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Original Research Article

Awareness, knowledge and attitude towards CPR, BLS training among general population in Chennai – A cross sectional survey

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ABSTRACT

Background: Out-of-hospital cardiac arrest is a leading cause of death globally. The likelihood of survival is doubled when basic life support procedures are performed immediately. As a result, the purpose of this study was to assess public awareness, understanding, and attitude towards basic life support and CPR in Chennai population.

Materials and Methods: The study was done among general population in Chennai, India, utilising a printed questionnaire with 15 questions each. A pilot study was conducted among 40 individuals in Chennai city. Power analysis was performed to calculate the sample size by using Open Epi, Version 3, open – source calculator – SSPropor The data was analysed using descriptive statistics. 1200 individuals participated in the survey.

Results: Of the final population (n =1200) majority of people are unaware about the significance of basic life support and CPR. From this survey we could able to find the positive attitude of public towards learning the CPR. The most important concern about performing CPR was making a mistake and legal issues.

Conclusion: Noteworthy is the positive attitude towards learning CPR & BLS courses among common public, which provides a solid foundation for improving CPR training implementation. However, the majority of youngsters reported a lack of training opportunities, emphasising the need for more aggressive implementation.

1. Introduction

Public awareness is of great key importance in all countries, especially on topics based on life-saving information and skills.[1] Globally, many countries are taking various efforts on emphasizing and promoting programs in educational institutions and workplaces regarding Basic lifesaving program.[2] Cardiopulmonary resuscitation (CPR) is a lifesaving procedure that would be useful when someone's breathing or heartbeat has been stopped. This procedure is known only to less than 2% of India's population.[3] Road traffic accidents emerge as the commonest mode of death nowadays. Road accidents occur due to multiple causes such as the use of mobile phones on the go, drunken driving/consumption of alcohol/drugs, overloaded vehicles, poor light conditions, jumping red lights, overspeeding, overtaking, weather conditions, driving on the wrong side of the road, etc. As per reports released by Government of Tamil Nadu Transport Department, in a survey conducted on road traffic accident analysis, Chennai continued to lead in the first place for the third consecutive year. Out of the reported 5173 road accidents, 689 were from Chennai, and out of the 993 deaths, 114 were in Chennai.[4] Extrapolating the data to national mortality figures, it can be roughly estimated that annually about 7-lakh Sudden Cardiac Death

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cases occur in India. Approximately 50,000 people survive after cardiac arrest when basic life support (BLS) measures are performed properly as per the data. Proper BLS training and knowledge about CPR helps to reduce the fatal rate due to sudden cardiac deaths.

The very first person to be closer to the subject undergoing a sudden cardiac arrest is common by stander, followed by the arrival of para- medics and medical professional help.

Cardiopulmonary resuscitation (CPR) given by bystander increases survival rate of out-of-hospital cardiac arrest (OHCA) by at least twofold.[5] By increasing the level of knowledge for BLS and CPR the necessary treatment can be given in the Golden Hour thereby increasing the rate of survival. Early recognition of a cardiac arrest paves a pathway for early action of Basic Life support which can reduce the mortality rate. Survival after OHCA is in lower range (3%–30%) but showed improvement after increased public education and increased use of automatic external defibrillators.[5]

This study aims to evaluate the knowledge on CPR and basic life support methods among general population excluding the medics and paramedics in Chennai which may lead us to conduct awareness camp and campaign to make the public aware.

2. Materials and Methods

A structured questionnaire consisting of 15 questions was formulated for the purpose of the survey. The questionnaire was formulated by the authors of the study. This consists of only closed ended questions. This questionnaire survey primarily focussed on evaluation of general population's knowledge and awareness on CPR.

A pilot study was conducted amongst 40 individuals who were common public was conducted Chennai city. Power analysis was performed to calculate the sample size by using Open Epi, Version 3, open – source calculator – SSPropor. Assuming 95%power and 3% precision the required sample size calculated as 1066. So total study population planned in this survey 1172 considering 10% as attrition and dropout rate. The target population were general population in Chennai within the age group of 17 – 60 years with eligibility write or read English or vernacular language (Tamil). Consent was obtained from each participant to be in part of the study. The medics and paramedics were excluded from the study. Ethical committee clearance was obtained from the university.

2.1. Statistical analysis

A total of 1356 persons participated in this survey and questionnaire was given. Persons who did not give consent to participate and who does not know to read / write vernacular language/ English were excluded. Hence, 156 participants were excluded and total sample was considered as 1200. The data obtained was qualitative and descriptive and inferential statistics was performed for the obtained results.

