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Original Research Article

Knowledge and Attitude of Basic Life Support among Phase-I Medical Students of CIMS, Chhindwara, MP

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Abstract:

Background: Basic Life Support (BLS) seeks to preserve respiration and circulation in cardiac arrest victims, emphasizing cardiopulmonary resuscitation (CPR) while utilizing minimal supplementary equipment. As per new Curriculum based medical education guidelines by National Medical Commission, foundation course for the Undergraduate has been started since 2019, in which skill component include 180 minutes for Basic Life Support. However, this much is not sufficient to learn about BLS and CPR. The elevated standards of care need that knowledge of BLS/CPR be updated and encompass both laypersons and medical professionals who may serve as educators in this skill.

Objectives: The aim of the study was to evaluate the knowledge and attitudes of MBBS Phase - 1 medical students about Basic Life Support (BLS).

Methods: This health education related descriptive, cross-sectional study was done by department of Physiology, among Phase 1 MBBS students of CIMS Chhindwara, MP, India, after institutional ethics committee approval. A Pre designed, pre-validated, self-reported questionnaire forms consisted of two sections were used for assessing the knowledge and attitude of MBBS students. Knowledge component assessment questionnaire form included questions related to steps of BLS, components of CPR and their details, sequence of CPR steps to follow, general awareness about examining pulse, respiration, etc. Attitude component assessment questionnaire form included questions related to CPR performed, willingness to learn BLS, willingness to teach BLS to family members, opinion on adding BLS training in medical and paramedical courses, etc. Data was entered in excel sheet. Means and proportions were calculated for quantitative & qualitative data respectively. Suitable statistical analysis done depending on the distribution of data.

Results: Total number of sample size was 99 Phase 1 MBBS students. 98.99% of participants had poor knowledge, 1.01% of participants had average knowledge and none of the participant had good knowledge regarding Basic Life Support. Present study revealed a positive attitude of students towards BLS. Of the participants, 92.93% students have not done CPR before and 94% students feel that their knowledge about BLS is insufficient. 90.9% students think that all health care workers should be trained in BLS and 93.94% are likely to attend BLS training in workshop with hands on practice under supervision.

Conclusion: The Study highlights that the knowledge of MBBS phase 1 students regarding BLS was not satisfactory. A significant portion of students do not acquire adequate knowledge in a single session of training in present curriculum. There is need to include frequent BLS training at regular intervals in medical curriculum of first year MBBS students. Progression of knowledge can also be done by inclusion of different teaching methods.

Keywords: Attitude; BLS; CPR; Knowledge; Medical students.

Introduction

Basic Life Support (BLS) denotes a category of medical care administered to individuals experiencing life-threatening conditions and injuries prior to reaching a healthcare facility or receiving expert assistance. [1] Adequate knowledge of basic life support (BLS) and cardiopulmonary resuscitation (CPR) is a critical global concern to ensure persons can deliver essential life-saving assistance in emergencies. [2] It is a crucial component of emergency resuscitative care designed to maintain adequate breathing and circulation until the underlying cause of the arrest is identified and resolved. [3]

The World Health Organization states that ischemic heart disease, resulting in sudden cardiac arrest, is the leading cause of death globally, accounting for 16% of overall mortality. [4] Sudden cardiac arrest (SCA) occurs when the heart ceases to beat or function unexpectedly, resulting in the cessation of blood flow to essential organs, including the brain; if not promptly addressed, it can lead to sudden death or severe impairment.

The outcome of SCA scenarios mostly hinges on the timing of resuscitation initiation, since delayed intervention may result in harm to cardiac rhythm and cerebral function due to oxygen deprivation in these regions.

The BLS course is increasingly recognized globally, as cardiopulmonary resuscitation combined with defibrillation within 3-5 minutes of collapse due to ventricular fibrillation in out-of-hospital cardiac arrests can yield survival rates ranging from 49% to 75%. [5, 6] The American Heart Association (AHA) guidelines indicate that prompt CPR can double or triple survival probabilities following cardiac arrest, but each delayed minute in administering defibrillation reduces the survival rate by 7% to 10%. [7]

BLS providers must possess sufficient knowledge and comprehension to promptly diagnose clinical symptoms, hence minimizing the interval between symptom identification and the commencement of CPR. Recent studies reveal that medical students lack adequate understanding to identify indicators of critical medical illnesses necessitating Basic Life Support interventions. [8-10]

As per new Curriculum based medical education guidelines by National Medical Commission, foundation course for the Undergraduate has been started since 2019, in which skill component include 180 minutes for Basic Life Support. However, this much is not sufficient to learn about BLS and CPR.

