



Original Research Article

Evaluation of basic life support orientation program for first year medical students; scopes for further improvement

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ABSTRACT

Context: Basic life support (BLS) is an important life saving skill which at least all health care workers should be aware of but knowledge of BLS is poor even among medical students.

Aims: The aim of our study was to orient the first year medical students regarding BLS and to evaluate the workshop from students' perspectives to make it better in future.

Settings and Design: Seventy three first year medical students were included in the study.

Materials and Methods: An anonymous, pretested, semi-structured questionnaire designed for evaluating a training program was prepared. The questionnaire included 25 items divided into 5 parts i.e. learning experience, reactionnaire, structure of the program, trainer's evaluation and open ended questions.

Statistical analysis used: Responses of the students were expressed as percentages. Since the responses were there on Likert scale, correlations were measured using Spearman correlation test.

Results: The students understood the importance BLS and learned the required skills to perform BLS after the orientation program. Overall the program was rated as excellent by 64.4% of students and good by 27.4% students. In addition to strengths and weaknesses of the workshop, students also suggested the various methods to improve such sessions in future.

Conclusions: Though the current orientation program was rated as good on most of the parameters but still the scope exists for further improvement and students' feedback will go a long way in improving this program in future.

Key messages: Basic life support (BLS) orientation program is of great importance for fresh M.B.B.S. entrants. The students' viewpoint and feedback will help in improving such sessions in future.

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1. Introduction

Basic life support (BLS) is an important life saving skill which not only health care workers but even laypersons should know. However, unfortunately in our country, knowledge of BLS is poor not among laypersons but even among medical students and junior doctors.^{1,2} If they happen to see a patient in cardio respiratory arrest, either they can't perform the cardiopulmonary resuscitation (CPR) or they do it inappropriately leading to a poorer outcome. The root cause of this can be traced to lack of proper

training regarding BLS in M.B.B.S. as much emphasis is not placed on teaching and reinforcing BLS skills in medical curriculum.³ Medical council of India (MCI) in their Vision 2015 document to reform undergraduate and post graduate medical education included BLS in the orientation program for fresh MBBS entrants.⁴

1.1. Rationale and Aim

BLS is the foundation of resuscitation and a timely and properly performed BLS can save the life of a cardiac arrest victim. It has been emphasized earlier that BLS should be a regular part of the medical curriculum and its training

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should start in the 1st year itself and consolidated in the following years.⁵ Keeping in mind the importance of BLS we conducted a workshop on BLS at our institute for 1st year medical students with the aim to

1.2. Orient and sensitize the first year medical students regarding BLS

1. Obtain feedback from the students to know their perspectives regarding the content, structure and relevance of the sessions.
2. Identify suggestions and make recommendations for future improvement.

2. Materials and Methods

2.1. Study area

Fresh M.B.B.S. entrants of a 250 bedded tertiary care hospital, Government Medical College.

2.2. Study design

Prospective cross-sectional study. Sample Size

All (n=73) first year medical students were selected for the study (universal sampling). Written informed consent was obtained from the participants. We included freshly admitted first year medical students (n=73) for BLS orientation program as per Vision2015 document of MCI after institutional ethical committee approval. The remaining 27 students who joined the institute after 2nd /3rd counselling could not attend the orientation program.

Study tool and sampling technique: An anonymous, pretested, semi-structured questionnaire designed for evaluating a training program was prepared.⁶ The questionnaire included 25 items. The questionnaire was divided into 5 parts. First part consisted of 7 questions on learning experience, second part was reactionnaires of 5 questions, third part was regarding the balance and structure of the program consisting of 5 questions, fourth part was trainer's evaluation of 5 questions and last part included 3 open ended questions regarding evaluation of strengths, weaknesses and how to make the orientation program better in future. The orientation program included an interactive power point session (60 minutes) which was followed by practical demonstrations of core competency skills of chest compressions, airway and breathing and use of AED at skill station (30 minutes) by the instructor. Following this a video on BLS by American Health Association (AHA) was shown to the students followed by debriefing (10 minutes). After this single and double rescuer CPR demonstration (10 minutes each) was done on the mannequin followed by hands on sessions by the students. On the station there was a BLS mannequin, pocket mask, ambu bag with mask and an AED. Students were divided into groups. Each group consisted of seven students. Special emphasis was placed

on chest compressions since these are most important in the initial few minutes and can be started immediately after arrest. Each student was given a chance to practice the chest compressions on the mannequin and simultaneously feedback was given by the trainers to achieve high quality chest compressions.

