Basic Life Support (BLS): Knowledge, Attitude and Practice Among Health Care Providers

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Abstract: Basic life support (BLS), a key component of the chain of survival helps to decrease disease condition and increases the rate of hospital discharge. Adequate awareness of basic life support (BLS) and diseased condition is an important global issue to ensure that individuals can provide necessary life-saving care in emergency situations. It is an integral part of emergency resuscitative care that aims to retain sufficient ventilation and circulation until the cause of the any case is detected and eliminated. It is possible to sustain life in patients whose life has been in danger. This period of temporary support is effective in sustaining life until specific lifesaving could be carried out. BLS course is gaining acceptance worldwide as important lifesaving means within 3-5min of patient collapse in and out hospital. The life support can produce survival rates as high as 49-75%. Effective management of an emergency condition is ultimately the health care personnel's responsibility. The lack of training and inability to cope with medical emergencies can lead to tragic consequences and legal complications. Therefore, health professionals like doctors and nurses who are directly involved in patient care must be well prepared to manage medical emergencies. Hence, BLS and high-quality lifesaving is an important tool until a medical emergency is treated definitely. This forms an integral link in patient care. Studies done in varied settings have reported that knowledge of BLS and resuscitation technique is lacking even in hospital areas where frequent ways of life savings take place and more emphasis is placed to develop medical skills; viz. the emergency, anesthesia and critical care. The attitude to performing medical skills was also poor in frequent lifesaving performer. Both the attitude to life saving and skills have been shown to improve with training and workshop.

Introduction

Basic life support (BLS) is an integral part of health care. It is a set of basic procedures applied after cardiac arrest. It is a key component of the chain of survival. However, the teaching of BLS is not yet a part of the protocolized curriculum. Knowledge and practice skills of BLS are poor in medical and nursing students. A significant portion of trainees do not acquire adequate knowledge in a single session of training. An organized curriculum for BLS and its protocolized training is the need of the hour in medical education. There is an urgent need to integrate BLS courses to medical students to enrich their knowledge and improve resuscitation skills and ensure implementation of correct resuscitation techniques. [1,2,3]

The American Red Cross Society defines BLS as a type of care that health care providers as well as public safety professionals provide to anyone experiencing cardiac arrest, respiratory distress or obstructed airway breathing. It includes both prompt recognition and immediate support of ventilation and circulation. Fundamental aspects of adult BLS involve recognition of signs of sudden cardiac arrest (SCA), heart attack, stroke, and foreign-body airway obstruction (FBAO), as well as performing CPR and defibrillation with an automated external defibrillator (AED). Timely provision of BLS can save a precious life. [4,5,6]

BLS requires nothing as far as resources are concerned and its importance is undeniable. Proper practice of the techniques and manoeuvres enables a person to effectively resuscitate a victim. Ideally, everyone should know BLS and CPR but it's awareness to medical personnel should be a pre-requisite for entering into this field. [7,8] The present study was designed to assess the level of awareness regarding BLS and knowledge of involved skills and its practical implementation among doctors and health care professionals. The knowledge of BLS is a major determinant in the success of resuscitation and plays a vital role in the final outcome of acute emergency situation. Health care professionals are expected to be competent to resuscitate the patient as they encounter such situations very often. [9,10]

This was a cross-sectional prospective survey-based study conducted in a tertiary hospital of central India. All health care workers, medical students and general populations attending various outpatient departments were invited to participate in the online survey on BLS. Pre-designed questionnaire was administered via social networks like WhatsApp, Facebook, Twitter and email. Identification of IP address was utilized to prevent a single respondent from filling the survey more than one time. Consent to participate in the study was determined by the completion and return of the questionnaire. A predefined questionnaire with 30 questions based on AHA"s BLS was used to assess the levels of knowledge, attitude and practice of BLS. Knowledge and practice questions were multiple choice questions while Attitude based questions were structured as yes/no/not sure pattern. The questionnaire was previously used and validated by a study conducted in India with a large number of respondents. The data from the questionnaires was entered into a spread sheet, categorical data was re-coded into numerical variables and data analysis was done using SPSS version 22 for Windows. Descriptive statistics were used to present the demographic data and patterns of answers to the different questionnaire items; categorical variables are presented as frequency and percentage, whereas numerical ones were presented as mean ± standard deviation (SD). Overall knowledge score was calculated as the sum of correct answers of all the knowledge-related items.

