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Effectiveness of planned teaching program on knowledge and skill regarding basic life support among public transport workers at Puducherry

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A pre-experimental design was used to evaluate the efficacy of a planned teaching program for increasing the knowledge and skill acquisition concerning BLS in the public transport employees of Puducherry. The purpose of the research is to examine the level of knowledge of BLS among the public transport employees, to examine the effectiveness of the planned teaching program and the association between pretest knowledge level and certain socio-demographic variables. The sample consisted of 60 public transport employees that were selected by the convenience sampling method. The data was collected by using the socio-demographic data sheet, the structured BLS knowledge questionnaire, and the observation checklist to test the practical skills of the participants. In addition, a planned teaching program, including the CPR demonstration, was given to the participants, followed by the posttest assessment after 5 days. The pre-test results were as follows: 42 (70%) respondents lacked sufficient knowledge, 18 (30%) respondents exhibited moderately sufficient knowledge, and none had sufficient knowledge. The pre-test knowledge mean score was 6.53 with a standard deviation of 2.27. As a result of the intervention, the post-test results revealed that 56 (93.3%) respondents possessed sufficient knowledge, 4 (6.7%) respondents had moderately sufficient knowledge, and none lacked sufficient knowledge. The post-test mean knowledge score was 19.15 with a standard deviation of 1.64. A total of 51 (85%) respondents exhibited excellent BLS skills, and 9 (15%) respondents exhibited good BLS skills. There were no significant correlations between the level of knowledge obtained in the pre-test and socio-demographic characteristics. The results proved that the proposed teaching program was effective in improving BLS knowledge and skills among public transport workers.

Keywords: BLS, public transport workers, planned teaching program, pre-experimental study, knowledge, skill

Introduction

Worldwide, cardiovascular diseases (CVDs) account for the highest mortality rate. The high incidence of coronary artery disease (CAD), which accounts for some of the CVD cases, is due to the rising incidence of some modifiable risk factors, including diabetes mellitus, hypertension, hypercholesterolemia, smoking, alcohol consumption, obesity, and lack of exercise. Nevertheless, specific risk factors might be more common in particular areas. Out-of-hospital cardiac arrest (OHCA) remains a global public health problem (1).

Basic Life Support (BLS) is a type of medical care administered to individuals suffering from life-threatening conditions before they receive complete medical care in hospitals. This form of medical care is usually rendered by

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trained first responders such as paramedics and emergency medical technicians (EMTs) (2).

Basic life support (BLS) is an emergency treatment technique aimed at maintaining adequate circulation and breathing in a person who is undergoing cardiac arrest. This type of emergency care does not require the use of advanced medical instruments or drugs but rather focuses on providing oxygen to the brain to avoid any harm. The technique of BLS includes the early detection of emergencies like sudden cardiac arrest, heart attack, stroke, and choking from foreign objects as well as cardiopulmonary resuscitation (3).

Cardiopulmonary Resuscitation (CPR) is an important lifesaving intervention, which may be very helpful in decreasing illness and mortality due to out-of-hospital cardiac arrest (OHCA). Realizing the significance of CPR, several nations have stressed the importance of providing CPR education to the general population in order to raise the number of people who can deal with such cases (4).

Cardiovascular diseases (CVDs) continue to be the leading source of deaths globally, with about 17.9 million people dying each year from CVD. The WHO (2023) indicates that most of the deaths linked to cardiovascular disease take place due to heart attack and stroke cases. Furthermore, almost a third of these cases are premature deaths among those below 70 years old (5).

If the heart ceases to beat, there will be no blood circulation within the body, as the delivery of oxygen to organs will be prevented. Cardiopulmonary Resuscitation (CPR) refers to the technique of giving chest compressions and rescue breaths to a victim who is in a state of unconsciousness, does not have a palpable pulse, and/or is unable to breathe properly. The CPR cycle of 30 chest compressions coupled with 2 rescue breaths enables oxygen-filled blood to reach the brain as well as other important organs of the body. If oxygen is not supplied, the damage to the brain happens instantly and becomes more probable depending upon how long the heart stops beating. Brain damage is unlikely in the first few minutes but occurs more frequently between 4 and 6 minutes and is anticipated to take place in about 6-10 minutes (6, 7).

The study used a quasi-experiment research methodology in order to test whether lectures along with demonstration training can be effective in enhancing basic life support knowledge among the auto rickshaw drivers in the selected parts of Pune city. The number of subjects involved in the experiment was 100 and they were selected using the purposive sampling method.

