

Point of care affirmability of patient safety criteria at tertiary healthcare level in Peshawar-Pakistan: a cross-sectional evaluation

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ABSTRACT

Objective: To evaluate the level of compliance with the World Health Organization's (WHO) recommended patient safety criteria in tertiary healthcare facilities in Peshawar-Pakistan.

Methods: This cross-sectional study evaluated the implementation of WHO patient safety criteria in six tertiary healthcare hospitals in Peshawar, Khyber Pakhtunkhwa, Pakistan, between April 2023 and July 2024. Ethical and administrative approvals were obtained from Khyber Medical University and the respective hospitals. No personal data were collected, and verbal consent was secured from all participants. The assessment was conducted using the WHO Patient Safety Assessment Manual, with 355 evaluations analyzed across three public sector and three private sector hospitals to determine conformity with point-of-care safety standards.

Results: Overall, 28.1% of criteria fully conformed to WHO recommendations (95% CI: 27.6–28.6%). Compliance was higher in public-sector hospitals (35.6%) than private institutions (22.3%, $Z=24.6$, $p < .001$, $r = .2$). For Critical Criteria, where WHO mandates 100% adherence, public-sector hospitals achieved 54.0% (95% CI: 51.3–56.6%), compared to 44.1% (95% CI: 41.8–46.5%) in private hospitals ($Z=5.5$, $p < .001$, $r = .1$). Core Criteria compliance was also significantly higher in public-sector hospitals (18.9%–48.8%) than private (18.0%–25.0%). Developmental Criteria had the lowest compliance, with some private hospitals failing to meet any criteria (0%), while public hospitals ranged from 14.5% to 37.9%.

Conclusion: The current quality assurance programs in these hospitals are inadequate in ensuring compliance with even the most critical patient safety criteria. Urgent and coordinated efforts are required to bridge this gap and enhance patient safety standards.

Keywords: Patient Safety (MeSH); Evaluation (MeSH); Implementation (MeSH); World Health Organization (MeSH); Assurance, Healthcare Quality (MeSH); Academies and Institutes (MeSH); Tertiary Healthcare (MeSH); Growth and Development (MeSH); Pakistan (MeSH).

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INTRODUCTION

Patient safety has been defined in various ways, including as “freedom from accidental injury,” “the process of amelioration, avoidance, and prevention of adverse outcomes resulting from the healthcare process,” and “the absence of preventable harm to a patient and the reduction of unnecessary harm associated with healthcare to an acceptable minimum.”

¹⁻³In low- and middle-income countries, unsafe healthcare practices contribute to approximately 134 million adverse events annually, leading to an estimated

2.4 million deaths.⁴ Key factors contributing to this issue include inadequate workforce training in patient safety, the absence of workplace guidelines, and a lack of institutional support for patient safety initiatives.⁵

The emphasis on healthcare quality improvement has been longstanding in various countries, with notable efforts originating from the United States. The American Medical Association, established in 1847, commissioned Abraham Flexner to assess medical education, leading to the 1910 “Report to the Carnegie Foundation,” which

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exposed its inadequate state and called for reforms.⁶ Further advancements came in 1917 when the American College of Surgeons launched the Hospital Standardization Program, outlining five essential standards: structured staff organization, qualifications from accredited institutions, regular staff meetings and clinical reviews, comprehensive medical records, and the establishment of laboratory and radiology services.⁷ The Joint Commission, initially formed in 1951 as the “Joint Commission on Accreditation of Hospitals (JCAH),” later evolved into the “Joint Commission on Accreditation of Healthcare Organizations (JCAHO)”⁸ and is now expanded to the Joint Commission International (JCI).⁹ The JCI aims to enhance healthcare quality globally by collaborating with stakeholders, evaluating healthcare institutions, and encouraging excellence in delivering safe, effective, and high-value care.¹⁰

