



The Extent of Knowledge of Police on Cardiopulmonary Resuscitation

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Abstract

As the knowledge and skills of cardiopulmonary resuscitation continue to be an important factor in the health care personnel, there is also a need for the laypersons to have this knowledge too. This study aimed to determine the extent of knowledge on cardiopulmonary resuscitation among the police and if there is a significant difference between the number of years of work and the extent of knowledge retention. The respondents comprised 236 police and were randomly selected from the total number of population computed through the sloven's formula. A semi-structured questionnaire was administered. To determine the extent of knowledge, the data was analyzed using mean. The significant difference in terms of the number of years as a law enforcer was analyzed using the F- test. Findings revealed that there was no significant difference when grouped according to the number of years they have been working and their extent of knowledge. It was also found that they had slight knowledge on cardiopulmonary resuscitation. Recommendations include regular conduction of re-trainings and seminars every six months so as to help the police retain their knowledge.

Key words: *Cardiopulmonary resuscitation; Knowledge retention; Police; Source of knowledge.*

1.0 Introduction

Sudden Cardiac Arrest (SCA) causes 350,000 deaths per year by approximately one every 1.7 minutes (American Heart Association [AHA], 2010). SCA is the number one killer of adults in the US and these deaths outnumber those from lung cancer, breast cancer, prostate cancer, house fires, hand guns, traffic accidents and Acquired Immune Deficiency Syndrome combined (National Center for Health Statistics, U.S. Fire Administration, and AHA, 2010). The most common etiology of SCA is ischemic cardiovascular disease resulting in the development of lethal arrhythmias. Resuscitation has been attempted in up to two-thirds of people who sustain this. The AHA (2010) report stated that 88 percent of the 383,000 cases of sudden cardiac arrest that occurred each year outside of a hospital happened at home. The survival rate for those who experience this condition was less than eight percent. Administering Cardio Pulmonary Resuscitation and chest compressions immediately can double or triple a person's chance of surviving this life-threatening condition.

Basic Life Support (BLS) is the foundation for saving lives following cardiac arrest (AHA, 2010). Fundamental aspects of BLS include immediate recognition of sudden cardiac arrest and activation of the emergency response system, early Cardiopulmonary resuscitation and rapid defibrillation. The value of CPR is well documented and it is known that immediate resuscitation is necessary in order to achieve conscious survival for persons that have lost their airway or pulse. "Artificial ventilation and chest compression are central to CPR and in combination serve to restore oxygen delivery to the vital organs," (Coady, 1994, p. 36). The AHA guidelines had also stated that between 0-1 minute of no breathing, there will be cardiac irritability; 0-4 minutes of no breathing brain damage is not likely; 4-6 minutes of no breathing may result into a possible brain damage; 6-10 minutes of no breathing will likely cause a brain damage and 10 minutes and above will cause an irreversible brain damage (AHA, 2010).

Overall survival to hospital discharge of patients whose event was not witnessed by emergency medical service personnel was 8.5%. Of these, patients who received bystander cardiopulmonary resuscitation had a higher rate of overall survival (11.2%) than those who did not receive it (7.0%) (OHCAS - CARES United States, 2010). Regardless of duty, anyone who may be able to reach a victim of cardiac arrest before Emergency Medical Service arrives should know how to perform cardiopulmonary resuscitation. It is important to ensure that the personnel who serve communities or workplaces like the fire fighters, police officers, security officers should be given training and periodic retraining of all first responders.

Although cardiopulmonary resuscitation is important, it is being emphasized to take note that there are certain variables that affect the performance and they are the following. Tweed, et al., (1980) showed that deliberate overtraining of police officers in a basic 8-hour course of CPR with recording manikins, each training session followed by a written test and a performance test on the recording manikin using instructor level tape criteria as the standard, resulted in satisfactory skills retention for at least 1 year. Furthermore, Woollard, et al., (2004) measured

lay subjects' skills before, immediately after, and 6 months after training and found that although training did produce immediate improvement in skills, the skills then significantly deteriorated 6 months later.

1.1 Objectives

The objectives of the study was to determine if there was a significant difference between knowledge on cardiopulmonary resuscitation with the number of years as a law enforcer and to find out source of information on cardiopulmonary resuscitation among these law enforcers in Baguio City, Philippines.

2.0 Methods and Procedures

2.1 Design

This study utilized a descriptive research design. The phenomenon that was investigated in this study was the existing knowledge of police on CPR when it comes to early recognition of sudden cardiac arrest, cardiopulmonary resuscitation and activation of medical assistance when grouped according to their number of years as a law enforcer.

2.2 Locale and Population

The study was conducted in Baguio City, Philippines. Actual data collection was done in all the 10 police stations and the Baguio City Police Office Headquarters from the months of November to December, 2012. The respondents comprised n= 236 police and were randomly selected from the total number of population computed through the sloven's formula.

