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Knowledge, Attitude, and Practices of First Aid Skills among Undergraduate Medical Students of Peshawar, Pakistan

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Abstract

Background: First aid refers to the immediate care administered following injury or acute illness prior to the arrival of professional medical assistance, intended to preserve life and minimize complications. This study aimed to assess and compare the knowledge, attitude, and practices (KAP) regarding first-aid skills among undergraduate medical students.

Methodology: A descriptive cross-sectional study was conducted over six months (February–August 2023) involving 400 MBBS students from the third, fourth, and final years across two public and two private medical colleges in Peshawar. Data were collected via convenience sampling using a validated, self-administered structured questionnaire and analyzed using SPSS to determine frequencies and percentages.

Results: Findings were stratified by institution type. Regarding theoretical knowledge, 72.5% of public sector students provided correct responses compared to 72.0% from the private sector. A positive attitude toward first aid administration was observed in 91.6% of public sector students versus 89.5% of private sector students. However, practical proficiency was lower; only 55.7% of public sector students and 45.6% of private sector students demonstrated correct management of emergency scenarios.

Conclusion: While the majority of students exhibited adequate knowledge and a positive attitude toward first aid, practical application remains a significant gap. Approximately half of the respondents had never administered first aid, and proficiency in emergency management was suboptimal. These findings underscore the necessity of integrating comprehensive, hands-on first aid training programs into the medical curriculum.

Keywords: First aid; Knowledge, Attitude, and Practices (KAP); Undergraduate medical students; Emergency management; Peshawar

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Introduction

First aid is the immediate and initial support and care provided to someone after an injury or some acute illness before the arrival of professional medical care (1). The aim is to save lives and minimize disability and complications. Anyone can initiate first aid measures in emergency circumstances with or without any medical facilitation. As health care providers are well trained, their application of first aid measures can reduce the suffering of the patient and prevent further disability or even early death. Therefore, this becomes the prime responsibility of healthcare providers to start first aid measures in emergencies (1). Basic Life Support (BLS) is the provision of medical care to sufferers of serious fatal diseases and injuries before some standard medical care is approached. The BLS and Cardiopulmonary Resuscitation (CPR) are performed in life-threatening situations (2).

Almost 150,000 humans lose their lives every year in situations where if first aid had been provided, their lives could have been saved. 35% of mortalities happen in the first 5 min and 54% in about half an hour after an accident. If first aid measures are offered in time, many lives can be saved and the death rate can be reduced by 20% (3). Injuries caused by the accidents of vehicles are the principal cause of death among 15 to 29-year-old individuals, leading to almost 1.25 million deaths annually. 90% of these mortalities occur in low- and middle-income countries (4). In Pakistan, from 1956 to 1996, motor vehicle accidents and resultant deaths have increased by 14 and 16 times respectively. Natural disasters such as earthquakes, floods, and windstorms have a great contribution to unexpected mortalities. Many people lost their lives due to natural disasters

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in Pakistan, such as 50000 deaths and 80000 injuries due to deadly earthquakes in the Khyber Pakhtunkhwa (KPK) and Azad Kashmir in 2005 (5). A study conducted in Italy reported that 25% to 50% of injured people due to earthquakes died who could have been saved if proper and immediate first aid had been provided (5).

Most of the universities provide sufficient knowledge and training to handle emergencies. However, proper handling of patients and providing first aid in emergencies are reported to be poor which can increase the mortalities (6). Studies have found that medical students have ample understanding of first aid but their practices and skills are deficient, so they cannot apply them in daily life emergencies. As a result, even junior doctors are unable to provide proper first aid in emergencies in hospitals (7). A study by Tan *et al*. revealed that the number of junior doctors having poor knowledge and practices of first aid measures is greater than 70% (1). A study from the Netherlands unveiled that only 38% of subjects had proper knowledge regarding FA and BLS. The study from India concluded that 13.8% of medical students had a sufficient understanding of first aid (1). A study from Saudi Arabia reported that regarding BLS medical students had poor awareness, specifically CPR, with 67.36% of participants scoring less than 50% (1). A study conducted at Army Medical College, Pakistan, reported that 33.9% of participants had sufficient understanding, 42.6% had intermediate and 23.5% had deficient knowledge of first aid (8). Worldwide, several studies have been conducted to assess the knowledge, attitude, and practices regarding first aid skills among undergraduate medical students, but in Pakistan, specifically Khyber Pakhtunkhwa and Peshawar, scant studies have been performed. One study was conducted at Rehman Medical College Peshawar which focused only about the knowledge and meaning of first aid (15). Therefore, the current study was done to assess the knowledge, attitude, and practice skills of undergraduate medical students regarding first-aid skills, and to compare the knowledge, attitude, and practices regarding first-aid skills among the undergraduate medical students of the public sector and private sector medical colleges of Peshawar.

