

The Impact of Clinical Experience and Workload on Patient Safety Practices: A Cross-Sectional Analysis of Non-Technical Skills

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ABSTRACT

We intend to assess the non-technical skills of patient safety among consultants and residents to improve patient safety culture. In April to June 2024, a cross-sectional study surveyed 350 medical doctors (MBBS), consisting of both residents and consultants from Medicine, Surgery and allied specialties. Patients were collected from three tertiary care hospitals in Karachi, Lahore and Quetta. I interviewed the staff in person and they also completed the HSOPSC questionnaire in an online format. The data analysis included descriptive statistics and compares residents with consultants using appropriate statistics. The strongest positive outcomes were achieved in Teamwork (80.3%), System-Based Practices (61%) and Communication amongst units and with other healthcare teams (55.8% and 53.5%). Those who had worked in clinical care for more than five years were almost twice as likely to use patient safety practices as those who had worked for only 1 to 5 years (AOR = 1.98; 95% CI: 1.20–3.63; $p = 0.03$). There was a significant increase in patient safety adherence among nurses who worked from 20 to 39 hours each week (AOR = 0.048). Medical professionals who have only 1–5 years of experience in their speciality were more than five times likelier to stick to rules on patient safety (AOR = 5.447; 95% CI: 2.052–14.4; $p = 0.001$). According to the research, hospitals experienced significant challenges with reporting adverse events and administration did not handle matters non-punitive. Differences in how residents and consultants view and use patient safety non-technical skills show that a concerted effort is required to improve patient safety in healthcare settings.

Keywords: Clinical experience, workload, patient safety, non-technical skills, cross-sectional study

INTRODUCTION

In contemporary healthcare systems, patient safety remains a foundational pillar of high-quality care.¹ While technical proficiency-including diagnostic accuracy and procedural competence-is undeniably essential, a growing body of evidence emphasizes the indispensable role of non-technical skills (NTS) in safeguarding clinical outcomes.^{2,3} These cognitive, social, and interpersonal competencies-encompassing communication, teamwork, leadership, decision-making, and situational awareness-act as critical buffers against system failure, particularly in high-acuity environments where the margin for error is minimal. The healthcare landscape is increasingly characterized by complexity, marked by rising patient acuity, expanding interprofessional teams, and escalating administrative burdens.^{4,5} In this context, clinicians are frequently exposed to intense workload demands that exceed their cognitive and emotional capacity, leading to decision fatigue, communication breakdowns, and compromised situational awareness.^{6,7} High workload has been consistently linked to diminished vigilance and increased medical errors, undermining the effective application of non-technical skills even among otherwise competent professionals.⁸ Conversely, clinical experience has long been considered a protective factor in maintaining patient safety.^{9,10} Experienced practitioners are generally perceived to possess superior pattern

recognition, refined clinical judgment, and enhanced stress tolerance-qualities that ostensibly bolster the use of non-technical skills under pressure. However, recent research challenges the uncritical valorization of experience. Accumulated clinical years may bring familiarity, but also the risk of cognitive rigidity, overconfidence, and normalization of deviance-phenomena that can offset the presumed safety benefits of experience if not actively managed.¹¹

Efforts to formally embed non-technical skills into healthcare training and safety protocols have gained momentum over the past two decades.^{12,8} Drawing inspiration from the aviation industry's Crew Resource Management (CRM) model, structured interventions such as simulation-based training, team briefings, and standardized communication tools (e.g., SBAR) have become widely advocated to enhance NTS performance across multidisciplinary teams.¹³ Yet, the successful operationalization of these strategies remains uneven. Institutional culture, individual resilience, clinical workload, and prior experience all interact to shape how non-technical skills are internalized and applied in clinical settings.¹⁴

Despite increasing focus on non-technical skills (NTS), limited evidence exists on how workload and clinical experience interact to influence their effectiveness.^{15,16} This study explores whether experience mitigates workload stress or if heavy demands diminish NTS performance, aiming to inform workforce planning, training, and patient safety interventions in clinical settings.