The global movement toward ensuring patient safety was catalyzed by the Institute of Medicine (now the National Academy of Medicine) with the publication of its landmark report, “To Err is Human: Building a Safer Health System,” in 2000.¹ The report revealed that medical errors in the U.S. healthcare system resulted in up to 98,000 deaths annually, likening the magnitude of the crisis to a jumbo jet crash every 36 hours. This compelling presentation of facts illuminated a domain frequently concealed by a “conspiracy of silence”, where fear of consequences and potential penalties hinder the reporting and disclosure of medical errors.^{11,12} The report sparked widespread awareness and catalyzed

patient safety initiatives both nationally and globally. By transparently addressing the reluctance to acknowledge patient harm and the prevailing “cycle of inaction,” it emphasized the urgency of a structured, multifaceted approach to tackling this complex issue.¹ Building on this momentum, the Institute of Medicine published “Crossing the Quality Chasm: A New Health System for the 21st Century” in 2001, which introduced six fundamental domains of healthcare quality: safety, patient-centeredness, effectiveness, efficiency, timeliness, and overall quality of care.¹³ The attention drawn to patient safety at the turn of the century has since evolved into an expanding global movement, marked by sustained collaborative efforts, now widely recognized as the “Patient Safety Movement.”¹⁴

Given that medical errors not only result in human suffering and loss of life but also impose a significant economic burden, costing national economies billions of dollars,¹⁴⁻¹⁶ WHO has prioritized patient safety in its global initiatives. In 2011, WHO launched the Patient Safety Friendly Hospital Initiative,¹⁷ which later evolved into the Patient Safety Friendly Hospital Framework, providing both patient safety-centered standards of care and a structured framework for implementation.¹⁸ The most recent addition to WHO's efforts is the Global Patient Safety Action Plan 2021-2030, aimed at further strengthening patient safety worldwide.¹⁹

Among the existing accreditation processes designed to proactively enhance hospital environments for patient safety are Joint Commission International (JCI) accreditation and the WHO Patient Safety Friendly Hospital Initiative. While only seven healthcare institutions in Pakistan hold JCI accreditation,²⁰ eighty are reported to be implementing WHO standards,²¹ though a definitive list of these institutions is unavailable. JCI accreditation is conducted by specialized teams sent by the commission, whereas the WHO initiative encourages hospital leadership to empower their own teams through training in implementation and

assessment, promoting a more sustainable, locally driven approach to patient safety.

Although two studies from Pakistan have assessed patient safety culture at the tertiary healthcare level, 22,23 both utilized the Agency for Healthcare Research and Quality (AHRQ)'s Survey on Patient Safety tool.²⁴ However, there remains a significant gap in research assessing patient safety in Pakistani hospitals based on the World Health Organization (WHO) Patient Safety Assessment Manual criteria.⁴ A PubMed search revealed no published studies evaluating patient safety compliance in Pakistani healthcare settings using WHO's framework.

Given this gap, it is crucial to assess the level of adherence to patient safety standards at the point of healthcare delivery. This study was planned to evaluate compliance with WHO-defined patient safety criteria in tertiary healthcare facilities in Peshawar, Khyber Pakhtunkhwa province of Pakistan. The findings will provide valuable insights into current practices, highlight areas requiring improvement, and contribute to strengthening patient safety initiatives in the region.

METHODS

The WHO Patient Safety Assessment Manual (Third Edition) outlines 134 criteria under 21 standards across five domains.⁴ These criteria are assessed based on the evidence specified in the manual and classified into three levels of compliance: “met” ($\geq 80\%$ compliance), “partially met” (31–79% compliance), and “not met” ($\leq 30\%$ compliance), with corresponding scores of 1, 0.5, and 0, respectively. Criteria that are not applicable in a given setting are categorized as “not applicable”.

Hospitals are further classified under the WHO Patient Safety Friendly Hospital Framework based on percentage compliance with Critical, Core, and Developmental criteria. Achieving 100% compliance in Critical Criteria is mandatory even for the lowest (Level 1) classification, while the highest (Level 4) requires 100% in Critical, $\geq 90\%$ in Core, and $\geq 80\%$ in

Developmental criteria.