After the hands on session the feedback forms were distributed to the students and they were given 15 minutes to complete it. Students were first made familiar with the Performa and Likert scale in detail (e.g. 5=learned a lot, 1=learned nothing). They were told that their answers will be confidential and the results will help us in reviewing the session and provide valuable inputs for designing such sessions in future.

2.3. Data analysis

Collected data was entered in the MS Excel spreadsheet, coded appropriately and later cleaned for any possible errors. Analysis was carried out using SPSS (Statistical Package for Social Studies) for Windows version 23.0 and online Graph Pad software (Prism 5 for Windows) version 5.01. During data cleaning, more variables were created so as to facilitate association of variables. Clear values for various outcomes were determined before running frequency tests.

Responses of the students were expressed as percentages. Since the responses were there on Likert scale, correlations were measured using Spearman correlation test. All tests were performed at a 5% level of significance, thus an association was significant if the p value was less than 0.05.

3. Results

Out of the 100 students 73 could attend the orientation program. Others who joined the institute after 2nd /3rd counselling could not attend the orientation program.

The responses of the students in the first part of feedback regarding their learning experience about the steps of Basic life support (BLS) were good. The best response was seen in question on chest compressions in which 86.3% students rated their experience as 5(5=learned a lot) on Likert scale (Figure 1). The responses for the other five basic steps of BLS i.e. scene safety, checking responsiveness, shouting for help and activating emergency response system, pulse and breathing check and CPR cycle of 30 compressions and 2 breaths were also rated as 5 or 4 on Likert scale by most of the students. The last question which was about use of AED was rated as 5 on Likert scale by just 23.3% students and 8.2% students even rated their learning experience as 1(1=learned nothing) as can be seen in table 1. Spearman correlation analysis was applied to check for correlation of various parameters with chest compressions as chest compressions are most important part of BLS. There was significant positive correlation of chest compressions with

checking responsiveness, breath and pulse check, CPR cycle of 30:2 and use of AED (Table 2).

The second part was reactionnaire which included questions on skills in chest compressions, understanding of BLS, appreciation of their job as a doctor, motivation for further learning and whether they recommend their juniors to attend this program was rated as 5 or 4 by most of the students (Table 1). 93.2% of the students said that they will definitely recommend their juniors to attend this program (Figure 2).

In the third part which was regarding balance or structure of the program most of the students found that the balance between input sessions, activities, video and discussion was good, their queries were addressed properly, 86.3% of the students rated their confidence level as 5 or 4 on Likert scale (Figure 3) and 64.4% students rated this program overall as excellent (5=excellent)(Table 2).

In the fourth part of feedback, regarding trainer, the students were happy with his knowledge, preparation and organization of session, his style and delivery of the lecture and he managed to create a good learning environment (Figure 4).

In the last part of feedback the responses to the open ended questionnaire were compiled. The main strength of the workshop according to majority of students was that they realized the importance of BLS in addition to learning and practicing CPR skills on the mannequin. Other strengths were effective interaction and positive learning environment and motivated instructors. In addition to this students liked that were encouraged and appreciated for their responses.

Regarding weaknesses of this orientation program, majority of the students found that time was too short for the workshop and mannequin used was a basic one. Many of the students also found that the time given to practice the steps of AED use was too less.

In response to the last open ended questionnaire regarding suggestions for improving such programs in future, the first and foremost suggestion from almost all the students was to increase the time for the workshop so that they can get more time for hands on session. Students also suggested that more time should be devoted to understand the working of AED. Another suggestion from students was to use better mannequins with feedback device for training. Students also suggested the use of audio-visual aid during hands on session so that they can get the good view on the screen while others are performing the steps on the mannequin. The students also suggested teaching the BLS in bat ches rather than the whole batch at once and some time gap should be given after every session to discuss the topic among them.

