

## Effectiveness of Planned Teaching Programme on Cardiopulmonary Resuscitation among Policemen in selected Police-Station at Mangalore, India

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**Introduction:** The most important factor in an emergency is the amount of time lost before a patient reaches the hospital. Cardiopulmonary resuscitation is designed to support and maintain breathing and circulation until emergency medical personnel arrive and take over.

**Objective:** To evaluate the effectiveness of planned teaching programme on cardiopulmonary resuscitation among policemen.

**Methodology:** One group pre-test - post-test, quasi experimental design was conducted among fifty policemen by using cluster random sampling technique. The collected data were analyzed using descriptive and inferential statistics.

**Results:** The mean pre-test knowledge was 13.74 (45.8%) with SD  $\pm$ 5.22 and the mean of post- test knowledge was 25.08 (83.6%) with SD  $\pm$ 2.5. The paired 't' test showed the difference in overall knowledge (23.485,  $p < 0.05$ ) respectively. Age ( $\chi^2 = 8.320$ ,  $p = 0.05$ ), educational status ( $\chi^2 = 33.040$ ,  $p = 0.05$ ) and previous awareness on CPR ( $\chi^2 = 18.000$ ,  $p = 0.05$ ) were statistically significant associated with pre-test knowledge level of policemen. Thus suggests the effectiveness of PTP in terms of gain in knowledge among policemen.

**Conclusion & Recommendation:** The present study concluded that the policemen lack knowledge regarding CPR and recommended that further study can be conducted with large similar groups, first responders like fire fighters, life guards, teachers, high school students, and other lay person as well.

**Keywords:** Cardiopulmonary resuscitation, Policemen, Planned teaching programme.

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### I. Introduction

Birth and deaths are two phenomena that all of us have to accept. Human is not conscious of his birth, he suffers at his death and he forgets to live. Longer life gives more time in which to lead a better life - we miss out on so much as things stand today, pressed by the lack of time and our increasing frailty with age. The option of another tomorrow and the capacity to enjoy it should be open to everyone, each and every day. Life should not be cut short when we want it to continue in all its glory. Immediate attempts to resuscitate patients with cardiac arrest by lay bystanders distinctly increase the chances of survival in such patients [1]. CPR is a technique used in cardiac arrest to reestablish heart and lung function until more advanced life support is available [2]. Knowledge of cardiopulmonary resuscitation (CPR) is essential part of the first aid skill [3]. We really do not know when an emergency will occur, where it occurs, how it occurs, whom it affects and how many will be involved. The most important factor in an emergency is the amount of time lost before a patient reaches the hospital. The bottom line is that it's "Far Better To Do Something Than To Do Nothing" at all. If you're fearful that knowledge or abilities aren't 100 percent complete. Remember, the difference between doing something and doing nothing could be someone's life [4]. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few minutes and death will occur within 8 to 10 minutes. Time is critical when helping an unconscious person who is not breathing [5]. Once loss of consciousness has been established, the resuscitation priority for the adult in most cases is placing a phone call to activate the code team or emergency medical services (EMS), Exceptions to this include near drowning, drug or medication overdose, and respiratory arrest situations, for which one minute of Cardio-pulmonary Resuscitation (CPR) should be performed before activating the EMS [6]. CPR is part of the emergency cardiac care system designed to save lives which is a combination of rescue breathing and chest compressions [7]. Many deaths can be prevented by prompt recognition of the problem and notification of the EMS. It is designed to support and maintain breathing and circulation until emergency medical personnel arrive and take over. Thus this life saving strategy is considered to be one of the important practical skills in the nursing practice. The training of which is

not just confined to the medical professionals, but almost anyone can perform provided with adequate knowledge which therefore needs to be regularly practiced to ensure full competency. Towards saving the precious lives [8]

## II. Objectives

- 2.1 To determine the pre-test knowledge level of policemen on cardiopulmonary resuscitation
- 2.2 To evaluate the effectiveness of planned teaching programme on cardiopulmonary resuscitation among policemen in selected police station at Mangalore.
- 2.3 To find out the association between pre-test knowledge level of policemen on cardiopulmonary resuscitation and selected demographic pro-forma

