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#### Research Article

# Exploring Nursing Intention, Stress, and Professionalism in Response to Infectious Disease Emergencies: The Experience of Local Public Hospital Nurses During the 2015 MERS Outbreak in South Korea



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#### SUMMARY

*Purpose:* This study aimed to examine levels of stress and professionalism of nurses who provided nursing care during the 2015 Middle East respiratory syndrome outbreak based on their experience, to investigate the nurses' intention to respond to possible future outbreaks in relation to their experience during the outbreak, and to determine the relationship between the outbreak experience and nursing intention considering stress and professionalism.

Methods: A self-administered questionnaire was designed based on modifications of related questionnaires, and used to assess levels of stress, professionalism, and nursing intention according to participants' experiences during the outbreak. Multiple regression analysis was used to examine the relationship between the outbreak nursing experience and nursing intention considering stress and nursing professionalism.

Results: The overall stress, professionalism, and nursing intention scores for the firsthand experience group were 33.72, 103.00, and 16.92, respectively, whereas those of the secondhand experience group were 32.25, 98.99, and 15.60, respectively. There were significant differences in professionalism and nursing intention scores between the groups (p = .001 and p < .001, respectively). The regression analysis revealed that the regression estimate between stress and nursing intention was B(SE) = -0.08(0.02), beta = -0.21, p < .001 and the regression estimate between professionalism in nursing and nursing intention was B(SE) = 0.05(0.01), beta = 0.23, p < .001.

Conclusion: Prior outbreak nursing experience was importantly associated with intention to provide care for patients with a newly emerging infectious disease in the future considering stress and professionalism. Gathering information about nurses' experience of epidemics and regular assessment of job stress and professionalism are required.

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#### Introduction

Newly emerging infectious diseases are defined as diseases that have been recognized in human hosts for the first time [1]. They tend to originate within a country and severely affect the associated population, often causing detrimental effects. With rapid increases in international and overseas travel because of globalization and

developments in transportation, there is a greater likelihood of worldwide spread of newly emerging infectious diseases [2]. One of the well-known newly emerging infectious diseases of the 21<sup>st</sup> century, that had a global effect, was severe acute respiratory syndrome (SARS). It began in China, from where it spread to 29 countries, resulting in 8,422 cases and 916 deaths, worldwide [3]. Other examples include novel swine-origin influenza A (H1N1) that originated in Mexico in 2009, Ebola in Guinea in 2013, and the Middle East respiratory syndrome (MERS) in 2012.

MERS is a respiratory disease caused by the MERS-associated coronavirus (MERS-CoV). From April 2012 to October 2015, approximately 1,616 confirmed cases were reported in 26 countries, resulting in 624 deaths [4]. The infectivity of MERS-CoV is

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known to be lower than that of SARS-CoV, but MERS has a higher mortality rate (30–40% vs. 9.6%); Saudi Arabia reported 1,279 confirmed cases and 549 deaths [4]. The first case of MERS in South Korea—occurring in a male patient who had visited Saudi Arabia—was confirmed on May 20, 2015. Fear of MERS subsequently spread throughout the peninsula, with 186 confirmed cases and 38 deaths (mortality rate 20.4%) within approximately 2 months [5]. In the South Korean MERS outbreak, 21.0% of confirmed cases occurred in medical workers and 31 cases were hospital-acquired infections [6]. The first confirmed case among medical workers occurred in a nurse who had had direct contact with the index case; her case was confirmed a week after the index case presented.

Medical workers, especially nurses, are vulnerable to many occupational risks and experience a great deal of emotional stress related to their work [7]. It was reported that nurses working with patients with SARS experienced psychological distress [8]. Moreover, 91.8% of healthcare providers in Saudi Arabia, nearly half of them nurses, were found to have a negative attitude toward treating patients with suspected or confirmed MERS [9]. As MERS-related deaths began to be reported, levels of anxiety and stress increased, mainly because of the possibility of involuntary placement and dispatch to other front-line areas with a workforce shortage. Moreover, if healthcare workers involved in the management of cases are infected or die, there is a higher probability of workers avoiding suspected cases [10].

