work with stifling personal protective equipment. The third theme, "awakened perspectives while responding to the outbreak," covered increased compassion for patients; paying attention to infectious diseases and having confidence in infection control principles; realization of the need for isolation rooms, supplies, and a full-time infection control nurse; and pride as an LTCH nurse who responded to the COVID-19 pandemic.
Conclusion: To enhance the level of prevention and response to infectious disease outbreaks in LTCHs in the future, it is necessary to establish infection control infrastructure, including personnel, isolation facilities, supplies, and continuing education for the LTCHs' nursing workforce.

Keywords: COVID-19; Disease outbreaks; Long-term care; Nurses; Qualitative research

Introduction

After the World Health Organization declared a coronavirus infectious disease (COVID-19) pandemic on January 30, 2020 [1], the first outbreak of COVID-19 in a long-term care hospital (LTCH) in Korea occurred in Daegu in February 2020. The outbreak began when a caregiver tested positive, leading to a total of 46 confirmed COVID-19 infections among patients, nurses, and caregivers during the outbreak [2]. Throughout 2020, 35.1% of COVID-19 deaths in Korea were patients hospitalized in LTCHs or residents of long-term care facilities for the elderly [3]. From the early phase of the COVID-19 pandemic, the need to establish a COVID-19 response system for LTCHs, where vulnerable elderly patients live together in a condensed space and receive treatment, was emphasized [4].

However, during the early phase of the COVID-19 pandemic, national infection control policies in Korea mandated temporary hospital closure and cohort isolation following the confirmation of a COVID-19 case in an LTCH. Cohort isolation involves isolating patients who are infected or carriers of the same pathogen

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in a single room. By December 2020, a total of 996 additional infections occurred in 14 LTCHs during cohort isolation [5]. These limitations of cohort isolation in LTCHs, stemming from a lack of isolation facilities and specialized healthcare personnel [6], prompted health authorities to designate and operate "dedicated infectious diseases LTCHs." This strategy aimed to quickly transfer confirmed cases and close contacts from LTCHs to these dedicated facilities, thereby minimizing in-hospital infections. As a result of expanding this approach, approximately 2,000 beds were secured in 13 hospitals across the country by December 2021 [7].

In this rapidly changing landscape of response policies for LTCHs and a national COVID-19 management system, previous qualitative studies conducted on LTCH healthcare personnel, such as nurses [8], nurse managers [9], physical therapists [10], and certified caregivers [11], reported changes in duties and challenges in the field of clinical practice due to the pandemic. These studies, primarily conducted with a phenomenological approach, reported confusion and anxiety in the early stage of LTCHs' COVID-19 response, an increased demand for nursing care, difficulties in dealing with family members due to visitation bans, shortages of infection control supplies, and efforts to strengthen infection control. Notably, it was revealed that a simultaneous outbreak of cluster infections in the Daegu and Gyeongsangbuk-do regions early in the pandemic heightened fears of outbreaks within LTCHs, which were already lacking adequate infection control facilities. A previous study focusing on LTCH nurses [8] primarily reported on the changes in nursing duties in LTCHs during the COVID-19 pandemic, such as increased nursing demand and attempts to approach patient care in new ways. However, there is a lack of studies specifically examining the experiences of nurses who directly responded to and managed COVID-19 outbreaks within LTCHs. According to a 2022 survey conducted by the Korea Disease Control and Prevention Agency on the infection control status of LTCHs, although 93.1% (1,355 out of 1,455) of LTCHs experienced COVID-19 outbreaks in 2022, only 55.5% (802 LTCHs) operated infection control units [12]. Among those, merely 3.1% (25 LTCHs) had a full-time infection control nurse [12]. Therefore, it is necessary to examine the experiences of nurses in handling and resolving COVID-19 outbreaks as most LTCHs lacked infection control units and full-time infection control nurses.

This study aimed to deeply understand and describe the experiences of nurses who responded to COVID-19 outbreaks in an LTCH. By doing so, this study sought to provide fundamental data to enhance the prevention and response levels for infectious disease outbreaks in LTCHs in the future. To achieve this, this study adopted a qualitative research method [13] to discover the meanings within individuals' unique life experiences by considering the specific situations and contexts they faced in the group to which they belonged. This approach was used to understand the realities and challenges experienced by nurses during the initiation, spread, and resolution of a COVID-19 outbreak in an LTCH in early 2021, when the pandemic was particularly severe in Korea.