Self- structured questionnaire used to assess the knowledge on basic life support. A lecture cum demonstration was given. The post-test was carried out on the same participants using the same questionnaire. The study result revealed that scores of pre-test and post-test were compared to assess the effectiveness of lecture cum demonstration. In the pretest, about 80% has poor knowledge, 20% has average knowledge, and 0% has good knowledge. The results from the post-test demonstrated that 88% of the participants had good knowledge, 12% of them had average knowledge, and none of the participants had poor knowledge. This implied that the educational intervention was effective in improving the knowledge of the participants regarding basic life support. From the statistical analysis of the pre-intervention knowledge scores, it could be seen that there was no statistically significant relationship between knowledge levels and any of the selected demographic variables. The study found out that the educational intervention improved the knowledge and confidence of the auto-rickshaw drivers in providing basic life support.

Materials and methods

Prior to data collection, IRC & IEC clearance was obtained. The formal written permission was obtained from Directorate of Public Transport Officer, Puducherry to conduct the study. Participant information was given and Informed consent was obtained from the study subjects with assurance of confidentiality. A pre-experimental research approach was conducted using single group of pre and post test design at the Public Road Transport Corporation in Puducherry. Non-probability convenience sampling

TABLE 1 | Frequency and percentage distribution of socio-demographic variables among public transport workers (n = 60).

Sl. no	Socio-demographic variables	Frequency (n)	Percentage (%)
1	**Age in Years**		
	18–30 years	7	11.7
	31–40years	20	33.3
	41–50years	18	30
	51–60 years	15	25
	>61 years	0	0
2	**Gender**		
	Male	43	71.7
	Female	17	28.3
	Transgender	0	0
3	**Education**		
	No Formal Education	0	0
	Primary Education	0	0
	Middle School Education	4	6.7
	High School Education	29	48.3
	Higher Secondary Education	22	36.7
	Degree (UG, PG, etc.) and above	5	8.3
4	**Place of residence**		
	Urban	31	51.7
	Rural	29	48.3
5	**Previous knowledge on BLS**		
	Yes	0	0
	No	60	100

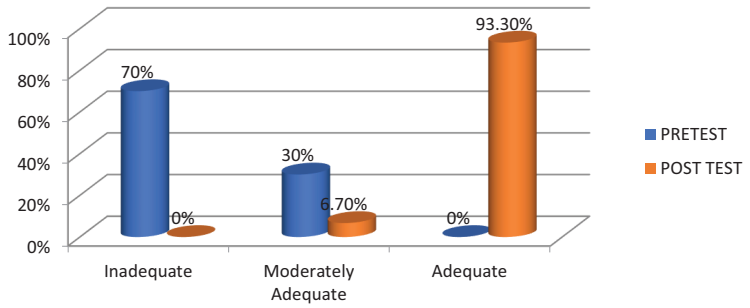


FIGURE 1 | Percentage wise distribution of pre-test and post-test the level of knowledge regarding BLS among public transport workers.

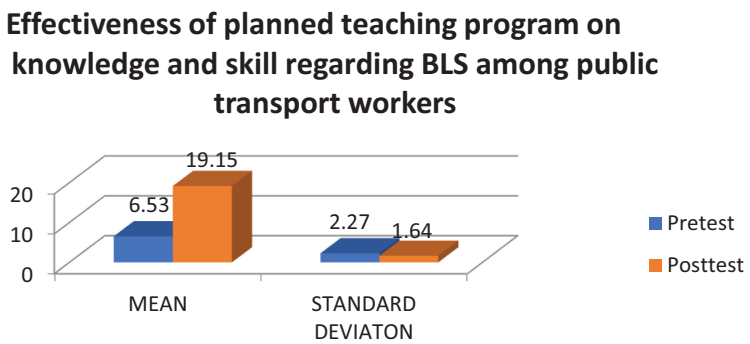


FIGURE 2 | Effectiveness of planned teaching program on knowledge and skill regarding BLS among public transport workers (n = 60).

technique was used. A total of 60 participants, including drivers and conductors, were selected for the study. The study was conducted on February 2025. Participants were selected on the basis of specific inclusion and exclusion criteria. Prior to the test, socio-demographic variables were assessed, and a BLS questionnaire was circulated to assess the current knowledge of the subjects for a period of two days. The participants were then divided into six groups, and a planned teaching program, including demonstrations using a CPR manikin, was conducted for two days. The post-test data were collected five days later.

Results and discussion

Out of the 60 public transport workers who particiated in the study, Majority of public transport workers 20(33.3%) were in the age group 31 –40years, 43(71.7%) were male, Educational Status 29(48.3%) were High School Education, 29(48.3%) were Rural and 60(100%) were not had Previous knowledge on BLS.