3. Results

All the participants were general population and persons from medical field were excluded. The mean age of the study population was 35.84 + 13.17. The urban locality was found to be the overall residence of the study population (n = 1200, 100%). According to the basic educational qualification, 443 (36.9%) was found to be unemployed, 481 was found to be college students (40.1%) and 276 were found to be working professionals. (23%). (Table 1)

Table 1: Distribution of basic educational qualification among the study population

Basic educational qualification	Frequency (n)	Percentage (%)
Uneducated	443	36.9%
Under Graduate	481	40.1%
Post Graduate	276	23%

When we analyze the distribution of the study results of the questionnaire among the study population with respect to question 1 which states that Have you ever given first aid to a person? 77 (6.4%) answered yes and 1123 (93.6%) answered no and this difference was said to be statistically very highly significant ($p<0.001$***). And to the question 2 which states that "How can heart stoppage be checked?", 369 (30.8%) answered "Check for consciousness", 350(29.2%) answered "Trying to communicate with wounded person", 265 (22.1%) answered "check for breathing" and 216(18%) answered " I don't know" and this difference was said to be statistically very highly significant ($p<0.001$***). When persons were asked "Where will you check for pulse?", 1186 (98.8%) answered "Wrist", 10 (0.8%) answered "Face", 4 (0.3%) answered "check for breathing" and 0(0%) answered " I don't know" and this difference was said to be statistically very highly significant ($p<0.001$***). With respect to question which states that "What is "golden hour" after accident?", 935 (77.9%) answered "First 1 hour", 88 (7.3%) answered "First 24 hours", 123 (10.3%) answered "First 12 hours" and 54(4.5%) answered " I don't know" and this difference was said to be statistically very highly significant ($p<0.001$***). When we asked the participants "Do you know what CPR (Cardio pulmonary resuscitation)? 52 (4.3%) answered yes and 1148 (95.7%) answered no and this difference was said to be statistically very highly significant ($p<0.001$***).

With respect to question 6 which states that "Have you received formal CPR (Cardio pulmonary resuscitation) training in the past??", 52 (4.3%) answered yes and

1148 (95.7%) answered no and this difference was said to be statistically very highly significant (p<0.001***) . To question 7 which states that "Why we have to give CPR (Cardio pulmonary resuscitation)?", 488 (40.7%) answered "To restart heart" and 391 (32.6%) answered "To restart lungs" and 321 (26.8%) answered both and this difference was said to be statistically very highly significant (p<0.001***)

When the participants were questioned which states that "Have you ever seen anyone giving CPR (Cardio pulmonary resuscitation)?", 52 (4.3%) answered "Yes" and 1148 (95.7%) answered "No" and this difference was said to be statistically very highly significant (p<0.001***) when they were asked "When should you perform CPR (Cardio pulmonary resuscitation)?", 491 (43.6%) answered "When there is no heartbeat", 245 (20.4%) answered "When wounded person is unconscious", 223 (18.6%) answered "When wounded person is not breathing" and 241 (20.1%) answered both. and this difference was said to be statistically very highly significant (p<0.001***) With respect to question 10 which states that : Have you ever given CPR (Cardio pulmonary resuscitation) to someone? 52 (4.3%) answered yes and 1148 (95.7%) answered no and this difference was said to be statistically very highly significant (p<0.001***) With respect to question 11 which states that "Do you think schools/ colleges/ offices CPR (Cardio pulmonary resuscitation) training programs would be useful?", 53 (4.4%) answered yes and 1147 (95.6%) answered yes and this difference was said to be statistically very highly significant (p<0.001***) With respect to question 12 which states that "Do you think it is easy to give CPR (Cardio pulmonary resuscitation)?", 131 (10.9%) answered yes, 936 (78%) answered yes and133 (11.1%) answered I don't know and this difference was said to be statistically very highly significant (p<0.001***) When the participants were questioned that "After demonstration will you are able to perform CPR (Cardio pulmonary resuscitation)?" 65 (5.4%) answered yes, 1033 (86.1%) answered yes and 102 (8.5%) answered I don't know and this difference was said to be statistically very highly significant (p<0.001***). With respect to question which states that "What concerns may prevent you from giving CPR (Cardio pulmonary resuscitation) to a stranger after training?" 335 (27.9%) answered "Contact with coved infected people", 573 (47.8%) answered "legal reasons" and 120 (10.0%) answered Stopping a working heart and 172 (14.3%) answered "contamination by blood or vomit" and this difference was said to be statistically very highly significant (p<0.001***) With respect to question that "Do you know emergency ambulance number?" 1105 (92.1%) answered "yes" and 95 (7.9%) answered no (Table 18) and this difference was said to be statistically very highly significant (p<0.001***)

Questions that are asked to analyze the Basic knowledge of general population on first aid and basic life support.

Questions that are asked to analyze the knowledge on Cardio pulmonary resuscitation (CPR).

