

# Knowledge, Experience, and Interest in Forensic Medicine in Emergency Nurses

Eunmi Park<sup>1</sup> and Yeoungsuk Song<sup>2</sup>

<sup>1</sup>*Doctoral Student, Graduate School of Nursing, Kyungpook National University,  
Daegu, Korea*

<sup>2</sup>*Associate Professor, College of Nursing, Kyungpook National University,  
Daegu, Korea*

<sup>1</sup>*levite73@hanmail.net, <sup>2</sup>asansong@knu.ac.kr*

## Abstract

*This study examined emergency nurses' forensic medical knowledge, experience, and interest in administering accurate first aid based on the medical decision to preserve the spot and decisive physical evidence for settlement. The research was carried out on nurses working in the emergency medical center. A structured questionnaire was used to analyze the research tool Kim, which was analyzed using SPSS WIN 17.0. Frequency, percentage, mean, and standard deviation were used. Emergency nurses participated in this study. As to the knowledge of forensic medicine, 71.2% answered the question about cutting the cloth and then giving first aid. As to the forensic medicine experience, have you ever seen a patient involved in a crime? The average score was 2.56. The average score on the interest in forensic medicine, which is necessary to have forensic medical knowledge in emergency center workers, was 3.36. This study may provide forensic education for emergency nurses to get evidence of the patient's forensics for accurate initial patient assessment.*

**Keywords:** *Forensic, Medicine, Nurse, Knowledge, Experience, Interest*

## 1. Introduction

### 1.1. Problem statement

As society has become more developed and complicated, people who live in society are experiencing diverse accidents, which are becoming more spectacular. This phenomenon has changed the public understanding of Emergency Medical Services. As people expected more from Emergency Medical Services, the government of South Korea commenced a study entitled 'Emergency research on the construction of the medical system' in December 1989, and the government established 129 Emergency Information Centers under the Ministry of Health and Welfare and 119 rescue teams under the municipal governments [1]. As a result of these efforts, additional Emergency Medical facilities were built for 31 local Emergency Medical Centers, 120 Local Emergency Medical Centers, and 262 Local Emergency Medical Facilities in South Korea in December 2016 [2].

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In a previous study, 94.8% of paramedics have experienced taking care of patients-related crimes during their duty, and 91.9% of them have seen crime-related deaths [3]. According to the crime information management system report by the Daegu Regional Police Agency, violent crimes most frequently occurred at 00:00 ~ 04:00, which was 8,958 (30.0%) [4]. As medical services are usually not available at this time, victims of violent crime scenes have to receive immediate first aid services and be transported to the appropriate Emergency Medical Center. Nurses in emergency medical centers can neglect or lose necessary forensic evidence from victims' clothing or bodies if they do not know forensic medicine [5]. Therefore, it may be compulsory for nurses who work in emergency medical centers to obtain knowledge about forensic medicine to help victims [6].

Furthermore, forensic medicine allows testing criminals' identification by checking bloodstain, hair, sperm, mental assessment, etc. It will help police to find criminals and protect innocent suspects, which, in turn, eventually would prevent similar crimes [7]. However, nurses and the general public need more understanding of forensic medicine [8].

Therefore, this study provides a scope of forensic medicine by investigating nurses' understanding of it when working in Emergency Medical Centers. Nurses' current knowledge about forensic medicine, experiences, and interests will be used as data.

## **2. Methodology**

### **2.1. Design**

This study is a descriptive study to investigate the depth of knowledge about forensic medicine, experience, and interest of nurses working in Emergency Medical Centers.

### **2.2. Participants**

Sixty-six participants were recruited from Emergency Medical Centers from five hospitals in D city.

### **2.3. Method**

A survey questionnaire was used as a study method developed by Kim [3]. As the questionnaire was initially designed for paramedics, some questions were modified for the present study participants. Cronbach's  $\alpha$  in this study was .77. The Cronbach's  $\alpha$  of knowledge, experience, and interest as sub-factors were .53, .88, and .87, respectively.

### **2.4. Data collection**

The researchers directly explained the purpose and method of the study to the five nursing departments of the Emergency Medical Center of D City General Hospitals. The written form of informed consent was given to the potential participants, including the study purpose, method, and the rights of the participants, such as they can withdraw their participation at any stage and will give the information remaining anonymously.

## 2.5. Analysis

Corrected data were analyzed using SPSS WIN 17. 0. The subjects' general characteristics were analyzed using frequency analysis and descriptive statistics to determine the error, percentage, mean, and standard deviation.

## 3. Result

### 3.1. General characteristics of subjects

Academic achievement was 65.2% for a diploma in nursing. Working experience in Emergency Medical Centers was 69.7% for 1-5 years. As for the position, the general nurse was 84.8%. The following were multiple responses to difficulties during work, with 69.7% of non-co-ordination of the patient and their caregivers [Table 1].

86.4% of respondents were interested in forensic medicine because of the influence of TV and media (drama, miniseries, etc).