2.3 Data Gathering tool

Cardiopulmonary resuscitation knowledge was assessed using a self-made questionnaire and consisted of 24 multiple choice questions. The questionnaire was divided into five parts which comprised of the letter of consent, demographics, early recognition and activation of medical assistance, cardiopulmonary resuscitation and its source of knowledge. Approval to conduct the study was sought from the police City Director.

2.4 Treatment of Data

To determine the extent of knowledge, the data was analyzed using mean. The significant difference in terms of the number of years as a law enforcer was analyzed using the F- test.

For the interpretation of the extent of knowledge, the scale below was used.

Scale of interpretation:

SCORES	INTERPRETATION
0-3	Not Knowledgeable
4-6	Slightly Knowledgeable
7-9	Moderately Knowledgeable
10-12	Very Knowledgeable

3.0 Results and Discussion

3.1 Extent of knowledge of police on cardiopulmonary resuscitation

The table 1 below shows that the general mean was 1.99. This value means that the respondents have slight knowledge on cardiopulmonary resuscitation. The reason for this score may probably be due to having been trained only once which was during their recruitment. Retention is important when lifesaving knowledge and skills such as cardiopulmonary resuscitation is to be implemented properly. Millions of people are being trained each year, but the efficacy of this training, and the subsequent performance of the skills learned, has come into question. Insufficient skills of basic lifesaving are caused by a lack of training and appropriate instruction, limited practice, lack of self-efficacy, and poor skill retention (Das & Elzubeir, 2001). Also, health care professionals and lay persons are often criticized for not having adequate basic lifesaving skills (Das & Elzubeir, 2001; McCormack, Camon & Eisenberg, 1989; Engeland, Roysamb, Smedslund & Sogaard, 2002). Reasoning for such critique includes lack of training and appropriate instruction, limited practice, lack of self-efficacy and poor skill retention (Das & Elzubeir, 2001). Many bystanders, trained or untrained, do not respond in emergency situations due to fear of liability and lack of confidence in skills. Bystanders may hesitate to offer first aid due to various reasons, such as fear of making things worse, thinking an ambulance will arrive shortly, apprehensions about contracting disease or infection, or fear of performing in front of an audience (Larson, Martensson & Alexanderson, 2002).

Bystander initiated cardiopulmonary resuscitation increases a victim's chances of survival in case of ventricular fibrillation from 20 to 40 percent (Pearn, 2000). Increasing survival rates through rapidly employed cardiopulmonary resuscitation is just one of the reasons why it is taught, and millions continue to be trained and respond. Knowing that skills decay when unpracticed, it is important to convey first aid knowledge and skill performance through effective means. Unfortunately, it has been found out in several studies that's knowledge still deteriorates as early as two weeks post- training, weaver, et al., (1979) demonstrated significant decline in both knowledge and skills after six months post cardiopulmonary resuscitation training in a group of laypersons, with not

one performing without error at six months retesting. There is a similar trend seen among the police in Baguio city as shown in table 1 below.

Table 1. Extent of knowledge of police on cardiopulmonary resuscitation

Categories	X	I
A. Early Recognition	1.78	S K
B. CPR Procedure	2.21	S K
Total	1.99	S K

Legend:

Mean Range	Interpretation
1.00-1.75	N K (Not Knowledgeable)
1.76- 2.50	S K (Slightly Knowledgeable)
2.51- 3.25	K (Knowledgeable)
3.26- 4.00	V K (Very Knowledgeable)

3.2 Frequency distribution of knowledge on CPR procedure among police

In table 2 below, it can be seen that majority of the respondents are familiar with the position to place a victim when performing chest compression and also the technique used to open the victims airway to ensure entry of air. This may have been probably despite not having enough manikins for each police, they may have practiced this step with another police hence making it easy for them to remember this step. The respondents also had a high score when they answered the technique used to open the victim's airway. This may have probably been due to the respondents having had the opportunity to practice this step well when they had their training making it easy for them to remember because it is also among the first steps one has to perform before doing cardiopulmonary resuscitation. On the other hand, the respondents also showed that majority of them do not know the rate of chest compression also what to do if after giving the first rescue breath and the victims chest does not rise. This may have probably been contributed by the respondents not having had the opportunity to perform this step when they underwent their training. Given that maybe not all of them used the manikin to learn, they may not have performed this step on another partner due to the risk involved especially that of chest compression. Moser & Coleman (1992) found that although learning the skills can be accomplished through various training methodologies, the deterioration of the skill retention and inadequate performance began after two weeks post-training to one year post-training the knowledge and skill level had reached pre-training levels.

