



## Patient Safety Awareness among Future Health Professionals in a Pakistani Medical College of Military Set-up

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### ABSTRACT

**Objective:** To assess the awareness among undergraduate medical students towards patient safety in a medical school of the military set up in Pakistan. **Methods:** "Attitudes toward Patient Safety Questionnaire III" was used to assess awareness of MBBS students regarding patient safety. The questionnaire on 7 points Likert scale was administered to MBBS students of the fourth and final year during their clinical rotation at "The CMH Lahore Medical College and Institute of Dentistry" in 2019. Social Sciences (SPSS) Version 20 was used for the analysis of data. **Results:** The questionnaire was filled by 166 participants, yielding a response rate of 80%. The two out of nine domains regarding "teamwork" and "long working hours" scored the highest 6.0 mean score. "Disclosure responsibility" scored lowest 4.4 mean score followed by domain regarding "Professional incompetence" 4.5 and "Error inevitability" 4.7. Domain about the integration of this emerging issue in the curriculum scored 5.5. The mean scores of items showed no significant difference with respect to their academic levels and gender. **Conclusion:** Students showed an interest in patient safety. Most of them supported the integration of this important issue in an undergraduate medical curriculum. However, there was a knowledge gap among students regarding the causes and disclosure of medical errors. Due to insufficient awareness among future doctors, the inclusion of the formal patient safety curriculum and its early integration from the beginning of medical education is imperative.

**Keywords:** APSQIII, Medical errors, Patient safety, UGMS

### INTRODUCTION

Education of health care professionals has not given due importance to Patient Safety (PS), causing a limited awareness of PS among them. The importance of PS is growing globally and has gained a lot of attention since the late 1990s, particularly after the report "To Err is Human". The report revealed that roughly 98,000 deaths of patients in hospitals occur in America every year because of medical errors [1]. Due to the threatening rate of medical errors, PS education has been recognized as a major outcome for medical educators [2]. World Health Organization also developed a curriculum guide to assist in designing and upgrading medical schools' curriculum transformation [3]. There is an inefficient system of incident reporting, keeping records of the surgical procedures, drug reactions and error disclosures in Pakistan resulting in many casualties, injuries, and deaths of patients [4].

Military health care setup is different from civilian health care setup in which military doctors and residents seem to have some distinctive stressors [5,6]. Extensive multispecialty rotations, hospitals in remote regions, insufficient logistical support, lack of emotional support and workers shortages resulting in a permanent increase in job workload are few challenges which they deal with in their working environment [5,6]. In Pakistan, medical students get PS education during their clinical placement. Researches have shown that the clinical supervision of health professionals plays a crucial role in promoting PS, and attitudes of the trainers are explicitly linked with better health outcomes [7].

Undergraduate medical students (UGMS) are the future leadership and frontline healthcare providers but they are not familiar and well trained with PS education [8]. The current study was planned to measure the awareness among future health professionals in a Pakistani Medical College of Military set-up and to find the difference on the basis of gender and academic level. This study would provide information regarding awareness of PS among students, their interest and learning need towards PS education. The findings would direct curriculum developers for the construction and integration of the topic in the military set-up.

## METHODS

This cross-sectional study was undertaken at Combined Military Hospital Lahore Medical College and Institute of Dentistry (CMH, LMC and IOD), Pakistan from January 2019 to March 2019. The CMH Lahore is a teaching and tertiary care hospital run by the Pakistan Armed Forces. It provides health care facilities to military personnel, their families and civilians. Fourth and final year UGMS from CMH, LMC, and IOD were included through census sampling. A validated and reliable instrument, Attitudes toward Patient Safety Questionnaire (APSQIII) [9] was circulated to 208 UGMS for data collection after taking written consent. They were told about the voluntary and anonymity nature of the study. Permission was obtained from the developer of the questionnaire via email and ethical committee of CMH, LMC and IOD.

There were nine domains and twenty-six items in APSQIII. The students showed their level of PS awareness using a seven-point Likert scale 1=strongly disagree, 4=neutral, 7=strongly agree for nineteen positive statements. However, eight items (Q-11,13,14,15,16,17,18,25) were reverse coded and scoring was done in reverse order 1=strongly agree to 7=strongly disagree. Each item was considered on the basis of scores, item classified positive if scored more than four, neutral if scored four and negative towards PS awareness if scored less than four. For reverse coded questions, PS awareness was classified positive if scored below four, neutral if scored four and negative when question scored above four points. SPSS version 20 was used to analyze the data. Descriptive statistics were used for the mean and standard deviation while frequencies and percentages for categorical variables. T-test was used for comparison and p-values were considered significant if <0.05.