In Peshawar, Khyber Pakhtunkhwa, Pakistan, there are six tertiary healthcare institutions, none of which are accredited or actively collaborating with WHO on patient safety. Given the nature of WHO's criteria, any structured healthcare quality initiative with a focused approach should inherently meet these standards.

A total of 81 criteria (9 Critical, 66 Core, and 6 Developmental) can be assessed directly at the patient's bedside and in the immediate workplace environment within the ward. These were evaluated per WHO recommendations, with additional elaboration provided for the data collection team. While WHO's manual follows a peer-review approach, this study functions as an audit, defining the Conformity Score as the proportion of fully met criteria (criteria scoring 1 / total criteria). Due to word count constraints, abbreviated text is used to label various criteria.

Sample size: To ensure a conservative estimate, an assumed 50% overall compliance was used for sample size calculation. A total of 385 patient sites-of-care were assessed to estimate the true proportion of compliance, with a 5% margin of error at a 95% confidence level.

Sampling technique: For ward-level accessible criteria, an enumeration approach was applied. For patient-level criteria assessment, a simple random sampling with replacement method was used. Sampling was stratified by wards and followed a Probability Proportional to Size (PPS) approach, ensuring that the sample from each ward was proportional to its bed strength relative to the hospital's total bed capacity.

Data collection: A comprehensive list of criteria was compiled, with assessment procedures documented in clear and accessible language to ensure consistency in scoring compliance levels. A team of Public Health and Social Sciences students from Khyber Medical University (KMU), experienced in data collection across various tiers of the provincial healthcare system, was trained in the detailed assessment process for each criterion. To facilitate fieldwork, each data collection form

included assessment guidelines in boldface font for quick reference.

The data collection team employed a multi-method approach, including document review, staff and patient interviews, and direct observation of bedside and ward environments for patient safety compliance. The study included three public and three private hospitals to ensure representation across both sectors.

Following administrative clearance (No. DIR/KMU-AS&RB/SA/001563) and ethical approvals (No. KMU/IPHSS/Ethics/2023/SA/0112) from KMU and the Ethical Review Boards of the participating hospitals, preliminary information on ward distribution and bed capacity was gathered for sampling purposes. While no personal identifiers were collected during the evaluation, verbal consent was obtained from staff, patients, and their relatives at the point of care before conducting interviews or observations.

Statistical analysis: Data analysis was conducted using Stata version 14.2.²⁵ Proportions of criteria allocated a score of 1 (fully conforming), with 95% confidence intervals are reported as 'conformity scores'. Effect sizes were presented alongside statistical tests to measure substantive significance, with values classified as small (0.1–0.4), medium (0.5–0.7), and large (≥ 0.8).

For two-group comparisons, Z-tests were employed, while Kruskal-Wallis tests with Dunn's post-hoc analysis were used for comparisons across multiple groups. Chi-square tests were applied to analyze differences in multiple proportions, such as compliance levels across different categories. Nonparametric tests were preferred due to the limited range of scoring values. All statistical tests were two-tailed, with significance set at $\alpha = 0.05$.

RESULTS

Missing data accounted for less than 2% of the total scores. Overall, only 28.1% (95% CI: 27.5–28.6%) of the assessed criteria were fully met. Among the Critical Criteria, which require 100% compliance (Table I), more than half were either partially met (49.4%; 95%

CI: 47.7–51.2%) or not met (2.1%; 95% CI: 1.6–2.7%). Despite these shortcomings, compliance with Critical Criteria (48.5%; 95% CI: 46.7–50.2%) was significantly higher than compliance with Core Criteria (26.5%; 95% CI: 25.9–27.1%; $Z = 25.4$, $p < 0.001$, $r = 0.4$) and Developmental Criteria (14.4%; 95% CI: 12.9–16.0%; $Z = 25.4$, $p < 0.001$, $r = 0.2$).

