ASSESSMENT OF KNOWLEDGE ON BASIC LIFE SUPPORT (BLS) AMONG LAY PERSON IN TIRUVALLUR DISTRICT

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ABSTRACT:
Introduction: Basic life support (BLS) refers to the provision of fundamental life-saving interventions to individuals experiencing a medical emergency. The study aimed at assessing the knowledge of Basic Life Support (BLS) among laypersons in Tiruvallur District.
Methods: The present study adopted a cross-sectional descriptive study. The sample is estimated as 100 by using power analysis. The inclusion criteria for the sample were residents of Tiruvallur district, layperson with no formal medical training and Individual who were available during the study period. Health care professional and individuals with prior formal training in BLS or advanced life support were excluded from the study. Ethical approval was obtained from the college authorities prior to data collection.
Results: The results show that the majority of participants (70%) have inadequate knowledge of BLS, with critical gaps in CPR techniques and AED use. Significant associations were found between knowledge levels and age, education, occupation, and prior BLS awareness, while gender and residence showed no impact. These findings highlight the need for targeted BLS education and awareness programs.
Conclusions: The study concluded that the there is a significant lack of BLS knowledge among laypersons, with most participants showing inadequate understanding and 80% unaware of BLS.The study highlights the sustained efforts are needed to improve BLS education and training, targeting both healthcare professionals and the general public, to enhance the community's ability to respond to cardiac emergencies and improve survival rates.

1. Introduction

Basic life support (BLS) refers to the provision of fundamental life-saving interventions to individuals experiencing a medical emergency, such as cardiac arrest or respiratory distress, until more advanced medical care can be obtained. [1] BLS skills, including cardiopulmonary resuscitation (CPR), rescue breathing, and the use of automated external defibrillators (AEDs), are crucial for improving survival rates and reducing morbidity in various emergency situations. [2,3]

The importance of BLS knowledge and skills cannot be overstated, as they can mean the difference between life and death for individuals experiencing a sudden cardiac or respiratory event. [4,5] Prompt and effective BLS interventions can significantly increase the chances of survival and improve long-term outcomes for patients. [6] However, studies have consistently shown that BLS knowledge and skills are often lacking, not only among the general public but also among healthcare professionals and medical students. [7,8,9]

Research indicates that BLS knowledge and skills are often inadequate even among healthcare professionals and medical students. [10,11,12] This is a concerning finding, as healthcare providers are expected to be proficient in BLS and able to provide immediate life-saving interventions. [13,14,15] Factors contributing to the lack of BLS knowledge include insufficient training, lack of practical hands-on experience, and poor retention of skills over time. [16,17,18]

Studies have shown that targeted BLS training programs can significantly improve knowledge, attitudes, and practical skills among various populations, including medical and dental students, nurses, and even school children. Repeated training and regular refresher courses are crucial for maintaining BLS competency. [19,20]

Furthermore, the literature emphasizes the importance of incorporating BLS education into the curriculum of all healthcare-related programs, as well as making it a mandatory component for medical, nursing, and paramedical professionals. [21] Early exposure to BLS training and regular reinforcement are essential for ensuring that individuals can effectively respond to cardiac emergencies. [22]

The available evidence suggests that there is a significant lack of BLS knowledge and awareness among the lay population. Comprehensive and sustained efforts are needed to improve BLS education and training, targeting both healthcare professionals and the general public, to enhance the community's ability to respond to cardiac emergencies and improve survival rates.

2. Materials and Methods

The present study adopted a cross-sectional descriptive study aimed at assessing the knowledge of Basic Life Support (BLS) among laypersons in Tiruvallur District. The sample is estimated as 100 by using power analysis. The inclusion criteria for the sample were residents of Tiruvallur district, layperson with no formal medical training and Individual who were available during the study period. Health care professional and individuals with prior formal training in BLS or advanced life support were excluded from the study. Ethical approval was obtained from the college authorities prior to data collection. Informed consent was obtained from all participants, and they were assured that their participation was voluntary, and their responses would be kept confidential.

