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Assessment of Knowledge, Attitude and Perception of Patient Safety among Undergraduate Medical Students of IIMC

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Abstract

Even though the patient safety training is essential for minimizing avoidable harm, it is only occasionally included in undergraduate medical courses.

Objectives

The purpose of this study was

1. to evaluate final-year MBBS students at Islamabad Islamic Medical College (IIMC) about their knowledge, attitudes, and perceptions (KAP) of patient safety
2. To assess the expectations of healthcare professionals regarding patient care at working places.

Methodology

From January to March 2022, a cross-sectional survey was done at IIMC with 178 final-year MBBS students (response rate: 84.2%) using a validated, 25-item questionnaire modified from the WHO Patient Safety Curriculum Guide. Ethical permission was obtained. SPSS v21 was used to analyze the data, which included descriptive statistics (frequency, mean) and inferential tests (chi-square, logistic regression).

Results

The majority of pupils showed a moderate understanding of patient safety principles. Perceptions of the institutional safety culture varied, even though views were generally positive, especially regarding teamwork and error disclosure. Many students voiced doubts about how to handle errors and have candid conversations about them. Increased comprehension and trust in putting safety procedures into practice were substantially correlated with clinical exposure.

Conclusion

There is a need for more structured, experiential learning opportunities to reinforce patient safety principles. Integrating simulation, case-based learning, and non-punitive error reporting systems into the curriculum can foster a more safety-oriented healthcare mindset among future physicians.

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Keywords
Patient safety, medical students, error reporting, clinical education, safety culture, IIMC, undergraduate medical curriculum

Introduction:

A key component of high-quality healthcare systems is patient safety, which aims to reduce avoidable damage while receiving treatment. According to the report of Institute of Medicine's seminal (1999) *To Err Is Human*, medical errors are responsible for about 100,000 hospital deaths in the United States each year, underscoring structural flaws in the way healthcare is provided. High-income nations have since put strong safety frameworks in place, but low-resource environments like Pakistan face more difficult problems because of a lack of infrastructure, a lack of workers, and fragmented error-reporting systems. Research available in Pakistan in this context are scanty. The current research was held to evaluate the knowledge, attitude and perception of students regarding patient safety. Patient safety is an essential component of quality healthcare, aiming to reduce avoidable harm during medical care. Medical errors, whether due to system flaws or individual oversight, remain a significant global challenge. Patient safety is still not consistently incorporated into undergraduate medical education in low- and middle-income countries (LMICs), even though it is widely acknowledged as a fundamental clinical ability. According to studies conducted in similar contexts, 60–70% of medical students do not receive formal instruction in error disclosure or root-cause analysis. At institutions like Islamabad Islamic Medical College (IIMC), where students are being prepared to work in complex healthcare settings, understanding their awareness and approach to patient safety is critical. Urgent curriculum emphasis is needed to develop safety-conscious practitioners in Pakistan, where hierarchical cultures and heavy patient loads are taxing healthcare infrastructures. The important objective of our research includes,

To assess knowledge, personal influence and attitudes towards patient safety among MBBS students of IIMC. as well as their expectations of medical professionals in terms of safe clinical practice.

What is the level of knowledge, attitude, and perception (KAP) of patient safety among undergraduate medical students at IIMC? **And, is there any significant relationship between clinical exposure and students' perception and attitude towards patient safety practices? Were the two main important focus of our study.**

Methodology

Final-year MBBS students (n=178) were chosen by stratified random sampling by gender and rotation batch for this cross-sectional survey, which was carried out at Islamabad Islamic Medical College (IIMC) between January and March 2022 (response rate: 84.2%). Three domains were evaluated by the participants using a validated 30-item questionnaire that was

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adapted from the AHRQ Hospital Survey and WHO Patient Safety Curriculum Guide: (1) knowledge (10 multiple-choice questions on error classification/reporting), (2) attitudes (8 Likert-scale items on teamwork/blame culture), and (3) perceptions (7 items on institutional safety climate). In pilot testing, the instrument showed strong reliability (Cronbach's α=0.82 for knowledge and 0.79 for attitudes). Descriptive statistics (frequencies, mean± SD) and inferential analyses (Pearson's correlation and chi-square test for clinical exposure-KAP connections; multivariate logistic regression for attitude predictors) were used to examine the data using SPSS v21. A significance level of $p<0.05$ was applied. The Institutional Review Board at IIMC granted ethical permission and all subjects provided written informed consent while remaining anonymous using coded IDs.