## RESULTS

Out of 208 students from the fourth and final year medical students of CMH, LMC, and IOD, 166 returned the questionnaire yielding a response rate of 80%. Cronbach alpha calculated for the APSQIII was 0.70. Demographic information is given in Table 1.

**Table 1 Characteristics of UGMS**

Category	UGMS	Total=166 n (%)
Sex	Male	85 (51%)
	Female	81 (49%)
Year of study	Fourth-year	84 (51%)
	Final year	82 (49%)

The mean scores of the questionnaire are shown in Table 2. The best score (6.0) was given by the majority of students for eight items regarding shorter shifts, regular breaks, number of working hours for doctors, teaching and learning of students about patient safety, teamwork skills and competent doctors make errors. Majority 78% of participants agreed that “Human error is inevitable” and “All errors should be reported”, scored the second-highest mean score of 5.5. Only 41% disagreed with the reverse coded item “A true professional does not make mistakes” and obtained the lowest score (2.9) followed by a second-lowest score (3.4) for the negatively worded item “It is not necessary to report errors which do not result in adverse outcomes for the patient”.

Table 2 Responses of UGMS in APSQ-III

Domains	S. No.	Questions	Mean score ± SD
PS training Received	1	My training is preparing me to understand the causes of medical errors	5.2 ± 1.6
	2	I have a good understanding of patient safety issues as a result of my undergraduate medical training	4.9 ± 1.4
	3	My training is preparing me to prevent medical errors	4.9 ± 1.6
Error reporting Confidence	4	I would feel comfortable reporting any errors I had made, no matter how serious the outcome had been for the patient	5.1 ± 1.7
	5	I would feel comfortable reporting any errors other people had made, no matter how serious the outcome had been for the patient	4.9 ± 1.5
	6	I am confident I can talk openly to my supervisor about an error I had made even if it resulted in potential or actual harm to my patient	5.0 ± 1.7
Working hours as an error cause	7	Shorter shifts for doctors will reduce medical errors	6.1 ± 1.4
	8	By not taking regular breaks during shifts, doctors are at an increased risk of making errors	6.0 ± 1.6
	9	The number of hours doctors work increases the likelihood of making medical errors	5.9 ± 1.5
Error Inevitability	10	Even the most experienced and competent doctors make errors	5.9 ± 1.5
	11	A true professional does not make mistakes or errors*	2.9 ± 2.0
	12	Human error is inevitable	5.5 ± 1.7
Professional incompetence as an error cause	13	Most medical errors result from careless nurses *	4.2 ± 1.7
	14	If people paid more attention at work, medical errors would be avoided *	5.4 ± 1.3
	15	Most medical errors result from careless doctors*	4.6 ± 1.6
	16	Medical errors are a sign of incompetence*	4.0
Disclosure Responsibility	17	It is not necessary to report errors which do not result in adverse outcomes for the patient*	3.4 ± 1.9
	18	Doctors have a responsibility to disclose errors to patients only if the errors result in patient harm*	4.3 ± 1.7
	19	All medical errors should be reported	5.5 ± 1.3
Team Functioning	20	Better multidisciplinary teamwork will reduce medical errors	6.1 ± 1.1
	21	Teaching students teamwork skills will reduce medical errors	6.0 ± 1.2
Patient involvement in reducing error	22	Patients have an important role in preventing medical errors	5.2 ± 1.4
	23	Encouraging patients to be more involved in their care can help to reduce the risk of medical errors occurring	5.4 ± 1.5
Importance of PS in the curriculum	24	Teaching students about patient safety should be an important priority in medical students training	6.1 ± 1.2
	25	Patient safety issues cannot be taught, they can only be learned through clinical experience, which is gained when one is qualified*	4.5 ± 1.7
	26	Learning about patient safety issues before I qualify will enable me to become a more effective doctor	5.9 ± 1.4

The students' individual domain scores are shown in Table 3. These scores give a view of the PS awareness among the UGMS in military set up. On the basis of nine domains of APSQ III, "Working hours as an error cause" and "Team functioning" showed the best mean scores (6.0). The lowest mean score (4.4) was given to the Disclosure responsibility followed by domain regarding professional incompetence (4.5), and Error inevitability (4.7). The scores of both genders and academic years were similar in all items with an insignificant difference in the mean score ( $p \geq 0.05$ ).