Public vs Private sector compliance: Compliance was higher in public sector facilities, where 35.6% (95% CI: 34.7–36.4%) of criteria were fully met, compared to 22.3% (95% CI: 21.6–22.9%) in the private sector ($Z = 24.6$, $p < 0.001$, $r = 0.2$). Public sector facilities demonstrated significantly greater adherence to core criteria ($Z = 22.9$, $p < 0.001$, $r = 0.2$), as well as critical criteria ($Z = 5.5$, $p < 0.001$, $r = 0.1$) and developmental criteria ($Z = 10.3$, $p < 0.001$, $r = 0.2$), compared to

Table I: World Health Organization's specifications for classifying hospitals at various levels of compliance

Hospital Level	Recommended Compliance Levels		
	Critical Criteria	Core Criteria	Developmental Criteria
Level 1	100%	Any	Any
Level 2	100%	60–89%	Any
Level 3	100%	$\geq 90\%$	Any
Level 4	100%	$\geq 90\%$	$\geq 80\%$

Adopted from the World Health Organization's Patient Safety Manual, third edition.⁴

Table II: Proportion of criteria fully compliant with the World Health Organization's (WHO) recommendations at public sector and private tertiary care facilities in the three categories of criteria (% , [95% confidence interval])

Criterion Type	Public Sector Hospitals	Private Sector Hospitals	Significance Test	WHO Standards
Critical	53.1%, [48.8, 57.4%]	38.6%, [34.6, 42.7%]	$X^2(5) = 266.2$, $p < .001$, $V = .3$	Level-1: 100% Level-2: 100% Level-3: 100% Level-4: 100%
	55.4%, [51.1, 59.7%]	48.2%, [44.3, 52.2%]		
	53.0%, [47.3, 58.6%]	45.4%, [41.1, 49.7%]		
Core	18.9%, [17.7, 20.2%]	18.0%, [16.9, 19.2%]	$X^2(5) = 1500$, $p < .001$, $V = .25$	Level-1: Any Level-2: 60-89% Level-3: $\geq 90\%$ Level-4: $\geq 90\%$
	48.8%, [47.2, 50.4%]	25.0%, [27.8, 26.3%]		
	35.5%, [33.5, 37.5%]	18.4%, [17.2, 19.6%]		
Developmental	14.5%, [11.0, 18.6%]	0%	$X^2(5) = 255.3$, $p < .001$, $V = .3$	Level-1: Any Level-2: Any Level-3: Any Level-4: $\geq 80\%$
	23.9%, [19.5, 28.8%]	20.5%, [16.7, 24.6%]		
	37.9%, [31.2, 44.9%]	0.3%, [0, 1.5%]		

