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Knowledge Acquisition on Basic Life Support Among Healthcare Professionals: An Outcome of Comprehensive Skill-Based Workshop

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ABSTRACT
Basic life support is a lifesaving intervention in a management of life-threatening emergencies. All healthcare professionals should have sufficient knowledge and mindfulness about BLS and cardiopulmonary resuscitation which is mandatory nowadays to work in the health care settings. The objective of the study, to determine the outcome of comprehensive skill-based workshop on knowledge regarding basic life support among healthcare professionals. A quantitative approach, pre-experimental one-group pre-post-test research study was conducted among the 120 healthcare professionals which were selected though the purposive sampling techniques. Sociodemographic information, and a self-structured knowledge questionnaire tools were used to collect the study data. Data collection was conducted before and after the completion of a comprehensive skill-based workshop on Basic Life Support (BLS). The session lasted for 90 minutes and data was analyzed using SPSS 25.0. Study findings showed that there were statistically significant differences in the sum scores of the pre-test and post-test for knowledge scores [Pre-test: 13.608 (4.13), Post-test: 19.808 (3.20) (p0.05). There is a significant difference between the calculated and tabulated t values at 119 degrees of freedom, with sociodemographic variables Education Qualification of Participants showing a significant association with knowledge scores. A main finding of this study revealed that, participants were able to learn and improve their knowledge on BLS through comprehensive skill-based workshop on BLS. Furthermore, participants' knowledge of BLS improved after participating in skill-based workshops.

Keywords: *Basic Life Support, Cardiopulmonary Resuscitation, Skill-Based Workshop, Knowledge and Healthcare Professionals.*

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INTRODUCTION

Basic Life Support (BLS) refers to a care delivered by skilled health care professionals to patients who are suffering with respiratory arrest, cardiac arrest, or airway obstruction as well as in life threatening condition in hospital or outside hospital settings [1].

Basic life support is a lifesaving intervention in a management of life-threatening emergencies. All healthcare professionals should have sufficient knowledge and mindfulness about BLS and cardiopulmonary resuscitation which is mandatory nowadays to work in the health care settings [2]. In the situation of an emergency, fast and organised patient management is crucial for a patient's outcome [3].

Early identification and prompt action of intervention in cardiac arrest situation by performing CPR are the bases of BLS, which is helpful to save victim life and further complications after cardiac arrest[4].

There were many challenges to improve the basic life support (BLS) skills in healthcare professionals, some being rather successful, some less [5].

BLS consist of providing medical intervention with proper airway, breathing and circulation through CPR steps which can be helpful to manage the restoration of cardiac and respiratory functions after cardiac arrest [6, 7].

According to the evidences and report of training program on BLS, training to the health care professionals is helpful in the healthcare settings to save and early recovery of the victims suffered from the cardiac arrest [8, 9].

MATERIAL AND METHODS

A quantitative approach, pre-experimental one-group pre-post-test research study was conducted among the 120 healthcare professionals which were selected though the purposive sampling techniques. A self-

structured knowledge questionnaire on Basic Life Support (BLS) was used to collect the knowledge of participants. The skill-based workshop was conducted through theoretical and hands-on sessions on basic life support components by AHA-certified trainer in basic and advanced life support. There was a 30-minute theory session conducted on chain of survival (recognizing a cardiac arrest, calling for an automated external defibrillator [AED], performing BLS, and the importance of public access to defibrillation by using an AED) as well as a 60-minute hands-on training session. At the end of the practical and theory session debriefing of the whole workshop were conducted by the instructors. Statistical Package for the Social Sciences (SPSS) Version 25.0 was used for study data analysis. In order to analyze the data, descriptive and inferential statistics were applied. Descriptive statistics were used to present demographic information, and frequency, percentage, mean, and standard deviation were used to assess knowledge level. There was an analysis of inferential statistics (paired 't'-test to estimate the effectiveness of the skill-based workshop, and a chi-square test to determine an association between pre-test levels of knowledge about basic life support and the socio-demographic variables of the participants).