Table 2: Frequency distribution of knowledge on CPR procedure among police in Baguio City

Questions/ Items	f	%
What is the best position for the victim to be in when you are doing CPR?	210	88.98
The technique used to open the victim's airway is	195	82.63
When administering rescue breaths	188	79.66
When you deliver the first rescue breath, what should you do if the victim's chest does not rise?	50	21.19
How do you know that your rescue breath is effective?	152	64.42
Where is the chest compression landmark on an adult?	53	22.46
When you perform chest compression on an adult, why is it important to keep your shoulders directly over your hands and your elbows locked?	110	46.61
Depth of compression in adults during CPR	58	24.58
Rate of chest compression in during CPR	36	15.25
Ratio of chest compression : breathing by a single rescuer in adult is	86	36.44
Ratio of chest compression : breathing for two rescuers in adults is	63	26.69
When should you stop doing CPR?	109	46.19

F = Frequency

% = Percentage

3.3 Extent of knowledge according to the no. of years as law enforcers

Table 3: Extent of knowledge of police in cardiopulmonary resuscitation according to the no. of years as law enforcers

Categories	X	
0-5 Years	.02	2 K
6-10 Years	.05	2 K
11-15 Years	.95	1 K
16-20 Years	.83	1 K
> 20 Years	.91	1 K
$CV = 0.03$ $\alpha = 0.05$ $TV = 9.55$ The null hypothesis is accepted.		

In table 3, an *F-test* was used and it can be seen that there is no significant difference among the respondents because both who have worked for a short time and those who have been employed for a long time all show to have slight knowledge on cardiopulmonary resuscitation. This may probably because the respondents had their training a long time before they answered the questionnaire in that the time lapse was at least more than 8 months since they last had their training and this may have led to the deterioration of their knowledge since the time they had their training during recruitment. This is supported by the findings of Woollard, et al., (2004) who measured lay subjects' skills before, immediately after, and 6 months after training and found that although training did produce immediate improvement in skills, the skills had deteriorated significantly 6 months later. This was due to poor initial skills acquisition given that the laypersons underwent a 4 hour course is what led to the deterioration of what they laypersons had learnt. Similar results were found in laypersons who had received a 4 hour Basic Life Support course, with its skills and knowledge decreasing significantly shortly after training (Weaver, et.al., 1979). In this study, only the knowledge was tested and it was found out that all respondents had slight knowledge despite being employed for a short or long time. It is expected that those who underwent their training like less than 5 years ago to be better off but in the case of the findings, that did not appear to be the case. By deliberately overtraining people to instructor level, their retention is improved even after 12-18 months (Tweed, et al., 1980). This may also be true to the respondents of the study because the latest respondents to have undergone training was 8 months ago so if they are constantly retrained then probably they can retain what they learn.

On taking a closer look into the numerical mean, one can see that those who took their training less than 10 years ago had a numerical higher mean ($x = 2.02$ and $x = 2.02$ respectively) than the rest of the groups. This may have probably been due to them having an easy time trying to remember what they were taught because the time since they had their training and when they answered the questionnaires was not so long for them to forget what they learnt. Whereas when you look at those who have been working for more than 15 years, one can see that their numerical mean is low meaning ($x = 1.83$) that maybe due to them having had their training a long time ago during their recruitment may have led to them having these low means. This may have also been due to lack of practice assuming. This is supported by the study of Shrestha, et al., (2012) where they found out that those who had received training within 5 years obtained a very high score when they were tested and those who had taken their training more than 5 years ago without retraining got very low scores. It is also important to note that the ability of trained personnel in an employment setting to deliver basic life supporting first aid is paramount to the safety of their employees. With two year renewal dates, the ability of these trained personnel to provide this critical life supporting first aid has been questioned (Mahoney P, et al., 2008). This may be due to them taking a very long time before they take up a refresher course because even as seen in the study of Moser and Coleman (1992) where they found that skills decline as early as 2 weeks post training and diminish to pre- training levels by 1 to 2 years later. This is also similar with the findings in this study because all the respondents showed to have slight knowledge since all of them underwent their training more than 6 months ago prior to answering the questionnaire.

4.0 Conclusions

The findings of this study clearly show that the respondents generally have a slight knowledge on CPR. This means that the course that one takes up in college is not a variable for knowledge retention about CPR because both who took up medical and non- medical course were found to have slight knowledge on CPR. Also the time that one has worked does not affect the retention of CPR knowledge since those who have been employed for a long and short time all showed to have slight knowledge. Majority of the respondents gained their knowledge on CPR from the training they had during recruitment.

5.0 Recommendations

Further research is recommended that includes skill retention using demonstration checklists to evaluate the performance of the respondents after undergoing a training. CPR training regardless of the course that one has taken is recommended so that retention of knowledge is ensured so that it can be utilized when in need. Seminars too regardless of the number of years one has been working ought to be attended so as to be regularly updated on this. Agencies that teach cardiopulmonary resuscitation such as Philippines Red Cross, Baguio city emergency medical services are recommended to offer affordable trainings, offer training programs and conduct seminars to the respondents of this study and other laypersons.

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