



ISSN: 2586-7342

KJFHC website: <http://accesson.kr/kjfhc>

doi: <http://dx.doi.org/10.13106/kjfhc.2024.vol10.no2.19>

# A Survey on First Aid Knowledge and Education Needs of Jeollabukdo Police Officers

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Received: February 29, 2024. Revised: March 11, 2024. Accepted: March 26, 2024.

## Abstract

This study surveyed 171 police officers working in Jeollabuk-do to investigate their first aid knowledge and the need for education. The results showed that the correct answer rate for first aid knowledge among police officers was 75.61 points out of a possible 100 points. Additionally, 98.8% of respondents indicated a need for first aid training, expressing a preference for 2-hour sessions integrated with their work education. There was a statistically significant difference in the correct answer rate for first aid knowledge based on education level and experience in emergency situations, but no significant difference in the need for education was observed across respondents. The significance of this research lies in its provision of foundational data for first aid education among police officers, which can be instrumental in developing training programs and policies aimed at enhancing their first aid capabilities. Specifically, the study contributes to improving the effectiveness of police officers' responses in emergency situations by offering concrete suggestions on the content, method, and duration of first aid training. These findings underscore the necessity and importance of providing comprehensive and effective first aid training not only to police officers but to all first responders, emphasizing that such training is crucial for ensuring public safety.

**Keywords:** Police officer, First responder, First aid knowledge, First aid education, Emergency situation experience

**Major Classifications:** I, I1, I2

## 1. Introduction

First aid is emergency treatment to secure an airway of an emergency patient, recover breathing and heart rate, and prevent other risks or symptoms of life. It affects the patient's recovery period because it can prevent not only injuries and disease progression but also secondary complications and obstacles. In case of an emergency, first aid should be implemented immediately with prompt and

accurate judgment and action above all else. The golden time after an incident is within 4 minutes, but in Korea, the average time from reporting to arriving at the hospital is 20 minutes. In other words, it can be seen that on-site first aid determines the survival rate. However, it is also rare for first-time witnesses to an emergency to actually perform first aid. Therefore, there is a need to raise awareness of first aid education in Korea.

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In particular, first aid education should be expanded so that first-time responders who often encounter the scene of an accident can perform first aid in an emergency with quick judgment of the situation. Among those who arrive at the emergency site for the first time, police officials, firefighters, and lifesaving personnel are called first responders. Police officials are the second most mobilized occupation after firefighters in case of a disaster. Since the average arrival time is faster than that of the fire brigade when reporting an emergency, it can be seen that it plays a practical role as a first responder in an emergency situation. In addition, there is a high possibility of exposure to injuries at the scene of the incident or a situation in which the subject suffers injuries. Therefore, first aid training is essential for police officials as an initial responder of emergency situations such as various accidents or natural disasters, or injuries caused by the use of physical force such as knives and firearms, and a realistic approach to this is required. Police officials are likely to become first responders, emphasizing the need for first aid knowledge improvement and education. In developed countries, CPR training or automatic defibrillator (AED) training is provided to police officials and firefighters who are first responders. In Korea, the content and implementation method of first aid education are determined through Article 8 of the Enforcement Decree of the Emergency Medical Service Act or Article 6 (1) of the Enforcement Regulations, and the importance of first aid education is increasing. Looking at the current status of first aid education for police officials in Korea, first aid education provided by the National Police Agency or police station was provided with a two-hour convocation training once a year.

However, shift workers are not receiving education if their work is not right, and among them, there are cases where they do not receive education for several years. The role of police officials in emergency situations is gradually expanding, but this means that the effectiveness of first aid education is inferior. Accordingly, it is necessary to confirm the actual first aid experience and knowledge of police officials and prepare for crisis situations through appropriate education accordingly. Looking at previous studies in Korea on first aid experience, knowledge, and education, first aid knowledge and education needs of physical therapists, college students' awareness and attitude toward CPR, elementary school teachers' first aid knowledge and education needs, ski resort workers' first aid knowledge and education needs, occupational therapists' first aid experience and education awareness, childcare teachers' first aid education status, health teachers' first aid education needs and needs. Research on police officials was insufficient due to first aid education status, research on ways to activate CPR education, and research on the need to change the paradigm of first aid education. Moreover, it was difficult to

find a study that grasped the first aid knowledge and education needs of police officials. Therefore, this study aims to confirm the first aid knowledge and educational needs of police officials working in the field and use them as basic data for improving the first aid ability of police officials.