Methods

Study design

This study employed a qualitative descriptive method using individual in-depth interviews to explore the experience of nurses who responded to a COVID-19 outbreak in a LTCH in early 2021.

Overview of the COVID-19 outbreak in the long-term care hospital

The study hospital, the LTCH, is located in Seoul. It has 228 beds, provides medical care from Western and Eastern medicine specialists, and offers inpatient treatment for elderly patients who require long-term care or rehabilitation. The COVID-19 outbreak in the hospital began on February 24, 2021, when a private caregiver tested positive during the weekly preemptive screening test conducted for hospital staff. The caregiver had started working at the hospital on February 18, 2021 after receiving a negative COVID-19 test result from a district public health center the day before starting work. Since then, until the outbreak ended on March 16, 2021, a total of eight individuals (two private caregivers and six patients) tested positive for COVID-19 consecutively. Confirmed patients were transferred to a designated infectious disease hospital or a designated infectious disease LTCH by the district public health center depending on the severity of their symptoms. The patients classified as close contacts during the epidemiological investigation conducted by the district public health center were also transferred to designated infectious diseases facilities for a 14-day isolation period. At the time, the hospital's staffing structure included six physicians, 30 nurses, and 19 nursing assistants. Since there was no full-time infection control nurse, a head nurse of a ward took on infection control responsibilities as an additional duty.

Selection of Study Participants

A participant recruitment notice was posted in the wards where confirmed cases occurred during the COVID-19 outbreak in the

hospital. Nurses interested in participating were instructed to contact the researcher via email, phone, or text message. The inclusion criteria were nurses who had worked in the hospital for at least three months and who were responsible for the COVID-19 patients care during the outbreak. Participants were excluded if, on the date of the interview, they tested positive for COVID-19 and were receiving treatment, had been designated as close contacts by the health authorities and were in quarantine, had tested positive during a preemptive screening test for employees in the past two weeks, or had shown symptoms of COVID-19 within the past two weeks.

Data collection

Individual, in-depth interviews with the participants were conducted from May 6 to June 14, 2021. For the in-depth interviews, both semi-structured and open-ended interview questions were prepared for use in the beginning, transition, main body, and closing phases of the interviews. The interviews started with questions about general feelings towards the pandemic and changes within the hospital due to COVID-19. The main questions focused on situations and experiences during the LTCH's COVID-19 outbreak. Throughout the interviews, the researcher tried to maximally elicit and understand participants' emotions, thoughts, and experiences during the process of resolving the outbreak.

At all stages of data collection, the researcher adhered to COVID-19 infection prevention guidelines. Participants were allowed to choose their preferred interview methods (in-person or online) and convenient dates and times, which were then used to schedule the interviews. Since all nurses who agreed to participate in the study chose to have in-person interviews, the interviews were conducted in the hospital's meeting room, which was secure and private. During the interviews, the room was continuously ventilated, and at least 2 meters of space were maintained between the researcher and participants. Microphones were set up on both sides to facilitate clear communication, and the researcher and participants continued to wear face-masks throughout the interview.

The researcher conducting the interviews worked as a nurse in a ward that did not have any confirmed COVID-19 cases during the outbreak in the hospital. Having studied qualitative research methods during graduate school, the researcher maintained an objective attitude during the interviews while providing empathic responses to encourage participants to sufficiently share their experiences and feelings. Data collection continued throughout the interviews until data saturation was reached. A total of nine participants were included in the study. Each one-on-one, in-depth interview with the participants lasted on average 55 minutes (ranging from 50 to 72 minutes). Each participant received a prepaid card worth 20,000 KRW as an incentive for participation in the study after the interview.

Ethical considerations

To ensure the rights and safety of the participants before data collection began, this study obtained approval from the Institutional Review Board (IRB No. 2105/004-005) of the researcher's affiliated institution. The researcher provided the participants with an information sheet explaining the study. These explanations included the purpose and methods of the study, the expected duration, the fact that interviews would be recorded, and information related to the protection of personal data. Written consent was obtained from all participants. Based on the Declaration of Helsinki, voluntary participation was ensured, and the participants were notified about their right to withdraw from the study at any time, even in the middle of an interview. Personal information was stored separately from the interview transcripts, and a unique ID was assigned to each participant to maintain anonymity in the transcripts. The audio recording files were deleted upon the completion of the transcription process. The written consent forms and transcripts are securely stored in a locked cabinet and a password-protected computer in the researcher's office, which is physically separate from the LTCH. These written documents will be destroyed by shredding and deleting the files three years after the date of data collection.

