

Barriers to the Implementation of Safety Standards and Precautions in Nursing Care: A Cross-Sectional Survey of Nurses in Al-Najaf, Iraq

Ali Abbas Rahi Al-Murshedi¹

¹Faculty of Nursing, University of Kufa, Al-Najaf, Iraq

E-mail: rn.aliabbas@gmail.com

Abstract:

Background: Patient safety depends heavily on the consistent application of safety standards and precautions by nurses, yet adherence remains inconsistent across clinical settings. Evidence from resource-constrained health systems on the specific barriers nurses encounter is limited.

Aim: To identify and quantify the barriers that limit the consistent application of safety standards and precautions in nursing care.

Methods: A descriptive cross-sectional survey was conducted among 65 nurses working in hospitals in Al-Najaf city, Iraq, up to 30 March 2025. A self-administered online questionnaire was developed from the literature, reviewed by eight clinical and academic experts, and pilot tested on 20 nurses (Cronbach's alpha = 0.88). The instrument covered demographic characteristics and barriers across nine domains: organizational, human factors, communication, cultural, environmental, technological, policy and regulatory, socio-economic, and psychological. Data were analyzed descriptively using IBM SPSS Statistics v.30.

Results: Participants had a mean age of 27.72 years and mean nursing experience of 3.45 years; 73.8% were male and 73.8% had previously attended safety training. Economic constraints limiting investment in safety measures were the most frequently reported barrier (64.6%), followed by poor communication among health care staff (58.5%), limited access to advanced safety equipment (52.3%), lack of understanding of specific safety protocols (47.7%), language barriers with patients (43.1%), socio-economic disparities in access to resources (43.1%), and lack of training or education on safety protocols (41.5%). Insufficient time due to workload demands was reported by 38.5%, and stress and burnout by 26.2%. No participant reported conflicting ethical priorities as a barrier.

Conclusion: Barriers to safety compliance in this setting were predominantly systemic rather than attitudinal, clustering around financing, communication, equipment availability and protocol knowledge. Interventions should prioritize resource allocation, structured communication processes, recurrent protocol training and a non-punitive reporting culture.

Keywords: Patient safety; nursing care; safety standards; barriers; safety culture; Iraq

Introduction

Patient safety is a cornerstone of health care quality, and nursing practice is central to minimizing risk and preventing avoidable harm. Despite advances in medical technology and evidence-based practice, health systems worldwide continue to contend with preventable errors, many of which arise from lapses in the application of safety standards. The World Health Organization estimates that unsafe care contributes to more than 2.6 million deaths each year in low- and middle-income countries alone, with nurses acting as the principal safeguard against error and, at times, as inadvertent contributors when systems fail to support them [1].

Persistent gaps in the consistent application of safety protocols have been documented in hand hygiene compliance, medication administration accuracy and fall prevention practice [2]. These gaps are compounded by structural conditions such as understaffing, excessive workload, limited access to safety equipment and weak institutional safety cultures [3]. The COVID-19 pandemic further strained nursing resources and exposed vulnerabilities in emergency preparedness and infection control adherence [4].

Preventable harm remains a leading threat to hospitalized patients, with approximately one in twenty experiencing preventable adverse events across care settings [5].

Although the World Health Organization, the Joint Commission and the Institute for Healthcare Improvement have issued comprehensive safety guidance, real-world application remains uneven [6]. Nurses frequently report time constraints, insufficient training, limited managerial support and competing clinical priorities as obstacles to best-practice safety behavior [7]. Conversely, hospitals with strong safety climates and nurse empowerment initiatives report fewer adverse events than those with punitive or unsupportive environments [8], [9]. Addressing these barriers is therefore both a regulatory and an ethical imperative and is explicitly prioritized in the WHO Global Patient Safety Action Plan 2021-2030 [1]. Systematic reviews have also highlighted how overall adherence to patient safety principles directly shapes clinical quality [10].

Evidence describing which barriers predominate in resource-constrained health systems, and their relative frequency, remains limited. Without that evidence, interventions risk targeting attitudes when the binding constraints are financial, structural or informational. The present study therefore aimed to identify the barriers that limit the consistent application of safety standards and precautions in nursing care, and to estimate the frequency with which nurses encounter them across organizational, human, communication, cultural, environmental, technological, policy, socio-economic and psychological domains.

Methods

Design and setting

A descriptive cross-sectional design was used. Data were collected from nurses employed in a range of health care settings across hospitals in Al-Najaf city, Iraq, over a period ending 30 March 2025. Because nurses worked across multiple facilities and shift patterns, the survey was administered as an online questionnaire to maximize reach.

Participants and sampling

A convenience sample of 65 nurses was recruited. Eligibility required current employment in a role involving the direct provision of nursing care; no restriction was applied on qualification level, position or years of experience. A separate pilot sample of 20 nurses, drawn from the same population, was used for instrument testing and was not included in the analytic sample.