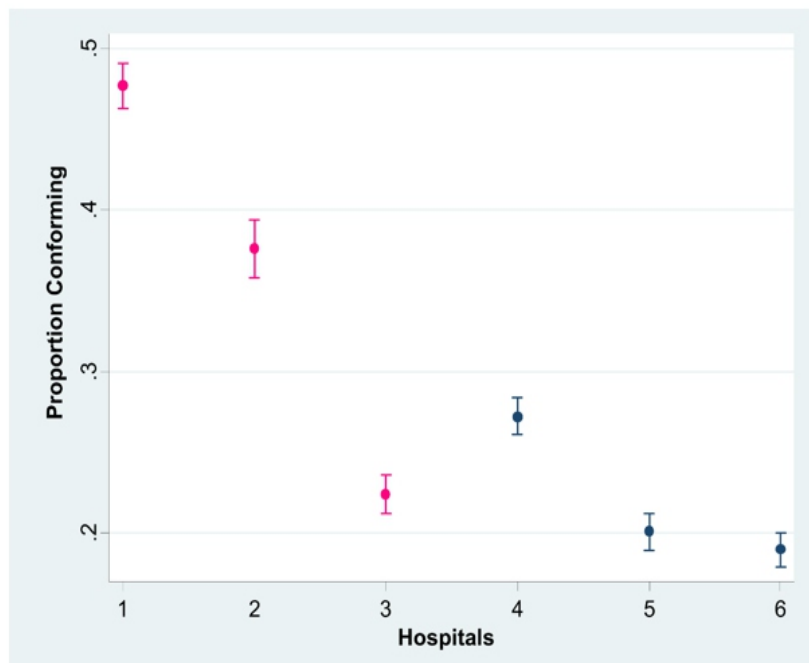


Figure 1: Comparison of Hospital Level Overall Compliance with the WHO criteria in Public and Private Sector Tertiary Care Level Hospitals in Peshawar, Khyber Pakhtunkhwa (Point Estimates and 95% Confidence Intervals).

private institutions. Overall, public sector hospitals achieved significantly higher conformity scores (35.6% vs. 22.3%, $Z = 24.6$, $p < 0.001$, $r=0.2$) and significantly lower proportions of partially met (58.6% vs. 64.0%, $Z=-9.3$, $p<0.001$, $r=0.06$) and unmet criteria (5.9% vs. 13.7%, $Z = -21.4$, $p < 0.001$, $r = 0.13$).

The least conforming three criteria in the public sector were C.1.1.4 “Minimizing verbal and phone orders” (0%), C.1.2.8 “Screening for falls” (0%), and C.4.2.1 “Ensuring prescription legibility” (0%). The three most compliant ones, in descending order of compliance were C.4.1.3 “Availability of life-saving medicines” (100%), C.2.2.6 “Pre-employment screening” (97.3% [93.3, 99.3%]), and B.2.1.1 “Informed consent propriety” (94.2% [89.3, 97.3%]).

In the Private sector, the three least conforming criteria were D.2.2.3 “Chemical waste management” (0%), E.1.1.1 “Staff education in patient safety” (0%), and E.2.3.2 “Quality projects promoting patient safety” (0%). The three most compliant criteria for the private sector were A.5.2.4

“Trainees’ supervision”, C.2.2.6 “Pre-employment screening”, and C.4.1.3 “Availability of life-saving medicines”, all 100% compliant. Figure 1 and Table II presents comparisons of conformity between the public sector and private sectors.

Domain-wise analysis: There are five domains specified by the World Health Organization in its Patient Safety Assessment Manual, third edition: A: Leadership and management, B: Patient and public involvement, C: Safe evidence-based clinical practice, D: Safe environment, and E: Life-long learning. As the criteria assessed in this study were care-site affirmable criteria, only core criteria were included in the leadership domain while only core and critical criteria were included in the fourth, safe environment, domain. Overall, conformity scores in the five domains significantly differed from each other (Kruskal-Wallis test $X^2(4)=1767.2$, $p<.001$, $n^2=.1$) while paired comparisons showed all group differences to be statistically significant with p values $< .001$ (effect sizes, r , ranging from 0.01 to 0.09), except the difference between B: Patient and Public involvement and E:

Life-long learning (Dunn's test $Z=1.35$, $p=.8834$), and C: Safe Practice and D: Safe Environment (Dunn's test $Z=1.35$, $p=.8834$).

The leadership domain achieved the highest proportion of criteria met among all the domains (34.5% [33.0, 36.1%]), followed by safe environment (30.5% [29.3, 31.8%]), safe evidence-based practice (29.6% [28.7, 30.6%]), patient and public involvement (23.5% [22.7, 24.4%]), and the lowest proportion of criteria met for life-long learning (22.4% [20.2, 24.6%]).