Methodology

This descriptive cross-sectional study was carried out at two public-sector and two private-sector medical colleges in Peshawar over 7 months from February 2023 to August 2023. The population selected was the male and female undergraduate medical students from third to final year MBBS. First and second-year MBBS, BDS, Allied health sciences, and non-medical students were excluded, as first aid courses are not regular part of their academics and to focus on senior medical students who possibly have more knowledge and experience in practicing the first aid in crises management. A minimum of 400 sample size was taken through calculation at a 95% confidence interval, 5% margin of error, and 50% prevalence. Convenience sampling was used to select 100 students from each college. The self-administered structured questionnaire was formulated by combining the questionnaire of two research conducted in Syria and Mosul University (9,10). The questionnaire has 4 sections; Section A was about the demographics of the participants. Sections B, C, and D consisted of questions about the knowledge, attitude, and practices regarding first aid skills, respectively. A pilot study was conducted with 40 participants and the value of Cronbach alpha=0.78. An official letter was sent to the community medicine departments of the selected colleges to explain the objectives of the research study and also to ask for the permission for the data collection in their colleges. After the approval of the letters the researcher started the data collection. The hard copy of the self-administered questionnaire was distributed for the collection of data. The data was collected during the month of May 2023. First, the data collected was entered into Microsoft Office Excel and then imported and analyzed in Statistical Package for Social Sciences (SPSS) version 23. Frequencies and percentages were used for descriptive statistics. Ethical approval for the study was taken from the institutional review board, Pak International Medical College Peshawar. Informed consent was taken from the participants. The obtained data were kept off the record and incognito to protect the privacy of participants. The study was managed in a safe and supportive environment to minimize any potential harm to the participants.

Results

Table 1 shows that the total number of participants was n=399, of which males were 46% and females were 54%. The age of majority of the students i.e. 71% was between 21-23 years. The number of students from each class that is the 3rd year MBBS was 31%, the 4th year MBBS was 36% and that of final year MBBS was 33%. 48% of students were from two public sector and 52% were from two private sector medical colleges in Peshawar.

Table 1: Socio-demographic details of the participants

Demographics	Valid	Frequency	Percentage
Gender	Male	185	46.4
	Female	214	53.6
Age in years	21-23	284	71.2
	24-26	84	21.1
MBBS Study Year	3rd year	124	31.1
	4th year	144	36.1
	5th year	131	32.8
Medical College	Private-sector	207	51.9
	Public-sector	192	48.1

Table 2 shows that 72.5% of students from the public sector as compared to 72% of students from private sector medical colleges gave correct responses regarding the meaning of first aid, the breathing rate of adults, the ratio of compressions to breaths in CPR, first aid measures; in an unconscious person, obstructed airway, external bleeding, burns, and a sprained ankle.

Table 2: Percentage of student's correct responses regarding knowledge of first aid

Knowledge Section:	Public-sector medical colleges		Private-sector medical colleges	
	n	%	n	%
First aid means treating the injured person for trauma.	161	83.7	194	93.7
The unconscious person should be given water for recovery.	152	79.4	126	61.2
The breathing rate is 12-14 breaths/min for adults.	180	93.8	181	88.1
It is necessary to check the pulse of an injured person where there is an obstruction in the airway.	122	64.1	152	77.4
When CPR is done it should be 30 press/2 breaths per min.	23	12	30	9.1
The effective to stop external bleeding is to press on the bleeding area.	173	90.8	180	87.4
To treat first-degree burns, you should put a cream or burns ointment of a good quality.	168	87.9	171	83.4
The first treatment for a sprained ankle is to keep the shoes on and apply a bandage for support, then elevate and apply cold towels.	129	68	155	75.4

Table 3 shows that 91.6% of students from the public sector as compared to 89.5% of students from private sector medical colleges exhibited a positive attitude toward the use of first aid in different situations, backed up by the incorporation of first aid in the syllabus, sharing the main concepts of first aid's techniques to colleagues, considered that first aid increases the patient's survival rate, were willing to help the injured person and a person with a broken arm, knew how to perform CPR and agreed to attend first aid sessions if given the opportunity.

Table 3: Percentage of students' responses regarding attitude toward first aid

Attitude Section:	Public-sector medical colleges		Private-sector medical colleges	
	n	%	n	%
If you have good knowledge of first aid, you should not hesitate to use it when needed.	189	96.3	193	95.1
Do you support including first aid in the medical college curriculum?	182	94.7	195	96.5
Would you like to give a basic idea of first aid techniques to your fellow students?	176	92.1	187	92.0
Do you think first aid increases patients' survival rates?	187	97.9	190	94.0
If you see someone injured, you help him/her immediately.	185	96.4	188	94.0
A woman lies unconscious in the corner, you know how to perform CPR.	149	78.2	162	80.1
Your cousin seems to have broken his/her arm, you help him/her immediately.	168	87.5	176	88.1
Do you want to attend a first aid session If given the opportunity?	172	89.7	155	76.4

Table 4 shows that 55.7% of students from the public sector as compared to 45.6% of students from the private sector medical colleges had provided first aid to someone, knew; the priority of the examination of an injured person according to the principles of first aid, management of the external bleeding, shock state and an ankle sprain, inducing the vomiting in case of a patient who is poisoned due to drug overdose, nitroglycerin dose after chest pain and treatment of a patient with hypoglycemia.