Instrument

A structured self-administered questionnaire was developed following a review of the relevant literature. The instrument comprised two parts. The first recorded demographic and occupational characteristics: age, sex, years of nursing experience, highest nursing qualification, satisfaction with monthly income, current position and prior attendance at training on safety standards and precautions. The second part presented barriers to the application of safety standards and precautions, organized into nine domains: organizational, human factors, communication, cultural, environmental, technological, policy and regulatory, socio-economic, and psychological and emotional. Each item was answered dichotomously, with respondents indicating whether they encountered the barrier in their own practice.

Validity and reliability

Content validity was established through expert review. A preliminary version of the questionnaire was submitted to eight experts in the medical and nursing professions, each with between five and more than ten years of experience, who assessed the items for adequacy, relevance, intelligibility and clarity against the study objectives. The majority judged the instrument as well constructed for its

stated purpose, and the suggestions raised were incorporated into the final version. Internal consistency was then examined in the pilot sample of 20 nurses, yielding a Cronbach's alpha coefficient of 0.88.

Data collection and analysis

The finalized questionnaire was distributed electronically, and informed consent for participation was obtained through the same online form before respondents could proceed to the survey items. Data were analyzed using IBM SPSS Statistics version 30 and Microsoft Excel 2019. Descriptive statistics were computed, comprising frequencies and percentages for categorical variables and minimum, maximum and mean values for continuous variables. No inferential testing was undertaken, consistent with the descriptive aim of the study.

Results

Participant characteristics

Characteristics of the 65 participating nurses are presented in Table 1. Participants were aged between 18 and 38 years (mean 27.72) and reported between one and ten years of nursing experience (mean 3.45). Most were male (73.8%). Qualification levels were split largely between a bachelor's degree (47.7%) and a diploma in nursing (44.6%), with small numbers holding a master's degree (3.1%) or doctorate (4.6%). Two thirds worked as staff nurses (67.7%), while 21.5% were heads of staff and 10.8% held administrative posts. Satisfaction with monthly income was limited, with 53.8% satisfied only to some extent and the remainder dissatisfied. Almost three quarters (73.8%) had previously attended training on safety standards and precautions.

Table 1. Demographic and occupational characteristics of participants (n = 65).

Characteristic	Category	n	%
Age, years	Range 18-38; mean 27.72	-	-
Nursing experience, years	Range 1-10; mean 3.45	-	-
Sex	Male	48	73.8
	Female	17	26.2
Highest nursing qualification	Diploma	29	44.6
	Bachelor's degree	31	47.7
	Master's degree	2	3.1
	Doctorate	3	4.6
Satisfaction with monthly income	Satisfied to some extent	35	53.8
	Unsatisfied	20	30.8
	Not satisfied at all	10	15.4
Current position	Staff nurse	44	67.7
	Head of staff	14	21.5
	Administrative nurse	7	10.8
Prior safety training attended	Yes	48	73.8
	No	17	26.2

Reported barriers

Barriers reported by participants are summarized in Table 2, which presents the proportion endorsing each item. Socio-economic constraints were the single most frequently reported obstacle: 64.6% identified economic limitations on investment in safety measures and 43.1% reported socio-economic disparities in access to resources. Within the communication domain, 58.5% reported poor communication among health care staff and 43.1% reported language barriers with patients, whereas language barriers among colleagues were far less common (15.4%).

In the technological domain, 52.3% reported limited access to advanced safety equipment, 41.5% a lack of user-friendly technology, and approximately one third reported outdated or malfunctioning equipment (32.3%), poor integration of new technologies (33.8%) and inadequate training on new technologies (32.3%). Human factors centered on knowledge rather than attitude: 47.7% reported a lack of understanding of specific safety protocols and 38.5% a lack of awareness and training, while 35.4% observed behavioral non-compliance or risk-taking among staff.

Organizational barriers were led by a lack of training or education on safety protocols (41.5%) and insufficient time due to workload demands (38.5%). Structural items were reported less often, including inadequate staffing levels (20.0%), unclear accountability (20.0%), lack of management support (23.1%) and resource constraints (23.1%). Cultural barriers were reported by between one fifth and one third of participants, and environmental barriers, including poorly designed and hazardous physical environments, by approximately 30%. In the policy domain, 33.8% reported non-compliant patients and 32.3% reported complex or conflicting regulations. Among psychological and emotional barriers, fear of failure (27.7%), moral distress (26.2%) and fear of blame for reporting errors (23.1%) were most prominent; no participant reported conflicting ethical priorities as a barrier.

Table 2. Barriers to the application of safety standards and precautions, by domain (n = 65).