Results

Basic Life Support (BLS) is a level of medical care that is offered to victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital. Considering that life-threatening illnesses or injuries may occur at places where there are no medical practitioners or health service providers, it is imperative that laypeople are equipped with all the necessary knowledge and skills to provide BLS. Furthermore, the outcomes and coronary angiography findings of patients

indicated that some patients survived and were discharged, although three survivors suffered from permanent hypoxic brain damage. Further, every cardiac arrest patient admitted was brought to the hospital by friends or family relatives without being given Cardiopulmonary Resuscitation (CPR) first aid. Therefore, the foregoing situation may be attributed to lack of adequate knowledge, awareness and skills of the general public in performing BLS. [11,12]

Table 1 shows the baseline characteristics, including demographic details of the study population. A total of 426 participants completely filled the questionnaire and were analyzed. The mean age of the study participants was 36.6 ± 8.8 years. In addition, majority of the subjects were female (57.0%); married (58.5%) or single (39.9%); had secondary (31.5%), diploma (27.2%), or bachelor's (32.4%) levels of education; and worked in government (28.6%) or private sector (25.4%).

Table 1: Baseline Characteristics of study participants

Variable	Categories	Frequency	Percentage
Age	18-27	152	35.7
	28-37	213	50.0
	38-47	54	12.7
	48+	7	1.6
Gender	Male	183	43.0
	Female	243	57.0
Marital status	Married	249	58.5
	Single	170	39.9
	Divorced	7	1.6
Level of education	Primary	9	2.1
	Secondary	134	31.5
	Diploma	116	27.2
	Bachelor	138	32.4
	Master	23	5.4
	Doctoral	6	1.4
Occupation	Government	122	28.6
	Private	108	25.4
	Retired	2	.5
	Housewife	68	16.0
	Self-employed	16	3.8
	Student	74	17.4
	Unemployed	36	8.5

Large proportion of the participants (62.0%) were already aware about Cardio-Pulmonary Resuscitation (CPR), but had never received any CPR training (70.9%). Nevertheless, majority of those who indicated that they had received CPR training (29.1%) specified that they had received the training from Television-Internet-Media (33.1%), at a course given by the trainers of the Ministry of Health (21.0%), CPR education institutions (12.9%) and at school (12.1%). Moreover, the participants who indicated that they had not received CPR training expressed that they intend to attend CPR training in the future (84.8%).

Generally, larger proportions of the participants responded correctly on how to find out whether collapsed person was conscious [132 (31.0%)]; how to find out if a collapsed person had a pulse [162 (38.0%)]; what to do next as an individual after confirming that the collapsed person was unconscious, not breathing and had no pulse [222 (52.1%)]; what number to call for emergency medical services [328 (77.0%)]; the location for chest compressions for adults [139 (32.6%)]; and what to do first upon witnessing an infant choking while playing with a toy but the infant was unable to cry or cough [241 (56.6%)].

Knowledge total scores of the participants were not normally distributed (W (426) = 0.917, P<0.001), with minimum knowledge total score of 0 out of 15, maximum knowledge total score of 13 out of 15, median knowledge total score of 3 out of 15 (IQR: 2 - 4), and mean ± SD knowledge total score of 3.6 ± 1.9. Note that SD stands for Standard Deviation and IQR stands for Inter Quartile Range. In addition, majority of the participants scored 3 out of 15 (27.0%), followed by 4 out of 15 (21.4%), then 2 out of 15 (17.4%). Therefore, the majority of the participants had low knowledge about BLS. [13,14]
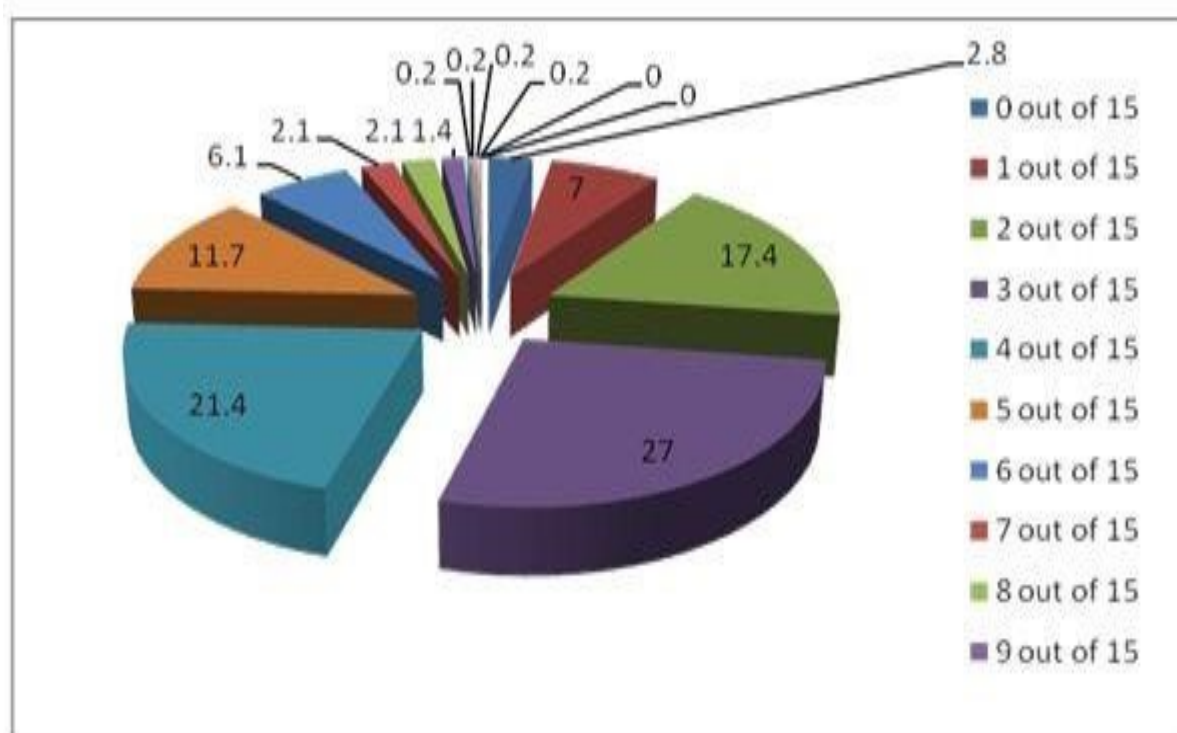