Table 3 Domains scores regarding patient safety

S. No.	Domains	Questions No	Domain Score	Mean
1	Patient safety training received	1-3	15	5.0
2	Error reporting confidence	4-6	15	5.0
3	Working hours as an error cause	7-9	18	6.0
4	Error inevitability	10-12	14.3	4.7
5	Professional incompetence as an error cause	13-16	18.2	4.5
6	Disclosure responsibility	17-19	13.2	4.4
7	Team functioning	20-21	12.1	6.0
8	Patient involvement in reducing error	22-23	10.6	5.3
9	Importance of PS in the curriculum	24-26	16.5	5.5

## DISCUSSION

PS has emerged globally as a clinical and research endeavor for the delivery of safe care. Due to lack of awareness, infrastructure, and resources including funding, unsafe medical care is a major concern in developing countries and needs exploration [10]. The overall percentage of APSQIII was 73% in our present study. The supportive attitudes of participants regarding patient safety are consistent with a study done in America by Wetzel, et al. [11], this study revealed two significant findings regarding highly scored domains. Firstly, students strongly believed that there are more chances of medical errors due to the exhaustion and sleepiness of doctors. This finding is in accordance with the finding of West CP and Baldwin [12,13]. In Pakistan, 24 × 7 operations of hospitals and long working hours of health providers with excessive workload could be the reason for this response. Secondly, in the domain of “Teamwork Functioning”, students recognized the importance of teamwork as well as showed their interest in learning teamwork skills. Teaching teamwork in medical college promotes communication with health providers and assists in designing and implementing various innovative teaching strategies to improve patient safety [13,14]. A similar finding was reported in our study in which 85% of students acknowledged the importance of teaching teamwork.

In the current study, we found that most of the participants (71%) were comfortable and clear in disclosing their errors. However, 30% of students did not show their comfort towards this domain. A Pakistani study by Kamran, et al. using APSQIII on UGMS in civilian set up showed the same finding thus confirming the outcome of our study. This finding could be due to the dearth of formal PS education in curriculum, ineffective and improper system of incident reporting in hospitals and its consequences [15].

Our recent data reflected that 3 out of 4 students recognized the crucial role of patients in reducing the rate of medical errors. Similar findings were noted in different studies of KSA, UK, and Pakistan [9,14-16] but the reasons of 25% of students not recognizing the role of patients could be due to the limited involvement of patients in our system and/or due to their concept that patient would not comprehend or blame them. The majority of students showed a positive attitude and were inclined towards the integration of PS as a curricular component for UGMS. Many studies in Hong Kong, Singapore, KSA, and Pakistan showed similar findings [8,14,15,17].

Two-third of students in the current study disagreed for a negatively worded item regarding PS that it can only be learned during clinical training. Similar results are shown in studies done on students’ awareness which reported that the majority of students needed patient safety education particularly regarding error disclosure and to identify the causes of medical errors [18,19]. Research from a Pakistani Medical College revealed contradictory findings in which the majority of UGMS approved the item and reflected their misconception [15].

On the basis of domains, the minimum score of “Disclosure responsibility”, domain regarding “Professional incompetence” and “Error inevitability” highlighted the basic misconception and area of concern that students believed in a personal approach. Even the highest scored domain of long working hours identified that students thought that personal mistakes and individuals are the main causes of the undesirable rate of medical errors. The integration of topics regarding the systematic approach for reducing medical errors in the future curriculum from the early years is indispensable. Research work that involved students from the US, Pakistan and Hong Kong showed similar findings [11,15,19].

### Implications of the Study

The integration of PS education is crucial at all levels of medical education in Pakistan. Formulation of an incident reporting system, development of communication skills and the issue of long job hours need to be addressed.

### Limitation of the Study

It was a cross-sectional study conducted in only one Pakistani medical school of military set-up. Therefore, it is required to repeat the present study in other Pakistani medical schools of military set-up to draw the big picture.

### CONCLUSION

Students had a positive attitude towards patient safety. Results showed that integration of patient safety, teamwork and patient involvement were supported. Misconceptions existed among students regarding the causes and disclosure of medical errors. There is a strong need for effective patient safety education programs in the future medical curriculum of Pakistan, basic knowledge and skills for error management while targeting the roles of doctor and patient.

### DECLARATIONS

#### Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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