A: Leadership and management:

The three least complied with criteria in this domain, in increasingly higher order, were criterion A.5.2.3 “Rest breaks for staff” (2.0% [0.8, 4.1%]), followed by A.5.2.5 “Occupational health for staff” (2.9% [1.4, 5.2%]), and A.5.2.2 “Workplace violence prevention program” (17.5% [13.6, 21.9%]). The three highest complied with criteria, in descending order of compliance being A.5.2.4 “Trainees’ supervision” (84.5% [80.3, 88.2%]), A.6.2.4 “Medical records accessibility” (63.9%, [58.6, 68.9%]), and A.5.2.6 “Safe injections’ practice” (49.6% [42.2, 54.9%]).

B. Patient and public Involvement:

The three least compliant criteria in this domain, in ascending order, were B.3.1.1 “Two-way identity confirmation” (0%), B.2.2.6 “Propriety of patient and family education” (0%), and B.5.2.1 “Disclosure of adverse events” (0.3% [0, 1.6%]). The three most adhered to, in descending order of conformity, being B.2.1.1 “Informed consent propriety” (87.3% [83.4, 90.6%]), B.2.2.2 “Doctors’ informing patients” (77.3% [72.5, 81.5%]), and B.2.2.4 “Ful history on admission” (62.6% [57.3, 67.7%]).

C: Safe evidence-based clinical practice:

In this domain, the three least complied with criteria were C.4.2.1 “Prescription legibility” (0%), C.1.2.8 “Handover propriety” (0%), and C.1.2.2 “Communicating lab results after discharge” (6.3% [4.0, 9.4%]). The three most complied with criteria were, in descending order of compliance, C.4.1.3 “Availability of life-saving medicines” (100%), C.2.2.6 “Pre-employment screening” (98.8% [97.1,

99.7%]), C.4.1.2 “High concentration electrolytes safe-keeping” (82.0% [77.5, 85.8%]).

D: Safe environment: The three least complied with criteria in this domain, in ascending order of conformity, were D.1.2.3 “Preventive maintenance for equipment” (1.2% [0.3, 2.9%]), D.1.2.4 “Security program and secure areas” (14.4% [10.9, 18.6%]), and D.2.2.3 “Chemical waste management” (15.9% [12.2, 20.2%]). The most conformed to three criteria in this domain were, in descending order of conformity, D.2.2.5 “Color-code segregated wastes” (91.0% [87.5, 93.8%]), D.1.2.5 “Personal id display by staff” (50.9% [45.5, 56.2%]), and D.1.2.12 “Availability of safe food” (41.6% [36.4, 47.0%]).

E: Life-long learning: The two least complied with criteria in this domain, in ascending order of conformity, were E.1.1.1 “Patient Safety orientation for staff” (0.3%, [0.0, 1.6%]), and E.2.3.2 “Quality projects promoting patient safety” (0.9% [0.2, 2.5%]). The two most compliant ones, in descending order of conformity were E.2.2.1 “Research approval propriety” (80.1% [75.4, 84.1%]), and E.1.2.1 “Training in safe care and patient rights” (8.4% [5.7, 11.8%]).

Criterion-Class wise Analysis: The World Health Organization Safety Assessment Manual divides the criteria into three classes: Critical Criteria, Core Criteria, and Developmental Criteria. Out of these, the Critical criteria are the sine qua non of patient safety assessment, i.e. if a hospital does not achieve 100% on these criteria, it is below all gradings. Difference in conformity scores in the three classes of criteria was statistically significant (Kruskal-Wallis test $2(2)=752.5$, $p<.001$, $2=.03$). All pairwise comparisons were statistically significant with Dunn's test Z scores -24.5, 9.9, and 24.5, all p values $<.001$, and effect sizes, $r=0.2$, 0.1, 0.2 respectively.

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Critical criteria: The three least conforming criteria in this class, in ascending order of compliance were B.3.1.1 “Two-way identity confirmation” (0%), E.1.1.1 “Patient Safety orientation for staff” (0.3% [0.0, 1.6%]), and C.1.1.4 “Verbal and phone orders” (15.5% [11.8, 19.7%]). Three most compliant criteria in this class, by descending order of conformity, were C.4.1.3 “Availability of life-saving medicines” (100%), B.2.1.1 “Informed consent propriety” (87.3% [83.4, 90.6%]), and C.4.1.2 “High concentrations electrolytes safe-keeping” (82.0% [77.5, 85.8%]).