TABLE 2 | Frequency and percentage distribution of the grading of skill regarding BLS among public transport workers (n = 60).

GRADING OF SKILL	N	%
Excellent program	51	85
Very good	9	15
Mean Standard deviation	9.57± 0.74	

TABLE 3 | Effectiveness of planned teaching programme on knowledge regarding BLS among public transport workers (n = 60).

	Mean	Standard deviaton	Mean difference	't' Value Paired -t test	Df	'p' Value
Pretest	6.53	2.27				0.001**
Posttest	19.15	1.64	12.61	34.61	59	HS

**p < 0.001 highly significant.

From the pre-test assessment, it was identified that 42 respondents (70%) of public transportation employees were lacking adequate knowledge of basic life support. However, 18 respondents (30%) had a relatively adequate level of knowledge, while none had an adequate level of knowledge.

The results of the post-test indicated that the majority of the workers who provide services in public transportation possessed sufficient knowledge, representing 56 respondents (93.3%). Four of the workers (6.7%) had moderate adequacy of knowledge, while there was none with insufficient knowledge (**Figure 1**).

Table 2 shows that frequency and percentage distribution of skill regarding BLS among public transport workers.

Majority of the public transport workers 51(85%) had Excellent grade of skill and 9(15%) had Very good skill with the mean value of 9.57 and the standard deviation value was 0.74.

TABLE 4 | Association between pretest knowledge level and selected socio-demographic variables with respect to BLS.

Sl. no.	Socio-demographic variables	Pre-test level of knowledge						Chi-square X^2 and p-value
		Inadequate		Moderate		Adequate		
		N	%	N	%	n	%	
1	**Age in Years**							X^2=2.02
	18–30 years	4	9.5	3	16.7	0	0	Df=3
	31–40years	15	35.7	5	27.8	0	0	p =0.56
	41–50years	14	33.3	4	22.2	0	0	NS
	51–60 years	9	21.5	6	33.3	0	0	
	>61 years	0	0	0	0	0	0	
2	**Gender**							X^2=0.004
	Male	30	71.4	13	72.2	0	0	Df=1
	Female	12	28.6	5	27.8	0	0	p =0.95
	Transgender	0	0	0	0	0	0	NS
3	**Education**							X^2=3.67
	No Formal Education	0	0	0	0	0	0	Df=3
	Primary Education	0	0	0	0	0	0	p =0.29
	Middle School Education	4	9.5	0	0	0	0	NS
	High School Education	22	52.4	7	38.9	0	0	
	Higher Secondary Education	13	31	9	50	0	0	
	Degree (UG, PG, etc.) and above	3	7.1	2	11.1	0	0	
4	**Place of residence**							X^2=0.029
	Urban	22	52.4	9	50	0	0	Df=1
	Rural	20	47.6	9	50	0	0	p =0.86
								NS
5	**Previous knowledge on BLS**							Constant
	Yes	0	0	0	0	0	0	
	No	42	100	18	100	0	0	

*p < 0.05 significant, *p < 0.001 highly significant.

Table 3 shows that, Effectiveness of planned teaching program on knowledge and skill regarding BLS among public transport workers.

The pre-test, the mean score of planned teaching program on knowledge regarding BLS among public transport workers was 6.53 and standard deviation was 2.27.

The post-test, the mean score was 19.15 and standard deviation was 1.64. The calculated paired 't' test value was 34.61 with the p value of 0.001 which shows highly significant (Figure 2).

Table 4 shows that association between the pre-test level of knowledge regarding basic life support with selected socio-demographic variables.

Relationship between knowledge level and demographic variables of public transport workers: findings depict that the association of age with pre-test knowledge levels at DF = 3, $\chi 2$= 2.02, which is not significant at < 0.56 levels. Associating gender with the pre-test knowledge score at a DF = 1, $\chi 2$ = 0.004, was no significant at > 0.95 levels. Associating education with the pre-test knowledge score at a DF = 3, $\chi 2$ = 3.67, was no significant at > 0.29 levels. Associating place of residence with the pre-test knowledge score at a DF = 1, $\chi 2$ = 0.029, was no significant at > 0.86 levels. Depicts that the socio-demographic variables had not shown a statistically significant relation between the pretest knowledge level regarding BLS and selected socio-demographic variables.

Conclusion

This research study intended to assess the effect of a planned teaching program on increasing knowledge and skills regarding basic life support amongst public transport drivers in Puducherry. The statistical analysis proved that there was a significant increase in the knowledge and skill scores of participants after the planned teaching program when compared with their baseline scores. It validated the success of the planned teaching program in increasing their knowledge and skills in BLS.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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