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## **Annals of Community Medicine and Practice**

#### **Research Article**

# Basic Life Support: Knowledge and Attitude of Medical Students

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#### Keywords

 Basic life support; knowledge; Attitude; Undergraduates; Training; Survival

#### Abstract

**Background:** Basic life support (BLS) is defined as medical procedures and skills that can be utilized in case of emergency to save lives. It is a key component of chain of survival, decreases the cardiac arrest, CPR interval, and increases the rate of hospital discharge. CPR is a part of emergency medical care. Timely provision of Basic Life Support (BLS) saves life.

Objective: The objective of our study is:

- To assess BLS knowledge of students of Allama Iqbal Medical College, Pakistan
- To assess attitude of students of Allama Iqbal Medical College, Pakistan regarding BLS

Study design: It is a cross sectional study.

Study setting: Allama Iqbal Medical College, Pakistan.

Duration: Three months (April-June), 2016.

Inclusion criteria: All medical students, both hostilities and day scholars of Allama Iqbal Medical College from first year to final year Bachelor of Medicine and Bachelor of Surgery (MBBS), including both genders.

Data collection and analysis: An informed consent was taken and got signed from 300 medical undergraduate students on assurance of confidentiality. The following parameters were noted through a constructed questionnaire of all medical students included in the study; personal and socio demographic data such as age, sex, class, knowledge, attitude, level of training and previous exposure to Basic Life Support (BLS).

**Results:** The mean age of the respondents was 20.5700 with Standard deviation (SD) of 1.52. Out of the 300 study subjects, 243 students (81%) have heard about BLS while 57 students (19%) haven't heard about BLS (Graph no: 3). 239 students (79.67%) have the idea regarding correct abbreviation of BLS while others have no idea (Graph no: 4). 94.3% students think BLS knowledge is useful for daily life incidents, and 20.3% don't think so. 44.3% students have seen BLS done on some patients and 9.6% have not seen it. 13.4% students have also performed BLS on some patient and 2.9% have not performed (Table no: 2).

Conclusions: Knowledge about BLS needs to be improved and conferences, seminars must be organized to increase awareness about BLS.

#### **ABBREVIATIONS**

BLS: Basic Life Support; MBBS: Bachelor of Medicine and Bachelor of Surgery; CPR: Cardio Pulmonary Resuscitation; SD: Standard Deviation

#### **INTRODUCTION**

Basic life support is defined as medical procedures and skills that can be utilized in case of emergency to save lives [1]. It is a key component of chain of survival; decreases the arrest, and increases the rate of hospital discharge [2]. Cardiopulmonary resuscitation is a part of emergency medical care [3]. Timely provision of BLS saves life. CPR invented in 1960 is a simple but effective procedure that allows almost anyone to sustain life in early critical minutes after cardiac and respiratory arrest. In 1966, the American Heart Association developed the first CPR guidelines which have been followed by regular updates [4]. Knowledge of BLS is an absolute necessity for all medical professionals to face acute medical emergencies [1]. BLS includes recognition of signs of sudden cardiac arrest, heart attack, stroke, foreign body airway obstruction, and automated external defibrillator [5]. BLS procedures include CPR, bleeding control,

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artificial ventilation and basic airway management [6]. One of the objectives at graduation as stated in blueprint version 2009 is proficiency in BLS [7].

According to study given in world journal of emergency medicine, when the participants are inquired about resuscitation training during graduation, 83(69%) of them had no training at all and 27(22%) had received some training within last 5 years. 28(23%) of participants had not been involved in patient resuscitation [2].