Core criteria: The three least compliant criteria in this domain were B.2.2.6 “Patient education propriety” (0%), C.1.2.8 “Fall screening” (0%), and C.4.2.1 “Ensuring prescription legibility” (0%). The most compliant three criteria in this class, by descending order of conformity, were C.2.2.6 “Pre-employment screening” (98.8% [97.1, 99.7%]), D.2.2.5 “Color-code segregated wastes” (91.0% [87.5, 93.8%]), and A.5.2.4 “Trainee supervision” (84.5% [80.3, 88.2%]).

Developmental criteria: The three least compliant criteria in this class, in ascending order of compliance were E.2.3.2 “Quality projects promoting patient safety” (0.9% [0.2, 2.5%]), B.6.3.1 “Patients & families' involvement in policies” (4.9% [2.9, 7.8%]), and B.6.3.2 “Patient education for health literacy” (8.2% [5.5, 11.5%]). The three most compliant ones, in descending order of conformity, were B.4.3.2 “Accessibility of medical records” (39.0% [33.8, 44.4%]), C.4.3.1 “Clinical pharmacist participation” (24.6% [20.1, 29.4%]),

and B.2.3.1 “Patient participating in care plans” (9.1% [6.3, 12.6%]).

Hospital level differences: The overall proportions of criteria complied with differed between the hospitals, with the highest scoring two hospitals being from the Public Sector, 47.7% [46.2, 49.1%] and 37.6% [35.8, 39.4%], The lowest scoring two were Private Sector hospitals, 20.1% [18.9, 21.2%] and 19.0% [17.9, 20.0%]. Only one out of three private sector hospitals outperformed one out of three public sector hospitals by 5 percentage points (Test of Proportions $Z = 5.75$, $p <.001$, $r = .06$).

DISCUSSION

Notwithstanding the audacity of the claim, this study appears to be unique in its approach. Existing literature on patient safety in healthcare institutions primarily focuses on assessments based on staff opinions,²⁶ patient safety culture in hospitals,²⁷ staff competency in patient safety,²⁸ qualitative analyses of hospital care,²⁹ or recall-based safety incidents reported by staff.³⁰ No studies were found evaluating the implementation of patient safety criteria in hospitals. Recognizing this gap, we present these findings with a deep sense of responsibility and commitment to advancing patient safety research.

The tertiary healthcare facilities of Peshawar cater for the healthcare needs of not only the whole population of Khyber Pakhtunkhwa province but also for a large number of Afghan citizens. Because of the spectrum of healthcare services delivered, it is commonly believed that these facilities provide state of the art care. In view of these prevalent impressions, the finding that less than 50% of even the critical patient safety criteria are met with is alarming, especially because the study is based on data from six of the best tertiary healthcare facilities in the province. It is pertinent to reiterate here that the World Health Organization specifies 100% compliance with the critical criteria as sine qua non of hospital grading in patient safety friendliness. For the highest level, four, a minimum of 90 percent conformity with the Core Criteria and 80 percent with the

Developmental Criteria is required in addition.

Evaluated based on these recommendations, none of these important institutions of our province would achieve even the minimum level of patient safety friendliness. This is in spite of the fact that all these hospitals have traditional quality management departments and personnel dedicated to healthcare quality initiatives.

Although conformity level in Critical Criteria was less than the recommended, compared with Core Criteria (26.5% [25.9, 27.1%]) and Developmental Criteria (14.4% [12.9, 16.0%]) conformity in the Critical Criteria was still better (49.4% [47.7, 51.2%]). The least complied with set of criteria, was the Developmental category of criteria. These criteria are about patients' access to information, education, and involvement in care process, holistic aspect of care, and active quality assessment projects aimed at patient safety ... all indicators of safe patient centered care.

