

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 Faisalabad. 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 Faisalabad. 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

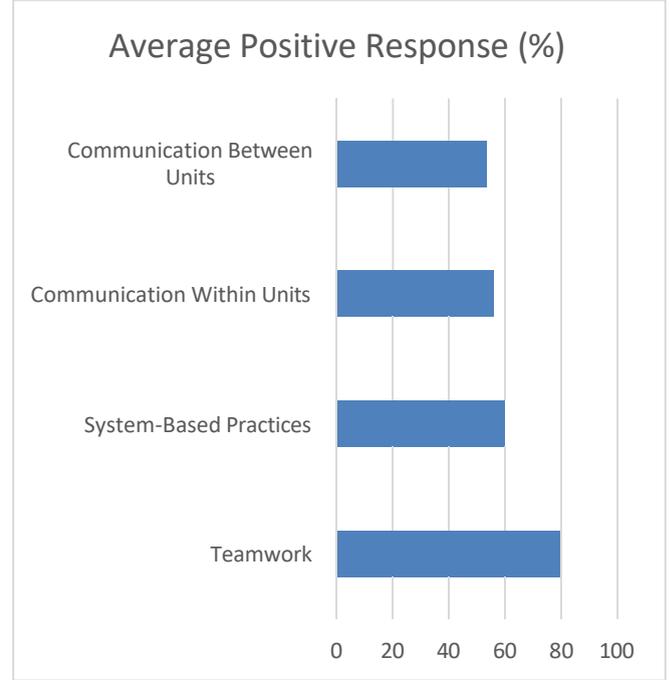
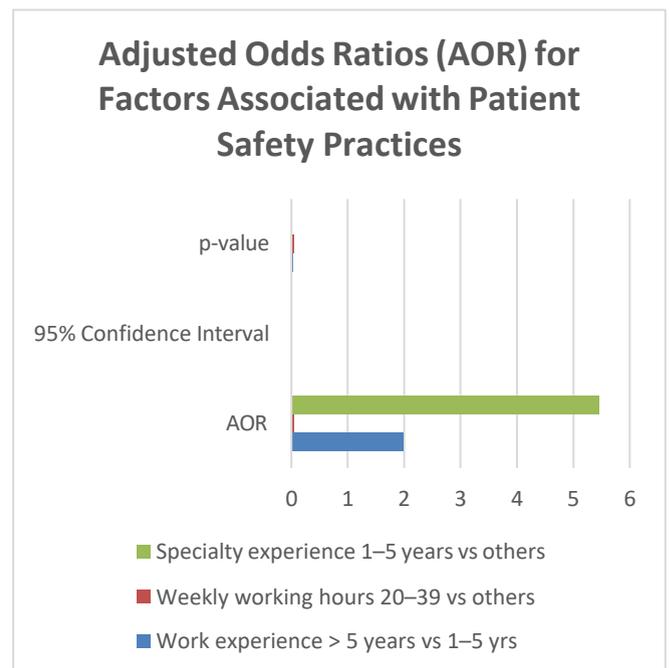


Table 2: Adjusted Odds Ratios (AOR) for Factors Associated with Patient Safety Practices

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



DISCUSSION

This study examined the impact of clinical experience and workload on patient safety practices, focusing on the role of non-technical skills (NTS) among medical doctors in tertiary care hospitals in Pakistan. The findings reveal important insights into how these factors influence the culture and practices of patient safety in real-world clinical settings.

The high positive response rate in the teamwork domain (80.3%) aligns with previous literature emphasizing teamwork as a cornerstone of safe clinical environments (Salas et al., 2005). Effective collaboration and mutual support among healthcare providers are essential to minimize errors and enhance patient outcomes. Similarly, the moderate positive responses in system-based practices and communication highlight ongoing efforts to integrate structured safety protocols and improve interprofessional communication, although these areas require further strengthening. Communication within and between units scored just above 50%, suggesting room for improvement in ensuring seamless information exchange—a critical factor in reducing medical errors (Arora et al., 2010).

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. 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 Endsley's (1995) theory that clinical experience enhances situational awareness and decision-making under pressure, which are vital for preventing adverse events. 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 perhaps more recently trained in updated guidelines. This highlights the potential need for continuous professional development among all levels of experience to maintain high safety standards.

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. This finding aligns with Carayon and Gürses (2008), who noted that high workload increases stress and diminishes attention to safety protocols. It also reinforces the importance of managing clinician schedules to prevent burnout and safeguard patient safety.

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 systemic improvements (Reason, 2000). The discrepancy in perceptions and practices of patient safety between residents and consultants further suggests the need for standardized training and institutional policies that promote a unified safety culture.