According to another study among medical students at Ziauddin University Karachi, Pakistan, 34(27%) trained and 28(22.4%) untrained students could tell that they have to put a patient with convulsion in recovery position to avoid any aspiration and tongue rolling. 38(30.4%) of both trained and untrained expressed that they would give plenty of water to a patient who has accidently ingested acid. Maximum number of correct answer for trained students was 11 and minimum 4 with the mean of 6.13 ± 2.1 questions [8]. In Saudi Arabia, a study was carried out and it was stated that no student had completed 10% knowledge in BLS among respondents. Only 2 out of 144 students (1.38%) had secured 70-79%. 10 out of 144 responders (6.94%) had secured 60-69%. 35 of 144 (24.30%) secured 50-59%. 97 responders (67.36%) had secured less than 50%. The mean score was 39.7% showing overall poor knowledge of medical students about BLS [6]. In a Study by Harsha Kumar in India, majority (84.6%) of the students had heard of the fact, 37.8% felt that CPR should be administered to unconscious person with normal palpable pulses and respiration, and 39.5 % only knew the fact the correct order for performing CPR. Students had adequate overall understanding about the response to a situation where CPR is needed [3]. Health professionals should have sound CPR knowledge and skills but there is major problem with retention of skills and outdated information. Average health personnel in our centre lack adequate knowledge in CPR which should be addressed promptly. CPR should be a core competency across our health care professional programs. Poor awareness among medical students about basic life support is a matter of great concern. The presence of trained rescuer is a key determinant of ultimate life saving skills that is to take right decision to foster these skills for medical students which can be reinforced in succeeding years [9]. However, BLS and resuscitation training is not routinely practiced in low income countries like Pakistan, and there is still no standard of care regarding emergency situations. Hence, in Pakistani scenario, doctors working in casualties of private sector and government sector hospitals will handle most of the emergencies. We carried out this study with the aim to assess the knowledge, awareness, and attitude of students of Allama Iqbal Medical College, Pakistan towards BLS and devise necessary recommendations about the lack of BLS knowledge.

#### **MATERIALS AND METHODS**

#### **Study design**

Cross sectional study

#### **Study setting**

Study was done at Allama Iqbal Medical College, Allama Shabir Ahmad Usmani Rd Lahore, Pakistan. The Institutional Ethical Committee of Allama Iqbal Medical College gave the ethical clearance.

#### **Duration of study**

• Three months

Sample size

300 students of AIMC Lahore

#### **Sampling technique**

• Non probability / purposive sampling

#### Sample selection

**Inclusion criteria:** Sample was collected from all undergraduate medical students, both the hostilities and day scholars of Allama Iqbal Medical College, from first year MBBS to final year MBBS, including both genders. We included the first and second year students to assess their awareness about BLS/ CPR skills along with the students from clinical years (3<sup>rd</sup>, 4<sup>th</sup>, final).

**Exclusion criteria:** All debarred students in 1<sup>st</sup> to Final year MBBS were not included. Similarly interns, nursing faculties and dentistry students were excluded.

#### Data collection and analysis procedure

Informed consent was taken from those willing to participate and got signed from 300 medical students on assurance of confidentiality. After recruiting the study subjects on the basis of above mentioned criteria, we explained the purpose of study to each and every individual. The following parameters were noted through a self prepared 20-questioned based questionnaire of all medical students included in the study; personal and socio demographic data such as age, sex, class, knowledge, attitude, level of training, and previous exposure to Basic Life Support. A pilot study was conducted to assess the questionnaire, taking the help from Community Medicine Department faculty, who accordingly made the needed corrections. The statistical analysis was carried out using SPSS software version 20.0.

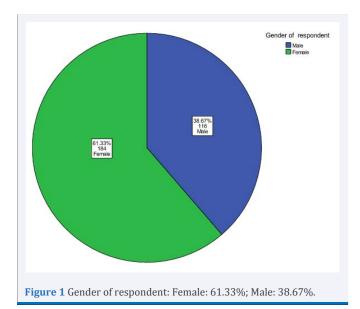
#### RESULTS

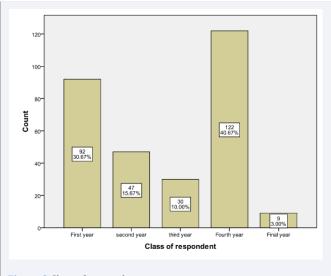
After collecting data, the values were statistically analyzed and tabulated. The results with P < 0.05 were considered statistically significant. Three hundred students (300) were included in the research. Of them, 184 (61.33%) were female and 116 (38.67%) were male of different study years (Figure 1).