## 2. Theoretical Background

### 2.1. First Aid Knowledge

First aid knowledge refers to the understanding of appropriate treatment methods before being transferred to the hospital from an unexpected incident. Rapid and accurate first aid can minimize physical and mental damage and reduce secondary disability or mortality. First aid is directly related to life-saving work and has an important influence on a patient's prognosis. However, many people do not know how to cope with emergencies, and even if they have received education, they are often embarrassed and unable to perform them. Therefore, for proper first aid, the first aid knowledge of the therapist must be preceded. In particular, it is more required for occupational groups that experience a lot of emergency situations. In Choi's study, the first responder group had relatively higher knowledge of first aid with first aid experience or educational experience than other groups. In the actual research results, the knowledge of first aid in the occupational group of first responders was significantly higher than that of the general office group. In another previous study, the higher the education level of first aid knowledge, the higher the knowledge of first aid education, and the higher the knowledge of first aid experiences. Therefore, it is necessary to find out the recent level of knowledge of first responders military police officials and to examine the factors affecting their knowledge.

### 2.2. First Aid Education

First aid education refers to education related to how to cope with emergency situations such as CPR, automatic cardiac arrester, bleeding, and fracture. Fire officials, police officials, and life-saving personnel are subject to education pursuant to Article 14, Paragraph 1 of the Emergency Medical Service Act. Currently, the content of first aid education mainly deals with CPR that is directly connected to real life. The specific contents consist of how to cope with emergency situations, precautions for first aid such as CPR, theoretical education on related laws, and practical education that directly performs CPR. In order to increase the ability to perform first aid, not only theoretical education but also practical and practical education must be included.

According to previous studies, in the case of first aid education methods, the level of knowledge was higher in the case of receiving both theoretical and practical education than in the case of receiving only theoretical education. In addition, according to a study by Jo and Kim (2019) the simulation education program including 60-minute theory and 30-minute practice improved the skills of police officers more effectively than the theoretical practice lecture. In other words, it can be seen that practical training is more important than anything else in the educational method to improve the ability to perform first aid. However, in the first aid education currently being conducted, the quality of education depends on the quality of the instructor and the environment. Due to the short training time and lack of equipment, there are many problems in which only formal education is performed, and opportunities for practice are insufficient.

### 3. Material and Methods

#### 3.1. Research Subjects and Data Collection Method

This study conducted a survey of police officials working at police stations, precincts, and police stations located in Jeollabuk-do from July to December 2022. The researcher visited the survey institution in person to explain the purpose of the study and the guarantee of anonymity, and then distributed the questionnaire to those who agreed to participate in the survey. A total of 189 questionnaires responded, of which 171 copies were used as final data, excluding 18 copies with missing or insufficient responses.

#### 3.2. Research Tools

The questionnaire used in this study was modified to fit Hong's tool. It consisted of a total of 22 questions, including 6 general characteristics, 3 first aid experience questions, 10 first aid knowledge questions, and 3 first aid education needs questions, and the content validity was increased through the advice of two first aid professors. The first aid knowledge questionnaire was calculated as 10 points per question and scored out of 100, and the higher the score, the higher the first aid knowledge.

#### 3.3. Data Analysis

The data of this study were analyzed by SPSS/WIN 20.0. Frequency analysis and descriptive statistics were conducted to find out the general characteristics, first aid knowledge, and first aid education needs of the subjects. First aid knowledge according to general characteristics was analyzed by independent t-test and one-way ANOVA, and

Duncan test was used for post-analysis. Education demand according to general characteristics was tested by chi-square test. The statistical significance level was set at .05.