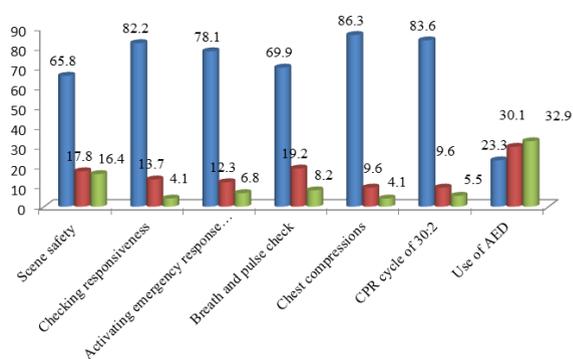


Fig. 1: Learning experience of medical students

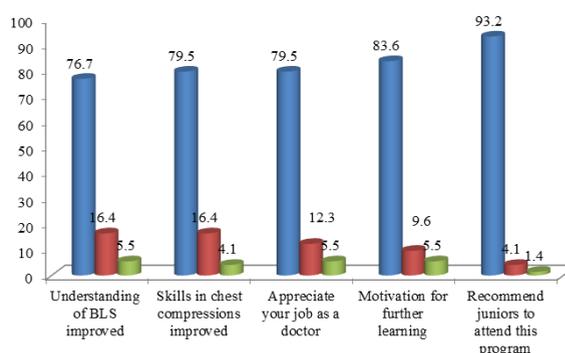


Fig. 2: Reactionnaire of medical students

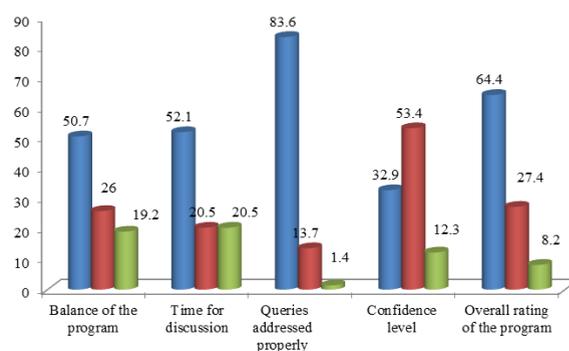


Fig. 3: Structure of the program

3.1. Motivation for further learning

4. Discussion

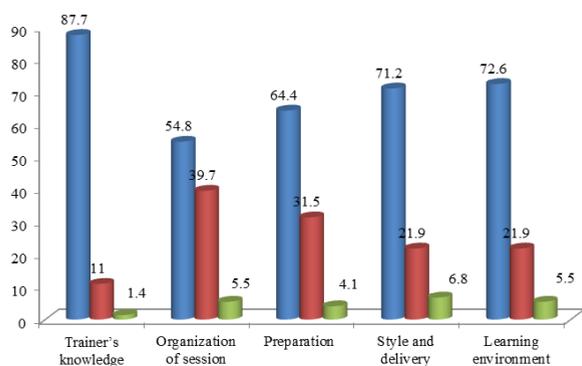
In the present study our aim was to evaluate the orientation program based on student's feedback to enable reflection and identification of future changes required. Program evaluation is defined as the systematic process of collecting, analyzing, and interpreting information that enables judgments to be made about the value of a program and its effectiveness and/or efficiency in achieving a set of outcomes.⁷ Program evaluation can find out " what