Table 2: Have you ever given first aid to a person? (any form of BLS)

Q1 - Options	Frequency (n)	Percentage (%)
Yes	77	6.4
No	1123	93.6
Total	1200	100.0
Chi square value	21.31	
P value[A]	<0.001***	

Table 3: How can heart stoppage be checked?

Q2 - Options	Frequency (n)	Percentage (%)
Check for consciousness	369	30.8%
Trying to communicate with wounded person	350	29.2%
Check for breathing	265	22.1%
I don't know	216	18%
Total	1200	100.0
Chi square value	10.50	
P value[A]	<0.001***	

Table 4: Where will you check for pulse?

Q3 - Options	Frequency (n)	Percentage (%)
Wrist	1186	98.8%
Face	10	0.8%
Foot	4	0.3%
I don't know	0	0%
Total	1200	100.0
Chi square value	28.18	
P value[A]	<0.001***	

Table 5: What is "golden hour" after accident?

Q4 - Options	Frequency (n)	Percentage (%)
First 1 hour	935	77.9%
First 24 hours	88	7.3%
First 12 hours	123	10.3%
I don't know	54	4.5%
Total	1200	100.0
Chi square value	34.20	
P value[A]	<0.001***	

4. Discussion

BLS knowledge and awareness are critical not just for healthcare professionals, but also for everyone in the

Table 6: Do you know what CPR (Cardio pulmonary resuscitation) is?

Q5 - Options	Frequency (n)	Percentage (%)
Yes	52	4.3%
No	1148	95.7%
Total	1200	100.0
Chi square value	42.69	
P value[A]	<0.001***	

Table 7: Have you received formal CPR (Cardio pulmonary resuscitation) training in the past?

Q6 - Options	Frequency (n)	Percentage (%)
Yes	52	4.3%
No	1148	95.7%
Total	1200	100.0
Chi square value	42.00	
P value[A]	<0.001***	

Table 8: Why we have to give CPR (Cardio pulmonary resuscitation)?

Q7 - Options	Frequency (n)	Percentage (%)
To restart heart	488	40.7%
To restart lungs	391	32.6%
Both	321	26.8%
Total	1200	100.0
Chi square value	10.94	
P value[A]	<0.001***	

Table 9: Have you ever seen anyone giving CPR (Cardio pulmonary resuscitation)?

Q8 - Options	Frequency (n)	Percentage (%)
Yes	52	4.3%
No	1148	95.7%
Total	1200	100.0
Chi square value	42.00	
P value[A]	<0.001***	

Table 10: When should you perform CPR (Cardio pulmonary resuscitation)?

Q9 - Options	Frequency (n)	Percentage (%)
When there is no heartbeat	491	43.6%
When wounded person is unconscious	245	20.4%
When wounded person is not breathing.	223	18.6%
Both A & C	241	20.1%
Total	1200	100.0
Chi square value	39.71	
P value[A]	<0.001***	

Table 11: Have you ever given CPR (Cardio pulmonary resuscitation) to someone?

Q10 - Options	Frequency (n)	Percentage (%)
Yes	1148	95.7%
No	52	4.3%
Total	1200	100.0
Chi square value	42.00	
P value[A]	<0.001***	

Table 12: Do you think schools/ colleges/ offices CPR (Cardio pulmonary resuscitation) training programs would be useful?

Q11 - Options	Frequency (n)	Percentage (%)
Yes	1147	95.6%
No	53	4.4%
Total	1200	100.0
Chi square value	68.98	
P value[A]	<0.001***	

Table 13: Do you think it is easy to give CPR (Cardio pulmonary resuscitation)?

Q12 - Options	Frequency (n)	Percentage (%)
Yes	131	10.9%
No	936	78.0%
I don't know	133	11.1%
Total	1200	100.0
Chi square value	42.87	
P value[A]	<0.001***	

Table 14: After demonstration will you are able to perform CPR (Cardio pulmonary resuscitation)?

Q13 - Options	Frequency (n)	Percentage (%)
Yes	65	5.4%
No	1033	86.1%
I don't know	102	8.5%
Total	1200	100.0
Chi square value	126.33	
P value[A]	<0.001***	

Table 15: What concerns may prevent you from giving CPR (Cardio pulmonary resuscitation) to a stranger after training?

Q14 - Options	Frequency (n)	Percentage (%)
Contact with coved infected people	335	27.9%
Legal reasons	573	47.8%
Stopping a working heart	120	10.0%
Contamination by blood or vomit	172	14.3%
Total	1200	100.0
Chi square value	13.29	
P value[A]	<0.001***	

Table 16: Do you know emergency ambulance number?