Overall, this study emphasizes the multifaceted nature of patient safety, where individual experience, workload, and organizational culture interact to shape outcomes. Efforts to enhance patient safety should therefore be comprehensive, combining workload management, ongoing education in non-technical skills, and the promotion of a supportive, non-punitive environment. Future research could explore longitudinal impacts of these factors and assess interventions aimed at strengthening NTS across different clinical settings.

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.

REFERENCES

1. Adams, C., Walpolo, R., Iqbal, M. P., Schembri, A., & Harrison, R. (2024). The three pillars of patient experience: identifying key drivers of patient experience to improve quality in healthcare. *Journal of Public Health*, 1-9.
2. Jain, S., Jain, B. K., Jain, P. K., & Marwaha, V. (2022). "Technology Proficiency" in Medical Education: Worthiness for Worldwide Wonderful Competency and Sophistication. *Advances in Medical Education and Practice*, 13, 1497.
3. Gamborg, M. L., Salling, L. B., Rölfing, J. D., & Jensen, R. D. (2024). Training technical or non-technical skills: an arbitrary distinction? A scoping review. *BMC Medical Education*, 24(1), 1451.
4. Anderson, A. J., Noyes, K., & Hewner, S. (2023). Expanding the evidence for cross-sector collaboration in implementation science: creating a collaborative, cross-sector, interagency, multidisciplinary team to serve patients experiencing homelessness and medical complexity at hospital discharge. *Frontiers in Health Services*, 3, 1124054.
5. Alshammari, A. R. N., Alshammari, K. H. H., Alshammari, F. R. N., Alshammari, A. H. D., Alshammari, H. M., Alshammari, M. B., ... & Alshammari, O. B. T. (2024). Critical Analysis of Nursing Roles in An Evolving Healthcare Landscape. *Journal of Ecohumanism*, 3(8), 2500-2511.
6. Qureshi, M. (2024). Scene Safety and Situational Awareness in Disaster Response. In *Ciottono's Disaster Medicine* (pp. 281-289). Elsevier.
7. Soori, H. (2024). Errors in Medical Procedures. In *Errors in Medical Science Investigations* (pp. 205-224). Singapore: Springer Nature Singapore.
8. Sinyard, R. D., Rentas, C. M., Gunn, E. G., Etheridge, J. C., Robertson, J. M., Gleason, A., ... & Smink, D. S. (2022).

- Managing a team in the operating room: The science of teamwork and non-technical skills for surgeons. *Current Problems in Surgery*, 59(7), 1011-1072.
9. Fekonja, Z., Kmetec, S., Fekonja, U., Mlinar Reljić, N., Pajnikihar, M., & Strnad, M. (2023). Factors contributing to patient safety during triage process in the emergency department: A systematic review. *Journal of Clinical Nursing*, 32(17-18), 5461-5477.
 10. Atashzadeh-Shoorideh, F., Shirinabadi Farahani, A., Pishgooie, A. H., Babaie, M., Hadi, N., Beheshti, M., ... & Skerrett, V. (2022). A comparative study of patient safety in the intensive care units. *Nursing Open*, 9(5), 2381-2389.
 11. Caddick, Z. A., Fraundorf, S. H., Rottman, B. M., & Nokes-Malach, T. J. (2023). Cognitive perspectives on maintaining physicians' medical expertise: II. Acquiring, maintaining, and updating cognitive skills. *Cognitive Research: Principles and Implications*, 8(1), 47.
 12. Zhang, C. (2023). A literature study of medical simulations for non-technical skills training in emergency medicine: Twenty years of progress, an integrated research framework, and future research avenues. *International Journal of Environmental Research and Public Health*, 20(5), 4487.
 13. Perera, P. A. D. (2022). *Non-technical skills of health professionals and teams in the high-acuity maternity aeromedical transport setting* (Doctoral dissertation, University of Otago).
 14. Alizadeh, M., Masoomi, R., Mafinejad, M. K., Parmelee, D., Khalaf, R. J., & Norouzi, A. (2024). Team-based learning in health professions education: an umbrella review. *BMC Medical Education*, 24(1), 1131.
 15. Cha, J. S., Athanasiadis, D. I., Peng, Y., Wu, D., Anton, N. E., Stefanidis, D., & Yu, D. (2024). Objective nontechnical skills measurement using sensor-based behavior metrics in surgical teams. *Human Factors*, 66(3), 729-743.
 16. Le Duff, M., Michinov, E., Bracq, M. S., Mukae, N., Eto, M., Descamps, J., ... & Jannin, P. (2023). Virtual reality environments to train soft skills in medical and nursing education: a technical feasibility study between France and Japan. *International Journal of Computer Assisted Radiology and Surgery*, 18(8), 1355-1362.