Data analysis

The researcher transcribed the recording data after interviews, and repeatedly read the transcripts and field notes to grasp their overall meaning. Afterwards, a thematic analysis was conducted for the interview data according to qualitative data analysis procedures [14]. Specifically, after examining and identifying the overall meanings and tones of thoughts or emotions found in the experience narratives of nurses who responded to the COVID-19 outbreak in the LTCH, sentences were used as units of analysis to extract statements that appropriately express these experiences. The consistency and thematic suitability of the statements were examined, and sub-themes and themes were derived based on commonality, similarity and thematic relevance. Then, through the researchers' meetings, it was verified whether the derived themes and overall analysis results appropriately reflected the content of interviews. In addition, the theme names were revised multiple times to fully reflect the participants' experiences.

Ensuring the rigor of the research

This study considered four criteria proposed by Guba & Lincoln [15] to ensure the quality and rigor of qualitative research results [13]. First, to ensure credibility for truth value [16], the researcher reviewed whether each participant who applied for interviews satisfied the selection criteria, ensuring they could express their relevant experience in a rich manner. Additionally, in August 2021, two participants who were asked to review the analysis results of this study confirmed that the analysis results and the researchers' interpretations of interview data appropriately reflected their opinions. Second, to ensure the appropriateness of research findings for applicability [16], the researchers presented the general and work-related characteristics of the participants in this paper and described the entire research process, including the methods of participant recruitment, data collection, and analysis. Third, quotations from the interview data, which form the basis for the analysis, were presented to ensure auditability for consistency. The researchers repeated the data analysis process several times until the same analysis results were consistently obtained. Fourth, to ensure confirmability for neutrality [16], the researchers made efforts to minimize their involvement to prevent their own biases or preconceptions from influencing the analysis process and distorting the results.

Results

As a result of participant recruitment, a total of nine nurses completed interviews. All participants were female, including one nurse from the nursing administration department who was dispatched to a general ward due to the nursing shortage during the outbreak and who was taking care of COVID-19 patients. The mean age of the participants was 52.1 years, with an average of 15.2 years of total clinical experience, and their period of employment at the study hospital ranged from 4 to 17 months. Six participants (66.7%) were married, and six (66.7%) graduated from a 4-year nursing college. Regarding the working units of the participants, four nurses (44.4%) worked in intensive care units, four nurses (44.4%) in general wards, and one nurse (11.1%) in the nursing administration department (Table 1).

As a result of analyzing the responses of the participants collected through individual in-depth interviews, 11 sub-themes were derived and integrated into three themes (Table 2). The thematic analysis results of the nurses' experiences responding to the COVID-19 outbreak in the LTCH are as follows.

Theme 1: The sudden onset of the outbreak amidst our familiarized COVID-19 response

The participants stated that even though they were always prepared for a possible COVID-19 case within the hospital at any moment by adhering to national infection control guidelines, they were surprised by the suddenness of the outbreak when it actually began and started to spread.

Sub-theme 1) Found myself desensitized to COVID-19 response as the pandemic persisted

Due to the nationwide COVID-19 pandemic, nurses at the LTCH had to take on additional tasks, such as implementing visitor restrictions, conducting periodic preemptive COVID-19 screening tests for employees, and performing environmental disinfection. However, the participants said that due to the prolonged pandemic, they grew accustomed to the situation and had been routinely performing these tasks as their daily duties, treating them as their normal and familiar "routine duties." They reassured themselves by thinking, "we will get through this," because

