

Knowledge Level and Attitudes of Healthcare Professionals Regarding Patient Safety in a Tertiary Hospital in Somalia: A Cross-Sectional Study

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Background: Patient safety culture involves shared values, perceptions, and attitudes regarding safety within healthcare organizations, aiming to minimize preventable harm to patients. This concept has gained prominence worldwide, especially in Africa, where recent efforts focus on patient safety as a fundamental component of healthcare delivery. Despite progress, research into patient safety culture and its influencing factors remains limited in low-resource settings.

Objective: This study assessed the knowledge and attitudes of healthcare professionals toward patient safety at a tertiary hospital.

Methods: A cross-sectional study was conducted involving healthcare workers at the hospital. Data was collected using a structured self-administered questionnaire, capturing socio-demographic information, patient safety knowledge, and attitudes. Statistical analysis was performed using IBM SPSS Statistics 27, employing descriptive statistics and Pearson's chi-square test to evaluate differences between socio-demographic factors and patient safety attitudes.

Results: Among 300 respondents, 59% were male, and 65% were aged 21–30 years. Nurses accounted for 41% of participants. The majority (86%) reported sufficient patient safety knowledge, with 82% supporting patient safety inclusion in undergraduate education, furthermore 44.8% exhibited positive attitudes. Age and professional experience were significantly associated with positive patient safety attitudes ($P = 0.012$ and $P = 0.003$, respectively). Most respondents (74.7%) reported encountering medical errors, primarily technical errors, indicating a need for targeted training interventions.

Conclusion: Despite adequate self-reported knowledge, positive attitudes toward patient safety were limited—particularly among younger and less experienced professionals. These findings indicate that improving patient safety in Somali healthcare settings requires not only educational initiatives but also system-level interventions, including leadership support, non-punitive error reporting, and strategies that empower frontline staff. Future research should explore how these factors influence long-term safety culture development.

Keywords: knowledge level, attitudes, healthcare professionals, patient safety Somalia

Background

Patient safety is a fundamental component of healthcare quality and encompasses the organized activities, cultures, procedures, behaviors, technologies, and environments that consistently lower healthcare risks, reduce avoidable harm, and minimize errors' likelihood and impact.¹ Unsafe care remains a significant global concern, particularly in low- and middle-income countries (LMICs), where approximately 134 million adverse events occur annually, resulting in around 2.6 million deaths.²

Historically, patient safety has received insufficient attention in healthcare education and practice, especially within developing nations. Studies from various regions indicate that healthcare professionals frequently lack adequate knowledge, attitudes, and practices regarding patient safety. For instance, recent research conducted among health science students in

Ethiopia revealed that only 43.2% had good patient safety knowledge, 45.4% demonstrated favorable attitudes, and merely 19.9% exhibited proper practices.³ Similar patterns exist globally, underscoring significant gaps in educational curricula and clinical training that negatively influence patient safety outcomes.

Recognizing these shortcomings, healthcare education institutions have begun integrating structured patient safety curricula. The World Health Organization (WHO) Patient Safety Curriculum Guide specifically advocates for embedding patient safety principles across all educational levels within healthcare, focusing particularly on non-technical competencies such as communication, teamwork, error reporting, and systems thinking.⁴ Furthermore, evidence suggests that nursing students typically exhibit higher patient safety knowledge and attitudes compared to medical students, highlighting the impact of curricular design and clinical exposure on safety competencies.⁵

Patient safety is inherently systemic, influenced by individual behaviors and broader organizational culture factors. Effective patient safety requires a supportive safety culture characterized by open communication, non-punitive responses to error reporting, continuous learning, and clear leadership that prioritizes safety.⁶ However, barriers such as fear of blame, underreporting of incidents, insufficient staffing, and inadequate training persist, particularly in LMICs, including Somalia, where health systems encounter extensive structural and resource challenges.^{7,8}

In Somalia, integration of patient safety into healthcare delivery and education remains limited, exacerbated by scarce comprehensive data regarding healthcare professionals' perceptions and safety practices. Understanding the existing levels of knowledge and attitudes among healthcare professionals is crucial to developing effective interventions, policies, and fostering a robust safety culture in healthcare institutions.⁹

Thus, this study aims to assess healthcare professionals' knowledge and attitudes toward patient safety at Mogadishu Somali Turkey Recep Tayyip Erdogan Training and Research Hospital. Exploring these dimensions within a tertiary hospital setting can inform national discussions on patient safety and guide strategic interventions aimed at improving patient safety culture in Somali healthcare environments.

