International Journal of Science and Research (IJSR)
ISSN (Online) : 2319-7064
Index Copernicus Value (2015) : 78.96 | Impact Factor (2015) : 6.391

A Study to Assess the Practical Knowledge on Basic Life Support among Newly Inducted Medical and Nursing Students in Selected Institutions

Lt Col Bindu Sara Mathew[1], Lt Col Vandana Agnihotri[2]

Abstract: ***Background: Basic life support (BLS) is the simplest and most cost effective evidenced based method to save lives in emergencies. Sudden Cardiac Death (SCD) accounts for more than 50% of all other deaths. SCD is on rise especially in urban India. Global burden of disease study estimates that 52 % of cardiovascular disease occurs below 60 yrs in India. By 2020 AD 2.6 million Indians are predicted to die due to heart disease. Nearly half of these deaths are likely to occur in young and middle age. 95% those die due to SCD are not receiving life saving BLS. In various studies it is found that essential knowledge and skill in this simple life saving technique is lacking and the crucial time is wasted there by precious lives are lost. Studies also proved that skill can be mastered from 08 years of life. So the present study was undertaken to assess the level of existing practical knowledge on BLS of those students who just completed 12th standard and entered to a professional course so that BLS can be made mandatory education from the primary level in view of mastering this simple act of life saving skill, thus preparing each student a responsible citizen towards our society. Methods: A non experimental descriptive design was adopted for this study. A simple random sampling was applied for selection of samples. The data was collected by means of structured questionnaire consists of demographic data, base line information on BLS and 36 knowledge questionnaire to assess the practical knowledge on BLS. Each correct answer were given one mark. It was conducted in 3 Nursing colleges and one Medical college using a sample size of 190.Newly enrolled students (within a week of joining) before undergoing any theoretical or practical session on BLS. The score obtained was converted into inferential statistics. Aim: The purpose of this study was to assess the practical knowledge score on BLS among newly inducted Medical and Nursing students and to find the association of their practical knowledge score with selected demographic variables. Results: Out of 190 samples majority belonged to the age group of 15-18 years and were females (58.42%). Medical students were 60% and 40% were B Sc Nursing students. Majority has completed higher secondary education (85.26%) and rest were graduates. The maximum number of students (122 students) scored average marks 64.74%, 68 students scored 35.26% (poor) but none possess good knowledge. (Score of 0-12 poor, 13-24 average and 25-36 good). Conclusion: The result of the present study showed that none of the sample possess good practical knowledge on BLS (score of 0%) BLS saves life. Good knowledge on BLS can only saves victims life successfully. Average score of 64.74% average score is not enough to revive a victim successfully) and poor score of 35.26%. The knowledge was highly deficient in the area of technique of BLS. This suggests there is an urgent need of creating awareness among the public on the skill. BLS skill all citizens should possess. It is a very simple procedure as one can master it from the age of 8 years. Immediate recognition of a cardiac arrest and respond as early to the situation rightly at right time can save many precious lives. Major sources of knowledge were media and NCC/scouts but was inadequate Learning the BLS skill from the primary level will not only help to master the skill but also to develop sense of responsibility and confidence towards the fellow being which would help to grow the child as a responsible fellow being.***

Keywords: Basic Life Support, Practical knowledge score, Newly inducted

1. Introduction

Life is the most precious gift from God; Loss of life is the greatest loss to family and thereby to society. Every 29 seconds an Indian die of heart disease. [1]Bianca S Honneker et al with a focus on finding the prevalence of Sudden Cardiac death in India from the articles published from 2004 to 2014 revealed that the incidence of Sudden Cardiac Death (SCD) is on the rise, especially in the urban regions.[2]

Basic Life Support (BLS) can save life; it is a simple lifesaving technique useful in victims of life threatening illnesses until they get definitive medical care at hospital the ***golden hour*** refers to the initial ***FOUR MINIUTES following a SCA.*** (Sudden Cardiac Arrest) this has a direct effect in the outcome emergency situation of SCA. In India 80% of emergency victims do not receive proper medical attention during the golden hour. Among these 62% are from the productive age group of 25-50 years and this is a major drain on Nations resources **,** the trained man power. [3]The American Heart association (AHA) recommends bystanders and medical personnel alike can perform it[4], when performed by a by stander the survival rate increases three folds[5.]BLS is the elixir of the health science for the emergency management of someone who is not breathing or heartbeat has just stopped. BLS can keep oxygenated blood flowing to the brain and other vital organs. Saving a person in cardiac arrest should be a high-priority task in the healthcare system of any country[6.]

