Original Article

Competency of Students regarding BLS in adult and children

Competency of Medical Students Regarding Basic Life Support (BLS) in Adult and Children: Training Need Assessment in Peshawar

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ABSTRACT

Objective: To assess the competency in term of knowledge, attitude and practices of medical students regarding basic life support and cardiopulmonary resuscitation in adult and children.
Study Design: Cross sectional study
Place and Duration of Study: This study was conducted at the multicenter based study conducted in four different public private medical colleges in Peshawar during March 2017.
Materials and Methods: A total of 249 sampled subjects were recruited in study using convenience sampling technique through self administered questionnaire. Data were analyzed using SPSS version 20.
Results: A total of 249 students (mean age 23.27 ± 0.97 years) out of whom 110 (44.2%) male and 139(55.8%) were female**.** Majority 210(84.3%) of them were aware about nomenclature of BLS and CPR, but small proportion 68(27.4%) of students were able to correctly know about "No signs of life". Nearly half of them knew the correct location of hand and rate of compression for CPR, while 30.1% were able to correctly answer questions about depth of chest compression in adults. Similar finding were also reported for children as well. Misconception was seen as 161(64.9%) considered that there is difference between child and adult BLS protocol. The attitude of student was very positive, thus 152 (61.0%) of them had attended the BLS training but still there was a need for refresher training to retain knowledge and improve the skills.
Conclusion: The competency of medical students in terms of attitude was optimal whilst the knowledge and practices needed to be refreshed through refresher training.
Key Words: Competency, basic life support, Knowledge, attitude, practices, awareness

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INTRODUCTION

Cardiac arrests and other life threatening incidents remain a significant public health problem all over the world including Pakistan.[1,2] Cardiac rehabilitation (restoration) by the trained and skilled professional averting sever adverse health consequences due to life threatening incidents such as cardiac arrest and road traffic accidents is rising worldwide.(3)To minimize the effects of these life-threatening conditions, certain type of preparedness is required such as availability of trained health care professionals for provision of timely BLS.[3] Cardiac first response (CFR) training among health professionals especially medical students is needed to be essential part of curriculum to deal with such situations as out of hospital cardiac arrests are leading to marked increase in mortality.[2] Similarly basic life support (BLS) nowadays becoming a prerequisite for doctors in many countries,[4] however in Pakistan there is lack of emphasis about the placement of BLS training in formal curriculum. The medical students competent in providing immediate life support to patients with cardiac arrest and other life threatening conditions can ensure the survival of patients long enough till he/she reaches proper medical services.[4,5] Thus an adequate competency in terms of knowledge, attitude and practices among medical students become the core norms of the health care provision. The main aim of BSL is to provide and maintain ventilation and circulation to the brain and vital organs until medical care arrive to treat the underlying cause.[6,7] Literature indicates that medical student fall short of required competencies regarding BSL.[8] Study on medical students from South India reveals that 322(61.9%) of students attributed lack of awareness about BLS, as formal curriculum did not address the theme to be part of curriculum, therefore 479(92.1%) responded that

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BLS training should be a part of medical curriculum[4]. A similar study conducted on 377 students where most(50.2%) of students were not confident of performing BLS/CPR and would be uncomfortable to be in situation that needed BLS/CPR.[9] Literature further reported that there was significant association between BLS training and knowledge scoring. In a study conducted in Saudi Arabia reveals that 28% students have participated in BLS training and their mean knowledge score was higher as compared to those who have-not attended any training in this regards. Study from Pakistan indicates that nearly 14.7% medical students have taking training regarding BLS. Overall medical students in Pakistan have poor knowledge regarding basics of BLS.[10] This study aim to assess the competency in term of knowledge, attitude and practices of medical students regarding basic life support and cardiopulmonary resuscitation in adult and children.