## 4. Results

### 4.1. First Aid Knowledge Correction Rate, Education Needs According to General Characteristics

As a result of analyzing the first aid knowledge correct answer rate according to general characteristics, there were statistically significant differences in the knowledge correct answer rate in academic background ( $F=3.326$ ,  $p=.038$ ), position ( $F=3.353$ ,  $p=.020$ ), and presence or absence of emergency experience ( $t=5.006$ ,  $p=.000$ ). As a result of post-mortem analysis, in terms of academic background, high school graduation had a higher knowledge correct answer rate than junior college graduation. As for the presence or absence of experience in emergency situations, the knowledge correct answer rate was higher in the case of experiencing emergency situations than in the case of not experiencing them. There were no statistically significant differences in gender, age, working period, and working area (Table 1). As a result of analyzing first aid education needs according to general characteristics, there was no statistically significant difference (Table 1).

**Table 1:** First Aid Knowledge Correction Rate, Education Needs according to General Characteristics

| Characteristics | Categories                     | n(%)      | Correction Rate |       |        |      | First Aid Education Needs |      |
|-----------------|--------------------------------|-----------|-----------------|-------|--------|------|---------------------------|------|
|                 |                                |           | M               | (SD)  | t or F | p    | $\chi^2$                  | p    |
| Gender          | Male                           | 168(98.2) | 75.65           | 15.31 | 0.261  | .794 | .036                      | .849 |
|                 | Female                         | 3(1.8)    | 73.33           | 11.55 |        |      |                           |      |
| Education       | High school <sup>a</sup>       | 65(38.0)  | 78.92           | 12.64 | 3.326* | .038 | .389                      | .823 |
|                 | 2-3 year college <sup>b</sup>  | 26(15.2)  | 70.38           | 19.49 |        |      |                           |      |
|                 | 4-year university <sup>c</sup> | 80(46.8)  | 74.63           | 15.17 |        |      |                           |      |
| Age             | 20-29                          | 11(6.4)   | 84.55           | 15.08 | 1.283  | .279 | 3.219                     | .522 |
|                 | 30-39                          | 15(8.8)   | 77.33           | 17.51 |        |      |                           |      |
|                 | 40-49                          | 70(40.9)  | 74.74           | 16.   |        |      |                           |      |

|                                 |                             | )          | 57              | 91    |        |      |                           |      |  |
|---------------------------------|-----------------------------|------------|-----------------|-------|--------|------|---------------------------|------|--|
|                                 | 50-59                       | 66(38.6)   | 75.45           | 13.15 |        |      |                           |      |  |
|                                 | 60-69                       | 9(5.3)     | 71.11           | 9.28  |        |      |                           |      |  |
|                                 | M±SD                        | 47.68±8.71 | 75.61           | 15.23 |        |      |                           |      |  |
| Working Period (year)           | □10                         | 30(17.5)   | 78.00           | 18.27 | .368   | .776 | 1.026                     | .795 |  |
|                                 | 11-20                       | 46(26.9)   | 74.57           | 17.35 |        |      |                           |      |  |
|                                 | 21-30                       | 74(43.3)   | 75.68           | 12.61 |        |      |                           |      |  |
|                                 | 31-40                       | 21(12.3)   | 74.29           | 14.69 |        |      |                           |      |  |
|                                 | M±SD                        | 20.44±9.13 | 75.61           | 15.23 |        |      |                           |      |  |
| Characteristics                 | Categories                  | n(%)       | Correction Rate |       |        |      | First Aid Education Needs |      |  |
|                                 |                             |            | M               | (SD)  | t or F | p    | χ <sup>2</sup>            | p    |  |
| Position                        | Officer <sup>a</sup>        | 17(9.9)    | 86.47           | 13.20 | 3.353* | .020 | 1.094                     | .779 |  |
|                                 | Corporal <sup>b</sup>       | 5(2.9)     | 76.00           | 19.49 |        |      |                           |      |  |
|                                 | Onspec tor <sup>c</sup>     | 38(22.2)   | 74.21           | 17.34 |        |      |                           |      |  |
|                                 | Sub-inspector <sup>d</sup>  | 111(64.9)  | 74.41           | 14.06 |        |      |                           |      |  |
| Location                        | Urban                       | 100(58.5)  | 77.40           | 15.22 | 1.921  | .128 | 1.437                     | .697 |  |
|                                 | Town outside of main city   | 32(18.7)   | 74.38           | 11.62 |        |      |                           |      |  |
|                                 | Town outside of suburb city | 31(18.1)   | 70.32           | 18.16 |        |      |                           |      |  |
|                                 | Rural area                  | 8(4.7)     | 78.75           | 12.46 |        |      |                           |      |  |
| Emergency Situations Experience | Yes                         | 122(71.3)  | 79.75           | 11.09 | 5.006* | .000 | .813                      | .367 |  |
|                                 | No                          | 49(28.7)   | 65.31           | 18.94 |        |      |                           |      |  |