Two hundred & forty three (81%) students have heard about BLS (Figure 2,3). Out of those, 129 (76.8%) were from pre clinical years (Figure 2), male were 58 (72.5%) and female were 71 (79.8%). 114 (87.0%) were from clinical years (Figure 2), male 29 (89.5%) and female were 85 (89.5%). 239 students (98.3%) had the idea regarding correct abbreviation of BLS while others have no idea (Figure 4).

Twenty seven (16) pre clinical years' students had done BLS on some patients, male were 25 (31.3%) and female were 2 (2.2%); thirteen (9.9%) clinical years students have done BLS on some patient, male were 8 (22.2%) female were 5 (5.3%) (Table 1).

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**Figure 2** Class of respondent First year: 30.67%; Fourth year: 40.67%; Second year: 15.67%; Third year: 10.00%; Final year: 3.00%

Forty one (24.3%) pre clinical years students had attended workshops on BLS, male were 23 (28.8%) and female were 18(20.2%). Sixteen clinical years students had attend workshops, male were 6 (16.7%) and female were 10 (10.5%) (Table 2,3).

One hundred & fifty seven (92.9%) pre clinical students thought BLS as useful, male were 73 (91.3%) and female were 84 (94.4.%). One hundred & twenty four clinical years students thought BLS useful, male 33 (91.7%) and female 91 (95.8%) (Table 2,3).

More females (85.2%) have had heard and knew about BLS as compared to males (75.7%) while more males among those who had heard about BLS have attended workshops (25.2%) and had performed BLS on various patients (28.7%) (Table 4-8).

#### DISCUSSION

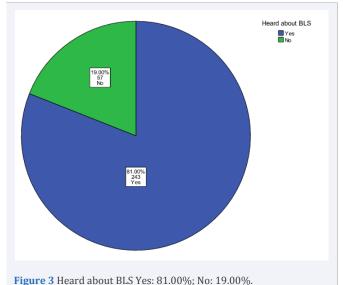
Medical students should have sound BLS knowledge and

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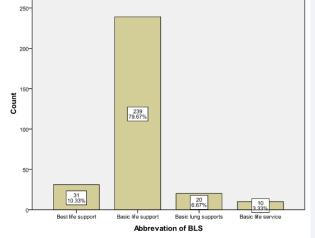
skills but there is a major problem in their knowledge and attitude towards BLS. This study was done to explore the present knowledge of medical students of Allama Iqbal Medical College about BLS/ CPR so as to make a plan for BLS training. The present study being a unique study analyzed the knowledge, awareness and attitude towards BLS among medical students.

Our study revealed that majority of the students (36.67%) had poor knowledge and insight about BLS while 31.33% were in average range and only 1% had excellent knowledge about BLS. Similar results were reported by Pandey S et al., and Chandraskar S et al., that students had an inadequate and poor knowledge about BLS [9,10].

According to our study, 76.3% of the students from preclinical, while 87% from clinical years had knowledge about BLS. A study done by Asad Abbas et al., at Zia Uddin University Karachi had similar results that 83.2% trained and 60%









Basic life support: 79.67%; Best life support: 10.33%; Basic lung support: 6.67%; Basic life service: 3.33%

