

Correlation and Impact of workshops on Basic Life Support (BLS) with the Knowledge of Participants

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ABSTRACT

Objective: To determine the Importance of workshops on Basic Life Support.

Study Design: Cross sectional study.

Place and Duration: Study was conducted at the Department of Pathology, Fazaia Medical College from Nov 25th 2022 to March 1st 2023.

Methodology: To determine and evaluate the knowledge of the participants before and after the training, they were asked ten questions about Basic Life Support. The survey was conducted among the health education department of Fazaia Medical College, Islamabad. Same questions were asked before the workshop and after workshop. Afterwards, the percentages of correct answers were calculated and subsequently, paired t test was applied to determine any improvement in participant knowledge for Basic Life Support. The answers were compared and the final results were concluded.

Results: Work shop improved the knowledge of the participants about Basic Life Support by 27%.

Conclusion: BLS workshop increased the knowledge and learning of the participants.

Keywords: Basic Life Support, Workshops, Training, Medical, Health Education.

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INTRODUCTION

Basic Life Support is comprised of various medical procedures which are provided to a patient suffering from life threatening injuries. Basic Life Support training teaches essential skills which when implemented thoroughly can save a lot of lives. When taught by skilled professionals and with proper and repeated

practice, they can be most effective^{1,2}. Additionally, fast and structured patient management is really important for a patient's outcome in case of an emergency.

Generally, Basic Life Support doesn't provide drugs or medicines and doesn't involve any invasive skill. Moreover, BLS can be provided by trained medical personnel, including paramedics, emergency medical technicians and by any qualified bystanders^{3,4}. Basic Life Support primarily involves the recognition of sudden cardiac arrest signs and symptoms, stroke, myocardial infarction (heart attack) and foreign body airway obstruction. One major component is Cardiopulmonary resuscitation (CPR) and also defibrillation which is commonly done by an automated external defibrillator. CPR has further two subtypes. The first one is known as Hand only CPR in which basically we thrust or push the chest rapidly. While the second one, also known as CPR with breaths involves chest compression as well as mouth to mouth breathing. This procedure can provide oxygen to the blood^{3,5}.

The most common type of emergencies with serious consequences for examples incidents related with heart like cardiac arrests can be appropriately managed by simple skills and maneuvers. Additionally, urgent CPR can increase the chance of survival up to three-fold. Thus, it is extremely important that people present at such a situation have appropriate knowledge of resuscitation, maneuvers and skills⁶. BLS, generally, involves chest compression and pulmonary ventilation (also known as Cardiopulmonary resuscitation). CPR involves the assessment and management of Airway (A),

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Breathing (B), Circulation (C) and Disability (D). One of the first procedures to adopt during any emergency situation is to assess any danger and remove the person from any such situation. The second step is to check the response or the level of consciousness in the victim, which is defined in the form of an acronym AVPU (Alert, Verbal, Pain, Unconscious). In the next step we make sure that airway is patent; otherwise, we need to perform Jaw Thrust maneuver. The final step involves the checking the breathing rate. If rate is below 12 or even lower, then further assessment and management is indicated.⁷

Although, understanding and learning BLS techniques is a bit challenging task but its proper application can certainly reduce the mortality rate globally. So, workshops can play a crucial role in enhancing the knowledge of the participants regarding Basic Life Support⁸⁻¹⁰.

To refreshing the knowledge of Basic Life Support among doctors, nurses, medical students and staff workshops should be conducted as routine in hospitals and medical colleges.

METHODOLOGY

The study was conducted at the Department of Pathology, Fazaia Medical College from Nov 25th 2022 to March 1st 2023. It was cross sectional and it was designed to conduct the BLS workshop in Fazaia Medical College and all basic sciences faculty demonstrators, assistant professor, associate professor and professors were the participants. Undergraduate Students and the lower clerical staff member were amongst the exclusion criteria of the study. Questionnaire was designed and IRB (IBD/FMC/1341/2/IRB) approval was taken and all 94 participants were included in the study after written consent. Non probability consecutive sampling technique was used.