Table 1. Demographic and job-related characteristics of the participants

No.	Age (years)	Marital status	No. of family members living together	Religion	Education level	Working unit	Nursing experience (years)	Working period in the current hospital (months)
1	56	Married	3	Protestant	BSN	Adm	33	17
2	53	Married	3	Protestant	ADN	Ward	21	16
3	54	Single	0	Protestant	ADN	ICU	25	8
4	28	Single	3	None	BSN	Ward	4	16
5	67	Married	2	Catholic	BSN	ICU	15	11
6	59	Married	3	Protestant	BSN	ICU	15	14
7	57	Married	2	None	BSN	Ward	3	13
8	30	Single	1	Protestant	BSN	ICU	5	7
9	65	Married	2	Catholic	ADN	Ward	16	4

Adm=Nursing administration; ADN=Associate degree in nursing; BSN=Bachelor of science in nursing; ICU=Intensive care unit

Table 2. Thematic analysis results of the experience of nurses responding to the COVID-19 outbreak at the long-term care hospital

Themes	Sub-themes
The sudden onset of the outbreak amidst our familiarized COVID-19 response	Found myself desensitized to COVID-19 response as the pandemic persisted
	Embarrassed by the unavoidable occurrence of the outbreak
	Worried about becoming a possible spreader and aggravating the outbreak
Physically and mentally worn out from a heavy workload in response to the outbreak	Increased fatigue from continuing overtime work due to staff shortages
	Emotionally exhausted from responding to inquiry calls pouring in
	Tension while monitoring and controlling infection control compliance among nursing assistants, caregivers, and patients with cognitive impairment
	Increased discomfort while taking on all the extra work with stifling personal protective equipment
Awakened perspectives while responding to the outbreak	Increased compassion for patients while feeling sorry for them
	Paying attention to infectious diseases and having confidence in infection control principles
	Realization of the need for isolation facilities, supplies, and a full-time infection control nurse
	Pride as an LTCH nurse who responded to the COVID-19 pandemic

COVID-19=Coronavirus disease 2019; LTCH=Long-term care hospital

for several months all the employees had consistently tested negative in the weekly preemptive screening tests.

"I thought that I had become desensitized [to being highly sensitive to the possibility of COVID-19 occurring] over time as 7 or 8 months had passed. [Just before the outbreak within the hospital], I saw a new caregiver responding very sensitively [to a patient with a fever]. At that moment, [I thought to myself,] 'Ah, [I have become] desensitized over time.'" (Participant 5)

Sub-theme 2) Embarrassed by the unavoidable occurrence of the outbreak

The participants stated that the occurrence of the COVID-19 outbreak in the hospital was unavoidable. The private caregiver, who was the first confirmed case of the outbreak, was able to start working in the hospital because she tested negative on the COVID-19 screening test conducted by the district public health center, but she tested positive on the preemptive test for employees conducted the very next week. The participants said that they were baffled by the outbreak's occurrence, which trivialized all their preventive efforts.

"The start of the outbreak in our hospital was with a [newly arrived private] caregiver. She presented a negative test result, but the problem occurred 2 or 3 days later. … We were really perplexed. We immediately contacted the district public health center, waiting for their instructions." (Participant 1)

Sub-theme 3) Worried about becoming a possible spreader and aggravating the outbreak

The participants described the outbreak situation as "out of control" when confirmed cases of COVID-19 were found one after another among patients on other floors after the first confirmed case occurred. In addition, they said that they were concerned about becoming COVID-19 spreaders and transmitting the infection to elderly and vulnerable hospitalized patients, so they behaved very carefully, and even avoided drinking water to keep their masks on while working in the hospital.

"The patient [with confirmed COVID-19 in the hospital at that time] used to eat meals well and occasionally talked to me, but I heard he could not overcome the disease and died [even after being transferred to a hospital dedicated to infectious diseases]. His old age and weakened immune system may have contributed to it, but I felt very distressed, fearing that the situation would worsen because of me." (Participant 7)

Theme 2: Physically and mentally worn out from a heavy workload in response to the outbreak

While responding to the COVID-19 outbreak in the hospital, the participants had to work overtime to handle extra tasks in addition to their usual nursing duties. Because their work included not only educating and monitoring nursing assistants and caregivers with little knowledge of infection control, but also caring for elderly patients who did not behave cooperatively due to cognitive impairment, they felt nervous and on edge, experiencing physical fatigue and mental exhaustion.

Sub-theme 1) Increased fatigue from continuing overtime work due to staff shortages

Some employees of the hospital were quarantined following close contact with confirmed patients. Moreover, some workers resigned out of fear of contracting COVID-19 after the outbreak occurred.