Schools have been considered to be an ideal place to effectively extend the knowledge and skills[7.]The most important factor in an emergency is the amount of time lost before a patient reaches the hospital. Automated External Defibrillators (AED) are used to restore the heart rhythm in case of (SCA) Sudden Cardiac Arrest. Recent studies evaluating the use of AEDs have demonstrated that application of an AED in communities is associated with doubling survival after out-of-hospital cardiac arrest (OHCA) [8] 6.95% of those who experience SCD die because they do not receive life-saving defibrillation within 4 to 6 minutes.

Aim of the Study

The aim of the study was to assess the practical knowledge on BLS among the newly enrolled Nursing and Medical students

Licensed Under Creative Commons Attribution CC BY

Objectives

1) To assess the practical knowledge score on Basic Life Support (BLS) among newly inducted medical and nursing students
2) To identify the association of practical knowledge score of newly inducted medical and nursing students on Basic Life Support (BLS) with selected demographic variables.
3) To identify the association of practical knowledge score of newly inducted medical and nursing students on Basic Life Support (BLS) with those have information on BLS

2. Materials and Methods

The descriptive study was conducted at selected Medical and Nursing colleges to assess the practical knowledge level of the students at the time when they enter to a professional college (or those who just finished their higher secondary education/graduation) there by assessing the existing understanding on BLS. A non experimental research design was adopted to assess the practical knowledge of the samples on BLS. The conceptual frame work used was health promotion model proposed by Nola J Pender. Simple random sampling method was used and 190 samples were selected.

The research tool used were
Part A: A structured questionnaire to assess the demographic characteristics of the sample.
Part B: Base line information on BLS
Part C: Self made structured knowledge questionnaire to assess the practical knowledge on BLS

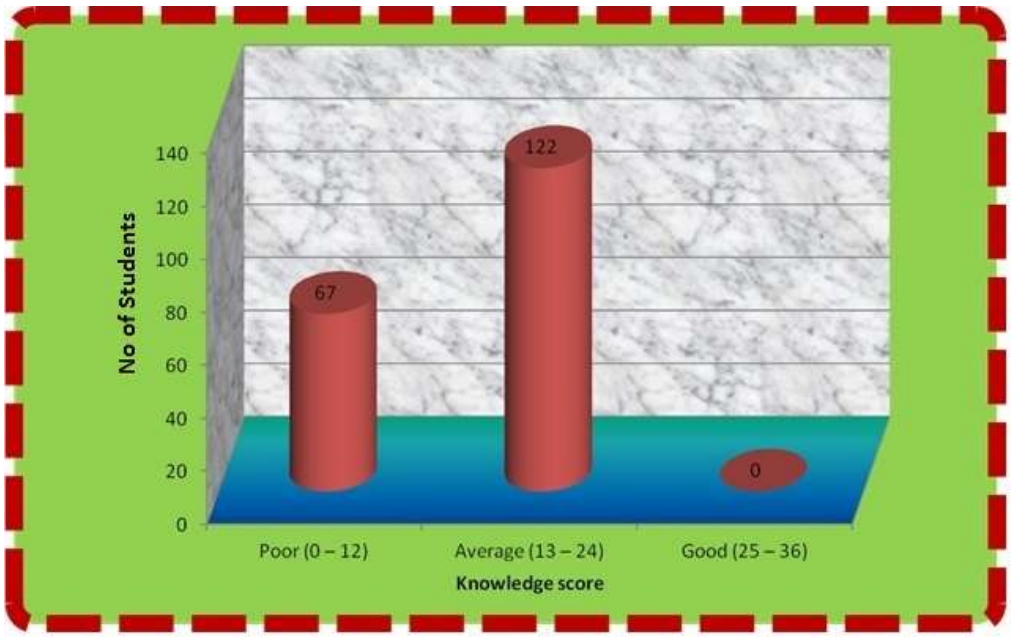
The questionnaire was prepared after referring American Heart Association (AHA) 2010 BLS manual, various books, published and unpublished thesis. The practical knowledge questionnaire of 36 questions including basic concept on BLS, BLS technique, situational questions, identification of successful revival. One mark was given to each correct answer. To ensure the content validity of the prepared tool was given to 13 experts. Reliability is established by Cronbachs alpha, and the Split half method. The calculated value of standardized item alpha was equal to 0.8153, and found reliable. Data collection period was 4 weeks. The data was analyzed in terms of frequencies, percentages, mean and standard deviation. "P" value of less than 0.5 was considered having significant association and the formulated hypothesis was accepted or rejected based on it. Mann whitney Z test and ANOVA is used

3. Results

Sample characteristics were presented as demographic data like age, gender, geographical region, educational qualification, place of residence, course under going. As per the demographic data out of 190 samples majority belongs to age group of 15-18 years (67.89%) and maximum were females(58.42%), . Majority of the students were from West India (68%) and rest were equally distributed from all other parts of North , south and centre. 52.63% samples were from the rural residential area. 60% were undergoing MBBS and 40% were undergoing B Sc Nursing course.