Generally, the work in public sector institutions is thought to be routinely so lackluster that 'good enough for government work' has become a cliché for just passable quality, but here we have found that the public sector hospitals have outperformed the private institutions in conformity with all three categories of the WHO criteria. Although even the Public Sector institutes did not achieve the minimum level of patient safety friendliness, the difference between 36% and 22% of criteria complied with is quite an incentive for looking into what is being done relatively right in the public sector institutions regarding assurance of compliance with patient safety criteria.

Among the five domains of Patient Safety Friendly Hospital Framework criteria, the maximum conformity was observed in the first domain, leadership and management (34.5%, [33.0, 36.1%]) and the minimum in the fifth domain, lifelong learning (22.4% [20.2, 24.6%]). Life-long learning is a domain concerned with staff's professional development and education. Hospital staff are the grassroot level care-

delivery agents and their professional development has a direct impact on patient care.^{31,32} Moreover, healthcare staff, being in the immediate proximity of the ground level realities, has its hand on the pulse of a healthcare quality initiative and could be instrumental in effectively managing ongoing programs aimed at surveillance of quality of work routines and care delivery. With staff development being the least conforming among the five domains, the brunt, in the end, will be borne by the quality of care, the patient, and the business in the long run.

Findings of this study highlight the need for some reflection and dialogue on the way we are managing quality in our institutions generally and healthcare institutions especially, and raises several vital albeit acrid queries: Do these findings point to a general loss of meaning in what we do as a people? Is it a surrender to purposeless repetition of routines without having, or gaining, or even aiming for insights into reality of things around us? Is it 'the example' of the vital difference between being and becoming? Are we looking in the right direction for shaping our future? If we are carrying on doing 'quality' without knowing the effectiveness of our actions, do we even want any quality? These questions need to be contextualized by noting that we do not have any process of routinely assessing healthcare outcomes in place.

Such being the crux of performance, there is a definite need and a strong motive for a broader public-health-level dialogue on the state of healthcare quality in our institutions, involving not only the healthcare providers but administrators, quality experts, and educationists. The only way of ensuring conformity with any given set of criteria is to have in place a system of periodic audits, the results of which should then be viewed and assessed in the proper context of random variation, and shared with the stakeholders. Whether it matters if the audits are internally run or externally is beyond the scope of this study, but involving the healthcare staff in assessing their own realities is certainly more empowering in the long run compared with external audits.

Such audits should be aimed at not only process but also structure and outcome evaluations. Without any ongoing evaluation of reality, medical practice is akin to driving blindfolded on a busy, two-way traffic highway.

Limitations of the study

This study assessed only point-of-care affirmable criteria, which may not capture the full spectrum of patient safety challenges. A comprehensive evaluation incorporating the complete set of WHO criteria could provide additional insights and highlight further areas for improvement.

CONCLUSION

There are significant gaps in compliance with WHO patient safety criteria in tertiary hospitals in Peshawar, with only 28.1% of standards fully met. Public hospitals demonstrated better adherence (35.6%) than private hospitals (22.3%), yet both remained below WHO recommendations. Key deficiencies included inadequate staff training, lack of adverse event disclosure, and weak patient identity confirmation. Addressing these challenges requires urgent policy interventions, strengthened hospital accreditation mechanisms, and collaboration with WHO Pakistan to implement the Patient Safety Friendly Hospital Initiative. Additionally, healthcare institutions should establish dedicated patient safety programs, train professionals in clinical audits, and form ward-level quality teams led by trained clinicians to ensure ongoing compliance and continuous improvement in patient care.

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AUTHORS' CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

BH & ZUH: Conception and study design, acquisition, analysis and interpretation of data, drafting the manuscript, critical review, approval of the final version to be published

SF & IUH: Study design, acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest, whether financial or otherwise, that could influence the integrity, objectivity, or validity of their research work.

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request



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