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	Class of respondent BLS done on patient						Class of respondent		pondent BLS done of		Total
				No							
Preclinical (I - III Yr)	(I - III Yr) Gender of respondent Male		25	55	80						
			31.3%	68.8%	100.0%						
		Female	2	87	89						
		Female	2.2%	97.8%	100.0%						
	Total		27	142	169						
	Total		16.0%	84.0%	100.0%						
Clinical (IV & V Yr)	Gender of respondent	Male	8	28	36						
, ,	Å		22.2%	77.8%	100.0%						
		Female	5	90	95						
		remale	5.3%	94.7%	100.0%						
	Total		13	118	131						
	Total		9.9%	90.1%	100.0%						

Fable 2: Age of respondents.				
Valid	300			
Missing	0			
Mean	20.5700			
Median	21.0000			
Mode	21.00			
Std. Deviation	1.52079			
Minimum	17.00			
Maximum	24.00			

	Res	Responses	
	Ν	Percentage	Percentage of Cases
Heard about BLS	243	17.6%	81.5%
Need to know BLS	270	19.5%	90.6%
BLS in medical curriculum	260	18.8%	87.2%
BLS in hospital setting	99	7.2%	33.2%
BLS being done is seen	132	9.6%	44.3%
BLS done on patient	40	2.9%	13.4%
BLS workshop attended	57	4.1%	19.1%
Usefulness of BLS	281	20.3%	94.3%
Total	1382	100.0%	463.8%

Fable 4: BLS Knowledge*G	ender Cross tabulation					
			Gender of	Gender of respondent		
			Male	Female	Total	
	Heard about BLS	Count	87	156	243	
	Heard about BLS	% within Gender	75.7%	85.2%		
	Need to know BLS	Count	99	171	270	
		% within Gender	86.1%	93.4%		
		Count	94	166	260	
	BLS in medical curriculum	% within Gender	81.7%	90.7%		
	DIC in boonital actions	Count	56	43	99	
	BLS in hospital setting	% within Gender	48.7%	23.5%		
	BLS being done is seen	Count	61	71	132	
		% within Gender	53.0%	38.8%		

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			Count	33	7	40
	BLS done on patient	% 1	vithin Gender	28.7%	3.8%	
			Count	29	28	57
	BLS workshop attended	% v	vithin Gender	25.2%	15.3%	
	Usefulness of BLS		Count	106	175	281
	Usefulness of BLS	% v	vithin Gender	92.2%	95.6%	
	Total		Count	115	183	298
Percentages and totals are l	based on respondents.					
Heard about BLS						
Chi-Square Tests						
		Value		df	Asymptotic Signifi	cance (2-sided
Pearson	n Chi-Square	198.693	1	2	.000	)
Likelihood Ratio		248.548		2	.000	)
Linear-by-Linear Association		2.524		1	.112	2
	alid Cases	298				
a. 0 cells (0.0%) have expec <i>Need to know about BLS</i>	ted count less than 5. The minim	um expected cou	nt is 21.41.			
		Chi-Square	Tests			
		Value		df	Asymptotic Signifi	cance (2-sided
Pearsor	1 Chi-Square	233.601	1	2	.000	)
Likelil	hood Ratio	287.638		2	.000	)
Linear-by-Li	near Association	48.068		1	.000	)
N of Valid Cases		298				
a. 0 cells (0.0%) have expec	ted count less than 5. The minim	um expected cou	nt is 10.90.			
BLS in medical curriculum	1					
		Chi-Square	Tests			
		Value		df	Asymptotic Significance (2-	
Pearson Chi-Square		217.725	1	2	.000	
	nood Ratio	268.509		2	.000	
	near Association	21.781		1	.000	
	Valid Cases	298				
	ted count less than 5. The minim	um expected cou	nt is 14.79.			
BLS in hospital setting			<b>—</b>			
		Chi-Square	Tests	10	A	(0
		Value		df	Asymptotic Signifi	
	n Chi-Square	232.601		2	.000	
	hood Ratio	282.229		2	.000	
•	near Association Valid Cases	196.653 298		1	.000	
	ted count less than 5. The minim		atic 16 74			
BLS is seen	ted count less than 5. The minim		1115 10.74.			
DLJ 13 3CCII		Chi-Square	Tests			
		Value	10303	df	Asymptotic Signifi	cance (2-sided
Pearcor	ı Chi-Square	245.865	1	2	.000	-
	hood Ratio	322.605		2	.000	
Linear-by-Linear Association		171.576		1	.000	
N of Valid Cases		298		-	.000	
	ted count less than 5. The minim		nt is 23.74.			
BLS done						
		Chi-Square	Tests			
		Value		df	Asymptotic Signific	ance (2-sided
Pearsor	1 Chi-Square	72.489ª		2	.000	
	hood Ratio	85.579		2	.000	
	near Association	64.460		1	.000	
N of V	alid Cases	298				

