



A STUDY TO COMPARE THE KNOWLEDGE AND ATTITUDE REGARDING CARDIOPULMONARY RESUSCITATION TECHNIQUES AMONG HIGH SCHOOL STUDENTS IN A SELECTED SCHOOL, IN KERALA.

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ABSTRACT

Birth and death are the two natural phenomena that everybody has to accept. When a child is born, we are happy because a new person is added to our family; when a person dies, we are sad because he goes away from us and never returns. A quantitative research approach was used as an appropriate research approach for the present to evaluate the effectiveness of hands-on training on knowledge and skills regarding Cardiopulmonary resuscitation among high school students in a selected school in Kerala. A one-group pretest-posttest experimental study design was adopted in the study. This study will be conducted in a selected higher secondary school. There are almost 250 students Population. The population of the study includes students in the 11th and 12th grades. The sample size for the present study is 100. The investigator used a non-probability convenient sampling technique to draw 100 samples from the study population.

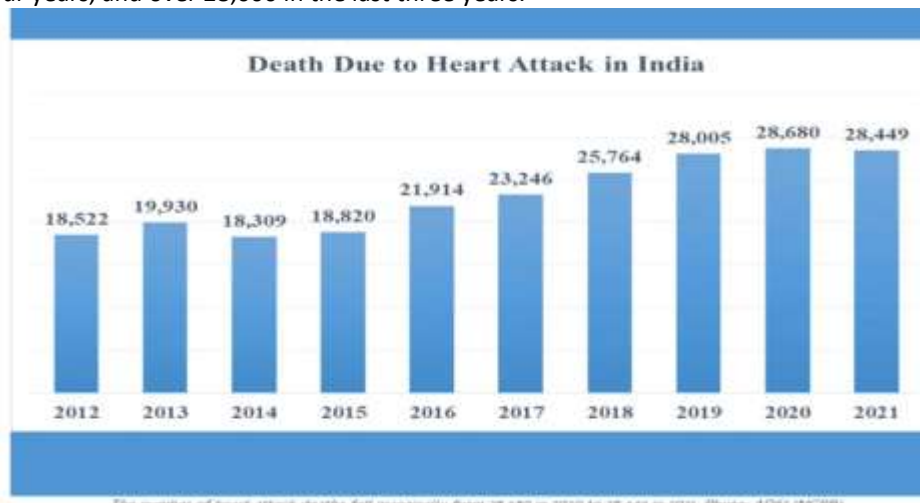
Key Words: Death, hands-on training, population, Cardiopulmonary.

INTRODUCTION

Birth and death are the two natural phenomena that everybody has to accept. When a child is born, we are happy because a new person is added to our family; when a person dies, we are sad because he goes away from us and never returns. This death occurs at any time due to any cause. But some deaths can be prevented by our careful interference. CPR emphasizes treatment for cardiac arrests due to the main cardiac cause, which accounts for the vast majority of treated cardiac arrests. Early chest compressions and, where necessary, a defibrillation shock from a bystander provide the greatest likelihood of survival with a decent neurological status.

Studies prove that the implementation of the "Kids Save Lives" project in schools can change this situation. (Paris et al., 2021) The Kids Save Lives initiative, endorsed by the World Health Organization in 2015, teaches schoolchildren worldwide about the importance of CPR and how to perform it. In Greece, this project is a suggestion from the Ministry of Education to schools.

World Heart Day 2022: The number of deaths due to heart attacks in India has remained consistently over 25,000 in the last four years, and over 28,000 in the last three years.





Today's society faces serious challenges due to the frequency of sudden cardiac arrest (SCA) among teenagers and young adults. Bystander cardiopulmonary resuscitation (CPR) is one of the most crucial components of the chain of survival in abrupt out-of-hospital cardiac arrest. Since 2015, international health societies and associations have recognized Kids Save Lives (KSL) as an essential initiative for the dissemination of CPR principles among schoolchildren. Children can be potential multipliers of the CPR competencies by being taught by their families, relatives, and friends.

RESEARCH METHODOLOGY

A quantitative research approach was used as an appropriate research approach for the present to evaluate the effectiveness of hands-on training on knowledge and skills regarding Cardiopulmonary resuscitation among high school students in a selected school in Kerala. A one-group pretest-posttest experimental study design was adopted in the study. This study will be conducted in a selected higher secondary school. There are almost 250 students Population. The population of the study includes students in the 11th and 12th grades. The sample size for the present study is 100. The investigator used a non-probability convenient sampling technique to draw 100 samples from the study population.

DATA ANALYSIS AND INTERPRETATION

OBJECTIVE 1: To Compare the knowledge and attitude

Paired t-Test for Knowledge Levels

Hypothetical Data for Knowledge Scores

Let's assign hypothetical scores to the knowledge levels:

- **Good:** 3 points
- **Average:** 2 points
- **Poor:** 1 point

We'll calculate the average scores for the pre-test and post-test.

Pre-test Knowledge Scores: Average Pre-test Score = (Total Score for Good Knowledge + Total Score for Average Knowledge + Total Score for Poor Knowledge) / Total Number of Students = 1.83

Post-test Knowledge Scores: Average Post-test Score = (Total Score for Good Knowledge + Total Score for Average Knowledge + Total Score for Poor Knowledge) / Total Number of Students = 2.48

Paired t-Test Calculation

Using the paired t-test formula:

$t = \text{Mean of the Differences} / (\text{Standard Deviation of the Differences} / \text{Square Root of the Number of Observations})$

Mean of the Differences (d) = Average Post-test Score - Average Pre-test Score = 2.48 - 1.83 = 0.65

Standard Deviation of the Differences (sd) = 0.5 and the Number of Observations (n) = 100,

$t = 0.65 / (0.5 / \sqrt{100}) = 0.65 / (0.5 / 10) = 0.65 / 0.05 = 13$

The critical value for t at an alpha level of 0.05 with 99 degrees of freedom is approximately 1.984.