Practical Knowledge score of BLS

Out of all samples none possess good knowledge on practical aspects of BLS. Majority had an average practical knowledge score and 35.26% had poor score.



The figure 1 shows that maximum students who participated in the study had an average practical knowledge score 64.4% scored between13-24 marks, but none of them had good knowledge and 68 (35.26 %) had poor knowledge

Licensed Under Creative Commons Attribution CC BY

Table 1: Distribution of students as per demographic data and their association with knowledge score, n=190

S no	Parameters		No of Students	Percentage	Man whitney Test value	P value
1	Age (Yrs)	15 – 18 19 – 22	129 61	67.89 32.11	0.18	>0.05
2	Gender	Male Female	79 111	41.58 58.42	4.47	*<0.0001*
3	Geographical region	North South Central West	20 21 20 129	10.53 11.05 10.53 67.90	*6.12(F value)*	*<0.001*
4	Residential area	Urban Rural	90 100	47.37 52.63	*2.93*	*<0.005*
5	Basic qualification	HSC Graduate	162 28	85.26 14.74	1.58	>0.05
6	Course	B Sc Nursing MBBS	76 114	40 60	0.45	>0.05

The above table indicates that practical knowledge score with test value of 0.18 being lesser than the table value of 1.96 at 5% level of significance (p value >0.05), ***age*** has no significance with practical knowledge score. ***Gender*** and practical knowledge score on BLS has significant difference as the test value of 4.47 being more than the table value of 1.96 at 5% level of significance (, P value<0.0001) using Man Whitney test. The ANOVA of difference in means show that there is a significant association of practical knowledge with the ***geographical region***, The degree of freedom (df) =3, 186, F=2.1 at 5% level of significances. The calculated test value of 6.12 with degree of freedom 3, 186 and a Pvalue <0.001 at 5% level of significances shows that there is significant association of knowledge score of sudents and their Geographical region. The practical knowledge score on BLS has no significant difference among the students based on their ***course*** (B Sc nursing and MBBS). With the test value of 1.58 being lesser than the table value of 1.96 at 5% level of significance (P value >0.05) using Man Whitney test.

The students from urban area scored higher than rural area. The test value of 2.93 being more than the table value of 1.96 at 5% level of significance (P value<0.005) using Man Whitney test, which indicates that there is a significant association between the knowledge score and the ***residential area***.

Table 2: Distribution of students as per the base line information on BLS

Parameters		*No of cases*	*Percentage*
Information on BLS	Yes No	110 80	57.89 42.11
Source of information	Media Friends/relative Schools/college	40 30 40	36.36 27.27 36.36
Formal training on BLS	Yes No	70 120	36.84 63.16
Source of BLS training	NCC Scouts	50 20	71.43 28.57
AEDseen (Automated External Defibrillator)	Yes No	30 160	15.79 84.21
Liable for any legal action	Yes No	130 60	68.42 31.58

Table 2 explains that 42% never heard of BLS where as 58 % had some information. Those who possessed information the source was from media, educational instituitions, friends / relatives. 36% had received information through NCC, Scouts, St Johns ambulance. Though 47% claimed that they witnessed BLS and 27% felt they faced situation where BLS would have been a help BLS but none of them attempted. Majority of them (68%) felt that if they respond to a situation /scene where BLS is needed they are liable for legal action.

Table 3: Distribution of Knowledge scores based on 36 questionnaires 5 major areas

SNO	Criteria	Score (percentage)
1	Basic concept of BLS(1-9)	38.6%
2	Technique of BLS (10-21)	36%
3	Situational questions on BLS(22-31)	45%
4	Signs of successful revival(32-33)	66.05%
5	Post BLS care (34-36)	42%

Table 3 explains that the least score was in the area of BLS technique. Only 38.6% where aware on the basics of BLS and 21.58 % of the students could give the correct answer as BLS can be provided by lay person.

Out of 190 samples 43.16% (82) knew that BLS is to be started when there is an abnormal breathing or 'No signs of life'. The study revealed that 68.42% failed to identify the symptoms of absence of life or when to initiate BLS in the study group 36.84 % (70) students were aware of chest compression as initial step of resuscitation.