In an unusual situation requiring emergency management, such as the spread of a newly emerging infectious disease, professionalism in nursing is required to deal with the situation. The MERS outbreak challenged medical professionalism, defined as those values that sustain the interests of the patient above one's own interests [11]. Despite the efforts of many medical personnel, some nurses resigned from the national medical center and some local clinics avoided suspected patients during the epidemic. Nurses' negative and passive attitudes about patients with newly emerging infectious diseases impede the development of appropriate patient—nurse relationships and decrease the quality of medical care and patient satisfaction [12]. In such a situation, the safety not only of confirmed patients but also of the susceptible general population may not be guaranteed.

Nursing intention is the voluntary and active provision of nursing care. In the context of newly emerging infectious diseases, nursing intention is of paramount importance in overcoming these diseases. Without proper provisions of medical care, infectious diseases are easily distributed and may cause detrimental effects that are avoidable if appropriately managed. Abrupt resignation of nurses because of stress that developed during an epidemic of an infectious disease not only causes a workforce shortage, but also maximizes the distress of other remaining medical personnel by influencing the overall workplace atmosphere. In addition, based on a previous research finding [12] that showed how professionalism in nursing influenced nursing intention, it is necessary to evaluate nursing intention with regard to professionalism as well. Therefore, in this study, it was hypothesized that nurses' intention to respond to possible future instances of infectious disease may not only be associated with prior outbreak nursing experience, but also their stress at the time of the outbreak and professionalism in nursing. To evaluate not only the effect of the outbreak experience but also the role at the time, we developed the following study objectives. The aims of the present study were as follows: (1) to examine levels of stress and professionalism of nurses who provided nursing care during the 2015 South Korean MERS outbreak according to their experience, (2) to investigate the nurses' intentions to respond to possible future infectious disease outbreaks in relation to their experience during the outbreak, and (3) to determine the relationship between nursing intention and experience during the outbreak considering stress and professionalism.

#### Methods

Study design and data collection

This was a cross-sectional descriptive study conducted at five local public hospitals in June 2016 to understand nursing intention to respond to possible future infectious disease outbreaks considering stress and professionalism of nurses who experienced MERS by voluntarily completing prepared questionnaires. A self-administered questionnaire comprising 60 questions based on modifications of previously designed questionnaires was used for the study. The questionnaire was designed to evaluate personal and career-related characteristics (nine questions); experiences during the outbreak (five questions); and level of stress at the time of the outbreak, professionalism in nursing, and nursing intention. A five-point Likert scale was used (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree) to evaluate the level of stress, professionalism in nursing, and nursing intention

#### Questionnaire for stress

The 12 questions evaluating levels of stress during the outbreak were based on a trauma appraisal questionnaire [13] and a stress questionnaire developed by the Korean Neuro-Psychiatric Association for medical workers who experienced the MERS outbreak [14]. The stress questionnaire comprised six questions about fear, four about isolation, and two questions about outrage. The maximum score for stress during the outbreak was 60 and higher values indicated higher levels of stress. Cronbach  $\alpha$  was .87.

#### Questionnaire for professionalism

The questionnaire for professionalism in Korean nurses [15] was edited and used to evaluate professionalism in the nursing of patients with newly emerging infectious diseases. It comprised 29 questions about self-esteem, social awareness, professionalism in nursing practice, and work independence. In this study, nursing intention is defined as voluntary and active provision of nursing care for patients with any newly emerging infectious diseases in the future. The maximum score for professionalism in nursing was 145 and nurses with higher values were considered to have higher levels of professionalism. Cronbach  $\alpha$  was .92.

#### Questionnaire for nursing intention

The Instrument for Predictive Nursing Intention for SARS Patient Care [16], based on the theory of planned behavior [17], was modified in this study to evaluate the intention of providing nursing care to patients with newly emerging infectious diseases; five questions about positive behavior beliefs, negative behavior beliefs, norms, and control beliefs were included. The maximum score for nursing intention was 25 and the higher values indicated the higher level of nursing intention in the future. Cronbach  $\alpha$  was .71.

#### Study participants and classification

Five local public hospitals that participated in patient care during the MERS outbreak were sampled conventionally. Of these, two local public hospitals were classified as MERS-treating hospitals with beds authorized for inpatient care and facilities for isolation of confirmed cases. One of the other three hospitals was a MERS-treating hospital with no authorized beds, and the other two were MERS-screening hospitals. In each hospital, the questionnaire

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