Table 1. General characteristics of subjects (N=66)

Category	Division	N	%
Gender	Male	5	7.6
	Female	61	92.4
Age (yrs)	20-29	35	53.0
	30-39	19	28.8
	>40	12	18.2.2
Education	Associated	43	65.2
	Bachelor	19	28.7
	>Master	4	6.1
Emergency Room Experience (yrs)	1-5	46	69.7
	6-10	7	10.6
	11-15	5	7.6
	16-20	2	3.0
Title	Staff Nurse	56	84.8
	Charge nurse	6	9.1
	Unit manager	4	6.1
Complaints While Performing Tasks*	Lack of specialized medical knowledge	15	22.7
	Noncooperation of the patient's guardian	46	69.7
	Lack of first aid knowledge	8	12.1
	Lack of free time	40	60.6
	Lack of cooperation with other departments	27	40.9
	Other	4	6.1

\* Multiple responses

### 3.2. Knowledge of forensic medicine

In terms of forensic evidence acquisition for victims with a stabbed wound, 71.2% of the participants answered victims' clothes need to be cut off with scissors before applying first aid treatment [Table 2].

### 3.3. Experiences in Forensic Medicine

The average score of total questions about experiences in forensic medicine was 1.89 out of 5 points. Participants responded, "During work, have you experienced an admitted patient related to crime?"

Table 2. Result of knowledge for obtaining forensic medical evidence (N=66)

Category	Division	N	%
Caring for patients with weapon wound	Cut clothes with scissors, then perform first aid	47	71.2
	First aid on the bleeding site without removing clothes	10	15.2
	Roll up clothes where it's hiding the wound, then perform first aid	5	7.6
	Take off clothes without any damage, then perform first aid	3	4.5
Cutting clothes on the bleeding area	Entirely cut the clothes and remove them from the body	32	48.5
	Cut holes and expose the bleeding area	2	3.
	Cut bleeding area but avoid holes	23	34.8
	Cut all around the bleeding area with scissors	8	12.1
	Other	1()	1.5
Handling clothes cut by patients	Collect it and throw it away in infectious waste	11	16.7
	Collect it, then let the patient or guardian dispose of it	26	39.4
	Do not care		1.5
	Turn it over to the police officer	24	36.4
	Other		6.1
Reasons for not putting efforts to obtain forensic evidence*	Lack of forensic knowledge	27	40.9
	Feel no need (not a nurse-specific job)	1	18.2
	Lack of time (too busy with patient care)	32	48.5
	Lack of workforce	19	28.8
	There is no need because there are doctors	4	6.1
	Because police officers will arrive soon	12	18.2
	Post-incident statements are inconvenient	6	9.1
	Do not think it is my duty	5	7.6
	Other	4	6.1

\* Multiple responses

The average score was 2.56, the highest among all the questions about experiences in forensic medicine.

### 3.4. Interest in forensic medicine

As a result of examining the nurses' interest in forensic medicine, the average score of all items was 3.10 out of 5 points. Participants responded, ". Do you think emergency medical center employees need forensic knowledge?" The average score for the question was 3.36, the highest in the total questions about interest.

## 4. Discussion

This descriptive research study seeks to discover the experience, knowledge, and interest of forensic medicine nurses who work in emergency medical centers.

Participants were given a scenario to investigate their understanding of forensic medicine. When patients visit the Emergency Medical Center with stabbed wounds (knife, etc.) and severe bleeding, 71.2% of participants answered they would cut the patients' clothes to give initial treatment. In addition, 39.4% said they would provide the removed clothes to patients or their caregivers. A similar study argued that 44.4% of nurses needed to learn about forensic medicine, and only 1.6% had a good understanding of forensic medicine. However, 1.6% of nurses already specialized in forensic medicine [9]. Therefore, nurses working in emergency medical centers may need to be educated about forensic medicine to accurately assess patients related to crime. Consequently, it may be essential to provide qualified nurses in forensic medicine to secure forensic evidence and identify if patients are related to crime.

In terms of experiences in forensic medicine, the score was 1.89 out of 5 points, meaning most nurses had low forensic medical expertise. Also, nurses less often experience child sexual abuse, with a score of 1.62 points. This is similar to a report by the Sexual Violence Center demonstrating people try to hide sex offenses as there are always more visitors to get advice than an actual number of police-notified cases [10]. There may be various factors why nurses less often experience sexual abuse, such as the victim being a child, lack of awareness of sexual violence, or the victim's family member being an offender.

The interest in forensic medicine was 3.10 out of 5 points. Although no study explored nurses' interest in forensic medicine, level 1 and level 2, paramedics showed their interest by 90.2% and 91.4%, respectively [3].

## **5. Conclusion**

This study aimed to investigate knowledge about forensic medicine, forensic medical experiences, and the interest of nurses who work in Emergency Medical Centers to preserve crime scenes and forensic evidence and provide accurate and prompt first-aid treatment for patients. Some significant results were revealed in this study. In terms of nurses' knowledge of forensic medicine, the answer that achieved the highest score was cutting off the clothes of patients with stabbed wounds for first aid treatment. In addition, several nurses have experienced seeing patients who committed crimes at work. Also, the result shows the highest score on the answer that people who work in Emergency Medical Centers may require appropriate knowledge about forensic medicine. As a result of this study, nurses working in Emergency Medical Centers may need to see victims or criminals as patients, which can be earlier than the police. Hence, nurses showed a high interest in learning forensic medicine and faced the need for specific knowledge. Therefore, it may be ideal to teach forensic medicine as a topic at a nursing university and to provide education for nurses who work in Emergency Medical Centers.

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