Methods Section

Study Design and Setting

This cross-sectional institutional-based study was conducted at Mogadishu Somali Turkey Recep Tayyip Erdogan Training and Research Hospital, the largest public and tertiary referral hospital in Somalia. The hospital has a bed capacity of approximately 200 and offers comprehensive services in internal medicine, surgery, pediatrics, obstetrics and gynecology, emergency care, and intensive care. Since its opening in 2015, the hospital has expanded its institutional infrastructure, including the establishment of a Quality Control Office in 2022 and an Education Department in 2017, reflecting its commitment to improving service delivery, training, and patient safety. Although some quality improvement initiatives are in place, a comprehensive hospital-wide patient safety program is still under development.

Study Population and Sampling

The study targeted healthcare professionals (physicians, nurses, midwives, laboratory technicians, pharmacists, and others) who had at least six months of work experience at the hospital. Administrative staff and interns were excluded. A total sample size of 300 participants was determined using a single population proportion formula with accounted for a 47.7% prevalence of positive patient safety attitudes,¹⁰ 5% margin of error, 90% confidence level, and a 10% non-response rate. A simple random sampling method was used to ensure equitable representation of the eligible participants.

Data Collection Tool and Procedures

The data collection instrument was a structured, self-administered questionnaire designed specifically for this study. It was adapted from internationally validated tools, including the WHO Patient Safety Curriculum Guide,⁴ the Hospital Survey on Patient Safety Culture (HSOPSC),¹¹ and other peer-reviewed literature. The full questionnaire used in this study is available as [Supplementary File 1](#). The questionnaire was written in English, as it is the primary language of instruction in Somali health education.

To ensure content validity, the initial draft of the questionnaire was reviewed by a panel of clinical experts and academic researchers in patient safety and healthcare quality. Feedback from this panel led to refinement of the item wording and format to ensure cultural and contextual appropriateness.

The finalized instrument comprised 19 items divided into three sections:

1. Demographic and professional characteristics (4 items) – age, gender, role, department, years of experience, and previous patient safety training.
2. Knowledge of patient safety (11 items) – assessed via a 11- items including self-rated knowledge, training needs, exposure to medical errors, error handling, and views on error prevention. Beside that the self-related knowledge included: “Do you have sufficient knowledge about patient safety?” Responses were binary: “Yes” (coded = 1) for sufficient knowledge, and “No” (coded = 0) for insufficient knowledge. Sufficient knowledge was defined as the respondent’s perception of having adequate understanding of the principles, processes, and risks associated with patient safety.
3. Attitude toward patient safety (5 items) – assessed through five statements rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). These items addressed key areas including prioritizing patient safety, empowerment in speaking about concerns, incident reporting efficacy, resource adequacy, and team collaboration. Total scores were calculated, and the group mean was used as a threshold: participants scoring at or above the mean were categorized as having a high (positive) attitude (coded = 1), and those below the mean as having a low (negative) attitude (coded = 0).

Data Collection Procedure

Data were collected using Google Forms, an online survey platform. To minimize incomplete responses and data loss, all questions were marked as required, preventing form submission unless fully completed. This approach ensured 100% item response rates and facilitated secure and efficient data collection. The study was conducted over a four-month period, from June 1 to September 30, 2024.

Data Management and Analysis

Data were exported from Google Forms into Microsoft Excel, cleaned, and then analyzed using IBM SPSS version 27. Descriptive statistics (frequencies and percentages) were used to summarize demographic data, knowledge levels, and attitudes. Pearson’s chi-square tests were applied to examine relationships between categorical independent variables (eg, age, profession, experience) and the outcome variable (attitude toward patient safety, categorized as high or low based on total scores). A p-value of < 0.05 was considered statistically significant. Normality testing was conducted prior to analysis to confirm the appropriateness of chi-square use for categorical data.