This study intended to evaluate the knowledge and attitudes regarding BLS among first-phase MBBS students.

Aim and objectives: The aim of the study was to evaluate the knowledge and attitudes of MBBS Phase - 1 medical students about Basic Life Support (BLS).

Methodology: This health education related descriptive, cross-sectional study was done by department of Physiology, among Phase 1 MBBS students of CIMS Chhindwara, MP, India, after institutional ethics committee approval and written informed consent from students.

Inclusion Criteria: All 100 medical students of MBBS Phase 1 (academic batch 2023-24) present on the day of study on voluntary basis.

Exclusion Criteria: Students not willing to sign informed consent.

Sample size: 99, as 1 student was found to be absent on the day of study.

Data collection tools and procedure: Pre designed, self-reported questionnaire forms were distributed among all study participants and collected on same day after answering all given questions.

Answer sheets with incomplete answers were rejected from the study. The investigator explained the purpose and importance of study to the participants.

The Questionnaire forms didn't contain the name of participants or any other identity, thus the confidentiality of the participants was maintained. Self-reported semi-structured questionnaire consists of two sections were prepared by the investigator.

The first section – Section A contains 10 questions related to knowledge among medical student about Basic life Support and the second section – Section B contains 6 questions related to attitude of medical student regarding Basic Life Support.

Knowledge component Questionnaire: This included questions related to steps of BLS, components of CPR and their details, sequence of CPR steps to follow, general awareness about examining pulse, respiration, etc.

A maximum score of 10 was set for knowledge component of BLS, with score of 1 (one) and 0 (zero) for correct and incorrect answers to each question respectively.

Those who obtained less than 5 total score were considered to have poor knowledge, score of 5-8 were considered to have average knowledge and those who score more than 8 were considered to have good knowledge.

Attitude component Questionnaire: This included questions related to CPR performed, willingness to learn BLS, willingness to teach BLS to family members, opinion on adding BLS training in medical and paramedical courses, etc. Attitude based questionnaire were assessed on YES / NO basis. Questionnaires were completed in a Class room setting.

Statistical analysis: A master chart was generated and the gathered data was input into Microsoft Excel. The data was analyzed utilizing SPSS version 28. Means and proportions were calculated for quantitative & qualitative data respectively. Frequency distribution tables were made. Suitable statistical analysis done depending on the distribution of data.

Results

A total 99 students of first year MBBS were participated in the study which include 53.54% males and 46.46% females.

55.55% Participants were in the age group of 17-19 years, 36.36% were in between 20-22 years and 8.08% of participants were in age group of 23-25 years. [Table 1]

Table 1: Demographic variables

Variables		Number (n)	Percentage (%)
Age groups	17-19 years	55	55.55
	20-22 years	36	36.36
	23-25 years	08	8.08
Gender	Male	53	53.54
	Female	46	46.46

In present study, it was observed that 98.99% of participants had poor knowledge, 1.01% of participants had average knowledge. [Table 2]

Table 2: Knowledge response of study population (n=99)

S. No.	Questions	Correct responses n (%)	Incorrect responses n (%)
1.	"BLS'' stands for?	64 (64.65%)	35 (35.35%)
2.	How many steps are involved in BLS?	0	99 (100%)
3.	What is the first step while giving CPR?	0	99 (100%)
4.	EMS stands for?	22 (22.22%)	77 (77.78%)
5.	What is the location for chest compression while giving CPR in adults?	01 (1.01%)	98 (98.99%)
6.	What is the rate of chest compression during CPR in adults?	0	99 (100%)
7.	What is the Depth of chest compression during CPR in adults?	03 (3.03%)	96 (96.97%)
8.	Ratio of Chest compression to breathing during CPR in adults?	04 (4.04%)	95 (95.96%)
9.	The C-A-B of resuscitation represents?	03 (3.03%)	96 (96.97%)
10.	What does abbreviation AED stand for?	06 (6.06%)	93 (93.94%)

Present study revealed a positive attitude of students towards BLS. Of the participants, 92.93% students have not done CPR before and 94% students feel that their knowledge about BLS is insufficient. 90.9% students think that all health care workers should be trained in BLS and 93.94% are likely to attend BLS training in workshop with hands on practice under supervision. [Table 3]

