

# Effectiveness of structured teaching program (STP) on knowledge regarding defibrillation procedure among nursing student in selected nursing college of the city

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**Abstract—Introduction:** Background of the study: Sudden cardiac death is believed to be involved in nearly a quarter of all human deaths, with ventricular fibrillation being its most common mechanism. One of the first descriptors of ventricular fibrillation and its link to sudden cardiac death belongs to the British physiologist John A. McWilliam, a former student of the famous Carl Ludwig, who was working at the University of Aberdeen. Cardiac defibrillation is the act of administering a transthoracic electrical current to a person experiencing one of the two+ lethal ventricular dysrhythmias, ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT). **Objective:** The objective of the study was assessing the effectiveness of structure teaching program among nursing student. An experimental research approach and one group pre-test post-test research design was used to collect data before and after an administration of questionnaire on defibrillation. The nursing student were the samples selected by a purposive sampling technique and data was collected by using Standardized defibrillation Questionnaire with structured interview schedule. The analysis was done by using descriptive and inferential statistics **Results:** It was observed that the percentages of that 31.67% of nursing students from selected nursing colleges had poor level of knowledge score, 58.33% of them had average and 10% of nursing students had good level of knowledge score. Minimum knowledge score in before intervention pretest was 8 and maximum knowledge score in pretest was 21. The hypothesis was tested statistically with the distribution of pre-test and post-test mean score. pre-test mean knowledge score  $10.81 \pm 3.48$  and post mean knowledge score  $10.81 \pm 3.48$ , The levels of knowledge during the pre-test and post-test were compared to prove the effectiveness of planned teaching. Tabulated value was compared with calculated 't' value. Mean, standard deviation and mean difference values are compared and student's paired 't' test is applied at 5% level of significance. The tabulated value for

$n=60-1$  i.e., 59 degrees of freedom was 2.00. The calculated 't' value i.e. 24.03 are much higher than the tabulated value at 5% level of significance for overall knowledge score of nursing students which is statistically acceptable level of significance.

**Index Terms—** Structure teaching program, Self-Administered Questionnaire, Defibrillation procedure.

## I. INTRODUCTION

Defibrillation is a definitive treatment for life-threatening cardiac arrhythmias, ventricular fibrillation and pulseless ventricular tachycardia. Defibrillation consists of delivering a therapeutic dose of electrical energy to the affected heart with a device called a defibrillator. Defibrillation depolarizes a critical mass of myocardial cells at once, when the repolarize, the sinus node usually recaptures its role as the pacemaker. The electrical voltage required to defibrillate the heart is usually greater than required for cardioversion and causes more myocardial damage. Defibrillators are classified as monophasic or biphasic. Monophasic defibrillators deliver currenting only one direction and require increased energy load. Newer biphasic defibrillators deliver the electrical charge to the positive paddle, which then reverse back to the originating paddle.

## II. OBJECTIVES

- To assess the pre-test level of knowledge regarding Defibrillation procedure among nursing student in selected college of the city.
- To assess the post-test level of knowledge regarding Defibrillation procedure among nursing

student selected nursing college of the city.

- To associate the knowledge score regarding defibrillation procedure among nursing student in selected nursing college of the city with selected demographic variables.

### III. MATERIALS AND METHODS

A quantitative research approach was selected to assess the knowledge of nursing student on Defibrillation procedure. A quasi - experimental design was used for this study. The study was carried out in the two selected college in the city of Maharashtra. The period of data collection was two weeks. The permission was obtained from concern authority of respective nursing college of the city, at Maharashtra state. The convenient sampling technique was used to select 60 nursing students from different settings of the selected college. Written consent was obtained from the samples and pretest has been assessed for all the 60 patients using demographic and defibrillation procedure questionnaire for assessing knowledge of nursing student. Then the STP on Defibrillation procedure was carried out for all nursing student those who are participated to whom the pre-test was conducted. After two weeks, the post-test was taken and the data was analysed.

### IV. STATISTICAL ANALYSIS

The data was analysed by descriptive and inferential statistics. Demographic data was analyzed using frequency and percentage, data from the defibrillation procedure questionnaire before and after structure teaching programme administered was also analyzed using frequency, percentage and student paired ‘t’ test. The association between knowledge scores findings and demographic variables was analyzed by using t test and chi square test.

### V. RESULTS

Table 1: Percentage wise distribution of Nursing Students according to their demographic characteristics. n=60

Demographic Variables	No. of nursing students	Percentage (%)
Gender		
Male	19	31.7

Female	41	68.3
Other	0	0
Source of information		
Mass Media	0	0
Educational Program	60	100
Written Media	0	0
Other	0	0
Religion		
Hindu	49	81.7
Buddhism	11	18.3
Muslim	0	0
Others	0	0
Type of family		
Nuclear	15	25.0
Joint	43	71.7
Divided	0	0
Single Parents	2	3.3
Educational Program		
Attended	50	83.3
Non-Attended	10	16.7

Table 2: Assessment with level of pre-test knowledge n= 6

Level of pretest knowledge	Score Range	Level of Pretest Knowledge Score	
		No of nursing students	Percentage
Very Poor	0-6(0-20%)	0	0
Poor	7-12(21-40%)	19	31.67
Average	13-18(41-60%)	35	58.33
Good	19-24(61-80%)	6	10
Very Good	25-30(81-100%)	0	0
Minimum score		8	
Maximum score		21	
Mean knowledge score		14.45 ± 3.11	
Mean % Knowledge Score		48.16 ± 10.38	

The above table shows that 31.67% of nursing students from selected nursing colleges had poor level of knowledge score, 58.33% of them had had average and 10% of nursing students had good level of knowledge score.