RESULTS

Section- I

Findings related to the demographic data of the participants

Sr. No.	Socio-Demographic Variable	Frequency	Percentage (%)
1	Age (In Years)		
	17 To 24	108	90%
	25 To 30	9	7.5%
	More Than 30	3	2.5%
2	Gender		
	Male	24	20%
	Female	96	80%
3	Education Qualification		
	UG student	80	66.7%
	PG student	29	24.2%
	Faculty member	5	4.2%
	Staff Nurse	6	5%
4	Religion		
	Hindu	94	78.3%
	Muslim	20	16.7%
	Christian	6	5%
5	Previous Knowledge about BLS & CPR		
	Yes	110	91.7%
	No	10	8.3%
6	Types of Residential Area		
	Urban	86	71.7%
	Rural	31	25.8%
	Other	3	2.5%

Table 1: Findings related to the demographic data of the participants (n=120)

The data presented in Table 1 shows that among the participants, the maximum participants 108 (90%) belonged to the 17-24 years age group, 9 (7.5%) participants were in the age group of 25-30 years and 3 (2.5%) have belonged to more than 30 years of age group. Data also demonstrate that the majority of participants were Female 96(80%) and only 24(20%) were Male.

The results indicate that the majority of the sample population, comprising 66.7%, are UG students, with a total of 80 individuals falling into this category. The next largest group is PG students, representing 24.2% of the sample with 29 individuals. Faculty members account for a smaller portion, with 4.2% of the sample population comprising 5 individuals. Lastly, staff nurses make up 5% of the sample, comprising 6 individuals.

Data also despites that 94 (78.3%) of participants were follow Hindu Religion, 20 (16.7%) were Muslims and only 6 (5%) were Christian. (110) 91.7% of participants had previous knowledge regarding Basic Life Support and cardiopulmonary resuscitation and 10 (8.3%) did not. A total 86 (71.7%) population from Rural area, 31 (25.8%) population were from urban area and 3 (2.5%) were from other.

Section- II

Findings related to knowledge of participants regarding basic life support (BLS) before and after comprehensive Skill-Based Workshop.

Data presented in Table 2 comparison of the Pretest and Posttest Knowledge Scores of participants. The knowledge score of participants improved in the posttest after the intervention of Skill-Based Workshop on Basic Life Support (BLS) as compared to the pretest. The Calculated 't' value at 119 degree of freedom 37.49 (1.65) is <0.05 level of significance. Skill-Based Workshop is significant in increasing the knowledge of Participants.

Table 2: Comparison of the Pretest and Posttest Knowledge Scores of participants (n=120)

Knowledge Score	Mean	SD	df	Calculated 't' Value	't' Table Value	p-value
Post-test	19.8083	3.20	119	1.65	37.49	0.0001
Pre-test	13.5083	4.13				

Section- III

Findings related to the association of the demographic variables with the pretest knowledge score.

Table 3 shows the Chi-square analysis revealed that calculated p-value is less than 0.05 level of significance hence there was a significant association between participants knowledge regarding Basic Life Support and socio-demographic variable (education qualification). If the calculated p-value is greater than 0.05 level of significance hence, there was no significant association between participants knowledge regarding Basic Life Support and socio-demographic variables like Age, Gender, Religion, type of residential area and previous knowledge regarding BLS & CPR

Sr. No.	Socio-Demographic Variable	F Poor	F Average	F Good	χ^2-square value	P value
1	**Age (In Years)**					
	17 To 24	13	77	18		
	25 To 30	1	5	3	2.300	0.68
	More Than 30	0	2	1		
2	**Gender**					
	Male	5	15	4	2.447	0.29
	Female	9	69	18		
3	**Education Qualification**					
	UG student	7	60	13		
	PG student	3	17	9		
	Faculty member	2	3	0	12.142	0.05*
	Staff Nurse	2	4	0		
4	**Religion**					
	Hindu	12	68	14		
	Muslim	1	13	6	4.304	0.36
	Christian	1	3	2		
5	**Previous Knowledge about BLS & CPR**					
	Yes	12	76	22	2.805	0.24
	No	2	8	0		
6	**Types of Residential Area**					
	Urban	11	58	17		
	Rural	3	23	5	1.821	0.76
	Other	0	3	0		

