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A STUDY TO ASSESS THE EFFECTIVENESS OF BLS DEMONSTRATION PROGRAM AMONG RURAL POPULATION AT WAGHODIA TALUKA

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ABSTRACT

Background of the Study: Cardiopulmonary resuscitation (CPR) is lifesaving medical procedure given to someone who is in cardiac arrest. It helps pump blood around the person's body when the heart stops. CPR provides blood flow to the heart and brain to maintain life; to rescue the patient from cardiac arrest however survival depends on the quality of CPR delivered by healthcare professionals or caretakers. The quality CPR supplies 13% - 30% of blood flow to the heart and 30% - 40% respectively. **AIM:** the main aim of the study is to improve the knowledge regarding BLS among rural population to prevent the mortality. **METHODS AND MERTIRIAL:** one group pre-test post-test research design has been adopted. Non probability purposing sampling technique was used to collect the information from the participants a total of 204 participants were recruited who were living in selected rural areas of Vadodara. Participant's knowledge on BLS have been assessed by using self –

structured knowledge questionnaires. Data was analyzed by using descriptive and inferential statistic. **RESULT:** To test the hypothesis, paired sample "t" test has been used. Data have been analyzed with the use of SPSS version 20.0 and the outputs are depicted in the above table. The table reveals that there is significant improvement between pre-test and post-test score with 0.05 level of significant. "t" calculated (-23.549***) is greater than the "t" tabulated (2.045). it suggesting that the demonstration program is effective in promoting their knowledge on BLS. It has been found that there is a significant improvement between knowledge on BLS with their selected demographic variables. **CONCLUSION:** the present study concluded that the level of knowledge among ruralPopulation regarding BLS has been improved through effective structured education program which ultimately mitigate the cardiac vascular problem induced mortality.

Keywords: Effectiveness, Knowledge, BLS Demonstration, Rural Population

INTRODUCTION

Cardiac arrest leads to death in thousands of people all around the world **[1]**. Cardio vascular disease (_CVD) is the leading cause of the death worldwide; 17.9 million people from CVDs in 2016. Of these deaths, 85% were related to arrest and stroke (World Health Organization [WHO], 2019). Cardiac arrest occurring outside the hospital and at home happens in every 20–140 per 100,000 people **[2]** they make up about 50–70% of all cardiac arrest **[3]**.

Basic Life Support is a series of treatments to maintain respiration and circulation in the victim. BLS includes CPR with chest compressions and rescue breathing, and defibrillation with an AED, which can be performed immediately by any lay person, and is considered to have a major role in neurologically intact survival of the victim. In the basic life support sequence for the lone rescuer, the choice is between starting with airway and breathing or starting with chest compressions. Because of the importance of initiating chest compressions as soon as possible, the need for initial breaths is questioned. The AHA and Japanese CPR guidelines 2005 recommended starting CPR with opening airway and giving 2 breaths rather than with compressions. On the other hand, the European Resuscitation Council Guidelines 2005 recommended starting CPR with 30 compressions rather than with 2 breaths. These guidelines were based on a consensus of experts rather than clear evidence. Evidence from one observational, adult manikin LOE 5 study shows that starting with 30 compressions rather than 2 ventilations leads to a shorter delay to first compression. There is no published human or animal evidence to determine if starting 14 CPR in adults or children with 30

compressions rather than 2 breaths leads to improved outcomes **[4]**.

MATERIALS AND METHODS

The study was conducted in rural area of the Vadodara to evaluate the effectiveness BLS demonstration. Researcher adopted one group pre-test post-test research design has been adopted. Non probability purposing sampling technique was used to collect the information from the participants a total of 204 participants were recruited who were living in selected rural areas of Vadodara. Participants knowledge on Basic Life Support have been a praised by using self – structured knowledge questionnaires. Data was analysed by using descriptive and inferential statistic. The study has been conducted for fifteen months.

After conducting inclusion and exclusion criteria 204 people were selected those people who are wants to involve in program. Participants selected from both gender and no age limitation had been there. Those who are already exposure to BLS and who are belongs to medical and paramedical profession were not included. Informed consent were taken.