There are ten questions that have been asked from the participants about Basic Life Support to assess the knowledge of the participants before the training and after the training. The correct answers percentages were calculated before and after the training. Following were the details of ten questions asked for study proceedings. What is the abbreviation of "BLS? If you confirm someone is not responding even after shouting and

shaking, what will be your immediate action? What is location for chest compression? Depth of compression in adult during CPR? Rate of chest compression during CPR? What does abbreviation AED stand for? What does abbreviation EMS stand for? Where should to perform a pulse check in adult? In which position chest compressions are given to cardiac arrest position? Opening the airway is done in trauma victims by which position?

Data Analysis: The SPSS version 24 was used for the data analysis. Frequencies were calculated in term of percentages. A paired t- test was applied to observe any improvement about the knowledge of participants for BLS.

RESULTS

Total 94 participants were included in study. Mean age was 35 years the graph1 shows a positively skewed distribution of the age of participants. It means that most of the participants are young and have age between 22 years and 35 years (Fig-1).

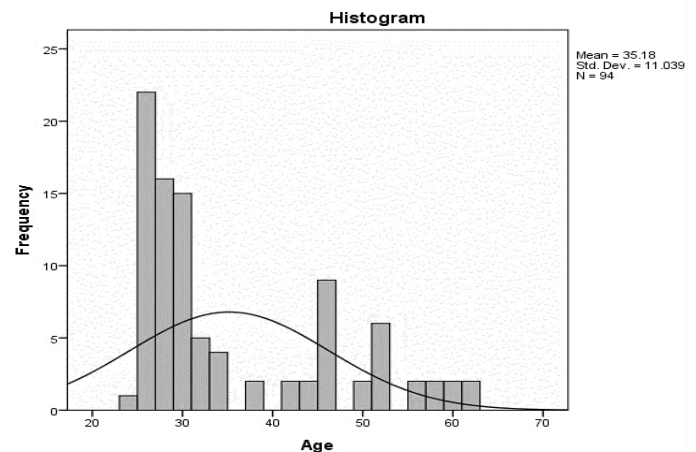


Figure-1: Age distribution of the participants (N=94)

The Table-I shows questions, frequencies of correct answer of all ten asked questions with their percentages before and after the workshop

Table I: Percentage of Correct answers before and after workshop

Questions	Pre Training Results			Post Training Results		
	Correct Answers	Incorrect Answers	%Correct Answers	Correct Answers	Incorrect Answers	%Correct Answers
1. What is the abbreviation of "BLS?	41	3	93	44	6	88
2. If you confirm someone is not responding even after shouting and shaking, what will be your immediate action?	17	27	39	34	16	68
3. What is location for chest compression?	25	19	57	44	6	88
4. Depth of compression in adult during CPR?	25	19	57	37	13	74
5. Rate of chest compression during CPR?	13	31	30	29	21	58
6. What does abbreviation AED stand for?	2	23	48	46	4	92
7. What does abbreviation EMS stand for?	19	25	43	43	7	86
8. Where should to perform a pulse check in adult?	31	13	70	50	0	100
9. In which position chest compressions are given to cardiac arrest position?	33	11	75	35	15	70
10. Opening the airway is done in trauma victims by which maneuver?	9	35	20	38	12	76

The fig - 2 shows a positive change of correct answers. We can see that there is an increasing trend of correct answers percentages after the training, which shows an improvement of the knowledge of the participants after the training.

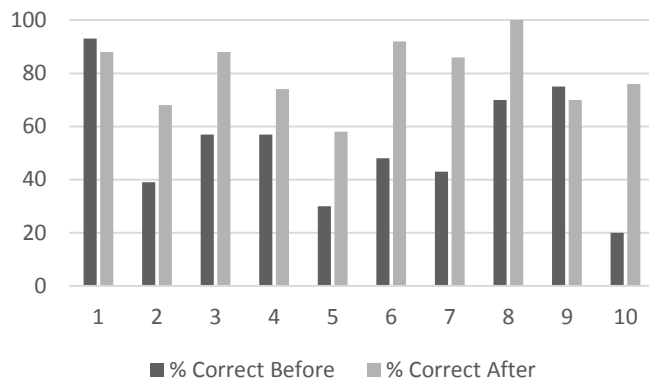


Figure-2: Bar chart of percentage of correct answers before and after the training

Paired t test was applied to test the significance of the workshop. The point estimate of differences in mean of correct answers percentages before and after workshop shows an approximately 27% increase in correct answers after the training. The percentage after the training is 80% which considered good enough.