Fig. 1. Knowledge total scores of study participants

Attitude total scores of the participants weren't normally distributed (W (426) =0.976, P<0.001), with a minimum attitude total score of 30 out of 65, maximum attitude total score of 65 out of 65, and median attitude total score of 55 out of 65 (IQR: 51 - 58), and mean ± SD attitude total score of 54.5 ± 5.5.

Also, item scores, for each attitude item were not normally distributed (W (426) = 0.976, P<0.001). Therefore, the majority of the participants had a positive attitude towards BLS.

Discussion

Cardiopulmonary arrest is the most critical medical and surgical emergency. It is a major health problem worldwide and is common especially in areas with low income, which may be associated with inadequate medical care and facilities. Cardiac arrest may occur in and out of hospitals due to different reasons, such as traumatic injuries of any cause, cardiac diseases, and stroke. [13 -16]

Cardiopulmonary resuscitation (CPR) is the standard treatment used for the management of cardiac arrest and combines chest compressions with ventilation. Adequate knowledge and skills of healthcare givers with regard to the maneuvers and techniques for CPR prevent irreversible organ damage and improve the chances of survival of cardiac arrest victims. As a result, CPR requires comprehensive efforts, with adequate knowledge and skills as well as interest and positive attitude to help victims. Thus, health professionals should have basic knowledge of the fundamental aspects of basic life support (BLS) and advanced cardiac life support (ACLS) and perform high-quality CPR to improve survival from cardiac arrest. However, the knowledge and skills gap among health professionals with regard to CPR and management strategies for cardiac arrest is a global problem. [17-19]

Basic life support (BLS) skills include recognition of cardiac arrest, activation of local emergency medical services (EMS), initiation of cardiopulmonary resuscitation (CPR), and the use of an automated external defibrillator (AED). Initially aimed at healthcare workers, BLS including CPR has evolved as a skill taught to laymen. Since survival has been shown to decrease by 7-10% for every minute delay in the initiation of CPR, bystander-initiated CPR with the early use of AED may help save lives. In fact, the early initiation of bystander CPR in cases of witnessed cardiac arrest has been shown to improve survival outcomes by approximately 50%. [20-21]

Conclusion

This study suggested that there is a huge gap between awareness of BLS and having skills in BLS. Also, the level of knowledge about BLS was very low among the study population but there were still differences in the level of knowledge with respect to the socio-demographic characteristics. In contrast, this study proved that all participants had a positive attitude toward BLS. Finally, considering the increasing rate of illnesses and injuries that require BLS measures in India, policymakers in India should advocate mandatory training in BLS for all nonmedical populations the country. Also, learning from and using other people's experiences in other populations with regard to BLS training would help increase the knowledge and awareness of BLS, hence increasing the chances that more lives would be saved. [17,18]

From this study, we infer that proper training and workshops are mandatory on BLS/CPR in our undergraduate medical students. Awareness and knowledge about basic life support is certainly required for medical care experts as they experience such circumstances consistently and this will help them a long way in saving lives. Such situations not only occur at hospital settings but can also occur at outdoor settings, thus knowledge in basic life support is very essential.[21] Maximum participants showed positive attitudes toward BLS and were keen to learn it and requested for training. They all need the training at frequent intervals to know about the importance of BLS, to gain confidence, and to improve their skills which will help them in the time saving of many lives both inside and outside of the hospital.

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