After obtaining formal administrative approval from the concerning authorities and formal approval from Sarpanch of Kamalapura at Waghodia taluka, Vadodara. Informed consent from the samples the investigator personally collects the demographic data. After which data collected in the following three phases; Phase1: Pre-test conducted to assess existing knowledge regarding Basic Life Support among rural population. Phase 2: Basic Life Support demonstration program regarding CPR in rural population on the same day. Phase 3: After a period of one-week to assess the post-test level of knowledge regarding CPR among rural population by using the same questionnaire. In the Descriptive statistics: Frequency and percentage distribution was used to analyze the demographic variables and in the Inferential statistics: Paired t test was used to analyses the effectiveness of demonstration program and Chi-square was used to analyses the association between pre-test levels of knowledge regarding CPR among rural population with their selected demographic variables. The level of $p < 0.05$ was considered as significant. The study concluded that the level of knowledge among rural population regarding Basic Life Support has been improved through effective structured education program which ultimately mitigate the cardiac vascular problem induced mortality.

RESULTS

Table 1, shows the following findings: The study of 204 samples reveals that 8181(40.10%) people were within all age group. Out of 204 people 112(54.9%) were

male, 92(45.1%) were female. And 204(100.0%) were educated people, 0(0.0%) were illiterate person. 19(9.3%) were excellent, 60(29.4%) were good, 75(36.6%) were average, 50(24.5%) were poor in their school performance.134(65.7%) people belonged to join family, 70(34.3%) from nuclear family. And in their religion 172(84.3%) were Hindu, 29(14.2%) were Muslim, 3(1.5%) were Christian. In family monthly income 21(10.3%) were <10,000Rs; 117(57.4%) were 10,000Rs. to 20,000Rs; 12(5.9%) were 20,000Rs. to 30,000Rs; 12(5.9%) were above the 30,000Rs. In occupation 54(26.5%) were agriculture, 87(42.6%) were business, 32(15.7%) were Laborer, 31(15.2%) were involving in any other work. In their previous knowledge about 85(41.7%) were Yes and 119(58.3%) were No. In pre-test statistical score 70(134.3%) were poor, 111(54.4%) were average, 23(11.3%) were good. And in their post-test statistical score 28(13.7%) were average, 176(86.3%) were good. Their post-test statistical score 28(13.7%) were average, 176(86.3%) were good.

Table 2, to test the hypothesis, paired sample "t" test has been used. Data have been analyzed with the use of SPSS version 20.0 and the outputs are depicted in the above table. The table reveals that there is significant improvement between pre-test and post-test score with 0.05 level of significant. "t" calculated (-23.549***) is greater than the "t" tabulated (2.045). it suggesting that the demonstration program is effective in promoting their knowledge on BLS. It has been found that there is a significant improvement between knowledge on BLS with their selected demographic variables.

Table 3, shows association of the pre-test level of knowledge regarding Basic Life Support demonstration program among rural population with selected demographic variable.

*Significant at 0.05% Level of significant, NS: Non-Significant

Sex: Association of Gender with the pre-test knowledge score the calculated value of chi-square (x2) 0.630 is less than 5.99, the table value of chi-square(x2) at the 2 degree of freedom and 0.05 level of significance. Therefore, sex is Non-significant for knowledge among the sample. Education: Association of Education with the pre-test knowledge score the calculated value of chi-square (x2) 0.0 School performance: Association of school performance with the pre-test knowledge score the calculated value of chi-square (x2) 63.680 is greater than 12.59, the table value of chi-square (x2) at 6 degree of freedom and 0.05 level of significance. Therefore, school performance is Significant for knowledge among the sample. Types of family:

Association of types of family with the pre-test knowledge score the calculated value of chi-square (x2) 12.691 is greater than 5.99, the table value of chi-square(x2) at the 2 degree of freedom and 0.05 level of significance. Therefore, types of family is Significant for knowledge among the sample. Religion: Association of religion with the pre-test knowledge score the calculated value of chi-square (x2) 25.948 is greater than 9.49, the table value of chi-square(x2) at the 4 degree of freedom and 0.05 level of significance. Therefore, religion is Significant for knowledge among the sample. Monthly income: Association of monthly income with the pre-test knowledge score the calculated value of chi-square (x2) 37.227 is greater than12.59, the table value of chi-square(x2) at the 6 degree of freedom and 0.05 level of significance. Therefore, monthly income is Significant for knowledge among the sample. Occupation: Association of occupation with the pre-test knowledge score the calculated value of chi-square (x2) 33.127 is greater than12.59, the table value of chi-square(x2) at the 6 degree of freedom and 0.05 level of significance. Therefore, occupation is Significant for knowledge among the sample. Previous knowledge about Cardio Pulmonary Resuscitation (CPR)Association of Previous knowledge about Cardio Pulmonary Resuscitation (CPR) with the pre-test knowledge score the calculated value of chi-square (x2) 19.069 is greater than 5.99, the table value of chi-square(x2) at the 2 degree of freedom and 0.05 level of significance. Therefore, previous knowledge about Cardio Pulmonary Resuscitation (CPR) is Significant for knowledge among the sample. H2: There is a significant association between the pre-test knowledge regarding Basic Life Support (BLS) demonstration program among rural population with their selected demographic variables. So here to test the hypothesis, chi-square test has been used. Data have been analysed with the use of SPSS version 20.0 and the outputs are depicted in the above table. The table reveals that there is significant association between pre- test knowledge score and selected demographic variables with 0.05 level of significant. P calculated value is greater than 0.05 level of significance. Hence the null hypothesis falls in acceptance region. So the alternative hypothesis rejected for these variables.

Table 1: Frequency distribution of selective demographic characteristic
N=204

Demographic variables		Frequency	Percentage
Age	Total	8181	40.10
Gender	Male	112	54.9
	Female	92	45.1
	Total	204	100.0
Education	Educated	204	100.0
	Illiterate	0	0.0
	Total	204	100.0
School performance	Excellent	19	9.3
	Good	60	29.4
	Average	75	36.6
	Poor	50	24.5
	Total	204	100.0
Type of family	Joint family	134	65.7
	Nuclear family	70	34.3
	Total	204	100.0
Religion	Hindu	172	84.3
	Muslim	29	14.2
	Christian	3	1.5
	Total	204	100.0
Monthly income	<10,000	21	10.3
	10,000-20,000	117	57.4
	20,000-30,000	54	26.5
	Above 30,000	12	5.9
	Total	204	100.0
Occupation	Agriculture	54	26.5
	Business	87	42.6
	Labourer	32	15.7
	Any other	31	15.2
	Total	204	100.0
Previous knowledge about CPR	Yes	85	41.7
	No	119	58.3
	Total	204	100.0
Pre-test statistical score	Poor	70	34.3
	Average	111	54.4
	Good	23	11.3
	Total	204	100.0
Post-test statistical score	Average	28	13.7
	Good	176	86.3
	Total	204	100.0

Table 2: Mean, Standard Deviation, Mean Difference AND "T" Value of Pre- Test and Post Test Scores

Variables		Mean	Mean difference	Std. Deviation	t-value
Knowledge	Pre-test	1.7696	-1.0931	0.63623	-23.549*** Df=203 P=237.24 Significant
	Post-test	2.8627		0.34496	

Table 3: Association between level of knowledge in pre-test with demographic variables

Demographic variables		Pre-test statistical score			Total	Chi-square		df	Significance
		Poor	Average	Good		Calculated value	Table value		
Sex	Male	38	63	11	112	0.630	5.99	2	Non-Significant
	Female	32	48	12	92				
Total		70	111	23	204				
School performance	Excellent	1	9	9	19	63.680	12.59	6	Significant
	Good	8	44	8	60				
	Average	28	41	6	75				
	Poor	33	17	0	50				
Total		70	111	23	204				
Types of family	Joint family	55	70	9	134	12.691	5.99	2	Significant
	Nuclear family	15	41	14	70				
Total		70	111	23	204				
Religion	Hindu	47	102	23	172	25.948	9.49	4	Significant
	Muslim	20	9	0	29				
	Christian	3	0	0	3				
Total		70	111	23	204				
Monthly income	<10,000	18	3	0	21	37.272	12.59	6	Significant
	10,000-20,000	41	63	13	117				
	20,000-30,000	11	34	9	54				
	Above 30,000	0	11	1	12				
Total		70	111	23	204				
Occupation	Agriculture	19	33	2	54	33.127	12.59	6	Significant
	Business	26	49	12	87				
	Labourer	22	9	1	32				
	Any other	3	20	8	31				
Total		70	111	23	204				
Previous knowledge about CPR	Yes	22	44	19	85	19.069	5.99	2	Significant
	No	48	67	4	119				
Total		70	111	23	204				
Sources of information	Medical	1	1	3	5	49.779	18.31	10	Significant
	Book	0	14	9	23				
	Relatives	5	3	0	8				
	Friends	3	2	0	5				
	Advertisement	13	24	7	44				
Total		70	111	23	204				