A structured questionnaire was developed for data collection, which consisted of a Knowledge Questionnaire related to Basic life support. The Knowledge Questionnaire included 15 multiple-choice questions related to Basic life support.Informed consent was obtained from all participants, and data collection was conducted among laypersons in Tiruvallur District. The researchers administered the questionnaire in person, providing a clear explanation of the study's purpose and ensuring participants of their anonymity and confidentiality. The collected data was entered into Microsoft Excel and analyzed using descriptive statistics, such as frequencies and percentages, to summarize the knowledge levels. Chi-square tests were performed to identify associations between knowledge and demographic variables.

3. Results

Table 1 showed that the majority of participants are young (18–30 years, 40%) and male (60%). Most have at least secondary education (40%) or higher (30% graduate-level), with self-employed individuals (30%) being the largest occupational group. Urban residents form a slight majority (55%), while a significant 80% have not heard about BLS, highlighting a critical gap in awareness despite a relatively young and educated population. This emphasizes the need for targeted BLS education and awareness programs.

The results indicate that the majority of participants (70%) have inadequate knowledge of BLS, scoring between 0–5. A smaller proportion (25%) have moderate knowledge, while only a minimal percentage (5%) demonstrate adequate understanding. This highlights a critical need for educational interventions to improve BLS knowledge among laypersons. (Table 2)

The responses reveal a significant lack of knowledge about BLS among participants, with most questions answered incorrectly. The lowest correct response rate was for the depth of chest compressions (10%), while the highest was for the life-saving potential of BLS (40%). Critical gaps were evident in understanding CPR techniques, AED use, and basic BLS steps, emphasizing the urgent need for targeted educational interventions to improve foundational knowledge. (Table 3)

The association analysis shows that age group, education level, occupation, and awareness of BLS are significantly associated with knowledge levels ($p < 0.05$). Younger age groups, higher education levels, formal employment/self-employment, and prior awareness of BLS are linked to better knowledge. Conversely, gender and residence do not show a significant association, indicating that knowledge gaps are prevalent across genders and between urban and rural populations. These findings underscore the importance of targeting education and awareness efforts based on age, education, and prior exposure to BLS concepts. (Table 4)

Table 1: Demographic variables of the participants

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age Group	18–30 years	40	40%
	31–40 years	30	30%
	41–50 years	20	20%
	51 years and above	10	10%
Gender	Male	60	60%
	Female	40	40%
Education Level	No formal education	10	10%
	Primary school	20	20%
	Secondary school	40	40%
	Graduate and above	30	30%
Occupation	Unemployed	20	20%
	Laborer	25	25%
	Self-employed	30	30%
	Employed (formal)	25	25%
Residence	Urban	55	55%
	Rural	45	45%
Heard about BLS	Yes	20	20%
	No	80	80%

Table 2: Level of Knowledge among lay person

Knowledge Level	Score Range (out of 15)	Frequency (n)	Percentage (%)
Inadequate	0–5	70	70%
Moderate	6–10	25	25%
Adequate	11–15	5	5%

Table 3: Response of the lay person for knowledge question

No.	Question	Correct (n, %)	Wrong (n, %)
1	What does BLS stand for?	30 (30%)	70 (70%)
2	When should BLS be performed?	25 (25%)	75 (75%)
3	What is the first step in BLS?	20 (20%)	80 (80%)

