

# A Study on College Students' Knowledge and Educational Experience about Basic Life Support

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## Abstract

Along with consistent economic development and rapid industrialization, occurrences of emergency patients have increased rapidly due to industrial disasters and cardiovascular diseases. When we face the occurrence of emergency patient, the best care is for the first responder to practice the CPR early before the emergency staffs arrive at the cardiac arrest spot. Thus, learning to practice proper emergency measures is important and required for the sake of me and others. The results in this study show the level of college students' knowledge, experience, and learning of CPR and this will be a basic data for the development of the CPR-related curriculum. Further, this will contribute to the establishment of the CPR-related education program for the university policy.

We carried out the survey from 8<sup>th</sup> of April, 2013 to 30<sup>th</sup> of April 2013. The participating subjects in the survey were 434 college students in provinces of Seoul, Gyeonggi and Chungnam. Data analysis is performed with the measures of percentage, average, and standard deviation and the T-test and the ANOVA are applied to the analysis using the SPSS program (version 18.0).

Results of this study are as follows.

1. The knowledge level of the CPR is very low, making up an average 3.56 (SD=1.37) points out of the total 6 points.
2. The ratio of students not learning the CPR is 48.8%.
3. Among the students who know the CPR, 69.1% of students learned it at the school. Education method with theory and practice has a ratio of 68% and 77% of the students learned CPR by demonstration with dummy. Average education time is 2.8 hours.
4. 98.2% of the students feel the necessity of CPR education and 31.8% among them want to learn CPR in the time of middle school. Educational institutions of school and Korean Association of Cardiopulmonary Resuscitation are mostly wished.
5. The most frequent case which the students witnessed practicing of CPR is the TV (74%) and the next is the movie (37%).

In conclusion, the college students have low knowledge levels of CPR but have high will of participation and understanding of its necessity. Thus, when CPR education is provided appropriately to the college students, it is expected to have high education effects.

**Keywords:** College Students, Educational Experience of Basic Life Support, Knowledge of Basic Life Support

## 1. Introduction

Emergency situation with cardiac arrest occurs unexpectedly and it causes a lethal brain damage after 4 or 6 minutes<sup>1</sup>. Accordingly, the early CPR (Cardiopulmonary

Resuscitation) by a first responder at the right spot of cardiac arrest is very important and affects severely on the death or life of the emergency patient. Therefore, the objective of the CPR is to recover the patient to the state before the cardiac arrest by feeding oxygen to the brain

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and the heart and notifying the patient occurrence to the emergency medical service for the execution of professional human life rescue as long as recovering the heartbeat. Recently, the coverage of the CPR is gradually extended to provide primary medical treatment to the patient who is suspicious of cardiac arrest. In addition, the CPR covers the early detection and primary cares for the highly possible patients of acute myocardial infarction or a stroke and it provides electrical defibrillation using automated external defibrillator to the cardiac arrest patients<sup>2</sup>.

Before the introduction of CPR, the occurrence of the cardiac arrest outside of hospital means the death before long. But, in the beginning of 1960, modern way of CPR is introduced and executed at the place occurring cardiac arrest and thus saved the patient life. Since then, the CPR gets to be mandatory emergency aid to the medical staffs and also to the ordinary people. Thus, the CPR is disseminated extensively to the general public and gets to save most lives of cardiac arrest outside of the hospital<sup>3</sup>. Therefore, it is importantly required to learn and practice proper behaviors in an emergency situation for the sake of surrounding people<sup>4</sup>. It is very significant whether a first witness performs CPR or not<sup>5</sup>. Recently, CPR has been spread to the public, but Korea still has the low level of survival rate of the cardiac arrest patient<sup>1</sup>.

In domestic case, it takes 40 minutes in average to start CPR execution after occurrence cardiac arrest and the rate of CPR execution by the ordinary people is just 3.4%. When we compare the survival rate of the cardiac arrest patients to that of the developed countries, Korea shows 4% in contrast to 20%<sup>6</sup>. When we consider the reason why CPR is not practiced, it can be accounted for as follows: the general public's absence of knowledge regarding CPR and cardiac arrest<sup>7</sup> and lack of know-how and technique. Thus, the CPR education toward the general public is urgent<sup>8</sup>. It is very important to make CPR known to the general public, especially to the students who are eligible for CPR because of their acute intelligence<sup>9</sup>. But, education of CPR is not included in the most of the school curriculum<sup>10</sup>. The findings in this study show how much college students know and learn about CPR and they can be utilized as a basic data for the development of CPR-related curriculum. Further it will help establishing the curriculum with CPR in the university education policy.