Minimum knowledge score in pretest was 8 and maximum knowledge score in pretest was 21. Mean knowledge score in pretest was 14.45 ± 3.11 and mean percentage of knowledge score in pre-test was 46.16 ± 10.38.

Table 3: Assessment with level of post-test knowledge n= 60

Level of posttest knowledge	Score Range	Level of Post test Knowledge Score	
		No of nursing stu-dents	Percentage
Very Poor	0-6(0-20%)	0	0
Poor	7-12(21-40%)	0	0
Average	13-18(41-60%)	1	1.67
Good	19-24(61-80%)	16	26.67
Very Good	25-30(81-100%)	43	71.67
Minimum score		18	
Maximum score		29	
Mean knowledge score		25.26 ± 1.89	
Mean % Knowledge Score		84.22 ± 6.31	

The above table shows that 1.67% of nursing students from selected nursing colleges had average level of knowledge score, 26.67% had good and 71.67% of them had had very good level of knowledge score. Minimum knowledge score in posttest was 18 and maximum knowledge score in posttest was 29. Mean knowledge score in posttest was 25.26 ± 1.89 and mean percentage of knowledge score in posttest was 84.22 ± 6.31.

Table 4: Significance of difference between knowledge score in pre and post-test of nursing students n=60

Test	Mean	SD	Mean Differ-ence	t-value	p-value
Pre Test	14.45	3.11	10.81±3.48	24.03	0.0001
Post Test	25.26	1.89			

This table shows the comparison of pretest and post-test knowledge scores of nursing students regarding defibrillation procedure from selected nursing colleges of the city. Mean, standard deviation and mean difference values are compared and student's paired 't' test is applied at 5% level of significance. The tabulated value for n=60-1 i.e. 59 degrees of freedom was 2.00. The calculated 't' value i.e. 24.03 are much higher than the tabulated value at 5% level of significance for overall knowledge score of nursing students which is statistically acceptable level of significance. Hence it is statistically interpreted that the Structured Teaching Programme on knowledge regarding defibrillation procedure among nursing students from selected nursing colleges of the city was effective. Thus, the H1 is accepted.

VI. DISCUSSION

The findings of the study were discussed concerning the objective stated as below About the first objective of the study, the major findings of the study show that pre-test knowledge shows Assessment of the level of pre-test knowledge shows that 31.67% of Nursing student from selected Nursing college had poor level of knowledge score, and 58.33% of them had a Average level of knowledge score. And 10% of nursing student had good level of knowledge score. Minimum knowledge score in the pretest was 8 and the maximum knowledge score in the pretest was 21. The mean knowledge score in the pretest was 14.45 ± 3.11 and the mean percentage of knowledge score in the pretest was 46.16 ± 10.38. With regard to the second objective of the study, the major findings of the study show that post-test knowledge shows that Assessment of the level of post-test knowledge shows that 1.67% of nursing student from selected nursing college of the city had a Average level of knowledge score, 26.67% of them had a good and 71.67% of them had an very good level of knowledge score. The minimum knowledge score in the post-test was 18 and the maximum knowledge score in the post-test was 29. The mean knowledge score in the post-test was 25.26 ± 1.89 and the mean percentage of knowledge score in the post-test was 84.22± 6.31. With regard to the third objective of the study, the findings of the result show that the the hypothesis is tested statistically with a distribution of pretest and posttest mean, standard deviation, and mean percentage knowledge score. The levels of knowledge during the pre- test and post-test are compared to prove the effectiveness of the structure teaching program. The significance of difference at a 5% level of significance is tested with the student's paired 't' test and the tabulated 't' value is compared with the calculated 't' value. Also, the calculated 'p' values are compared with the acceptable 'p' value i.e., 0.05. Significance of difference between knowledge score in pre and post-test of nursing student: The comparison of pretest and post-test knowledge scores of nursing student regarding Defibrillation procedure from selected nursing college. Mean, standard deviation, and mean difference values are compared and the student's paired 't' test is applied at a 5% level of significance. The tabulated value for n=60-1 i.e. 59 degrees of freedom was 2.00. The calculated 't' value i.e., 24.03 is much higher than the tabulated value at

5% level of significance for the overall knowledge score of nursing student which is a statistically acceptable level of significance. Hence it is statistically interpreted that the structure teaching program on knowledge regarding ride fibrillation procedure among nursing student. With regard to the fourth objective of the study, the result shows that there was a significant association between gender, post-test knowledge score regarding defibrillation procedure among nursing student in selected nursing college of the city was effect

#### VII. CONCLUSION

After the detailed analysis, this study leads to the following conclusion. The knowledge of nursing student on defibrillation procedure among nursing student does not have 100% knowledge regarding defibrillation procedure. There was a significant increase in the knowledge score after the interventions of STP. Thus, it was concluded that STP to improve knowledge of Nursing student was found effective. Demographic variables did not show a major role in influencing the pretest and posttest in control & experimental group among knowledge of nursing student. Hence based on the above cited findings, it was concluded undoubtedly that the diligently implementing the STP on Defibrillation procedure by the investigator helped the nursing student to improve their knowledge in clinical practices.

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