Factors Influencing Disaster Management Activities of Nursing Students

Young-Ran Lee 01, Sun-Nam Park 01, and Eunjeong Nam 01

01 Seoul Women's College of Nursing, Seoul, Republic of Korea, Seoul, Republic of Korea

Abstract

This study aimed to identify factors influencing disaster management activities among fourth-year nursing students by exploring their disaster-related experiences, ego-resilience, self-efficacy, disaster awareness, and general disaster preparedness. From November to December 2023, surveys were conducted among 152 nursing students from universities in Seoul, Gyeonggi, Chungcheong, and Gyeongsang regions. The study found that 47% of nursing students had experienced a disaster, with 82.2% receiving disaster management education within their nursing curriculum. Of those, 91.8% learned theoretical concepts such as 'disaster concepts and management systems.' The preferred method for disaster management education was a combined theoretical and practical approach, favored by 64.5% of the students. Results showed significant positive correlations between disaster management activities and ego-resilience, self-efficacy, disaster awareness, and general disaster preparedness. General disaster preparedness and disaster awareness were identified as influencing factors of disaster management activities, explaining 26% of the variance. Based on these findings, the study suggests developing nursing education programs that enhance disaster management capabilities by utilizing a mixed-method approach combining theory and practice to improve disaster awareness and general disaster preparedness.

Key words: disaster management activity, disaster awareness, disaster preparedness, nursing student

I. Introduction

Disaster is defined as extensive losses that exceed an individual's ability to cope, often necessitating external support at national and international levels (Achora & Kamanyire, 2016; WHO, 2017). Disaster management is crucial for the preservation of human life and safety, involving prevention, preparedness, response, and recovery on a continuum.

Recent forms and challenges of disasters necessitate nursing professionals to possess preparedness capabilities beyond traditional disaster management, requiring expertise and efficiency in various aspects (Lee, Han, & Cho, 2015). Cultivating disaster preparedness among nursing students is fundamental for their competence as future nurses, emphasizing the need to enhance disaster management skills through regular educational programs (Kang & Ha, 2022).

Following experiences with the COVID-19 pandemic, awareness has increased regarding the necessity for disaster-related research among nursing students and professionals. However, studies examining factors influencing disaster preparedness, including self-efficacy, resilience, and general disaster preparedness, are scarce.

This study aims to identify factors influencing disaster management activities among nursing students, including their experiences related to disasters, ego-resilience, self-efficacy, disaster awareness, and general disaster preparedness. The goal is to gather foundational data for developing educational programs that enhance disaster management competencies among nursing students.

II. Research Method

1. Study Design

This study is a descriptive survey research aiming to identify factors influencing disaster management activities among nursing students.

2. Participants

The participants of this study are 152 fourth-year nursing students from universities in Seoul, Gyeonggi province, Chungcheongbuk province, and Gyeongsangbuk province.

The sample size for this study was determined using the G*power 3.1 program. With a medium effect size of .15, a significance level of .05, a power of .95 and five predictors in a multiple regression analysis, it was determined that at least 138 participants would be needed.

3. Research Instruments

3.1 Disaster-related characteristics

Disaster-related characteristics include experiences with disasters, educational experiences related to disasters, and specific education within nursing curricula focusing on disaster management.

3.2 Ego-resilience

Park (1996) utilized a resilience questionnaire that was refined and adapted by Klohnen (1996) from the California Psychological Inventory (CPI) to the California Adult Q-Set (CAQ), consisting of 48 items showing correlations of .20 or higher. From these, 29 items were selected after excluding those related to other subscales of the CPI. This questionnaire consists of 9 items on self-confidence, 8 items on interpersonal efficiency, 10 items on optimistic attitude, and 2 items on anger control, utilizing a Likert 5-point scale. Higher scores indicate a higher level of resilience.

3.3 Self-efficacy

Kim (1994) adapted a 14-item questionnaire originally developed by Sherer and Maddux (1982). The scale measures self-efficacy on a scale from 1 ("Not at all confident") to 10 ("Completely confident"). Higher scores indicate greater levels of self-efficacy.

3.4 Disaster awareness

The survey developed by Lee, Han, and Cho (2016) comprises a total of 20 items on a 5-point scale questionnaire. It includes 4 items on disaster responsibility, 4 items on disaster management, 6 items on disaster causes, and 6 items on participation in disaster management activities. Higher scores indicate a more positive perception and understanding of disaster management.