Ethical Considerations

Approval for the study was obtained from the hospital’s ethics committee (Reference No. MSTH/17197). Participants were informed about the study’s purpose, provided written consent, and submitted completed questionnaires confidentially. Privacy and confidentiality were maintained throughout the research process.

Results

Socio-Demographic Characteristics of Respondents

A total of 300 healthcare professionals participated in this study. The gender distribution was 59% male and 41% female. The largest age group was 21–30 years (65%), followed by 31–40 years (28.3%), 41–50 years (4.3%), and those above 50 (1.7%). Only 0.7% of respondents were under 20 years. Regarding professional roles, 41% were nurses, 36% physicians, and 23% from other healthcare professions. In terms of professional experience, 39% had 3–6 years of experience, 34% had more than 7 years, and 27% had less than 3 years [Table 1](#).

Table 1 Socio-Demographic Characteristics of Healthcare Professionals

Variables	Labels	Frequency (%)
Gender	Male	177(59)
	Female	123(41)
Age	Less than 20 years	2(0.7)
	21 to 30 years	195(65)
	31 to 40 years	85(28.3)
	41 to 50 years	13(4.3)
	51 years and above	5(1.7)
Professional	Physician	108(36)
	Nurse	123(41)
	Others	69(23)
Years of Experience	Less than 3 years	81(27)
	3 to 6 years	117(39)
	7 years and above	102(34)

Knowledge of Patient Safety

In Table 2, Out of the 300 respondents, 86% reported having sufficient knowledge of patient safety, while 14% believed they had insufficient knowledge. When asked about their familiarity with national and international patient safety guidelines, 63% rated their knowledge as moderate, and 28.7% rated it as high. Furthermore, 82% supported including patient safety education in undergraduate curricula, and 85.7% endorsed in-service training in hospitals.

Most respondents (74.7%) reported having encountered medical errors during their professional experience. Of those errors, 41% were technical implementation errors, followed by wrong medication administration or interventions (31.7%), and other types such as infections, wrong-site surgery, or aseptic failures (27.3%).

Regarding responses to errors, 34.7% reported that training was given, 31% said that an incident reporting form was filled, 26.7% stated that no report was made, and 7.7% reported that punishment was applied. In terms of what should be done when encountering an error, 55% advocated for understanding and reporting the problem, 21% recommended training, 10% said it should not be reported unless necessary, and 2.3% supported punishment.

Opinions on the appropriateness of punishing healthcare workers for errors were split—51.3% agreed with punishment, while 48.7% did not. When asked about ways to prevent errors, 54% recommended regular inspections and training, 18.3% suggested improving staffing and working conditions, and 10.3% emphasized teamwork.

Attitudes Toward Patient Safety

Attitudes were measured using five statements rated on a 5-point Likert scale. The results showed an even distribution of attitudes: 44.8% had a high attitude, while 55.2% had a low attitude toward patient safety.

Differences in Attitudes Toward Patient Safety by Socio-Demographic Characteristics

The Chi-square test was used to examine whether there were statistically significant differences in attitudes toward patient safety across socio-demographic variables. No significant difference was found based on gender ($p = 0.94$). However, significant differences in attitude were observed across age groups ($p = 0.012$) and years of experience ($p = 0.003$). Respondents aged 41–50 years exhibited the highest proportion of positive attitudes (76.9%), whereas those aged 21–30 years showed lower levels (42.6%). Likewise, those with over 7 years of experience reported a greater frequency of positive attitudes (61.8%) compared to respondents with less than 3 years of experience (37%). Differences in attitude by professional role were not statistically significant ($p = 0.685$).