The purpose of this study is to provide elementary materials for developing educational programs of the CPR to the college students and the definite objectives are as follows:

1. To identify the CPR-related knowledge levels of the target
2. To identify the CPR-related education status of the target
3. To identify the difference levels of CPR knowledge according to the general characteristics

## 2. Method Research Objects and Research Method

### 2.1 Research Objects

The surveys were carried with participation of students living in the provinces of Seoul, Gyeonggi, and Chungcheong and the subjects were 434 students who agreed to join the research survey voluntarily. We interviewed them individually with questionnaire and the survey period is from 8<sup>th</sup> of April, 2013 to 30<sup>th</sup> of April, 2013.

### 2.2 Research Tool

We used a structured questionnaire and used a scale with supplements to it, which was originally developed by Kim<sup>8</sup> for an identification of status about CPR knowledge and education. The questionnaire consists of as follows: 5 items of general characteristics, 1 item of subjective identification on CPR knowledge, 6 items of CPR knowledge, 16 items for finding educational status of CPR. For the 6 items of CPR knowledge, the results score 1 point when it is correct and 0 point on the other hand. As the score goes high, it means that they have much knowledge of CPR.

### 2.3 Data Analysis

The total number of collected questionnaires with completion was 434. The results were analyzed by SPSS 18.0 program and the analysis methods are as follows.

1. Real numbers and percentages are obtained to identify the general characteristics of the target.
2. Real numbers, averages, and percentages are obtained to identify the CPR-related knowledge level and education status of the target.
3. The t-test and ANOVA are utilized to identify the CPR-related knowledge levels according to the general characteristics.

### 3. Research Findings

Table 1 shows the analysis results about the general characteristics of the subjects. The ratios of male and female are 41.9% and 58.1%. And the grade ratios of the students are freshman(28.8%), sophomore(25.6%), junior(25.8%), and senior (19.8%).

The analysis results about the subjective identification on CPR knowledge are shown in Table 2. 67.5% of the subjects answered that they know a little about CPR and the ratio of the students who knows CPR very well is 19.1%.

We checked the knowledge level of CPR with testing questionnaires and it scores 1 point when it is correct and 0 point for an incorrect answer. The maximum point is 6 and the average point found in the analysis is 3.56 as shown in Table 3. As a result, this means that the level of CPR knowledge is generally low.

The knowledge level of the subjects according to the general characteristics is shown in Table 4. There is no statistical significance among genders and grades.

The experience of practicing CPR is analyzed in Table 5. 100% of the subjects heard CPR and 81.6% of them directly or indirectly witnessed practicing of CPR. Where they witnessed practicing of CPR is in the TV (74%) or in the movie (37%). 12.6% of the subjects actually witnessed cardiac arrest or apnea and only 21.8% among them solicited for help.

**Table 1.** General characteristics of the subjects (N=434)

Characteristics	Categories	N	%
Gender	Male	182	41.9
	Female	252	58.1
Grade	Freshman	125	28.8
	Sophomore	111	25.6
	Junior	112	25.8
	Senior	86	19.8

**Table 2.** Subjective distribution of awareness about CPR (N=434)

Categories	N	%
Knowing Very Well	83	19.1
Knowing A Little	293	67.5
Not Knowing At All	58	13.4

**Table 3.** Knowledge level of CPR (N=434)

Score	N	%	M±SD
0	5	1.2	3.56±1.37
1	26	6.0	
2	60	13.8	
3	119	27.4	
4	115	26.5	
5	69	15.9	
6	40	9.2	

**Table 4.** Knowledge level of the subjects according to the general characteristics (N=434)

Characteristics	Categories	M±SD	t or F	p
Gender	Male	3.70±1.30	1.759	.079
	Female	3.46±1.41		
Grade	Freshman	3.62±1.27	1.291	.277
	Sophomore	3.66±1.41		
	Junior	3.34±1.48		
	Senior	3.63±1.30		

**Table 5.** Experience of practicing CPR (N=434)

Characteristics	Categories	N	%
Have you ever heard CPR?	Yes	434	100
	No	0	0
Have you ever witnessed practicing of CPR?	Yes	354	81.6
	No	80	18.4
	TV	262	74.0
	Movie	131	37.0
Where have you witnessed practicing of CPR? (N=354, Plural response)	Real World Situation	39	11.0
	Internet	30	8.4
	Book	31	8.7
	Newspaper	16	4.5
	Etc.	65	18.3
Experience of witnessing cardiac arrest or apnea	Yes	55	12.6
	No	379	87.4
Experience of soliciting for help (N=55)	Yes	12	21.8
	No	43	78.2