As a result, the nursing shortage worsened, leaving the remaining nurses with no choice but to work a double shift (two consecutive shifts, at least 16 hours). The participants expressed that they felt very fatigued because they were "naturally" required to work overtime and double shifts without guaranteed breaks or days off.

"I was asked to self-quarantine. Because I stayed for more than 10 minutes in the room of a confirmed COVID-19 patient [to check the environment]. But, at that time, there was no charge nurse in the ward, [because some members were already placed in self-quarantine, and the remaining nurses were] working consecutively with almost no days off. So, I couldn't go into [self-quarantine because it was of lower priority]. I informed the district public health center that scheduling rotating shifts for nurses would be impossible. 'Even in this situation, do I really still need to go into self-quarantine?' So, I ended up working double shifts. It was tough … but what else could I do." (Participant 2).

Sub-theme 2) Emotionally exhausted from responding to inquiry calls pouring in

The participants stated that as the ban on in-person visits to patients was extended due to the outbreak within the hospital, family members frequently called the nursing station to inquire about the patients' condition. Explaining matters such as the patient's skin condition over the phone was the most difficult, as it would have been easily understood if they could have seen the patients in person. In addition, participants detailed their exhaustion from responding to the influx of phone calls, as hospital employees relied solely on phone communication due to the ban on moving between floors, while district public health center officers (in charge of patient transfer) and the nurses at transferee hospitals called with requests and inquiries during the process of transferring patients to hospitals dedicated to infectious diseases.

"If five or six people [who are family members of a patient] make separate calls to ask about the patient, how can we work? So, we asked the families of patients to designate one person as the representative guardian for each patient, which has caused some issues. They complained that they could not help but ask about the patient's condition since they couldn't see the patients personally. The guardians of patients made numerous complaints over the phone. When they are not allowed to visit patients, they naturally become oversensitive. It was difficult and exhausting [to respond to all the complaints from guardians reacting so sensitively]." (Participant 6)

Sub-theme 3) Tension while monitoring and controlling infection control compliance among nursing assistants, caregivers, and patients with cognitive impairment

The participants stated that, as nurses, they had to supervise and manage nursing assistants and private caregivers (either certified caregivers hired by the hospital or patient guardians) more rigorously during the COVID-19 outbreak within the hospital. Participant 1 said that she needed to provide infection control education again for the nursing assistants, who worked in close contact with patients while performing duties such as vital sign measurement and drug administration, as they had insufficient basic knowledge of infection control. In addition, the participants mentioned that caregivers, who stayed with patients in patient rooms 24 hours a day, showed low levels of accuracy and compliance in donning and doffing coveralls. Thus, nurses had to continuously take charge of educating and monitoring the correct use of personal protective equipment (PPE) among caregivers. The participants recalled that elderly inpatients with cognitive impairment in the LTCH were bewildered by the unfamiliar appearance of healthcare personnel wearing full-body PPE. Additionally, the participants said that even though they were aware that it was almost impossible to require patients with pre-existing conditions such as dementia or Alzheimer's disease to continuously wear face masks, they felt on edge when they saw those patients not wearing a mask during the nursing rounds, fearing the patients might be exposed to the risk of infection.

"Actually, nursing assistants are not in a profession that receives formal [education and training in] infection control, but in LTCHs, [to assist nurses], they measure vital signs and administer intravenous injections. They might be familiar with these tasks from their experience … At that time, I got to check things again." (Participant 8)

"Since many of the patients have dementia and cognitive impairment, … it was difficult to get them to wear face masks … Private caregivers paid attention to putting face masks on the patients, and when we saw them [without wearing masks], [nurses] put masks on the patients. … But, we felt nervous since they may have been exposed to COVID-19 while they were not wearing face masks." (Participant 7)

Sub-theme 4) Increased discomfort while taking on all the extra work with stifling personal protective equipment

The participants said that during the outbreak within the hospital, when they received only a specific size of PPE due to the shortage, they experienced great discomfort and frustration, and their work efficiency was reduced to only 50%. Nevertheless, while responding to the COVID-19 outbreak, nurses had to perform all the extra tasks due to restrictions on movement within the hospital, such as COVID-19 screening tests for all patients and hospital employees, medical waste management, providing PPE and daily supplies to each patient room, as well as serving meals and disposing of leftover food for patients, which had pre-

viously been performed by hospital cafeteria staff.