Table 2 Distribution of Patient Safety Knowledge and Attitude Responses

Variables	Labels	Frequency (%)
1. Level of knowledge about patient safety	I have sufficient knowledge I have insufficient knowledge	258(86) 42(14)
2. Knowledge of national and international patient safety guidelines and standards	Low Middle High	25(8.3) 189(63) 86(28.7)
3. Should training on patient safety be provided in undergraduate education?	Should be given Should not be given No idea	246(82) 31(10.3) 23(7.7)
4. Should in-service training on patient safety be provided in the hospital?	Should be given Should not be given No idea	257(85.7) 25(8.3) 18(6)
5. What do you think are the roles of healthcare professionals in patient safety?	A. Identifying risks related to patient safety, planning, implementing and evaluating preventive practices B. Supporting the implementation of established patient safety practices	208(69.3) 92(30.7)
6. Have you encountered any medical errors during your years of employment?	I did encounter I did not encounter	224(74.7) 76(25.3)
7. Type of medical error encountered	Wrong medication administration or wrong medical intervention Technical implementation error Others	95(31.7) 123(41) 82(27.3)
8. What procedure was used in the medical errors you encountered?	Error not reported anywhere An attempt was made to understand the problem and the incident reporting form was filled out Training was given Punishment was given	80(26.7) 93(31) 104(34.7) 23(7.7)
9. What do you think should be taken into consideration when encountering a medical error?	I have no idea The problem should be tried to be understood, and the error should be reported It should not be reported unless necessary Training should be given Should be punished	35(11.7) 165(55) 30(10) 63(21) 7(2.3)
10. Is it right to punish a healthcare worker who makes a medical error?	It is right to punish Not true	154(51.3) 146(48.7)
11. What are your suggestions for preventing medical errors?	I have no idea Regular inspections should be carried out and training should be provided The number of doctors and nurses should be increased and working conditions should be regulated Cooperation should be ensured among healthcare personnel Courses on the subject should be added in undergraduate education Deterrent punishment should be applied	28(9.3) 162(54) 55(18.3) 31(10.3) 19(6.3) 5(1.7)
Attitudes Toward Patient Safety	High (Positive) attitude Low (Negative) attitude	184 (44.8) 227 (55.2)

Discussion

The demographic composition of healthcare professionals at Mogadishu Somali Turkey Recep Tayyip Erdoğan Training and Research Hospital offers important context for interpreting patient safety perceptions. Among the 300 participants, a substantial majority (65%) were between the ages of 21 and 30, indicating a predominantly young and early-career

workforce. This finding reflects the institutional staffing profile and the broader demographic trends of the healthcare workforce in post-conflict or resource-limited settings, where a younger cohort often fills positions due to workforce shortages and recent expansions in training programs.¹² While this group is vital to the healthcare system, their limited clinical exposure and practical experience may hinder the development of mature safety attitudes and behaviors. Previous studies have reported that younger or less experienced professionals tend to have lower safety attitudes and may be less confident in navigating complex patient safety scenarios compared to their more seasoned counterparts.^{3,5} These trends underscore the need for targeted capacity building, mentorship, and institutional support systems that can enhance the safety competencies of early-career healthcare workers.

In this study, the gender distribution of respondents included 59% males and 41% females. While this ratio reflects the current composition of the hospital's healthcare workforce, it does not imply gender inequity in safety engagement without additional context on staffing policies and leadership representation. Notably, there was no statistically significant association between gender and attitudes toward patient safety ($p = 0.94$). This finding aligns with prior research indicating that gender does not consistently influence healthcare professionals' perceptions or behaviors related to patient safety.^{13,14} A study by Al-Khaldi et al¹³ examining patient safety culture in primary care found no gender-based differences in attitudes, reinforcing the idea that safety interventions should target the entire workforce rather than specific demographic groups.

Nurses comprised 41% of the study participants, making them the largest professional group represented, followed by physicians (36%) and other healthcare staff such as technicians and administrators (23%). Given their central role in direct patient care, nurses are uniquely positioned to influence patient safety through daily interactions and protocol adherence. However, their ability to execute safety practices—such as incident reporting or hand hygiene—is often constrained by systemic challenges. These include staff shortages, high workloads, and entrenched hierarchical dynamics that can limit their autonomy or discourage raising concerns. Aveling et al⁷ observed that in many low-income settings, nurses' capacity to advocate for patient safety is significantly undermined by institutional weaknesses and power asymmetries. Therefore, while nurses play a critical operational role, improving safety outcomes demands not only targeted training for them but also structural reforms that empower their participation in safety culture development.