The analysis result about the current status of CPR education can be found in Table 6. 51.2% of the subjects had an experience of CPR education and 69.1 % of them

**Table 6.** Current status of CPR education (N=434)

Characteristics	Categories	N	%
Education Experience	Yes	222	51.2
	No	212	48.8
Education Place (N=222)	School	154	69.1
	Home	2	0.9
	Fire Station	3	1.3
	Hospital	6	2.7
	Etc.	57	26.0
Education Method (N=222)	Theory and practice	151	68.0
	Theory	53	23.8
	Practice	18	8.2
Number of Education (N=222)	Once	57	25.7
	Twice	64	28.8
	More than three times	101	45.5
Education Time (N=222)	1 Hour	52	23.4
	2 Hours	66	29.8
	More than 3 hours	104	46.8
Education Media (Plural Response) (N=222)	Demonstration with dummy	171	77.0
	Lecture	113	50.9
	VTR	90	40.5
	Printout	47	21.1
Reasons of not learning (N=212)	Interested in, but no chance of education	157	74.0
	Not interested in	52	24.5
	Chance of education, but needless	3	1.5

answered that they learned CPR in the school. As for the education methods, the ratio of education with theory and practice is 68%. 45.5% of the subjects learned CPR education more than three times and the ratio of the subjects with CPR education over 3hours is 46.8%. Most of the education media is demonstration with dummy (77%). On the other case of CPR education experience, 48.8% of the subjects had no experience of education and 74% among them had interest in CPR but they had no chance of CPR education.

Table 7 shows the analysis results about the necessity of CPR education. 98.2% of the subjects answered that it is necessary and as for the proper time of education, 31.8% of the subjects answered the time of middle school.

**Table 7.** Necessity of CPR education (N=434)

Characteristics	Categories	N	%
Necessity of Education	Yes	426	98.2
	No	8	1.8
Proper Time of Education	Kindergarten	47	10.8
	Lower Grades of Elementary School	45	10.4
	Higher Grades of Elementary School	122	28.1
	Middle School	138	31.8
	High School	69	15.9
	After High School	13	3.0
Education Will	Yes	413	95.2
	No	21	4.8
Wished Educational Institution	School	134	30.9
	Hospital	70	16.1
	Fire Station	66	15.2
	The Red Cross	6	1.4
	Korean Association of Cardiopulmonary Resuscitation	144	33.2
	Etc.	14	3.2

Most of the subjects wanted to have an education of CPR (95.2%) in the Korean Association of CPR (33.2%) or the school (30.9%).

### 3. Evaluation and Conclusion

This study is carried to provide basic data for the effective CPR education by identifying the college students' knowledge level of CPR and education status of it. Generally, the level of CPR knowledge is low and it is necessary to increase the knowledge level of it. As for the education status, 51.2% of the subjects have learned CPR but only 19.1% among them feels that they know CPR very well. Afterwards, when we configure CPR education programs, it is required to include examination of CPR demonstration and practice and further we need to deliver knowledge continuously through repeated research. The education place of CPR was mostly the school (69.1%). The 98.2% of the subject students have answered that they need to learn CPR education and this shows that many students agree with the necessity of CPR education and

their will for the education is very high. The 28.1% of the subject students answered that CPR education should start from the upper grade of elementary school and the 31.8% of them answered that the education is required from the middle school. According to this result, we need to setup education plan for the students in the upper grade of elementary school and the middle school. After the beginning of 1960, Norway has included CPR education to the elementary school curriculum and they have insisted the importance of CPR and made students recognize it<sup>11</sup>. And recently a number of European countries emphasize that the CPR education should be included in the school curriculum<sup>12</sup> and thus Korea needs to consider the institutionalization of CPR education like them. In the question of education place, best of the wished education place is the Korean Association of CPR(33.2%). And most of the subjects Therefore, it is required for the Korean Association of CPR and the school to find the way of educating students expertly and effectively.

In conclusion, the college students have low knowledge levels of CPR but have high will of participation and understanding of its necessity. Thus, when CPR education is provided appropriately to the college students, it is expected to have high education effects. The students are experiencing the CPR, the cardiac arrest and the apnea mostly in TV and thus it would be important to have educations and propagation of CPR knowledge together with TV or Internet medium in a correct way. In addition, we propose development of special education program for the students in an upper grade of elementary school and the middle school along with connections between school and the association of cardiopulmonary resuscitation.

## 4. Acknowledgement

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