

# Effectiveness of Video Assisted Teaching program on Adult CPR among School Students

Thenmozhi. P <sup>1\*</sup>, Kishore. V <sup>2</sup>, Axcel Julita. D <sup>2</sup>

<sup>1\*</sup>Dr. Thenmozhi.P, Professor & HOD, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Chennai, India

<sup>2</sup>B.Sc Nursing, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences, Chennai, India

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**Abstract:** Introduction: Cardiopulmonary resuscitation is a critical component of basic life support. Everyone must know the importance of CPR and how to perform the procedure when an emergency strikes. Hence the current study was conducted to determine the effectiveness of video-assisted teaching programme on adult CPR among school students. Materials and Methods: Quasi-experimental research design was carried out with 60 samples who met the inclusion criteria at a selected Government Corporation School. An interview schedule was used to collect the background information and assess knowledge of CPR using a structured multiple choice questionnaire at the beginning of the study, followed by video-assisted teaching on CPR given in the common room. Reinforcement was given on alternate days for seven days, and at the end of the seventh day, a post-test was done using the same questionnaire. The data were tabulated and analyzed by descriptive and inferential statistics. Results: The finding of the study reveals that 54(90%) had inadequate knowledge and 6(10%) had moderately adequate, whereas in the post-test, 31(52%) had moderately adequate knowledge and 29(48%) had adequate knowledge on CPR and also found statistically significant improvement in the knowledge on CPR at the level of  $P < 0.05$ . Conclusion: The current study's findings concluded that there is an improvement in knowledge of adult CPR among school students after the administration of video-assisted teaching. Hence, education programme on CPR may be actively initiated by health care personnel for all school children and teachers to save many lives.

**Keywords:** Video assisted teaching, VAT, Cardiopulmonary Resuscitation, CPR, School children.

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## 1. INTRODUCTION

Cardiac arrest is a sudden stoppage of heart beating followed by loss of respiratory function and unconsciousness, which remains a major public health crisis. There are more than 356,000 out-of-hospital cardiac arrests (OHCA) annually in the United States, with nearly 90% of them fatal, according to the American Heart Association Heart and Stroke Statistics - 2022 Update<sup>1</sup>. About 9 in 10 people with cardiac arrest outside the hospital die<sup>2</sup>. About 10% of the deaths in India are due to sudden cardiac arrest, the most common factor of death worldwide<sup>3</sup>. Cardio Pulmonary Resuscitation (CPR) is the best way to save a life that comes in handy in various circumstances like suffocation, near drowning, electrical injuries, heart attacks, or any other cause where a person's breathing or heartbeat has ceased<sup>4</sup>. Emergencies can strike anyone anywhere. Early CPR, including bystander CPR, is significantly associated with improved survival to hospital discharge rates from out-of-hospital cardiac arrest<sup>5-7</sup>.

International studies also reported that trained individuals were more willing and confident to perform bystander CPR<sup>8-10</sup>. Therefore, trained professionals or students may be able to perform early CPR, initiate resuscitation efforts, and speed up access to prehospital and definitive care. This may lead to increased survival rates and improved patient outcomes<sup>11-13</sup>. Effective CPR provided immediately in the first few minutes of cardiac arrest can double or triple a victim's chance of survival<sup>14</sup>. If more people know CPR, more lives can be saved since the CPR measure is the basic fundamental procedure that has to understand by all medical personnel, Para-medical personnel, and non-medical personnel too. Students are the

future generation as they can play an essential role in improving and strengthening society. However, CPR requires adequate knowledge and competency; as CPR is not given scientifically, there is a chance of losing the victim. Therefore, this study aimed to educate the students on CPR to rescue the victims. The primary target of teaching is health behavior, and it is also assumed that teaching helps change behavior through cognitive and psychomotor changes. Hence the current study was conducted to determine the effectiveness of video-assisted teaching programme in CPR among school students.

## 2. METHODS AND MATERIALS

quantitative research approach with a quasi-experimental research design was adopted to determine the effectiveness of video-assisted teaching on adult CPR among school students at Corporation Government School, Chennai, after obtaining formal permission from the Head of the Institution. Sixty students from the 9th and 10th standards were selected using the random sampling technique of the lottery method who met the inclusion criteria. The inclusion criteria for selecting participants were regular attendance at school and the ability to understand Tamil and English. Students who were not willing to participate in the study and had minor sicknesses were excluded from the study. The students and their parents who consented in written forms to participate were informed about the purpose of the study and obtained informed and assent consent. The tool used for the study was background variables and multiple choice questionnaires to assess the level of knowledge on cardiopulmonary resuscitation. The questionnaire was related to knowledge and steps of doing CPR. The questionnaire contains 25 multiple choice questions, and the level of knowledge was categorized as inadequate knowledge (<50%), moderately adequate knowledge (51-75%), and adequate knowledge (>76%). A structured interview schedule was used to collect the background information and assess knowledge of CPR using a structured multiple choice questionnaire at the beginning of the study, followed by video-assisted teaching was given on adult CPR in the common room. Reinforcement was given on alternate days for seven days, and at the end of the seventh day, a post-test was done using the same questionnaire. They were assured of their confidentiality and anonymity throughout the study. The data collected were entered into Microsoft excel and analyzed using descriptive and inferential statistics. Paired t-test was used to examine the effectiveness of video-assisted teaching. P values less than 0.05 were considered statistically significant.