\*p&lt;0.5

## 4.2. First Aid Knowledge Correction Rate

As a result of analyzing the first aid knowledge correct answer rate of the study subjects, it was 75.61 (±15.23) out of 100 (Table 2).

**Table 2:** First Aid Knowledge Correction Rate

| Characteristics | M±SD        |     |
|-----------------|-------------|-----|
| Correction Rate | 75.61±15.23 |     |
|                 | Max         | 100 |
|                 | Min         | 30  |

## 4.3. First Aid Education Needs

As a result of analyzing the first aid education needs of the study subjects, 169 people (98.8%) mostly requested first aid education, 92 people (53.8%) desired training hours per session, and 101 people (59.1%) desired training days were the most common (Table 3).

**Table 3:** First Aid Education Needs

| Characteristics            | Categories            | n (%)     |
|----------------------------|-----------------------|-----------|
| Education Need             | Yes                   | 169(98.8) |
|                            | No                    | 2(1.2)    |
| Education Time per Session | 1h                    | 61(35.7)  |
|                            | 2h                    | 92(53.8)  |
|                            | 3h                    | 9(5.3)    |
|                            | 4h□                   | 9(5.3)    |
| Education Date             | Off-duty day          | 9(5.3)    |
|                            | During business hours | 36(21.1)  |
|                            | During work education | 101(59.1) |
|                            | At the police academy | 19(11.1)  |
|                            | etc                   | 6(3.5)    |

## 5. Discussion

This study aims to identify first aid knowledge and educational needs for police officials working in Jeollabukdo and use them as basic data for improving police officials' first aid skills. As a result of the study, the percentage of correct answers to first aid knowledge of the subjects in this study was 75.61 points (out of 100 points), which was above the middle level. According to Jo's study, the average score of CPR knowledge of police officials was 73.8 points, and for other occupations, ski resort workers

were 45.35 points, preliminary sports industry workers 48.41 points, and physical therapists 58.66 points. In Park et al.'s study, the occupational group of first responders scored 69.5 points, the general office job group scored 63.2 points, of which the police group scored 71.1 points, higher than the average. Police officers seem to have received relatively high scores because they have a relatively high rate of first aid education and emergency experience compared to other occupations. However, it is very important to properly cope with emergency situations, and it is believed that higher first aid knowledge should be required for this.

98.8% of the subjects of this study said that first aid training was necessary, and the training hours per session were 2 hours, and the desired training days were better during workplace training while on duty. In Bae's study, 89.2% of the first responders said they would receive first aid training, showing similar results to this study. However, the desired training time in this study was 2 hours, which was the same as the current training time for police officials. According to previous studies, first aid education for police officials showed a lack of quantitative and qualitative aspects. There were cases in which practice was not conducted because there were too many trainees compared to professional manpower or because an appropriate training place was not provided.

Due to lack of equipment, training was limited to watching the instructor's demonstration, or training time was insufficient because several trainees practiced with one mannequin. As can be seen from the results above, practice-oriented education is effective in first aid knowledge. However, the current situation was often limited to theoretical-oriented formal education. In addition, since first aid knowledge decreases over time, the need for repetitive retraining is emphasized rather than training time. However, currently, education is limited to once a year, and the concentration of those receiving education is inevitably decreasing due to the deterioration of the quality of education. Police officials in this study would have conducted a questionnaire response based on the current first aid education environment. Therefore, although we recognize the importance of first aid education, we believe that more time of education than the existing training hours is meaningless.