## III. Methodology

- 3.1 **Research design:** One group pre-test post-test, quasi experiment design was adopted for the study.
- 3.2 **Setting and Sampling:** The study was conducted in police seminar hall at Mangalore. There were a total of 28 police stations under superintendent of police, Mangalore; DK. Five police stations were selected using cluster sampling method and then 50 policemen were selected randomly.
- 3.3 **Description of the tool:** The tool is divided into mainly two parts,  
**Part-I:** Demographic pro-forma of the policemen.  
**Part-II:** Structured knowledge questionnaire on cardiopulmonary resuscitation, which is divided into three sections.  
**Section A:** Consists 6 items regarding universal concept of cardiopulmonary resuscitation.  
**Section B:** Consists 8 items regarding the causes, features, initial assessment of airway obstruction and cardiac arrest.  
**Section C:** Consists 16 items regarding resuscitation procedure and after procedure care.
- 3.4. **Content validity:** Validity of the tool was ascertained in consultation with nine experts in the field of medical-surgical nursing, one intensivist from Intensive Care Unit and a Professor in the field of medicine. The experts were requested to judge the items for accuracy, relevance, appropriateness and degree of agreement. The suggestions of the experts were incorporated into the tool and the tool was modified accordingly.
- 3.5. **Pilot study:** The pilot study was conducted in Bandar police station at Mangalore. The policemen who were participated in the pilot study were excluded from the sample. To find the feasibility of the study, five policemen were selected by using cluster sampling technique. After conducting the pilot study, found that the study was feasible, the questionnaire was relevant and the time and cost for the study was within the limit.
- 3.6. **Data collection procedure:** Prior permission was obtained from the concerned authority. Informed consent obtained from the subjects. The respondents were assured the anonymity and confidentiality of the information provided by them. The pre-test data were collected from the sample 2010. Lecture cum discussion and demonstration was the method of instruction. LCD projector and video footage was used as an AV aid. The duration of the session was one hour. After 7 days a post-test was conducted using the same structured knowledge questionnaire evaluate the effectiveness of the planned teaching programme.
- 3.7. **Statistical analysis:** The collected data were analyzed by using descriptive (frequency, distribution, percentage, mean and standard deviation) and inferential statistics (Chi square test, paired t test).

## IV. Results

### 4.1 Demographic variables

**Table 1:** Frequency and percentage distribution of policemen N = 50

Sl. No.	Variables	Frequency	Percentage (%)
1	<b>Age</b>		
	Less than 25	29	58
	26 – 35	16	32
	36 – 45	5	10
2	<b>Gender</b>		
	Male	34	68
	Female	16	32
3	<b>Education</b>		
	SSLC	4	8
	PUC	17	34
	Graduation	27	54
	Post graduate	2	4
4	<b>Duration of working Experience</b>		
	1 – 5 year	30	60
	6 – 10 year	17	34
	11 years and above	3	6
5	<b>Previous awareness on CPR</b>		
	Yes	10	20
	No	40	80

The above table 1 depicts that more than half 29 (58%) of the policemen were in the age group of less than 25 years, (42%) were in the age between 26 and 35 years and only (10%) were in the age group of 36 and 45 years. Majority 34 (68%) of the policemen belongs to male. In relation to their educational status highest 27(54%) of them had graduation, 17 (34%) and least 2 (4%) were post graduates. In addition, most 30(60%) of policemen had 1-5 years experience and only 3 (6%) of them had 11 and above years. Regarding previous awareness on CPR reveals that, majority 40 (80%) of the sample did not have previous exposure and only 10 (20%) were aware about CPR.

**4.2 Assessment of the pre-existing knowledge among policemen on CPR.**

**Table 2:** Distribution of pre test level of knowledge of policemen

Range of score %	Level of knowledge	Number of respondents	Percentage (%)
Below 40	Poor	16	32
41-60	Average	29	58
61-80	Good	5	10
81-100	Very good	0	0
<b>Total</b>		<b>50</b>	<b>100</b>

The table 2 shows that more than half 29(58%) of the policemen had average knowledge regarding CPR, 32% had poor knowledge and 10% good knowledge on CPR.