#### 

Workshop attended			
	Chi-Square Tests		
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	110.583ª	2	.000
Likelihood Ratio	130.112	2	.000
Linear-by-Linear Association	96.764	1	.000
N of Valid Cases	298		
a. 0 cells (0.0%) have expected count less than 5. The mi	nimum expected count is 10.90.		
Usefulness of BLS			
Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	258.340ª	2	.000
Likelihood Ratio	321.715	2	.000
Linear-by-Linear Association	102.748	1	.000
N of Valid Cases	298		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.62.

f <b>able 5:</b> Gender of respondent * Hea	rd about BLS * Class of respondent C	ross tabulation.			
Conder of recoordent * Heard	about BLS * Class of respondent Cr	occ tabulation	Heard ab	out BLS	Total
denuer of respondent * flear u a	Yes	No	TOLAI		
Dree Clinical (I UI Vre)	III Yrs.) Gender of respondent		58	22	80
Pre-Clinical (I - III Yrs.)		Male	72.5%	27.5%	100.0%
		Famala	71	18	89
		Female	79.8%	20.2%	100.0%
			129	40	169
	Total		76.3%	23.7%	100.0%
	Condon of room on dont	Male	29	7	36
Clinical (IV & V Yrs.)	Gender of respondent Male		80.6%	19.4%	100.0%
			85	10	95
	Female		89.5%	10.5%	100.0%
			114	17	131
	Total		87.0%	13.0%	100.0%

Table 6: Gender of respondent * BLS in medical curriculum * Class of respondent Cross tabulation						
Class of respondent			BLS in medica	Total		
		Yes	No			
Preclinical (I - III Yrs.) Gender of respondent		Male	61	19	80	
			76.3%	23.8%	100.0%	
	Female	Famala	81	8	89	
		91.0%	9.0%	100.0%		
	Total		142	27	169	
			84.0%	16.0%	100.0%	

	Class of respondent	Need to k	Total		
Class of respondent			Yes	No	Total
Pre-Clinical (I - III Yrs.)	Gender of respondent	Mala	65	15	80
		Male	81.3%	18.8%	100.0%
		Female	80	9	89
			89.9%	10.1%	100.0%
			145	24	169
	Total		85.8%	14.2%	100.0%
			34	2	36
Clinical (IV & V Yrs.)	Gender of respondent	Male	94.4%	5.6%	100.0%
			91	4	95
		Female	95.8%	4.2%	100.0%
	m · 1	· · · · · · · · · · · · · · · · · · ·	125	6	131
	Total		95.4%	4.6%	100.0%

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Class of respondent			BLS in hosp	ital setting	Total
Class of respondent			Yes	No	Total
	Gender of		43	37	80
Preclinical (I - III Yr)	respondent		53.8%	46.3%	100.0%
		Famala	24	65	89
		Female	27.0%	73.0%	100.0%
	Total			102	169
	Total		39.6%	60.4%	100.0%
	Gender of	Male	13	23	36
Clinical (IV & V Yr)	respondent		36.1%	63.9%	100.0%
		Famala	19	76	95
		Female	20.0%	80.0%	100.0%
	Tatal		32	99	131
	Total		24.4%	75.6%	100.0%

**Questionnaire** After receiving the answers from the survey, we analyzed the conclusions. We excluded the incomplete responses. We described our results as %.