3.5 General disaster preparedness

Han and Kwon (2019) developed an enhanced questionnaire comprising 16 items. To supplement this, 4 additional

items were incorporated based on 2022 disaster statistics from the Ministry of Public Administration and Safety and the National Disaster Safety Portal in South Korea, focusing on typhoons, traffic accidents, infectious diseases, and earthquakes. In total, the questionnaire now consists of 20 items measured on a 5-point scale. Higher scores indicate higher levels of disaster preparedness.

3.6 Disaster Management Activities

Han et al. (2018) developed a 27-item questionnaire on Disaster Preparedness Nursing Practices (DPNP) measured on a 5-point scale. This questionnaire consists of 5 items on prevention and mitigation in the pre-disaster phase, 16 items on response during the disaster phase, 6 items on recovery in the post-disaster phase. Higher scores indicate a greater perceived ability to perform nursing practices effectively in disaster preparedness.

4. Data collection

This study was conducted after obtaining approval from the Institutional Review Board (IRB) where the researcher is affiliated (SWCN-202310-HR-002-03). From November to December 2023, the researcher provided research information, including the purpose and methods of the study, along with a research explanation document, to the participants. Participants who provided written consent for participation were then administered the questionnaire. A total of 152 responses were collected and analyzed for this study is a descriptive survey research aiming to identify factors influencing disaster management activities among nursing students.

5. Data analysis

Data collected in the study were analyzed using the IBM SPSS Statistics 26.0 program (IBM Corp). The general characteristics of the participants and variables were analyzed using frequency/percentage and mean/standard deviation (SD). The correlations between ego-resilience, self-efficacy, disaster awareness, general disaster preparedness, and disaster management activities were calculated using Pearson's correlation coefficients. Additionally, stepwise multiple regression analysis was conducted to identify the factors influencing the disaster management activities

III. Results

1. Disaster-related characteristics

Among the study participants, 137 (90.1%) were female, with an average age of 24.57 ± 2.67 years. Of the nursing students, 71 (47%) had experienced a disaster, with the most common experience being an 'infectious disease epidemic,' reported by 58 students (82.8%). A total of 146 students (96.1%) had received disaster education, with the most common training topics being 'fire evacuation drills' for 75 students (54.8%), followed by 'earthquake evacuation drills' for 40 students (29.2%), and 'infectious disease prevention training' for 15 students (10.8%).

Regarding desired disaster education topics, 44 students (31.3%) identified 'fire evacuation drills' as necessary, followed by 'transportation accident response training (accidents)' for 32 students (22.7%), and 'infectious disease prevention training' for 27 students (19.1%). A total of 125 students (82.2%) had received disaster management education within their nursing curriculum, with 112 students (91.8%) learning theoretical concepts such as 'disaster concepts and management systems.' Seventy-six students (64.5%) preferred a combined theoretical and practical training approach for disaster management education.

In terms of nursing courses offering disaster management education, community nursing (68.5%), psychiatric nursing (15.3%), and adult nursing (7.2%) were the most frequently cited disciplines.

2. Correlations among major variables

Disaster management activities showed significant positive correlations with the ego-resilience(r=.19, p<.01), self-efficacy(r=.34, p<.01), disaster awareness(r=.28, p<.01), and general disaster preparedness(r=.43, p<.01). Disaster awareness showed significant positive correlations with the ego-resilience(r=.36, p<.01), and self-efficacy(r=.27, p<.01). General disaster preparedness showed significant positive correlations with the ego-resilience(r=.26, p<.01), and self-efficacy(r=.30, p<.01).

3. Factors influencing disaster management

General disaster preparedness and disaster awareness were identified as influencing factors of disaster management activities with an explanatory power of 26%.

IV. Conclusions

This study aimed to investigate the impact of ego-resilience, self-efficacy, disaster awareness, and general disaster preparedness on disaster management activities among nursing students, in order to provide foundational data for developing educational programs to enhance their disaster management capabilities. Nursing students preferred a mixed-method approach combining theory and practice for disaster-related education. The study found positive correlations between nursing students' ego-resilience, self-efficacy, disaster awareness, general disaster preparedness, and disaster management activities. The influencing factors on nursing students' disaster management activities were identified as disaster awareness and general disaster preparedness. Based on these results, the study proposes the development of nursing education programs aimed at enhancing disaster management capabilities. This includes strategies to improve ego-resilience, self-efficacy, disaster awareness, and general disaster preparedness, and suggests the incorporation of both theoretical knowledge and practical training methods in educational approaches.

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