METHODOLOGY

A study was performed between April and June 2024 to measure Patient Safety Non-Technical Skills (PS NTSS) among doctors who are FCPS residents and consultants practicing Medicine, Surgery and allied specialties in three tertiary care hospitals in Karachi, Lahore and Quetta. Overall, 350 people were selected for the study after giving informed consent through purposive sampling. Customers filled out the Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire either face-to-face or in an online manner. Surveys were used to measure teamwork, communication, adherence to set procedures and the attitude towards patient safety. We used SPSS to assess the data and compared the reactions of respondents. Appropriate statistical calculations were applied to weigh up whether there was any link between clinical experience, workload and patient safety practices.

RESULTS

A total of 350 medical doctors participated in the study, including both residents and consultants from three tertiary care hospitals in Karachi, Lahore, and Faisalabad. Table 1 presents the average positive response percentages for key patient safety non-technical skill domains. Teamwork received the highest positive rating at 80.3%, followed by System-Based Practices (61%) and Communication within and between units (55.8% and 53.5%, respectively).

Table 2 illustrates how much clinical experience affects the use of patient safety practices. Generally, physicians practicing for more than five years were two times more likely to practice patient safety than those with between one and five years of experience (AOR = 1.98, 95% CI: 1.20–3.63, $p = 0.03$). Those who worked 20 to 39 hours a week were more likely to use patient safety practices (AOR = 0.048, 95% CI: 0.006–0.390, $p = 0.04$). In addition, those with 1 to 5 years of experience in their field followed patient safety protocols 5.44 times more than those with other work experience (AOR = 5.447, 95% CI: 2.052–14.4, $p = 0.001$).

Researchers found that problems with reporting adverse events and a lack of understanding response from hospital management are some gaps that should be improved.

Table 1: Average Positive Response Percentages for Patient Safety Domains (N=350)

Patient Safety Domain	Average Positive Response (%)
Teamwork	80.3
System-Based Practices	61.0
Communication Within Units	55.8
Communication Between Units	53.5

Average Positive Response (%)

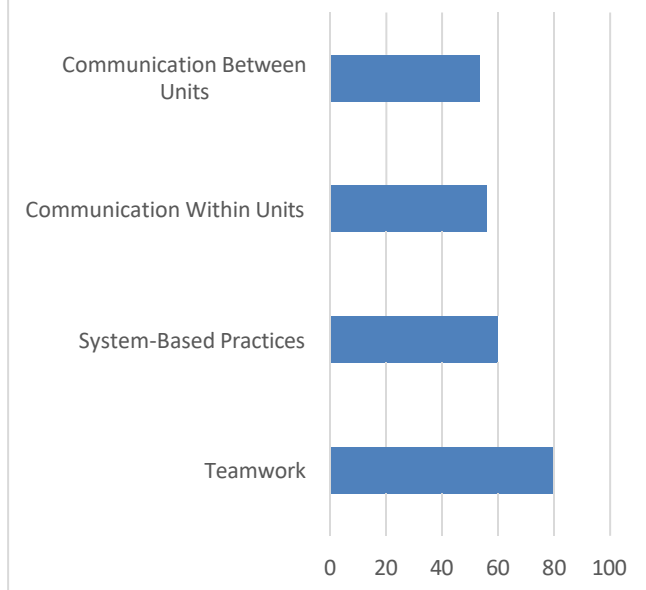
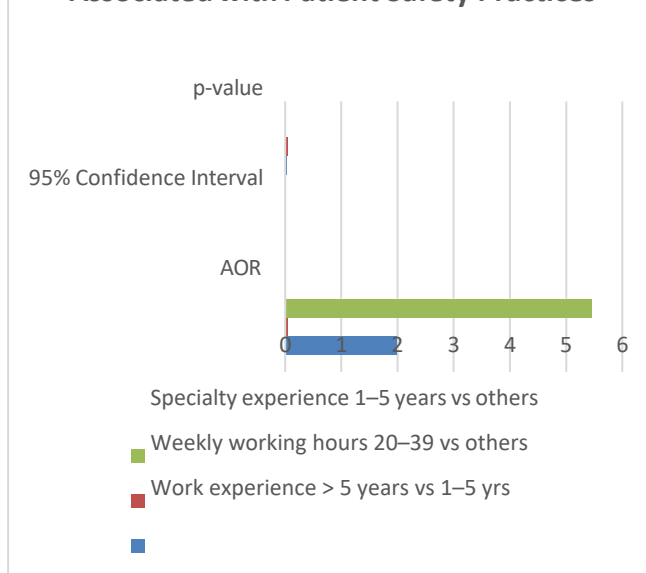