Parameters	Q1-18	Questions
		Able to understand the meaning of BLS
		Understand the need to know about BLS
		Recommend BLS to be a part of coursework.
		Knowledge about Settings where BLS can be performed
	Q1	a. In hospitals only
	Q2	b. Both in hospital and outside hospitals
	Q3	Observed demonstration of BLS
	Q3 Q4	a. Yes
	Q4	b. No
	Q5	Ever performed BLS by yourself
	Q3	a. Yes
	0(	b. No
	Q6	Have you ever attended any BLS workshops in past?
	07	a. Yes
	Q7	b. No
		Knowledge about External Cardiac massage per minute
Awareness and attitude towards	Q8	a. Knows
BLS		b. Does not know
Knowledge about BLS	Q9	Knowledge about ratio of cardiac compressions to breaths delivered during BLS
		a. Know
		b. Does not know
	Q10	Do you have the knowledge of location of chest compressions during BLS?
		a. Yes
		b. No
	Q11	Knowledge of sequence of performance of BLS
		a. Correct sequence
	Q12	b. Wrong sequence
		Do you have the knowledge of depth of compression in adults in CPR
		a. Yes
Knowledge of individual	Q13	b. No
		If you do not want to give mouth to mouth CPR, what else can be done?
components of BLS	Q14	Do you know the medical emergency contact number in your setup?
		a. Yes
		b. No
		For how long pulse rates of victim should be checked?
	Q15	In "ABCD" of BLS, does "D" denote Defibrillation?
	Q16	a. Yes b. No
	Q17	Self-assessment reasons for lack of BLS knowledge and awareness
	C C	<ul><li>a. Non availability of professional training</li><li>b. Lack of interest</li></ul>
		<ul> <li>c. Busy coursework</li> <li>d. Different combinations of above 3</li> </ul>
	Q18	Self-grading of knowledge of BLS
		a. Poor
		b. Below average
		c. Good
		d. Excellent
BLS= Basic Life Support, CPR= Car	dionulmonar	
blo- basic life support, CPK= Car	nopunionary	י אדאטאנוגעוטוו

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untrained responded correctly about BLS. It revealed the fact that as the students progressed in clinical years they have had more knowledge about BLS [8].

It was found that 27% of the students had an idea that BLS should be done in hospital settings only, while other 73% preferred BLS to be done in an emergency situation at the spot without waiting for the hospital setup. A study by Sharma R and Attar N in Mangalore had the same result that only 13% of the medical professionals demand proper hospital settings for BLS while 87% of them had an idea that BLS can be done both within and outside the hospital setup [1].

Our study results revealed that only 12.2% had attended BLS workshops and among them males were more active in such activities as compared to female students. Roshana S et al., found the similar result that 69% students had no training at all about BLS [2]. Only a few students had actually done BLS on patients which showed their poor attitude towards BLS.

According to 52.33% medical students, the main reason for lack of knowledge about BLS was no professional training available in the colleges. A study conducted by Afzali moghaddam M et al., in Tehran, Iran had the same finding that BLS training could significantly increase the knowledge of medical students [11]. Majority of the students felt the need to include the BLS training in medical curriculum.

Our study has certain limitations; practical skills of BLS/ CPR couldn't be elicited among medical undergraduates. Similarly, our study doesn't provide any idea about the awareness and attitude of BLS skills among graduates, nursing faculties and interns.

#### **CONCLUSION**

We concluded that awareness and knowledge of Basic Life Support (BLS) among medical students is very poor and needs to be improved. Performing BLS and attending BLS workshops plays a vital role in attaining BLS knowledge by medical students and health professionals. By regular introduction of BLS in academic curriculum and organizing clinical workshops, health care professionals should be made well versed with these life saving maneuvers.

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