Table 3: Attitude response of study population (n=99)

S. No.	Questions	Yes, n (%)	No, n (%)
1.	Had you done CPR before?	07 (7.07%)	92 (92.93%)
2.	Do you feel your knowledge about BLS is sufficient?	05 (5.05%)	94 (94.95%)
3.	Do you think all health care workers should be trained in BLS?	90 (90.9%)	09 (9.1%)
4.	Would you like to attend BLS training in workshop/center with hands on practice under supervision?	93 (93.94%)	06 (6.06%)
5.	Do you think that BLS training should be part of your curriculum?	96 (96.97%)	03 (3.03%)
6.	Would you like to give BLS training to your family members once you learn it?	97 (97.98%)	02 (2.02%)

Present study found that, 98.99% of participants had poor knowledge, 1.01% of participants had average knowledge and none of the participant had good knowledge regarding Basic Life Support. [Table 4]

Table 4: Total score of study population

S. No.	Knowledge level	Number of students (n)	Percentage (%)
1.	Good Score	0	0
2.	Average Score	01	1.01%
3.	Poor Score	98	98.99%

Discussion

Medical students should have good knowledge and attitude towards Basic Life Support. This study is planned to assess the knowledge and attitude of phase 1 MBBS students regarding BLS. In this study, we found that majority of students (98.99%) lack knowledge about BLS. Although 98.99% students answered ≤4 out of the 10 knowledge questions correctly. Only 1.01% of them answered 5 out of 10 knowledge questions correctly. One question was correctly answered by 64.65% of students whereas 9 questions were correctly answered by <25% of them. Another key area that is identified in this study is Positive attitude of students towards BLS. Of the participants, 92.93% students have not done CPR before and 94% students feel that their knowledge about BLS is insufficient. 90.9% students think that all health care workers should be trained in BLS and 93.94% are likely to attend BLS training in workshop with hands on practice under supervision.

Our study revealed poor BLS knowledge of participants. As similar study was conducted by Srestha Roshana et al in Lalitpur, Nepal in 2012 and assessed that participants has inadequate knowledge on BLS and CPR training. [11] However, in South India, Akshatha Rao Aroor et al reported that their participant's awareness level of BLS is below average. [12] In Bihar, Sharma S et al study revealed that third year and final year undergraduate students had slightly better knowledge as compared to first- and second-year students in which 42.6% students had poor knowledge and 2.9% had good knowledge. The mean knowledge score of entire cohort was 43.6±14.2. [13] In this study, expansion of BLS, AED and ratio of chest compression and breathing was correctly answered by 70.2%, 34.3%, 18.9% participants as compared to 64.65%, 6.06% and 4.04% students in present study.

A study conducted by Seema Sachdeva et al [14] in New Delhi reported that 64% participants had average knowledge and 66% had poor skills for BLS. Most of participants had poor knowledge regarding cardinal sign of arrest, carotid pulse assessment, location of chest compression, and indication of defibrillation. Skills were found poor regarding calling for help, pulse reassessment, location of AED pads on chest. Similar results were obtained in the study of Karapparambil Vineeth Chandran et al, [15] but after attending structured course on BLS the knowledge and confidence of interns in performing BLS improved steeply. The students were confident enough to recognize and save their life by performing necessary procedures. According to Nelson Ssewante et al, [16] 29.3% participants had good knowledge regarding BLS. The mean knowledge score was 42.3%. The age, level of academic progress and prior BLS training were associated with good BLS knowledge.

The cross-sectional study conducted by Arash Nemat et al [17] revealed that Afghan healthcare worker lack appropriate knowledge for conducting BLS. 20.7% participants correctly answered abbreviation of BLS and 8.1% answered location of chest compression correctly. The depth of chest compression and AED abbreviation correctly answered by 25.3% and 39.1% participants correctly.

Limitation of study: This study has focused on phase-1 medical students from a single centre and should be interpreted as such.

Future recommendation: We also urge that the researcher do a large-scale study involving medical and non-medical students, on-duty physicians, and the community.

Conclusion

The Study highlights that the knowledge of MBBS phase 1 students regarding BLS was not satisfactory. A significant portion of students do not acquire adequate knowledge in a single session of training in present curriculum. There is need to include frequent BLS training at regular intervals in medical curriculum of first year MBBS students. Progression of knowledge can also be done by inclusion of different teaching methods.

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