"It was very uncomfortable to work wearing coveralls. I couldn't even go to the restroom, and I sweated so much ... It was nearly impossible for me to work while wearing large gloves. When I typed on a keyboard. I struggled because they only supplied large [size gloves] although I have small hands. … And we were also unable to eat anything because we couldn't take off our masks." (Participant 5)

Theme 3: Awakened perspectives while responding to the outbreak

While responding to the outbreak in the hospital, the participants felt compassion for the patients, gained confidence in infection control principles, and became aware of the shortages of supplies for infection prevention and control. Additionally, the participants reported that they grew more conscious of their responsibility for patient care in their routine duties, and ultimately gained pride as nurses working in the LTCH.

Sub-theme 1) Increased compassion for patients while feeling sorry for them

The participants said that they felt pity for the patients and their family members who were not allowed to meet, even during the last moments before the patient's death. In addition, when the participants noticed weight loss, poor hygiene, and changes in skin conditions, such as the occurrence of pressure ulcers, in patients who returned from isolation after being categorized as close contacts and transferred to a hospital dedicated to infectious diseases, they thought that the patients received only minimum care there. They felt very sorry for the elderly patients, so as nurses, they tried to take better care of the patients in a more considerate manner than before.

"After experiencing such things, I suppose I have become a little bolder and more fearless. I have developed different perspectives toward patients and realized that each patient is a valuable person. … Although I don't know how long these patients will stay here, I want to provide better care to them while they are here." (Participant 9)

Sub-theme 2) Paying attention to infectious diseases and having confidence in infection control principles

Most of the participants stated that the experience made them scrutinize other pathogens and infection routes. In addition, the participants said that they came to believe that "adherence to infection control principles is the only way to prevent the transmission of infectious diseases." This belief stems from the fact that healthcare personnel have not contracted COVID-19 due to strict mask-wearing and handwashing, even though they were experiencing the outbreak within the hospital.

"Becoming more sensitive to other infectious diseases can be considered a change. For example, pneumonia started to be seen differently than before, [now viewed as a transmissible infectious disease] … We have become highly sensitive to infectious diseases [pathogens] such as MRSA [Methicillin-resistant Staphylococcus aureus] and are now paying more attention to them, which I believe a significant change." (Participant 5)

Sub-theme 3) Realization of the need for isolation facilities, supplies, and a full-time infection control nurse

The participants reported that although they converted single-bed patient rooms or empty multi-bed patient rooms into isolation rooms, they were concerned about the possibility of airborne or droplet transmission, because they used simple isolation rooms rather than negative pressure isolation rooms during a period when there was a severe lack of information about the COVID-19 transmission route. Additionally, during the outbreak in the hospital, the participants realized that the hospital's supplies designated exclusively for isolation patients (e.g., vital sign measurement devices such as blood pressure manometers) were severely inadequate. Participant 4 stated that she realized the need for a full-time infection control nurse to continuously train and monitor caregivers who work beside patients for the longest time, ensuring compliance with infection control guidelines.

"[For patients with suspected COVID-19], until [the preemptive screening] test results came out, the patients were isolated, but the isolation was carried out in a perfunctory manner. In the case of patient rooms without a restroom, guardians went in and out of the patient rooms to use shared restrooms [that were also used by the caregivers of other patients]. Also, when the patient's condition worsened, we had to enter the patient rooms to provide various treatments, so I think it [isolating patients suspected of COVID-19 in general patient rooms] was risky." (Participant 8)

Sub-theme 4) Pride as an LTCH nurse who responded to the COVID-19 pandemic

The majority of the participants expressed that they felt a sense of professional duty and pride as LTCH nurses while experiencing the COVID-19 outbreak. Participant 8 said that she was very proud of herself for not running away from the difficult situations and mentioned that while looking at other nurses who volunteered to work on the front lines of the pandemic, she felt respect for them and gained courage from them.