Q15 - Options	Frequency (n)	Percentage (%)
Yes	1105	92.1%
No	95	7.9%
Total	1200	100.0
Chi square value	90.83	
P value[A]	<0.001***	

community, in order to save lives, improve quality of life, and overall community health. In our survey, 95.7% of the population did not know what CPR is and had no prior experience with CPR / BLS training, whereas 4.3% had experience and an understanding of what CPR is. This explains why the general people is unaware of the importance of CPR. The proportion of awareness is comparatively low when compared to previous cross-sectional polls conducted in other states and countries, and this must be regarded seriously.[6,7]

According to this report, just 6.4% of people have provided first aid to the general population, which includes any sort of basic life support. 93.6% of people never gave victims immediate help. One cause could be ignorance, but it has been evaluated from another perspective. According to the other poll results, the general public is concerned about disease transmission from the sufferer by providing mouth-to-mouth ventilation while performing CPR, and the biggest concern for the public is the legal issue.[8] As a result, public education, and legislation to safeguard CPR

Table 17: Correlation of basic educational qualification with the questions regarding CPR

Basic Educational Qualification		
Q1 - Have you ever given first aid to a person?	Correlation Coefficient	-.664
	P value	.026*
	N	1200
Q2 - How can heart stoppage be checked?	Correlation Coefficient	-.053
	P value	.068
	N	1200
Q3 - Where will you check for pulse?	Correlation Coefficient	.127
	P value	.001***
	N	1200
Q4 - What is “golden hour” after accident?	Correlation Coefficient	-.110
	P value	.001***
	N	1200
Q5 - Do you know what CPR (Cardio pulmonary resuscitation) is?	Correlation Coefficient	-.066
	P value	0.022*
	N	1200
Q6 - Have you received formal CPR (Cardio pulmonary resuscitation) training in the past?	Correlation Coefficient	-.066
	P value	.022*
	N	1200
Q7 - Why we have to give CPR (Cardio pulmonary resuscitation)?	Correlation Coefficient	.902
	P value	.001***
	N	1200
Q8 - Have you ever seen anyone giving CPR (Cardio pulmonary resuscitation)?	Correlation Coefficient	-.066
	P value	.022
	N	1200
Q9 - When should you perform CPR (Cardio pulmonary resuscitation)?	Correlation Coefficient	0.68
	P value	.019
	N	1200
Q10 - Have you ever given CPR (Cardio pulmonary resuscitation) to someone?	Correlation Coefficient	-.066
	P value	.022
	N	1200
Q11 - Do you think schools/colleges/offices CPR (Cardio pulmonary resuscitation) training programs would be useful?	Correlation Coefficient	0.722
	P value	.001***
	N	1200
Q12 - Do you think it is easy to give CPR (Cardio pulmonary resuscitation)?	Correlation Coefficient	0.542
	P value	.012*
	N	1200
Q13 - After demonstration will you are able to perform CPR (Cardio pulmonary resuscitation)?	Correlation Coefficient	-.218
	P value	.001***
	N	1200
Q14 - What concerns may prevent you from giving CPR (Cardio pulmonary resuscitation) to a stranger after training?	Correlation Coefficient	-.031
	P value	.283
	N	1200
Q15 - Do you know emergency ambulance number?	Correlation Coefficient	0.912
	P value	.001***
	N	1200

Test done: Spearman Correlation Test
*P<0.05 is statistically significant
**P<0.01 is statistically highly significant
***P<0.001 is statistically very highly significant

providers are required. People should be informed of the regulations governing Good Samaritans. The entire public must be made aware of this issue.

According to the findings of this study, most untrained respondents would not consider taking CPR training for the following reasons: "no time", "not necessary", or "not interested". A prominent cause cited in various research is a lack of time for CPR instruction. Self-instruction, such as video or internet training, may be considered to alleviate this issue. According to studies, video self-instruction training is just as good as traditional classroom training and is not only less expensive but also more flexible than traditional classroom training. Self-willingness to perform CPR among the population in this study was about 95.5%, which shows the positive attitude towards the training.[9] The current findings encourage the use of innovative methods to reach a specific high-volume, younger demographic in order to raise knowledge about civilian CPR.[10,11] The excellent evaluations offered by participants of CPR training at music festivals in general, and of our training modules, support the idea of increasing the use of public events for (short) CPR training.

Research on regular CPR training used Twitter to gauge public opinion and discovered that most tweets were negative and that time, place, and duration of training were often noted hurdles. In this context, the short duration of our training modules is another appealing feature for those who do not want to devote a lot of time to acquiring and maintaining CPR abilities.

5. Conclusion

Most people still lack understanding of CPR. The proportion of citizens who have been given CPR instruction is quite low. Unwillingness to conduct CPR is especially prevalent among individuals who did not receive CPR instruction.

Government and non-government groups are required to promote educational activities and explore new techniques to reinforce and renew training content. The government must raise public understanding of CPR and pass legislation to protect bystanders performing CPR. It has also been recommended that CPR instruction be included in high school and college curriculum.

6. Source of Funding

None.

7. Conflict of Interest

None.

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