MATERIALS AND METHODS

This is multicenter based cross sectional study conducted in Peshawar, where students from Kabir Medical College (KMC), Khyber Girls Medical College (KGMC), Khyber Medical College (KMC), and Rehman Medical College (RMC) participated in the study.Using convenience sampling technique data were collected on self administered questionnaire during March 2017. The study population was comprised of final year students. Using WHO software for sample size calculation, based on formula given below.

$$n = \frac{z^2_{1-\alpha/2} P(1-P)N}{d^2(N-1) + z^2_{1-\alpha/2} P(1-P)}$$

The calculated sample size was (n= 249) by assuming total strength of students (N=700), 95% confidence interval, 50% anticipated population proportion 0.05 absolute precision, 0.1 relative precision. Data were analyzed using SPSS version 20.

RESULTS

A total of 249 students (mean age 23.27 ± 0.97 years)were requested and all responded positively (response rate 100%) out of whom 110(44.2%) were male and 139(55.8%) were female. Results regarding knowledge indicates that 210(84.3%) correctly demonstrated the abbreviation of BLS and CPR. Only 68(27.4%) of students were aware about "No signs of life" and 50.4% were able to correctly point out the location of hand for CPR procedure in adult. About rate of compression in adult 50.6% correctly answer the question. However 75(30.1%) know about the exact depth of chest compression in adults. Knowledge about ratio of chest compression and ventilation in adults was observed among 48.6% of student.

Table No.1: Know about the BLS and CPR in adult among participants

Knowledge about the abbreviation of BLS (n=249)			
	Correct	210	84.3
	Incorrect	25	10.0
	Don't know	14	5.6
Knowledge about the abbreviation of CPR (n=248)			
	Correct	210	84.3
	Incorrect	28	11.2
	Don't know	10	4.0
"No signs of life" means (n=248)			
	Correct	68	27.4
	Incorrect	160	64.5
	Don't know	20	8.1
Location of hands for CPR in adults (n=248)			
	Correct	125	50.4
	Incorrect	120	48.3
	Don't know	3	1.3
Rate of chest compression in adults: (n=248)			
	Correct	126	50.60
	Incorrect	113	45.38
	Don't know	10	4.01
Depth of chest compression in adults (n=248)			
	Correct	75	30.12
	Incorrect	146	58.63
	Don't know	28	11.24
Ratio of chest compression and ventilation in adults (n=248)			
	Correct	121	48.59
	Incorrect	111	44.57
	Don't know	17	6.82
Is there any difference between child and adult BLS (n=248)			
	Yes	161	(64.9%)
	No	87	35.1%
	Don't know	--	--

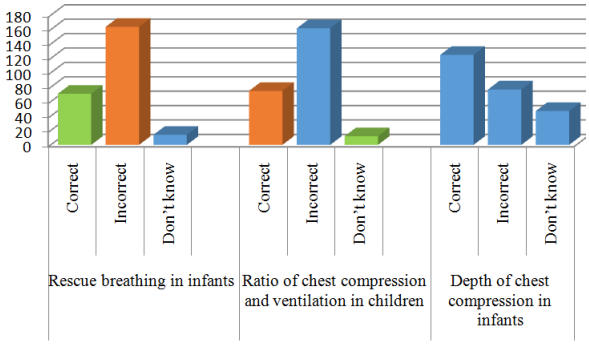

Figure No.1: Know about the basic protocol of BLS and CPR in Children

Among medical students only 77(28.5%) have correctively answered the question about rescue breathing in infants, similarly 75(30.1%) were aware about ratio of chest compression and ventilation in children, while 125(50.2%) correctly answer about Depth of chest compression in infants. Furthermore, 161(64.9%) reported that there is difference between child and adult BLS.

The attitude of medical students was sportive as most 237(95.2%) of them believe that learning about BLS is important for a medical student. Similarly, 239(96.0%) were of the view that BLS should be integrated in the medical curriculum both undergraduate and postgraduate level. Majority 232(93.2%) of them consider that the BLS knowledge saves one's life.