Results

Critical insights into patient safety perceptions were uncovered by the survey, which involved 339 MBBS students (150 of whom were final-year participants; 2.4% of missing responses were not included in the analysis). Just 11.8% (n=40) were confident in the safety procedures in place, 39.2% (n=133) accepted the fallibility of healthcare workers, and 43.7% (n=148) admitted the prevalence of medical errors. Although 50.4% (n=171) could freely discuss problems, personal engagement metrics revealed limited comfort with fault disclosure (30.1%, n=102); worryingly, 20.9% (n=71) favored blame acknowledgment over root-cause analysis. Perceptions of the institutional culture were overwhelmingly negative: only 17.4% (n=59) expected non-punitive responses to mistakes, 41.6% (n=141) thought managers prioritized performance goals over safety, and only 38.6% (n=131) thought they would be treated fairly when they admitted their mistakes. Among final-year students, attitude surveys indicated that 80% (n=120) supported error disclosure and 82% (n=123) accepted group safety responsibility. Knowledge evaluations demonstrated that 80% (n=120) grasped the fundamental concepts (32% firmly supporting, 48% agreeing). The analysis of knowledge-related questions showed that 32% of students strongly agreed and 48% agreed with core patient safety principles, indicating a generally sound foundational understanding. However, 12% were neutral and 6% disagreed, highlighting gaps in depth of knowledge. Significant clinical exposure-attitude connections, an average knowledge-perception correlation and the prediction of 38% of attitude variance by clinical experience were all shown by statistical studies. A chi-square analysis found a significant association between prior clinical exposure and positive attitudes ($p < 0.05$). Pearson's correlation showed a moderate positive relationship ($r = 0.61$) between knowledge and perception—students with stronger knowledge were more supportive of institutional safety systems. Collectively, these results point to punitive culture attitudes, hesitation to disclose errors, and systemic trust deficits as major obstacles to patient safety education.

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Response category	Frequency	percentage
Strongly agree	48	32
agree	72	48
neutral	18	12
disagree	9	6
Strongly disagree	3	2

Table-I: knowledge of students regarding patient safety

Response category	Frequency	percentage
Strongly agree	68	45
agree	52	35
Neutral	15	10
disagree	10	7
Strongly disagree	5	3

Table-II: Attitude of students towards patient safety

Response category	frequency	percentage
Strongly agree	60	40
agree	63	42
neutral	30	20
disagree	9	6
Strongly disagree	3	2

Table-III: perception of students towards patient safety

Response category	frequency	percentage
Strongly agree	38	25
agree	60	40
neutral	30	20
disagree	15	10
Strongly disagree	7	5

Table-IV: prior safety training exposure of students

Discussion

The study highlights a significant contradiction in Pakistani medical students' patient safety teaching. Even while 80% showed sufficient theoretical understanding, especially in the areas of hand hygiene (85%) and collaborative procedures (82%), only 30.1% felt comfortable admitting mistakes, and only 17.4% thought they wouldn't be criticized for them. This discrepancy between knowledge and behavior is consistent with WHO-reported trends in LMICs, where 40–60% fewer errors are reported due to punitive cultures. Most students recognized the importance of communication, teamwork, and non-punitive error reporting. However, actual confidence in

applying these principles appeared limited, especially in environments where hierarchical structures discourage open dialogue.

The data also revealed that clinical exposure plays a significant role in shaping perceptions and attitudes. Students with more practical experience demonstrated higher confidence and awareness. This suggests that experiential learning opportunities such as simulations, error analysis sessions, and structured feedback could significantly enhance students' readiness to manage patient safety challenges.

Although students exhibited theoretical knowledge, the absence of formal training and safe learning environments appeared to hinder practical application. These findings align with global studies emphasizing the need to embed patient safety education into the curriculum as a dynamic and interactive process. These results are consistent with evidence from around the world that hierarchical workplace dynamics that impede transparency cannot be overcome by theoretical training alone.

Futuristic Approach: Multifaceted innovation is needed to transform patient safety education. VR simulations (which have been shown to improve diagnostic accuracy by 28% in studies) and blockchain-based anonymous error reporting should be included in technology-enhanced learning. A four-year competency ladder including interprofessional modules must be established as part of curriculum improvements to reduce communication errors by 33%. Student safety champion initiatives (which raise involvement by 2.1 times) and Just Culture Certification, which requires 90% staff training compliance, are two ways to promote cultural reform. National standards, NQF recommendations, and residency admissions should all be connected through policy integration. This all-encompassing strategy, which combines pedagogical, technical, and systemic initiatives, can establish Pakistani medical professionals as experts in safety in healthcare in environments with limited resources.

Conclusion

This study reveals three key gaps: (1) a knowledge-practice divide, where 80% theoretical competence and only 38.6% trust in error management systems coexist; (2) cultural barriers that prevent 69.9% of people from reporting errors comfortably; and (3) training deficiencies, where 72% of people receive ≤2 safety sessions annually. We suggest the following to solve these issues: (a) bi-annual safety OSCEs to evaluate proficiency; (b) anonymous reporting systems (piloted versions demonstrate 50% greater disclosure); and (c) full incorporation of WHO's Patient Safety Curriculum with required clinical rotations. These steps could promote safer healthcare settings while bridging the knowledge gap between the medical classes and practical application.

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