**4.3 Area-wise analysis of pre-test knowledge score.**

**Table 3:** Area-wise mean, SD and mean percentage of knowledge

N= 50

Areas	Max score	Mean	Median	SD	Mean%
Section A	6	3.7200	4.0000	± 1.32542	61.66
Section B	8	2.5400	2.0000	± 1.29694	31.74
Section C	16	7.4800	8.0000	± 2.61268	46.75
<b>Total</b>	<b>30</b>	<b>13.74</b>	<b>14.000</b>	<b>± 5.23504</b>	<b>45.8</b>

The table 3 illustrates that the mean percentage of total knowledge scores of policemen in the pre-test was 45.8% with mean ± SD of 13.74±5.23504. Area-wise mean percentage of knowledge scores was highest (61.66 %) in section A with a mean ±SD of 3.7200± 1.32542. In section C area, the mean percentage was (46.75%) with an area-wise mean ±SD of 7.4800± 2.61268. In section B area the mean percentage was 31.74% with an area-wise mean ±SD of 2.5400± 1.29694. The findings reveal that the knowledge of the policemen regarding CPR is moderate in all the areas.

**4.4 Effectiveness (pre test and post test) of Planned teaching programme on knowledge of CPR.**

**4.4.1 Comparison of area wise effective of PTP**

**Table 4:** Comparison of Area- wise effectiveness of PTP.

N= 50

Areas	No. of items	Knowledge score								
		Pre-test(A)			Post-test(B)			Effectiveness(B-A)		
		Mean	SD ±	Mean%	Mean	SD ±	Mean%	Mean	SD (±)	Mean%
Section A	6	3.72	1.32	62	5.90	0.30	98.33	2.18	1.02	<b>36.33</b>
Section B	8	2.54	1.29	31.75	6.96	1.0	87	4.42	0.29	<b>55.25</b>
Section C	16	7.48	2.61	46.75	12.22	1.20	76.37	4.74	1.41	<b>29.62</b>
<b>Total</b>	<b>30</b>	<b>13.74</b>	<b>5.22</b>	<b>45.8</b>	<b>25.08</b>	<b>2.5</b>	<b>83.6</b>	<b>11.34</b>	<b>2.74</b>	<b>37.8</b>

The data presented in the table 4 shows that the total mean knowledge score is increased by 37.8% with mean ±SD of 11.34±2.74 after the administration of PTP.

**4.4.2 Comparison of pre-test with post test knowledge scores**

**Table 5:** Comparison of pre-test with post test.

	Mean	Median	SD ±	Minimum score	Maximum score
Pre-test	13.74	14	5.22	4	21
Post-test	25.08	26	2.5	18	29

The data presented in the above table 5 shows that the pre-test mean was 13.74 with that of SD ±5.22 and post-test mean was 25.08 with that of SD of ±2.5.

4.4.3 Comparison of level of knowledge in pre-test with post test.

Table 6: Comparison of level of knowledge in pre-test with post-test.

Level of knowledge	Pre-test		Post-test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor	16	32	00	00
Average	29	58	1	2
Good	5	10	15	30
Very good	00	00	34	68

The data presented in the above table 6 shows that the pre-test knowledge level of all the police men was average 58 %, poor 32% and good 10%, and post test knowledge level very good 68%, good 30% and average 1%.

4.4.4 Effectiveness of planned teaching programme (t test)

Table 7: Mean difference and 't' value of pre-test and post-test knowledge scores

Test	Mean	Mean difference	t-test
Pre-test	13.74	11.34	23.485*
Post-test	25.08		

t<sub>49</sub> = , p < 0.05

\* Significant

The findings revealed that the mean post test score was significantly higher than their mean pre test score. The calculated 't' value (23.485, P<0.05) in knowledge aspect was greater than the table value (2.02) at 0.05. Hence it is concluded that there is very highly significant gain in knowledge of policemen on CPR.

4.5 Association between pre-test knowledge scores and demographic variables of policemen

Table 8: Chi square test showing association of pre-test knowledge with demographic variables N = 50

Demographic variable	Knowledge	
	χ <sup>2</sup>	Inference
Age	8.320	S
Gender	2.880	NS
Educational status	33.040	S
Duration of work experience	3.040	NS
Previous awareness on CPR	18.000	S

χ<sup>2</sup> = 3.84, df=1, p < 0.05 S = Significant; NS=Not significant

Data presented in table 8 revealed that the calculated chi-Square value of age (χ<sup>2</sup>=8.320), educational status (χ<sup>2</sup>=33.040) and previous knowledge on CPR (χ<sup>2</sup>=18.000) were greater than that of table value at 0.05 level of significance. Hence gender and educational status was significantly associated with pre test knowledge.