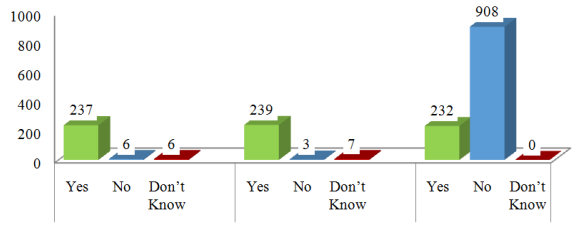

Figure No.2. Attitude of medical students about BLS

Regarding the practical aspects of BLS, 152 (61.0%) of students have attended the BLS training, 42(17.2%) of them have practically performed on patients and 9(3.8%) of them have saved the life of patients. A high proportion 152 (61.0%) of students in Peshawar were trained.

Table No.2: training status and practices of BLS services in medical students

Questions related to Attitude	Responses	
	Yes	No
	f(%)	f(%)
Have You Ever Attended BLS Session(n=245)	152 (61.0%)	93(37.3%)
Have you ever performed BLS? (n=244)	42(17.2%)	202(82.8%)
Do you feel confident in initiating BLS procedure? (n=208)	103(49.5%)	105(50.5%)
Have you ever saved any body's life by doing BLS procedure? (236)	9(3.8%)	227(96.2%)

DISCUSSION

Health care providers should be well versed in terms of knowledge and skills related to basic life support services to deal with the emergencies. However, retention of knowledge and skills remained a crucial problem among health care providers. Medical students are considered the future doctors and they could play important role in dealing with the casualties in community. Keeping the importance of BLS and CPR, students are keen to take part in the training sessions pertaining to BLS. This study was aimed to determine the competency level in term of knowledge attitude and practices of medical students regarding Basic life support among adult and children. The results of present study could be used as baseline for planning of capacity building among medical students studying in different medical colleges of Peshawar. The present study revealed that majority 210(84.3%) of students know the abbreviation of BLS and CPR. However, only 68(27.4%) of students were aware about "No signs of life"and this was very low as compared to other health care professionals. A study from Nepal indicates that 65% of medical and paramedical staff could recognize “no signs of life”.[11] Nearly half (50.4%) of students in present study correctly pointed out the location of hand for CPR procedure in adult. Furthermore 50.6% and 30.1% had correctly answered questions about rate of compression and depth of chest compression in adults respectively. Less than half of students (48.6%) know about ratio of chest compression and ventilation in adults. This result gives an impression that the medical students have suboptimal knowledge about the basic principles of BLS and CPR. These findings were in consistence with study conducted in Karachi Pakistan where they also found that medical students were awarded about BLS but they had poor practical knowledge.[10] This indicates that students have less opportunity to do hands on practice to develop the skills. Knowledge of medical students about the same parameters of BLS/CPR for children was also low, 161(64.9%) considered that there is difference between child and adult BLS protocol. Study from Jazan University Saudi Arabia also revealed similar results.[12] They reported complete knowledge of BLS (CPR) among medical students. It was also found that students who took part in the formal training of BLS had good knowledge.[13] The attitude of medical students in the present study was found sportive as most them were of the view that learning about BLS is important and should be integrated in the medical curriculum because the BLS knowledge saves one's life. These finding also supported in other researches.[14-17] Regarding the practical aspects of BLS services, majority 152 (61.0%) of students have attended the BLS training, 42(17.2%) of them have practically performed on patients and 9(3.8%) of them have saved the life of patients. Result of present study indicate that 152 (61.0%) of medical students had attended BLS course. This indicates that in comparison to other areas, medical students in Peshawar are very keen to be trained in BLS.[10-13] This indicate that medical students knows the important of BLS and hence taking part in the BLS session, which are then practiced in community to save the lives of people during medical emergencies. University also recognizes the importance of BLS training thus formally arranging training for medical students.[18-20]

CONCLUSION

The medial students in Peshawar are aware of CPR/BLS, thus majority had attended the training session but still retention of knowledge about the basic principle of CPR/BLS for adult and children was not optimal, however student had very positive attitude

towards CPR/BLS. Students recommended that this should be incorporated in the medical curriculum.

Author's Contribution:

Concept & Design of Study:	Saminullah Khan
Drafting:	Atta ullah Jan
Data Analysis:	Sher Bahadur
Revisiting Critically:	Gohar Rehman
Final Approval of version:	Rizwan Anwar

Conflict of Interest: The study has no conflict of interest to declare by any author.

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