Table 2: Adjusted Odds Ratios (AOR) for Factors Associated with Patient Safety Practices

Variable	AOR	95% Confidence Interval	p-value
Work experience > 5 years vs 1-5 yrs	1.98	1.20 – 3.63	0.03
Weekly working hours 20-39 vs others	0.048	0.006 – 0.390	0.04
Specialty experience 1-5 years vs others	5.447	2.052 – 14.4	0.001

Adjusted Odds Ratios (AOR) for Factors Associated with Patient Safety Practices



DISCUSSION

The significant association between clinical experience and patient safety practices supports the hypothesis that more experienced clinicians tend to have better non-technical skills and situational awareness.^{6,11} Respondents with over five years of experience were almost twice as likely to adhere to patient safety practices compared to those with less experience. This finding is consistent with evidence suggesting that clinical experience enhances situational awareness, cognitive performance, and decision-making under pressure, all of which are essential for preventing adverse events.⁶ However, it is notable that clinicians with 1–5 years of specialty experience demonstrated the strongest adherence to safety practices (AOR = 5.447), which may indicate that mid-level clinicians are more actively engaged in safety protocols and are more recently trained in updated patient safety principles and non-technical skills.^{12,13} This highlights the importance of continuous professional development for clinicians at all career stages to maintain high standards of patient safety.^{2,16}

Workload, measured as weekly working hours, demonstrated a protective effect on patient safety practices within a moderate range (20–39 hours/week). This suggests that excessive workload may impair cognitive functioning and non-technical skills, whereas a balanced workload allows clinicians to apply safety practices more effectively.¹¹ This finding is supported by studies demonstrating that increased workload contributes to cognitive overload, stress, and reduced adherence to patient safety protocols.^{7,9} It also reinforces the importance of optimizing clinician schedules to reduce burnout and maintain high-quality patient care.^{1,5} Despite these positive findings, the study uncovered significant challenges. Poor adverse event reporting and the absence of a non-punitive response culture remain barriers to fostering open communication and learning from errors. Such organizational factors can discourage healthcare workers from reporting near-misses or mistakes, thereby limiting opportunities for quality improvement and patient safety enhancement.^{7,9} The discrepancy in perceptions and practices of patient safety between residents and consultants further suggests the need for standardized training, simulation-based education, and institutional policies that promote a unified safety culture across all professional groups.^{15,16}

Overall, this study emphasizes the multifaceted nature of patient safety, where individual experience, workload, and organizational culture interact to shape clinical outcomes. Efforts to enhance patient safety should therefore be comprehensive, combining workload management, ongoing education in non-technical skills, multidisciplinary teamwork, and the promotion of a supportive, non-punitive environment.^{3,8} Future research should explore the longitudinal effects of these factors and evaluate interventions aimed at strengthening non-technical skills across different healthcare settings.^{12,16}

CONCLUSION

This study highlights that greater clinical experience and balanced workload positively influence patient safety practices through improved non-technical skills. However, challenges such as poor adverse event reporting and a punitive organizational culture hinder optimal patient safety. Strengthening teamwork, communication, and supportive institutional policies is essential to foster a robust patient safety culture across all levels of clinical experience.

Ethical Approval

ERC/ 10 Jan 24/F-1009

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