"I really like working as a nurse in a LTCH. I have professional pride. I felt this way even before experiencing these difficulties, but

maybe it's become more pronounced now. In a LTCH, we can always find work to do for patients. … In every part of their life, these patients need a lot of help from nurses." (Participant 3)

Discussion

This study found that nurses who responded to the COVID-19 outbreak in the LTCH faced several challenges. They were embarrassed by their own desensitization to the prolonged pandemic situation, physically fatigued from handling both their usual nursing duties and additional tasks, such as serving meals and disposing of leftover food, and emotionally exhausted from responding to greatly increased inquiry calls. Nevertheless, they also experienced compassion for patients, gained confidence in infection control principles, and felt pride in themselves for doing their best in their duties. Some of these results are similar to the findings of a previous study of LTCH nurses' experience with changes in nursing duties due to COVID-19 [8], which reported the nurses' confusion caused by the pandemic, burnout from increased workloads, and strengthened infection control practices. However, this study's significance lies in its investigation of nurses' experience in responding to the COVID-19 outbreak in the LTCH, which was not previously explored.

Compared to other types of healthcare institutions in Korea, LTCHs employ a relatively insufficient number of nurses considering the number of hospital beds, so nursing assistants provide various kinds of nursing care delegated to them. This ranges from simple activities such as measuring vital signs or blood sugar levels to more complex tasks including tube management, respiratory care, and wound care, all under the supervision of nurses [17]. Likewise, there is a shortage of staff responsible for infection control, so one of the nursing department managers or head nurses concurrently takes on these duties in the absence of a full-time infection control nurse [18]. As a result, this study showed that participants were also responsible for the education and supervision of nursing assistants and caregivers who lacked sufficient infection control knowledge while performing additional duties following the COVID-19 outbreak. These results align with the previous study's findings, indicating that LTCH nurses had to handle various additional tasks since the start of the pandemic, including educating caregivers on COVID-19 responses and infection control guidelines, as well as monitoring and supervising their compliance with these guidelines [11]. As the demand for strengthened infection control and full-time infection control nurses in LTCHs has increased following the COVID-19 pandemic, the Ministry of Health and Welfare announced the introduction of a new "fee for infection prevention and control" reimbursement for LTCHs in July 2023 [19]. In order to receive each grade of this infection prevention and control fee reimbursement, LTCHs must appoint at least one full-time nurse who either holds a certificate in infection prevention and control or has at least one year of working experience in the infection control unit but does not perform inpatient nursing duties. The legislation for LTCHs establishing standards for the placement of full-time infection control nurses and financially supporting them is considered a positive change following the pandemic. As shown in this study, nursing assistants and caregivers have insufficient basic knowledge about infection control. Therefore, newly appointed full-time infection control nurses at LTCHs are required to improve the level of infection control in these hospitals by periodically implementing education and monitoring among nursing assistants and caregivers, who comprise a major part of the nursing workforce in LTCHs.

In this study, the participants reported that they recognized the shortages of isolation facilities and supplies for infection prevention and control in the hospital through their outbreak experience. These results are consistent with the findings of previous studies, which showed the inappropriate operation of isolation rooms at LTCHs in Korea [20] and reported that infection control practitioners in Korean LTCHs experienced significant difficulties performing their duties due to shortages of supplies, facilities, and resources, especially as workloads related to infection control continued to increase [21]. Although the "fee for infection prevention and control" has been recently introduced, it is likely to be insufficient for the establishment and operation of isolation rooms, which are essential for initial responses to infectious disease outbreaks in LTCHs, as well as the provision of disposable infection control supplies. Therefore, further expansion of political and financial support is needed to improve the facilities and the environment for infection control of LTCHs. As shown in the results of this study, issues regarding elderly patients or residents in long-term care facilities who are vulnerable to infections but struggle to cooperate with infection prevention and control measures or COVID-19 responses due to cognitive impairment have been consistently discussed in numerous studies worldwide [22-24]. However, temporary measures, such as discharging elderly patients with COVID-19 to be cared for at home or allowing facilities to isolate such patients in a confined space after medication administration, were likely to cause other ethical problems [25], and appropriate alternative solutions have not been found. Therefore, it is necessary to strengthen and improve the facilities' competencies in LTCHs for effective infec-

tion control and responding to outbreaks.