Regarding the knowledge and attitudes toward patient safety (Table 2), a high percentage (86%) of respondents believed that they had sufficient knowledge about patient safety. This self-reported knowledge level aligns with findings from similar studies, where healthcare professionals often rate their patient safety knowledge positively, despite documented gaps in understanding and application of safety principles.³ However, the 8.3% who reported low levels of knowledge indicate that there is still a need for targeted training, especially among less experienced professionals. Studies have shown that continuous professional development, particularly through structured in-service training, can significantly enhance healthcare workers' patient safety competencies.⁵

Support for patient safety education was highly positive, with 82% of respondents advocating for its inclusion in undergraduate education and 85.7% supporting in-service training. These findings are consistent with literature that emphasizes the need for early and continuous patient safety education.⁸ Given that 74.7% of respondents had encountered medical errors during their employment, there is a clear need for strong training programs to minimize such occurrences. The fact that 41% of these errors were related to technical implementation further highlights the need for specialized training focused on practical, hands-on patient safety skills.⁹

Table 3 exploration of the differences between socio-demographic factors and attitudes toward patient safety found significant differences with both age and years of experience. Healthcare professionals aged 41–50 years demonstrated the highest levels of positive attitudes (76.9%), which is in line with previous studies suggesting that more experienced professionals tend to have greater confidence and a stronger commitment to patient safety.⁸ In contrast, younger professionals aged 21–30 showed lower levels of positive attitudes (42.6%). This age group, often newer to the workforce, may not yet have the confidence or experience needed to take a proactive approach to patient safety.⁵

Similarly, healthcare professionals with more than 7 years of experience demonstrated significantly higher positive attitudes toward patient safety (61.8%) compared to those with less than 3 years (37%). These findings are consistent with previous studies, which suggest that healthcare professionals with more years of experience are more likely to have faced patient safety incidents and, because of this, focus more on patient safety measures.³

Table 3 Relationship Between Socio-Demographic Factors and Attitude Towards Patient Safety

Variables	Labels	Overall Attitude		Chi-square (P-value)
		Low N (%)	High N (%)	
1. Gender	Male	90(50.8)	87(49.2)	0.006(0.94)
	Female	62(50.4)	61(49.6)	
2. Age	Less than 20 years	0(0)	2(100)	12.878(0.012)
	21 to 30 years	112(57.4)	83(42.6)	
	31 to 40 years	35(41.2)	50(58.8)	
	41 to 50 years	3(23.1)	10(76.9)	
	51 years and above	2(40)	3(60)	
3. Professional Role	Physician	58(53.7)	50(46.3)	0.757(0.685)
	Nurse	59(48)	64(52)	
	Others	35(50.7)	34(49.3)	
4. Years of Experience	Less than 3 years	51(63)	30(37)	11.459(0.003)
	3 to 6 years	62(53)	55(47)	
	7 years and above	39(38.2)	63(61.8)	

This underscores the importance of experience in shaping attitudes and behaviors related to patient safety. As a result, targeted interventions aimed at younger and less experienced healthcare professionals could help bridge this gap and create a stronger, more consistent focus on patient safety across the workforce.⁹

In conclusion, the socio-demographic characteristics of healthcare professionals significantly influence their knowledge and attitudes toward patient safety. Age and years of experience, in particular, are critical factors in shaping these attitudes. As the healthcare sector continues to evolve, it will be essential to develop tailored patient safety training programs that address the needs of younger and less experienced professionals while reinforcing the importance of safety for all staff. Future studies should focus on the effectiveness of these training interventions in improving patient safety outcomes across different demographic groups.

Conclusion

This study aimed to assess the knowledge and attitudes of healthcare professionals toward patient safety in a tertiary hospital in Somalia. While most participants reported adequate knowledge, fewer than half demonstrated positive attitudes, particularly among younger and less experienced staff. No significant differences were found based on gender.

To bridge the knowledge–attitude gap, it is recommended that Somali healthcare institutions prioritize structured and continuous patient safety education, with a focus on younger and less experienced staff. Integration of patient safety into undergraduate curricula, as advocated by the WHO, must be complemented by in-service training and mentorship.

Furthermore, fostering a blame-free culture that encourages incident reporting and learning is essential. Health system leaders must implement policies and systems that support safety culture development, including institutional accountability, effective communication, and interprofessional collaboration.

Future research should focus on evaluating the impact of training interventions on actual safety behaviors and exploring barriers to attitude improvement across professional roles. Strengthening safety culture is a multidimensional process that requires sustained commitment, leadership engagement, and systemic change.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests in this work.

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