V. Discussion

The study was undertaken to evaluate the effectiveness of a planned teaching programme on CPR among policemen in a selected police station at Mangalore. In order to achieve the objectives of the study, one group pre-test post-test design with evaluative approach was adopted. The data was collected from 50 respondents before and after the administration of the planned teaching programme. Percentage distribution of policemen according to their age shows that the highest percentage (58%) of the respondents were in the age group of less than 25 years, 32% were in the age between 26-35 years and only (10%) were in the age group of 36 – 45 years. With regard to gender distribution of samples most (68%) of the respondents were males and 32% were female.

In our study, the pre-test knowledge level of all the policemen was average 58 %, poor 32% and good 10%, and post test knowledge level very good 68%, good 30% . A similar study (Tarika Sharma and Urvasi Sharma, 2016) [9] was conducted on nursing students to assess the knowledge on CPR but the pretest knowledge score were not similar with present study which shows that majority of nursing students (96.3%) had poor level of knowledge in pretest whereas in post-test most of (61.8%) study participants had good level of knowledge which is almost nearer (very good 68%) to current study.

A study was conducted to assess the general knowledge of EMS and CPR and the retention of the CPR steps 2 months after a Basic Life Support (BLS)-course among law enforcement agents (LEA) and high school students (HSS). The overall findings showed that HSS were more responsive and receptive than LEA. Therefore, the Study concludes to have refresher courses on CPR regularly for the LEAs. <sup>29</sup> The finding of the present study reveals that highest percentage (58%) of the policemen had average knowledge regarding CPR, 32% had poor knowledge and 10% good knowledge on CPR. This shows consistency with the above study findings. The mean percentage of total knowledge scores of policemen in the pre-test was 45.8% with mean ±

SD of 13.74±5.23504. Area-wise mean percentage of knowledge scores was highest (61.66 %) in the area of Universal concept of CPR with a mean ±SD of 3.7200± 1.32542. In the area related to Resuscitation procedure and after procedure care the mean percentage was (46.75%) with an area-wise mean ±SD of 7.4800± 2.61268. In the area of Causes, features and Initial assessment of airway obstruction and cardiac arrest the mean percentage was 31.74% with an area-wise mean ±SD of 2.5400± 1.29694. The findings reveal that the knowledge of the policemen regarding CPR is moderate in all the areas.

The present study shows that the mean pre-test knowledge was 13.74 (45.8%) with SD ±5.22 and the mean of post- test knowledge was 25.08 (83.6%) with SD ±2.5, which is compared to similar study (Tarika Sharma and Urvashi Sharma, 2016)[9] to evaluate the effectiveness of planned teaching programme revealed that mean score for pretest was found to be 7.07 ±2.12 with a mean percentage of 35.3% which was significantly improved to 14.9 ±3.25 with a mean percentage of 74.5 % at p <0.001 for posttest score.

There was a significant association of age ( $\chi^2=8.320$ , p=0.05), educational status ( $\chi^2=33.040$ , p=0.05) and previous awareness on CPR ( $\chi^2=18.000$ , p=0.05) with pre-test knowledge level of policemen in present study which was not similar to the study(Tarika Sharma and Urvashi Sharma, 2016) [9], where there was no association found between levels of knowledge of study participants with selected demographic variables.

## VI. Conclusion

Hence the study concluded that prevalence of cardiopulmonary resuscitation was more effective among policemen and increased significantly with age. Moreover, the level of knowledge about the CPR was very low. So there an essential to conduct health education training programme for policemen on updated cardiopulmonary resuscitation.

## VII. Recommendations

7.1 A similar study can undertake with a larger sample to generalize the findings.

7.2 A similar study may be conducted by using a control group. A similar study could be used to test the effectiveness of PTP on CPR technique among parents, drivers, teachers, lifeguards and all first responders including general public group.

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