## 3. RESULTS

### Background Variables of Participants

Background Variables	Frequency (%)
<b>Age in Years</b>	
14	10 (16.7%)
15	16 (26.7%)
16	28 (46.6%)
17	6 (10%)
<b>Gender</b>	
Male	37 (61.7%)
Female	23 (38.3%)
<b>Standard of studying</b>	
9 <sup>th</sup> standard	21 (35%)
10 <sup>th</sup> standard	39 (65%)
<b>Medium of Instruction</b>	
English	-
Tamil	30 (100%)
<b>Area of Residence</b>	
Urban	45 (75%)
Semi-urban	15 (25%)
Rural	-
<b>Previous knowledge about CPR</b>	
Yes	6 (10%)
No	54 (90%)
<b>If yes, the source of information</b>	
Media	3 (5%)
Books	3 (5%)
Teachers	-
Any other	-

Regarding background variables, most of the school children, 28(46.6%) were aged 15 years, 37(61.7%) were male, 39(65%) were studying 10th standard, all 60 children (100%) were studying in Tamil medium, 45(75%) were residing in urban area, 54(90%) had no previous knowledge about CPR and 3(5%) received information through media and books as depicted in Table 1.

**Table 2. Distribution of pretest and post-test level of knowledge on CPR**

Level of Knowledge	Pretest		Post Test	
	F	%	F	%
Inadequate ( $\leq 50\%$ )	54	90	0	0
Moderately Adequate (51 – 75%)	6	10	31	52
Adequate ( $>76\%$ )	0	0	29	48

The above Table 2 represents that in the pretest, 54(90%) had inadequate knowledge and 6(10%) had moderately adequate, whereas in the post test, 31(52%) had moderately adequate knowledge and 29(48%) had adequate knowledge on CPR.

**Table 3. Comparison of pre-test and post-test knowledge on VAT on CPR**

Knowledge on CPR	Mean	S.D	Paired 't' Test
Pretest	8.30	1.45	t = 25.229 p=0.0001 S***
Post Test	15.48	2.22	

\*\*\*p<0.001, S – Significant

The above table 3 shows that the pretest means score of knowledge score was  $8.30 \pm 1.45$  and the post-test mean score was  $15.48 \pm 2.22$ . The calculated paired 't' test value of  $t = 25.229$  was found to be statistically significant at  $p < 0.001$  level which clearly infers that VAT programme on CPR administered among school children was found to be effective in improving the level of knowledge on CPR among school children in the post test.

**Association on level of knowledge with selected Background variable**

The analysis showed that the background variable standard of education ( $\chi^2=4.904$ ,  $p=0.027$ ) had shown statistically significant association with post-test level of knowledge on CPR among school children at  $p < 0.05$  level

**4. DISCUSSION**

Cardiopulmonary resuscitation is a life-saving and critical component of basic life support. Every individual must know the importance of CPR and how to perform the procedure during an emergency strike anytime and anywhere. Hence the study was conducted to choose the school students to impart knowledge on CPR by adopting Video assisted teaching (VAT) method and also determine the effectiveness of VAT on knowledge regarding CPR. In the current study, 90% had inadequate knowledge and found a statistically significant improvement in the knowledge level after a Video-assisted teaching program was administered. The percentage of adequate knowledge also increased from zero percent to 48%. This finding is supported by the results of Tukaram B. Zagade et al. proved that students had an excellent knowledgeability regarding Adult Cardio Pulmonary Resuscitation (CPR) after administration of Video Assisted Teaching among final year pharmacy diploma students<sup>15</sup>. Similarly, a study by Arpana Acharya observed the knowledge deficit among B.Sc(N) III year students regarding cardiopulmonary resuscitation and Video-assisted teaching program was effective in improving their level of knowledge<sup>16</sup>. The Video-assisted Teaching Program was effective in enhancing the knowledge and skills of staff nurses regarding CPR, as reported by Kirshnakumar V et al<sup>17</sup>. In the current study was limited in measuring the skill and competency of the participants. Ruchir Joshi et al. suggested that Video-assisted teaching effectively increased undergraduate college students' knowledge regarding cardio-pulmonary resuscitation<sup>18</sup>. Another study finding by Rehab M. Gaafar et al also supported a good level of knowledge and attitude against CPR, which might be attributed to certain factors, mainly the high level of education, age, and gender factors. The present study is also highly associated with the standard of education of school children<sup>19</sup>. A study demonstrated by Jatim Sugiyanto et al. found that training using video-assisted teaching and simulation increased the knowledge about performing cardiopulmonary resuscitation, although there was no difference in knowledge score between the video-assisted teaching group and the simulation group<sup>20</sup>. This result is also in line with the study by Chetan Kumar et al. which showed that there was an effectiveness in increasing the knowledge of CPR after the intervention of Video-assisted teaching on Cardio Pulmonary resuscitation<sup>21</sup>. Hence, the current study finding

is strongly supported. However, the study is limited to measuring the knowledge and skill of CPR, and teaching also may be complemented with a simulation method.

## 5. CONCLUSION

Every individual is responsible to provide basic life support during emergency and adequate knowledge helps to save the lives. The findings of the current study concluded that there is improvement in knowledge on adult CPR among school students. Hence, education programme on CPR may be actively initiated by health care personnel in all school children for healthy nation.

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## Conflict of Interest

The authors declare that there is no conflict of interest.

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