Accordingly, improvement is required in consideration of the demand of police officials and the problems of current first aid education. The improvement of the educational environment must precede anything else, and then the quality of education should be improved through improvement of the number and method rather than the time of education. There was a statistically significant difference in the percentage of first aid knowledge correct answers according to general characteristics in terms of academic background and emergency situation experience. In terms of

educational background, high school graduates had a higher percentage of knowledge corrections than junior college graduates. This was a different result from Hong's study that there was no significant difference in the first aid knowledge score according to the education level of police officials. These results were able to analyze the difference in the characteristics of education and emergency situation experience, which showed significant values in the general characteristics of this study. When looking at the questionnaire of this study, 83% of police officials graduated from high school and 61.5% of police officials graduated from vocational colleges experienced emergency situations.

Since the rate of emergency experience among police officials with high school graduation background was somewhat high, it is expected that there was a significant difference in the factors of educational background. In other words, it can be inferred that first aid knowledge is correlated with the presence or absence of emergency experience.

In the case of experiencing an emergency, the knowledge correct answer rate was high in the case of experiencing an emergency. In this study, 71.3% of police officials experienced an emergency. According to previous studies, police officers had higher experience of emergency situations and direct first aid than other occupational groups. In Hong's study, more than half (63.2%) of police officials experienced an emergency, showing similar results to this study. It is believed that the rate of correct answers to first aid knowledge was high because police officers often contacted emergency situations because they were dispatched first (average dispatch time of 5 minutes) and arrived before 119 paramedics (average dispatch time of 5-10 minutes). According to Kim's study, when they had actual experience of performing CPR on patients with cardiac arrest, their knowledge level and confidence in first aid were high. In Kim's study, the number of first aid experiences showed statistically significant results with knowledge, which was similar to the results of this study.

In other words, it can be seen that actual experience and knowledge acquisition are closely related. Therefore, in order to increase the knowledge of first aid, it is considered that practice-oriented education that can be applied to real situations should be provided rather than simple knowledge transfer education. There was no statistically significant difference in educational needs according to general characteristics. This is considered to be due to the overwhelming difference in the number of subjects requiring education with 169 people (98.8%).

The limitation of this study is that it is difficult to generalize only for police officials in some areas. In addition, detailed demands such as the current education status of first aid or the type of education desired in the future could not

be grasped. However, this study is meaningful in that it is intended to present basic data for first aid education by confirming the level of first aid knowledge and educational needs of police officials. In the future, it is necessary to expand the questions to the actual condition of first aid education for police officials, the number and type of education required, as well as to conduct follow-up studies by expanding the region.

## 6. Conclusions

This study was intended to identify first aid knowledge and educational needs for police officials in Jeollabuk-do and use them as basic data to improve the first aid ability of police officials. As a result of the study, the percentage of correct answers to first aid knowledge of police officials was 75.61 points (out of 100 points), which is likely to have received relatively high scores because they have relatively more experience in first aid education and emergency situations than other occupations. 98.8% of police officials said they needed first aid education, and it was better to have two hours of training per session and the desired day of training at work when training at work.

First aid education for police officials is insufficient due to the lack of professional manpower, place, and equipment. In addition, repetitive retraining is emphasized rather than training hours, but the current education is only once a year, which inevitably lowers the quality of education and the concentration of trainees.

Therefore, the improvement of the educational environment should precede anything else, and the quality of education should be improved by improving the number and method of times rather than the time of education. The rate of correct answers to first aid knowledge showed statistically significant differences according to educational background. This is expected to have a significant difference in educational background factors as the percentage of police officials with high school graduation backgrounds experienced emergency situations was somewhat high.

In addition, the first aid knowledge correct answer rate showed a statistically significant difference according to the presence or absence of emergency experience. In other words, it can be inferred that first aid knowledge is correlated with the presence or absence of emergency experience, and it suggests that practice-oriented education should be provided rather than simple knowledge transfer education in order to increase first aid knowledge.

There was no statistically significant difference in educational needs according to general characteristics. The limitations of this study were that only police officials in some regions were targeted, and detailed demands such as

the current education status of first aid or the desired type of education could not be identified.

In the future, it is necessary to expand the questions to the actual condition of first aid education for police officials, the number and type of education required, as well as to conduct follow-up studies by expanding the region. However, this study is significant in that it presented basic data for first aid education by confirming the current first aid knowledge and educational needs of police officials.

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