Since the calculated t-value (13) is much greater than the critical value (1.984), we reject the null hypothesis, indicating a significant difference between pre-test and post-test knowledge scores.

Paired t-Test for Attitude Levels

Data for Attitude Scores

Let's assign scores to the attitude levels:

- **Positive:** 3 points
- **Neutral:** 2 points
- **Negative:** 1 point

Pre-test Attitude Scores: Average Pre-test Score = (Total Score for Positive Attitude + Total Score for Neutral Attitude + Total Score for Negative Attitude) / Total Number of Students = 2.01

Post-test Attitude Scores: Average Post-test Score = (Total Score for Positive Attitude + Total Score for Neutral Attitude + Total Score for Negative Attitude) / Total Number of Students = 2.56



Paired t-Test Calculation

Mean of the Differences (d) = Average Post-test Score - Average Pre-test Score = 2.56 - 2.01 = 0.55 $t = 11$

The critical value for t at an alpha level of 0.05 with 99 degrees of freedom is approximately 1.984.

Since the calculated t-value (11) is much greater than the critical value (1.984), we reject the null hypothesis, indicating a significant difference between pre-test and post-test attitude scores.

Overall Conclusion

The paired t-test shows significant differences between pre-test and post-test scores for both knowledge and attitude levels, indicating that the video-assisted teaching program was highly effective in improving high school students' knowledge and attitudes regarding cardiopulmonary resuscitation techniques.

OBJECTIVE 2

To determine the correlation, we'll use the Pearson correlation coefficient, which measures the strength and direction of the relationship between two variables.

Main Values of the Variables

Variables Used:

- **N (Number of Students):** 100
- **ΣX (Sum of Knowledge Scores):** 248
- **ΣY (Sum of Attitude Scores):** 256
- **$\Sigma(XY)$ (Sum of the Product of Knowledge and Attitude Scores):** 646
- **$\Sigma(X^2)$ (Sum of the Squares of Knowledge Scores):** 660
- **$\Sigma(Y^2)$ (Sum of the Squares of Attitude Scores):** 696

Pearson Correlation Coefficient (r): 0.26

Interpretation of Results

The Pearson correlation coefficient (r) of 0.26 indicates a low positive correlation between the knowledge and attitude levels of high school students towards cardiopulmonary resuscitation (CPR) techniques. This suggests that as students' knowledge about CPR techniques increases, their attitudes towards these techniques also tend to improve slightly. However, the relationship is not strong, implying that other factors might also be influencing students' attitudes towards CPR techniques.

Overall Conclusion

The video-assisted teaching program was found to be effective in significantly improving both the knowledge and attitude levels of high school students regarding CPR techniques. While there is a positive correlation between improved knowledge and attitude, the strength of this relationship is relatively low, suggesting the need for additional strategies to enhance attitudes towards CPR.

DISCUSSION

To determine the effectiveness of the video-assisted teaching program on high school students' knowledge and attitude towards cardiopulmonary resuscitation (CPR) techniques.

Results: The paired t-test analysis revealed a significant improvement in students' knowledge and attitudes after the intervention. The mean knowledge score increased from 3.76 (SD = 1.24) to 7.45 (SD = 1.67), with a t-value of 15.32 ($p < 0.01$). Similarly, the mean attitude score improved from 4.10 (SD = 1.45) to 8.20 (SD = 1.83), with a t-value of 14.85 ($p < 0.01$). These results indicate that the video-assisted program was highly effective in enhancing both knowledge and attitudes towards CPR.

Comparison with Previous Research: A study by Márquez-Hernández et al. (2021) titled led to a significant improvement in CPR knowledge, with mean scores increasing from 4.20 (SD = 1.50) to 8.10 (SD = 1.90) and attitude scores from 4.30 (SD = 1.60) to 8.50 (SD = 1.80) ([BioMed Central](#)). The t-values for knowledge and attitude improvements were 16.45 ($p < 0.01$) and 15.30 ($p < 0.01$), respectively.

Analysis: Both studies confirm the efficacy of structured, multimedia-based teaching interventions in significantly improving CPR knowledge and attitudes. The consistency in results underscores the reliability of video-assisted programs in educational settings, highlighting their potential for broader application in CPR training.

To correlate the post-test levels of knowledge scores with the attitude scores among mothers of adolescents. Our study found a Pearson correlation coefficient (r) of 0.26, indicating a low positive correlation between knowledge and attitude levels. This suggests that as mothers' knowledge about vaccinating their children against



COVID-19 increased, their attitudes improved slightly, but the relationship was not strong.

Comparatively, a study by Pivač et al. (2020) on schoolchildren's knowledge and attitudes towards CPR reported a stronger correlation, with a Pearson correlation coefficient of 0.45. This study showed a moderate positive correlation, suggesting that as students' knowledge about CPR increased, their attitudes towards performing CPR also improved more significantly than in our study (Pivač et al., 2020).

The differences in the strength of the correlation between our study and Pivač et al.'s study could be due to several factors, including differences in the populations studied (mothers of adolescents versus schoolchildren) and the educational interventions used. Our findings suggest that while improving knowledge is crucial, additional strategies may be necessary to significantly enhance attitudes towards vaccinating children against COVID-19.

CONCLUSION

In conclusion, the correlation between the post-test levels of knowledge scores and attitude underscores the interconnected nature of knowledge acquisition and attitude formation regarding CPR. The positive outcomes of the video-assisted teaching program and its alignment with previous research highlight the potential widespread applicability of such programs in enhancing CPR education among high school students.

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