The study also revealed that neither the age, nor the basic qualification and the present professional course had no significant association with the practical knowledge score of the subjects. However association between gender geographical region and the residential area region, with their practical knowledge score on BLS were found to be statistically high significance.

The study revealed that majority110 (57.9%) students had some information on BLS, which is possessed from media, friends or relatives. A maximum of (160) 84.21% never heard or seen an AED. The majority of the students 68.42% felt that they are liable for legal action on initiating a life saving act.

A significant association exists between the practical knowledge score on BLS and base line information by

Licensed Under Creative Commons Attribution CC BY

exposed to some form of training through NCC / guides / scouts with their practical knowledge score.

4. Recommendations and Suggestions

- Basic Life Support should be an integral part of education from the level of primary school in order to prepare the child to grow as a responsible fellow citizen. They develop skill, confidence and competence in BLS for saving life in case of any emergencies within or outside home
- Create a target group of 18-25 yrs especially in all professional colleges on mandatory to have the BLS card holder.
- Free BLS training to all above 18 yrs
- Mandatory BLS training certificate for all citizens from age group of 18-25 yrs
- The training on BLS should be imparted for the school teachers
- An emergency nurse or a nurse educator can be appointed in schools and private companies
- Mandatory induction training for any profession especially for the government jobs, police officials, drivers etc
- The nursing and medical students can be utilised for teaching BLS skills for school children as a part of their evaluatory assignment in lieu of written assignments , which will help them to retain the knowledge as well as in refining their skill
- The school students can be utilized in educating the relatives and friends on the BLS skill
- Objective structured clinical examination pattern for assessing the BLS skill of Nursing and Medical students are recommended.
- Periodic refreshment course of hands on training on BLS for those who are trained
- Introduce practical knowledge questions on BLS in CET exams
- The untrained who attempt BLS should be appreciated and encouraged.
- State or centre legislation for bringing about above changes
- Media influence the younger generation in a great way. It should convey the correct sequence of BLS steps if projecting as a part of movies/serials
- AED should be deployed in densely populated areas especially in rural communities where there is less facilities to reach the hospitals providing advanced life support
- Pre training evaluation studies similar to the present study on knowledge and skills can be conducted followed by individual feedback which helps in better retention as they are aware of their weakness
- A study can be done on effectiveness of various teaching technique of BLS skill training
- Create a vision statement that all Indian citizens above 18 years should possess a certificate of BLS by the year 2018

5. Conclusion

The present study highlighted the utmost necessity of training of each and every citizens of the country, especially to create more awareness by starting from the primary education, developing skill and later by the age of 18 yrs to 25 yrs one should become a recognized BLS provider. Being in the arena of health care delivery the responsibility lies mostly towards the health care industries. The budding professionals should be mastered in the skill of BLS also they should be sensitized about their responsibilities towards the fellow citizen. A descriptive study done to assess the knowledge level of the Nursing and Medical students on Basic Life Support. The study result concluded that majority of the subjects in the study had an average knowledge, none of them had good knowledge. So let us wake up as, life is only once the chance of saving life may arise at least once, let every health professionals be well prepared for it.

References

[1] Every 29 seconds an Indian die of heart diseases. Available at www.iosrjournals.org [cited on 2 Feb. 2015]
[2] Honnekeri1 Bianca S, Lokhandwala Disha , Panicker Gopi Krishna , Lokhandwala YasSudden Cardiac Death in India a Growing Concern. JAPI. 2014;62
[3] Defibrillation. 2014. Available at www.sca-aware. org/archive/blog/2014
[4] Fredriksson M, Herlitz J, Nichol G. Variation in outcome in studies of out-of-hospital cardiac arrest: a review of studies conforming to the Utstein guidelines. Ame Journal of medicine Emergency Medicine. 2003 ;21(4) :276-81
[5] Andelic Slađana, Ostric D K, Radojicic Z. The significance of pre-existing knowledge of the latest guidelines for cardiopulmonary resuscitation in successful basic life support education of Belgrade sixth year medical students. Svitae. 2014; 9(2) (cited on 2015 Feb.) ; Available from http://www.signavitae.com
[6] Weisfeldt Survival after Application of Automatic External Defibrillators before Arrival of the Emergency Medical System Evaluation in the Resuscitation Outcomes Consortium Population of 21 Million. JACC. 2010; 5: 16
[7] BLS to be introduced in schools from the primary level of education. Accessed on10 Feb. Available at www. sudden cardiac arrest foundation.
[8] The automated External Defibrillator Key Link In the chain of survival. Available at www. circ, ahajournals

Licensed Under Creative Commons Attribution CC BY