Table - II: Paired Samples Test

	Mean	-26.8
Paired Differences	Std. Deviation	19.899
	Std. Error Mean	6.292
95% Confidence Interval of the Difference	Lower	-41.035
	Upper	-12.565
t		-4.259
df		9
Sig. (2 tailed)		0.002

Table II shows a high t value and a low p value which shows that the results are significant. It also shows that the workshop has a significant effect on the knowledge of the participants of the workshop. It means that work shop improved the knowledge of the participants about Basic Life Support by 27%. Before attending the training, they have only 53% knowledge but after the workshop it have been improved to 80%, a 27% increase.

DISCUSSION

Basic Life Support (BLS) training teaches crucial skills which can save a lot of lives when implemented thoroughly. BLS can be provided by trained medical personnel including paramedics, emergency medical technicians and by any qualified bystander. The major component of BLS is Cardiopulmonary resuscitation (CPR) which has two further subtypes. Additionally, CPR involves the assessment of Airway (A), Breathing (B), Circulation (C) and Disability (D). BLS trainings can effectively enhance the

knowledge of the participants regarding various life threatening injuries and can resultantly reduce the mortality rate in such scenarios.

The Basic Life Support training leads to an improvement in the knowledge and learning of the participants. So, there were 10 specific questions asked from the participants before the training and similarly after the training. Most of the participants were young and aged between 22 and 35 years as depicted by a positively skewed distribution on graph I. Subsequently, the results were calculated which showed an upward or increasing trend of correct answer percentages. For example, a 27% increase was observed in correct answers after the training.

As the bar chart shows, apart from the first question, the correct percentage after workshop vastly improved in rest of the nine questions. To explain, the correct percentage of second question saw a rise of 39% after the workshop. Additionally, all the other questions saw a substantial increase in correct percentages after the workshop which indicate the effectiveness of the workshop on the knowledge of the participants

These results coincide with a similar research carried out by in which BLS knowledge was assessed and compared between medical students and laymen. The medical students and the participants who already attended the workshops performed better for both the 10 question score (mean 5.8, SD 1.7 vs mean 4.2, SD 1.7; $P < 0.001$) and 6-question score (mean 3.0, SD 1.1 vs mean 2.0, SD 1.0; $P < 0.001$).¹¹ So, this indicates that workshop did impact the knowledge of participants, validating the results of our study.

Similarly, another research which aimed to investigate the effectiveness of continuing BLS education using telegram showed similar results and observations.¹²

Selmin Kose along with his colleagues also conducted a similar study in which effectiveness of BLS training on nursing students' knowledge was assessed.¹³ After BLS training, level of practical skill scores and knowledge were higher as compared to pre-training scores ($t = -12.442$, $p = 0.000$; $t = -22.899$, $p = 0.000$). Thus this proves the results of our study that post training effectiveness is remarkable.

Similarly, a cross-international study by Katarzyna and colleagues further validate the results. In their study, participants from three different countries participated as compared to our study in which only participants from a single country took part; however, the end results were more or less similar and concluded that first aid training have a major impact on the knowledge of the participants¹⁴

The high t value and low p value in our study sample demonstrate that results are significant. The study conducted by Helene on the effectiveness of web based education in addition to BLS learning activities also had a statistically significant higher score and low p value.¹⁵

CONCLUSION

BLS workshop increased the knowledge and learning of the participants.

The results concluded that workshops are very essential to improve the knowledge of people working in health departments. As per the results it is confirmed that the knowledge of

participants after attending the workshops was increased as compared to their previous information. The rise in post workshop knowledge is clearly evident.

AUTHOR'S CONTRIBUTION

Hashim R: Conceived Idea, Designed Research Methodology.

Waseem H: Data Collection, Literature Review, Data Interpretation, Statistical Analysis, Manuscript Writing

Hashim S: Literature Search, Data Collection.

Niazi A: Manuscript final reading and approval

Shahid S: Designed Research Methodology

Khadija S: Data Interpretation, Statistical Analysis

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