Table 1: Students' responses to feedback questionnaire on Likert scale

Learning Experience	Likert Scale				
	5	4	3	2	1
Scene safety	48(65.8%)	13(17.8%)	12(16.4%)		
Checking responsiveness	60(82.2%)	10(13.7%)	3(4.1%)		
Activating emergency response system	57(78.1%)	9(12.3%)	5(6.8%)		2(2.7%)
Breath and pulse check	51(69.9%)	14(19.2%)	6(8.2%)		2(2.7%)
Chest compressions	63(86.3%)	7(9.6%)	3(4.1%)		
CPR cycle of 30:2	61(83.6%)	7(9.6%)	4(5.5%)	1(1.4%)	
Use of AED	17(23.3%)	22(30.1%)	24(32.9%)	4(5.5%)	6(8.2%)
Understanding of BLS improved	56(76.7%)	12(16.4%)	4(5.5%)		1(1.4%)
Skills in chest compressions improved	58(79.5%)	12(16.4%)	3(4.1%)		
Appreciate your job as a doctor	58(79.5%)	9(12.3%)	4(5.5%)	1(1.4%)	1(1.4%)
Motivation for further learning	61(83.6%)	7(9.6%)	4(5.5%)	1(1.4%)	
Recommend juniors to attend this program	68(93.2%)	3(4.1%)	1(1.4%)	1(1.4%)	
Balance of the program	37(50.7%)	19(26.0%)	14(19.2%)	3(4.1%)	
Time for discussion	38(52.1%)	15(20.5%)	15(20.5%)	2(2.7%)	3(4.1%)
Queries addressed properly	61(83.6%)	10(13.7%)	1(1.4%)	1(1.4%)	
Confidence level	24(32.9%)	39(53.4%)	9(12.3%)	1(1.4%)	
Overall rating of the program	47(64.4%)	20(27.4%)	6(8.2%)		
Trainer's knowledge	64(87.7%)	8(11.0%)	1(1.4%)		
Organization of session	40(54.8%)	29(39.7%)	4(5.5%)		
Preparation	47(64.4%)	23(31.5%)	3(4.1%)		
Style and delivery	52(71.2%)	16(21.9%)	5(6.8%)		
Learning environment	53(72.6%)	16(21.9%)	4(5.5%)		

Table 2: Chest compressions correlation with various parameters

S. No.	Domain	Spearman correlation r value	P value
1.	Checking responsiveness	0.282	0.016
2.	Breath and pulse check	0.274	0.019
3.	CPR cycle of 30:2	0.260	0.026
4.	Use of AED	0.404	0.000

**Fig. 4:** Trainer's evaluation by medical students

works" and "what does not work".⁸ In other words program evaluations are conducted to make programs better. This BLS orientation program was conducted for fresh M.B.B.S. entrants as per the MCI vision 2015 document. The overall rating for the program was good. First and foremost they realized the importance of BLS. Most of the students

learned a lot about the steps of BLS. Their knowledge of BLS as well as skills in chest compressions improved. Moreover this program helped them to understand their job as a doctor and motivated them for further learning. 86.3% students felt confident in BLS after training. In our study main focus was on core competency skill of chest compressions, as these are most important in initial few minutes and can be started immediately. In fact recent Indian guidelines on BLS by laypersons outside the hospital emphasize only on chest compressions.⁹

Analysis of the responses to open ended questionnaire revealed that many students found the time for workshop was too less, mannequin was not good and AED was not discussed in detail. However, the methods suggested for further improvement were the main outcomes of this feedback evaluation. First suggestion by most of the students was to increase the time of workshop so that they get more time for hands on session. Though each student was given a chance to practice the skills and simultaneous feedback was given by the instructor to improve the skills but they want that after learning the correct technique they

should practice it again on the mannequin. Secondly most of the students wanted more time for AED. Because of time constraint our focus was mainly on chest compressions since these are most important. But had enough time been there, each student individually could have demonstrated the appropriate use of AED after learning its role for defibrillation. Another suggestion from the students was to have better mannequin. In our program we had BLS mannequin without feedback system. A mannequin with a feedback device significantly improves the CPR skills acquisition.¹⁰ The use of camera as suggested by students will definitely provide a better view as students will be able to see the steps of CPR clearly even from a distance, specially the correct hand position while performing chest compressions. Based on these suggestions we will try to modify our BLS orientation program for the next academic session with the support from the administrative authorities. Students' feedback will be a regular component of our orientation program in future also so as to make this program better and achieve our aim of making a medical student confident in performing BLS. In fact we are planning to take faculty's perspectives into account from the next session as has been done in another study so as to further improve this orientation program.¹¹

5. Conclusion

It can be concluded from the results of this study that the orientation program was really helpful to fresh entrants in improving their knowledge, learning skills and developing right attitude from the beginning to save the life of a cardiac arrest victim. Though program was rated as good on most of the parameters but feedback evaluation from the students will go a long way in making this program better in future.

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