Table 3: Association of the demographic variables with the pretest knowledge score (n=120)

df- Degree of Freedom SD- Standard Deviation *F- Frequency* χ^2*- Chi-square df- Degree of Freedom*
** Significant*

DISCUSSION

In support of the above research findings, a cross-sectional study conducted by Babar Irfan et al. in 2019 assessed the knowledge of basic life support (BLS) among 140 doctors, nurses, and dentists in the largest city in Pakistan. The study found that only one individual (a dentist) scored 100% in the survey, and 58.3% of the population had inadequate knowledge of BLS. The average scores for doctors, dentists, and nurses were 53.5%, 43.3%, and 38.4%, respectively. Doctors, participants with prior training in BLS, and those with 6 to 10 years after graduation were significant predictors of adequate knowledge through multivariate analysis. Despite doctors having better knowledge compared to dentists and nurses, the overall knowledge of healthcare professionals was found to be extremely poor. The study concluded that there is a need for

structured training of BLS for healthcare workers to address the knowledge gaps and improve patient care outcomes [10].

In support of the above findings, A cross-sectional study conducted by Somarouthu Rajashekar, et al**.** in 2018 assessed the knowledge of basic life support (BLS) among healthcare professionals at Basaveshwara Medical College and Hospital in Chitradurga. Out of 400 participants, 388 completed the questionnaire. The results showed poor knowledge of BLS among the respondents, with 64.5% being medical students, 8.7% doctors, 10.3% nursing staff, and 16.5% nursing students. Furthermore, 76% of the participants expressed a desire for BLS to be included in the curriculum. The study concluded that awareness and knowledge of BLS are crucial for healthcare professionals who encounter such situations regularly and can play a vital role in saving lives. Thus, emphasizing the importance of BLS knowledge for healthcare professionals in their daily practice [11].

The supportive study by Gautam Prasad Chaudhary, et al. in 2023 examined knowledge regarding basic life support (BLS) among healthcare workers at a hospital in Nepal using purposive sampling. The results showed that the age group was significantly associated with knowledge (p=0.021637), while gender (p=0.990895), qualifications (p=0.9885), and work experience (p=0.840103) were not statistically significant. However, there was a significant association between previous training and knowledge (p=0.026244). Overall, the study revealed poor knowledge of BLS among healthcare professionals, emphasizing the need for standardized training and assessment to improve knowledge and skills in BLS.[12]

The workshop-based teaching strategies offers a positively measured chance to improve students' skills in identifying and handling emergencies [13].

Further studies are necessary to measure the long-term retaining of the acquired skills, as well as the outcome of workshop-based training in healthcare professionals [14].

CONCLUSION

In conclusion, comprehensive Skills-based workshop have proven to be effective methods of improving healthcare professionals' knowledge on basic life support techniques. Participants gained a better understanding of critical life-saving techniques and protocols through hands-on practice and interactive sessions. In addition to providing an overview of basic life support concepts and principles, the workshop also provided instruction on the proper assessment, treatment, and management of patients in emergency situations.[15]

This workshop demonstrated significant improvements in the ability of healthcare professionals to perform basic life support techniques, which will certainly have a positive effect on patient care. The results of this study indicate the importance of continuing education and training in the healthcare industry, and they demonstrate the effectiveness of skilled-based workshops for enhancing healthcare professionals' knowledge. We also recommend that enclosure of a BLS course in the undergraduates curriculum with regular reassessment would raise awareness and helpful to the skill retention among the health.

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