DISCUSSION

The present study was conducted to determine the effectiveness of Basic Life Support (BLS) demonstration program among rural population in Kamalapura at Waghodiataluka, Vadodara. In order to achieve the objective of the study, a pre examination one group pre-test design was adopted. Non probability purposing sampling technique was used to select the sample .The date was collected from 204 person from rural population. Before and after administering Basic Life Support (BLS) demonstration with use of self-structure questionnaire. The finding of the study have been discussed with reference to the objective, hypothesis and with the finding of other studies.

In the present study it has been observed that the pre-test knowledge regarding Basic Life Support (BLS) in rural population the mean score was 1.7696 + 0.63623 and in the post-test knowledge regarding Basic Life Support (BLS) in rural population the mean score was 2.8627 + 0.34496 the pre-test level of knowledge mean score is significantly lesser than the post-test knowledge mean score. So the mean difference was -1.0931.

1. Analysis of paired t test is done to assess the effectiveness of Basic Life Support (BLS) demonstration program. Researcher has found t value= -23.549*** thus the obtained t value in this study is greater than the tablet value of t test at 0.05 level of significance. Hence the obtained t value is significant. So it reveals that effectiveness of demonstration is improving after demonstration program.

The chi-square was used to determine the association between pre-test knowledge means score and selected demographic variables like sex, education, school performance, types of family, religion, monthly income, occupation, previous knowledge about Cardio Pulmonary Resuscitation (CPR). The association of the pre-test knowledge score of the rural population with selected demographic variables such as professional qualification evidenced that there was statistically significant association at $p < 0.05$. Hence the research hypothesis H2 stated that there will be significant association between the pre-test knowledge score with selected demographic variables was accepted.

Structured education programme regarding BLS in term of increasing knowledge among rural population.[5]

Association between the pre-test level of knowledge score regarding BLS demonstration among rural population with their selected demographical variables it shows majority with the males 54.9% & females 45.1%. For education demographic variable it shows 100% of the respondents.

The findings related to demographic variable attribute showing that 9.3% respondents were excellent, 29.4% respondents were good, 36.6% respondents were average, and 24.5% respondents were poor in their school performance. For types of family demographic variable it shows 65.7% respondents belonged to join family and 34.3% respondents from nuclear family. 84.3% of the respondents belong to Hindu religion & 14.2% of them belong to Muslim religion, 1.5% of them belong to Christian religion. For family monthly income demographic variable it shows 10.3% respondents belonged to <10,000Rs; 57.4% respondents belonged to 10,000Rs;to 20,000Rs; 5.9% respondents belonged to 20,000Rs; to 30,000Rs; and 5.9% respondents belonged to above the 30,000Rs. For occupation demographic variable it shows 26.5% respondents belonged to agriculture, 42.6% respondents belonged to business, 15.7% respondents belonged to labourer, and 15.2% respondents belonged to involving in any other work. Previous disaster experience shows majority with NO- 58.3%. In pre-test statistical score of the respondents 134.3% were poor, 54.4% were average, and 11.3% were good. In their post-test statistical score of the respondents 13.7% were average and 86.3% were good.

Statistical analysis showed that in the present study, the chi-square was used to determine the association between pre-test & selected demographic variables. Among the demographic variables shows significant association between the level of knowledge and selected variables like sex were having non-significant association at the level of 0.05 and others were significant association at the level of 0.05 like - school performance, types of family, Religion, monthly income, Occupation, previous knowledge about CPR and source of information

CONCLUSION

The present study concluded that the level of knowledge among rural population regarding BLS has been improved through effective structured education program which ultimately mitigate the cardiac vascular problem induced mortality.

CONSENT

Informed consent has been obtain from the samples.

ETHICAL APPROVAL

Ethical approval was obtained prior to the conduction of study. The study was approved from ethical committee, ethical approval number is SVIEC/ON/NURS/SRP/21002

COMPETING INTERESTS

Authors have declared that no competing interests exits.

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