Table 4: Percentage of students' correct responses regarding practices of first aid

Practices Section:	Public-sector medical colleges		Private-sector medical colleges	
	n	%	n	%
Have you provided any sort of first aid to someone?	80	41.7	103	50.4
What is the priority of the examination according to the principles of first aid when viewing an injured person in general?	86	45.2	53	25.9
External bleeding is managed according to the principles of first aid:	164	86.3	134	65.7
How is the shock state treated?	58	30.4	53	25.9
An ankle sprain is treated by:	115	61.1	112	54.8
When the patient is poisoned with the drug as a result of an overdose, the patient is induced to vomit according to the principles of first aid:	114	59.9	131	63.8
After angina/chest pain, the patient is given nitroglycerin/ angised four times every five minutes:	35	36.2	33	16.2
A patient with hypoglycemia is treated with:	162	85.0	142	62.2

Discussion

This descriptive cross-sectional study regarding the "Knowledge, attitude, and practices of first aid skills among undergraduate medical students of Peshawar, Pakistan" was carried out to evaluate the knowledge, attitude, and practices of first aid skills among the third, fourth, and final year MBBS students of two public sector and two private sector medical colleges of Peshawar. The questionnaire consisted of 24 questions, 8 questions from each section of knowledge, attitude, and practices regarding first aid skills.

The current study shows that 72.5% of students from public sector medical colleges as compared to 72% of students from private sector medical colleges had knowledge regarding first aid. This result is comparable to many of the previous studies, such as a study from King Saud University showing 68% of participants, a study conducted in Riyadh showing 68.4% of participants, while another study from Saudi Arabia concluded that 71.3% of participants had knowledge (11,3,6). Our study reported a slightly higher percentage as compared to a study from Mosul University where 32.3% of participants had

sufficient understanding of first aid as majority had not participated in first aid courses (10).

The current study shows that 91.6% of students from public sector medical colleges as compared to 89.5% of students from private sector medical colleges showed a positive attitude towards the application of first aid in events when needed in the daily routine as they have greater exposure to emergencies at public sector hospitals. This result is comparable to a study from Gregory University Uturu, Abia State, Nigeria where 91.2% of participants showed a positive attitude (12). Our study reported a higher percentage in contrast to the studies from Al-Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia where 79.5% of participants, and from Karachi where 63.1% of respondents showed a positive attitude towards the use of first aid (1,5).

The current study shows that 55.7% of students from the public sector medical colleges as compared to 45.6% of students from the private sector medical colleges gave correct responses regarding practices of first aid in different situations as their exposure to emergencies is more as compared to students from private sector hospitals. This result is comparable to the previous studies, such as from Syria 53.1% of participants, and from Ziauddin University, Karachi, Pakistan 58.2% of respondents gave the correct responses regarding the practices of first aid (9,13). Our result is mediocre as compared to a study from Riyadh, Saudi Arabia where 83.4% of participants had correct responses and exhibited a higher percentage than a study conducted at Karachi where only 27.8% of participants had correct responses regarding the practices of first aid (3,14). This study was conducted in four different medical colleges with a reasonably good sample size, which can be considered a strength. However, as all the participating colleges were from the same province, the nationwide applicability of the findings may be limited. Further multicenter studies at the national level, including institutions from different provinces, are needed to validate these results. As first aid is essential knowledge, future studies could also compare first aid knowledge between medical students and students from other disciplines at the undergraduate and postgraduate levels.

Conclusion

The majority of students had knowledge of first aid, demonstrating a positive attitude towards its application, and showed interest to attend first aid training sessions. A high proportion responded correctly regarding the meaning of first aid, the assessment of breathing and pulse, and the management of unconscious patients, bleeding, burns, and sprained ankles. However, a significant number of students gave inaccurate responses regarding CPR. Skills and practical application of first aid were deficient in about half of the students, many of whom had never administered first aid before. Most students were aware of the management of external bleeding, ankle sprain, drug overdose and poisoning, and hypoglycemia. However, the majority were unaware of the priorities in examining an injured person, the treatment of shock, and the correct dosage of nitroglycerin in angina.

Recommendations:

First aid courses should be incorporated into the syllabus to increase the knowledge and skills of students in basic first aid. Specialized First aid training programs concentrating on common emergencies should be initiated at all medical colleges through proper administration. Further research is required to assess the knowledge, attitude, and practices of first aid skills among students from BDS, allied health sciences and non-medical students as well.

Ethical Approval:

This study was approved by the Institutional Review Board of Pak International Medical College Peshawar.
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Data Availability: Data supporting the findings are available upon reasonable request.

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Conflict of interest: The authors declare that they have no conflict of interest.

Authors' Contribution:

H: Concept and design of the study, data collection, interpretation of results, drafting of the manuscript.
NS: Data analysis and revision**.**

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