Major Article

Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea

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Background: This study aimed to identify nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus (MERS-CoV). Their experiences can be useful to establish a safer healthcare system in preparation for infectious disease outbreaks.
Methods: Data were collected through in-depth individual interviews and analyzed using Colaizzi's phenomenological method. Participants were 12 nurses.
Results: Nurses' experiences of care for patients with MERS-CoV were categorized as follows: "Going into a dangerous field," "Strong pressure because of MERS-CoV," "The strength that make me endure," "Growth as a nurse," and "Remaining task."
Conclusions: It is necessary to examine the difficulties and demands of healthcare providers for establishing a safe healthcare system to respond effectively when national disasters occur. In addition, it is necessary to develop strategies to protect healthcare providers from severe physical and psychological stress.

BACKGROUND

Middle East respiratory syndrome (MERS) is an acute infectious disease caused by MERS-coronavirus (MERS-CoV).[1] It affects the respiratory system, including lungs and bronchial tubes, and infected patients experience fever, cough, dyspnea, vomiting, and diarrhea for a duration ranging from 2 to 14 days.[1] MERS-CoV was first reported in Saudi Arabia in September 2012 and has been reported in 27 countries since May 2017. A total of 2040 people have been infected, and 712 have died.[2] Compared to severe acute respiratory syndrome (SARS) and influenza A virus subtype H1N1 (H1N1), MERS-CoV has infected fewer people, but the average fatality was 35%, a rate similar to ebola.[2] MERS-CoV reached South Korea in May 2015 via travelers from the Middle East. It resulted in 186 infected people, 16,752 isolated targets, and 38 deaths. South Korea became the country with the second most number of MERS-CoV occurrences, after Saudi Arabia.[3]

MERS-CoV rapidly spread in South Korea within 1 month after the first diagnosis, due to family care, visits from family members, hospital shopping, lack of isolated rooms, and overcrowded emergency rooms.[4] Although South Korea had experienced H1N1 in 2009, the coping system for the prevention and control of infection did not function appropriately.[5] Because of MERS-CoV's uncertainty, inaccurate information, and late governmental confrontation, public trust weakened as the infection and mortality rates increased.[6]

Not only ordinary people but also healthcare providers were afraid of MERS-CoV. In particular, nurses who interacted closely with infected patients became afraid and anxious that MERS-CoV would affect them and their families, as they saw cases of healthcare providers becoming infected.[7] Nurses who cared for patients with the new infectious disease seemed to be afraid due to lack of information.[8] In addition, they felt ethical pressure because they were obligated to provide care despite the threat to their safety.[9] During the period in 2015 when MERS-CoV was prevalent, the Korea Institute for Health and Social Affairs conducted a survey of nurses who were caring for MERS-CoV patients.[10] The survey indicated that 22.2% of nurses experienced post-traumatic stress disorder. A study about the long-term effect of SARS patient care reported that healthcare providers felt high levels of post-traumatic stress even after 13-26 months.[11] Therefore, it is necessary to explore how South Korean nurses perceive the experience of MERS-CoV patient care 12 months after caring for MERS-CoV patients. It is further necessary to establish a safety system for healthcare providers and, by

examining nurses' experiences, prepare for other future infectious disease outbreaks.

In such cases, when a deep understanding of a specific phenomenon is required, qualitative research is recommended. Qualitative research clarifies participants' awareness of the phenomenon, allows comprehension, and offers insights about how awareness affects their actions.[12] Additionally, a phenomenological study is appropriate to deeply understand the essence and meaning of human experiences in a situational context that exist in individuals' consciousness.[12]