Upon witnessing the unfortunate situation where patients could not meet their families even during their last moments before death, the participants in this study felt compassion for the inpatients, which led them to have more affection and concern toward patients. Through this experience of responding to the COVID-19 outbreak, participants eventually gained a sense of duty and professional pride in their roles as LTCH nurses. These results are similar to the findings of a foreign study conducted on nurses in Spain, Italy, Peru, and Mexico, which reported that nurses felt a sense of obligation and expressed satisfaction while taking care of elderly patients in LTCHs who were most vulnerable and defenseless against infections during the COVID-19 pandemic [26]. Nurses can have an opportunity to newly recognize the responsibility of nursing care and the role of infection control, which is a valuable aspect of the global pandemic caused by the emerging infectious disease. The pandemic also became a catalyst for domestic long-term care facilities to introduce new services to maintain life satisfaction among elderly patients, such as mediating video calls with family members, when restrictions on patient visits in hospitals were implemented during the nationwide COVID-19 pandemic [27]. However, there were also negative consequences, as reported by a previous study in Singapore, which found that cohort isolation for COVID-19 in long-term care facilities resulted in problems, including the use of physical restraints and increased fall risk [28]. Likewise, the participants in this study expressed sympathy for the deteriorating changes in weight, hygiene, and skin conditions observed in patients upon their return from isolation after being categorized as close contacts and transferred to an LTCH dedicated to infectious diseases. These findings indicate that the quality of fundamental care deteriorated as a result of focusing more on responses to infectious diseases. A previous study of nurses who worked in hospitals dedicated to infectious diseases, which were urgently designated during the unprecedented pandemic situation, found that they struggled due to insufficient education on donning and doffing PPE, a shortage of experienced nursing staff, and the absence of clear guidelines for the care of COVID-19 patients, especially in the early stages of hospital operations [29]. Along with the physical and mental exhaustion shown in this study, the difficulties faced by nurses working in LTCHs dedicated to infectious diseases might have led to a situation where nurses could not afford to devote time and attention to the direct fundamental care of elderly patients with infectious diseases, including physical assessment and hygiene maintenance. However, there is a lack of studies investigating such situations and problems among nurses who worked in LTCHs dedicated to infectious diseases. Therefore, further research is needed to examine the operational status of LTCHs dedicated to infectious diseases and the experiences of nurses working in these hospitals. This will provide baseline data for improving the quality of nursing care for patients in LTCHs dedicated to infectious diseases in the event of a future pandemic.

Only nurses who responded to the COVID-19 outbreak in the LTCH in Seoul participated in this study; thus, the findings may differ from the experiences of nurses working in LTCHs with a relatively smaller number of nurses, LTCHs in other regions, or different levels of healthcare institutions. In addition, the experiences of the participants reported in this study should be understood in the context of the COVID-19 situation in Korea during the early months of 2021, given the ongoing changes in outbreak occurrence patterns and national response policies throughout the prolonged pandemic. There may be differences in LTCH nurses' experiences regarding responses to the COVID-19 outbreak depending on continuously changing national response policies over time. Therefore, follow-up studies, such as multi-center studies, are necessary to examine and compare the LTCHs' response measures and results, as well as nurses' experiences across different policy periods.

Conclusions

As a result of investigating the LTCH nurses' experiences responding to the COVID-19 outbreak using a qualitative descriptive methodology, it was found that the participants initially felt embarrassed and worried due to the sudden occurrence of the outbreak, but they actively responded to the situation and developed a sense of professional pride as LTCH nurses in the process. This study reconfirmed the insufficient infection control environments of LTCHs for properly responding to the pandemic. The results of this study also highlighted nurses' experiences of physical and mental exhaustion during the COVID-19 outbreak, as well as the poor condition of elderly patients who were transferred to LTCHs dedicated to infectious diseases and returned to the hospital after the isolation period. To prevent future outbreaks of infectious diseases in LTCHs and enhance response levels, it is necessary to secure the required infrastructure at LTCHs, including workforce, facilities, and supplies for infection control. Furthermore, continuous efforts for improvement are needed, such as providing infection control education and training not only for nurses, but also for nursing assistants and caregivers.

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Eun Jo Kim contributed to conceptualization, data curation, methodology, writing-original draft, review & editing, and investigation. JaHyun Kang contributed to conceptualization, data curation, methodology, writing-revisions, review & editing, supervision, and validation.

Data availability

Please contact the corresponding author for data availability.

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