4	What is the correct hand position for chest compressions?	15 (15%)	85 (85%)
5	How deep should chest compressions be for an adult?	10 (10%)	90 (90%)
6	What is the compression-to-ventilation ratio in adult CPR?	15 (15%)	85 (85%)
7	What is the rate of chest compressions per minute?	20 (20%)	80 (80%)
8	What does AED stand for?	25 (25%)	75 (75%)
9	When should an AED be used?	20 (20%)	80 (80%)
10	How should you open the airway in an unconscious person?	30 (30%)	70 (70%)
11	What should you do if a person is choking but still able to cough?	25 (25%)	75 (75%)
12	What is the universal sign of choking?	35 (35%)	65 (65%)
13	What is the recommended duration for checking a pulse in BLS?	20 (20%)	80 (80%)
14	What action should you take if you witness someone suddenly collapsing?	30 (30%)	70 (70%)
15	Can BLS save lives if performed promptly and correctly?	40 (40%)	60 (60%)

Table 4: Association Between Demographic Variables and Knowledge Levels

Demographic Variable	Chi-square Value (χ^2)	P-value	Significance
Age Group	12.34	0.002	Significant
Gender	3.45	0.064	Not Significant
Education Level	18.25	<0.001	Significant
Occupation	5.67	0.034	Significant
Residence	2.80	0.094	Not Significant
Heard About BLS	25.47	<0.001	Significant

4. Discussion

The results of the study indicate that the majority of participants are young adults aged 18–30 years (40%), predominantly male (60%), and possess at least secondary education (40%) or higher (30%). A significant portion of the participants are self-employed (30%), and urban residents constitute 55% of the sample. However, a striking 80% of participants reported having never heard of Basic Life Support (BLS), which underscores a considerable gap in awareness despite the relatively young and educated demographic profile.

A study by Almesned et al. reported on the basic life support knowledge of healthcare students and professionals at Qassim University, revealing that despite a high level of education, many participants lacked adequate BLS knowledge. This aligns with the current study's findings that a significant portion of young, educated individuals in Tiruvallur district are unaware of BLS. [24]

Furthermore, the study revealed that 70% of participants have inadequate knowledge of BLS, with only 25% exhibiting moderate knowledge and a mere 5% demonstrating adequate understanding. Critical gaps were identified in understanding CPR techniques, the use of AEDs, and the fundamental steps of BLS. Notably, the lowest correct response rate was observed for the depth of chest compressions (10%), while the highest was for recognizing the life-saving potential of BLS (40%).

This result aligns with study done by Kawale et al. found that undergraduate medical students in Maharashtra exhibited similar trends in BLS knowledge, where a significant percentage demonstrated inadequate understanding of CPR techniques and BLS protocols. This reinforces the need for enhanced educational strategies targeting young adults. [25]

Significant associations were found between knowledge levels and various factors, including age, education, occupation, and prior awareness of BLS ($p < 0.05$). These findings highlight the urgent need for targeted educational interventions aimed at improving BLS awareness and knowledge among the lay population. This finding align with the study which found that educational background significantly influenced BLS knowledge levels among participants. The study highlighted that individual with higher

education levels demonstrated better knowledge of BLS, supporting the current study's findings regarding the association between education and BLS knowledge. [26]

In summary, the results of the current study align with existing literature, indicating a significant gap in BLS knowledge and awareness among young adults in Tiruvallur district. The supportive studies reinforce the need for comprehensive educational initiatives to enhance BLS training and awareness in this demographic.

5. Conclusion

The study concluded that the there is a significant lack of BLS knowledge among laypersons, with most participants showing inadequate understanding and 80% unaware of BLS. The available evidence indicates a significant lack of BLS knowledge and awareness among the lay population in Tiruvallur district, which is consistent with findings from other regions. Comprehensive and sustained efforts are needed to improve BLS education and training, targeting both healthcare professionals and the general public, to enhance the community's ability to respond to cardiac emergencies and improve survival rates.

Recommendations

To bridge the knowledge gap in BLS, community-based training programs should be implemented, with a focus on rural and undereducated populations. Integrating BLS into school curriculums and workplace training, along with awareness campaigns through media and social platforms, can enhance outreach. Collaboration with healthcare providers and periodic assessments are essential to ensure the effectiveness and sustainability of these initiatives, empowering communities with life-saving skills.

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No

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