Literature review of studies examining the experience of nurses who treated a new infectious disease indicated that nurses who cared for SARS and H1N1 patients lacked exact information, guidelines for patient care, and individual protection equipment. Thus, they experienced a high level of stress.[13,14] In addition, they experienced extreme stress after infectious disease patients passed away.[15] Nurses who cared for MERS-CoV patients in Saudi Arabia also experienced fear from lack of information about MERS-CoV and psychological trauma owing to the infection of their colleagues and deaths of their patients.[13] However, there are differences in nurses' experiences across countries because nursing resources, healthcare systems, and cultural backgrounds differ. After MERS-CoV outbreaks, studies on topics such as recognition of the danger of MERS-CoV, effectiveness of personal protection equipment (PPE), and ethical problems were conducted in South Korea.[4,5,16,17] One study examined post-traumatic stress and influencing factors for nurses who cared for MERS-CoV patients.[10] However, the survey was conducted immediately after the MERS-CoV outbreak and addressed only stress or negative experiences. It is necessary to identify whether nurses continue to experience negative emotions such as post-traumatic stress after a certain amount of time has passed. Particularly, a study of the overall, holistic experience including not only the negative but also the positive experiences and support factors is needed.

Therefore, our study aimed to identify psychological stress in nurses who cared for MERS-CoV patients and to identify systemic problems of the Korean healthcare system using a phenomenological approach to deeply understand the meaning and essence of nurses' experiences. This research will be a basic resource to establish a safer healthcare system that can protect both patients and healthcare providers and respond quickly and systematically to similar situations in the future.

MATERIAL AND METHODS

Study design

This qualitative study used the phenomenological method of Colaizzi[12] to explore the following research question: "What were the nurses' experiences of caring for MERS-CoV patients?" Colaizzi's method of analysis focuses on understanding the essential structure and meaning of human experiences.[12] It focuses on deriving the common attributes of overall participants rather than individual characteristics. Therefore, it is also useful for analyzing participants' experiences without distortion. This method was selected because it was appropriate for understanding the meanings of nurses' experience in caring for MERS-CoV patients.

Participant selection and researcher preparation

Participants were nurses with experience caring for MERS-CoV patients and who were able to fully articulate their experiences. The researcher explained the study's purpose and methods by phone, and the nurses decided whether they wanted to participate. Snowball sampling was used to recruit participants, with participants recommending other participants.

Table 1
Characteristics of participants (N = 12)

Characteristics		n or mean ± SD
Sex	Men	4
	Women	8
Age (years)		31.83 ± 6.73
Clinical career (years)		6.88 ± 6.05
Education	Bachelor's degree	11
	Associate's degree	1
Marital status	Married	6
	Unmarried	6
Position	General nurse	10
	Head nurse	2
Work setting	Ward	9
	Intensive care unit	3

Participants were added until theoretical saturation was reached and no more new essential meaning could be derived from participants' statements. Participants were 12 nurses working at general hospitals, and they were recruited from 4 hospitals; there were 8 female and 4 male participants. The average age was 31.83, and the average clinical career had a duration of 6.88 years. In terms of education level, 11 participants had bachelor's degrees, and 1 had an associate's degree; 6 participants were married, and 2 were head nurses. Nine participants worked in wards, and 3 worked in intensive care units (Table 1).

The researcher, who had significant experience with other qualitative studies, was an important part of the qualitative research. The researcher had been working for more than 10 years at a department of quality improvement that handled infection control and patient safety. Since the research funds were provided as a one researcher's task, the researcher conducted the study alone. The researcher also attempted to reflect the participants' experiences and thoughts without distorting them with opinions and prejudices, by maintaining a neutral perspective that did not affect the study results.

Ethical consideration

The study was approved by the Institutional Review Board of the researcher's university (No.1041231-160705- HR-043-02). Ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy were monitored by the author.

Data collection

Data were collected using individual in-depth interviews conducted from December 15, 2016, to March 20, 2017. The researcher met each participant once or twice, and each interview lasted 50-130 minutes. Interviews were conducted by a researcher with significant experience interviewing healthcare providers. The researcher explained the purpose of study, agreement, and progress method before starting the interview. The main questions were as follows: "What kind of experience did you have while caring for MERS-CoV patients?" "What kind of experience did you have after caring for MERS-CoV patients?" "What would you like to suggest for infected patient care?" Interviews were recorded with participant agreement. The interviews were transcribed, including nonverbal utterances such as laughter, silence, and sighs.

Data analysis

Data were analyzed using qualitative content analysis. The participants' feelings and experiences were understood holistically by