Barrier	n	%
Organizational		
Lack of training or education on safety protocols	27	41.5
Insufficient time due to workload demands	25	38.5
Inadequate ongoing training	17	26.2
Lack of support from management or leadership	15	23.1
Resource constraints (budget, infrastructure)	15	23.1
Limited access to necessary resources or equipment	14	21.5
Inadequate staffing levels	13	20.0
Lack of clear accountability (unclear roles and responsibilities)	13	20.0
Ineffective leadership (safety not prioritized)	11	16.9
Lack of coordination between departments	11	16.9
Inconsistent adherence to protocols by colleagues	8	12.3
Complexity of processes and competing demands	8	12.3
Lack of management commitment	7	10.8
Inadequate reporting and analysis of safety incidents	7	10.8
Poor communication among team members	6	9.2
Over-reliance on temporary staff	5	7.7
Fragmented workflows	4	6.2
Human factors		

Barrier	n	%
Lack of understanding of specific safety protocols	31	47.7
Lack of awareness and training on safety standards	25	38.5
Behavioral issues (non-compliance, risk-taking)	23	35.4
Stress and burnout	17	26.2
Resistance to change among staff	14	21.5
Fear of repercussions for reporting errors	12	18.5
Communication		
Poor communication among health care staff	38	58.5
Language barriers with patients	28	43.1
Language barriers among staff	10	15.4
Cultural		
Resistance to change due to cultural beliefs	21	32.3
Difficulty communicating with patients or staff from diverse backgrounds	21	32.3
Organizational cultural factors affecting safety practices	20	30.8
Misunderstandings due to cultural differences	18	27.7
Diverse cultural practices affecting acceptance of safety standards	13	20.0
Environmental		
Poorly designed physical environments	20	30.8
Hazardous work environments	20	30.8
Home environment challenges (community settings)	17	26.2
Interference from family or pets in home care settings	17	26.2
Excessive paperwork or bureaucratic requirements	16	24.6
Public health emergencies	15	23.1
Climate and weather conditions	13	20.0
Technological		
Limited access to advanced safety equipment	34	52.3
Lack of user-friendly technology	27	41.5
Lack of integration of new technologies	22	33.8
Outdated or malfunctioning equipment	21	32.3
Inadequate training on new technologies	21	32.3
Cybersecurity concerns	10	15.4
Policy and regulatory		
Non-compliant patients (refusal to follow safety protocols)	22	33.8
Complex and conflicting regulations	21	32.3
Lack of clear guidelines for specific situations	20	30.8
Lack of understanding of ethical implications	20	30.8
High patient turnover	16	24.6
Inconsistent enforcement of safety standards	14	21.5
Navigating complex regulatory requirements	13	20.0
Socio-economic		
Economic constraints limiting investment in safety measures	42	64.6

Barrier	n	%
Socio-economic disparities affecting access to resources	28	43.1
Psychological and emotional		
Fear of failure or making mistakes	18	27.7
Moral distress	17	26.2
Fear of blame or disciplinary action for reporting errors	15	23.1
Lack of motivation or engagement	14	21.5
High levels of stress and burnout	11	16.9
Emotional exhaustion	7	10.8
Conflicting ethical priorities	0	0.0

Discussion

This study examined the barriers nurses encounter in applying safety standards and precautions, and the pattern of findings is notable for what it does not show. The barriers reported most frequently were not attitudinal but structural and informational: financing, communication processes, equipment availability and knowledge of specific protocols. Items describing unwillingness or resistance among staff were reported far less often. This distribution is consistent with the wider literature identifying organizational, human, communication, technological and socio-economic factors as the principal determinants of safety performance [11], [12], and it carries a clear implication for intervention design: programs aimed primarily at changing nurse attitudes are unlikely to address the constraints that nurses themselves identify as binding.

Economic constraints on investment in safety measures were the most frequently reported barrier (64.6%), with a further 43.1% reporting socio-economic disparities in access to resources. This finding situates safety compliance as a question of health system financing rather than individual practice, and it is coherent with the technological findings, where limited access to advanced safety equipment (52.3%) and outdated or malfunctioning equipment (32.3%) were common. Evidence that inadequate resources compromise patient safety supports this interpretation [13], and the pattern indicates that resource allocation, rather than exhortation, is the operative lever in comparable settings.

Communication emerged as the most consistently reported non-financial barrier, with 58.5% reporting poor communication among health care staff and 43.1% reporting language barriers with patients. Miscommunication is a well-established contributor to medical error [14], and the contrast between high rates of inter-staff communication failure and low rates of language difficulty among colleagues (15.4%) suggests that the problem lies in handover and escalation processes rather than in linguistic diversity within the workforce. Structured communication tools and defined escalation pathways are therefore more likely to be effective than language training alone. The cultural findings, reported by between 20% and 32% of participants, indicate a parallel need for culturally responsive communication with patients.

Within the human factors domain, the leading barriers were a lack of understanding of specific safety protocols (47.7%) and a lack of awareness and training (38.5%), while 41.5% reported a lack of training or education on safety protocols under the organizational domain. These findings are striking given that 73.8% of participants had previously attended safety training, and they suggest that prior attendance at a single training event does not translate into working knowledge of specific protocols. Inadequate training has been repeatedly linked to non-compliance with safety measures [8], and the

present pattern argues for recurrent, protocol-specific and competency-assessed education rather than one-off orientation sessions.

Workload featured prominently, with 38.5% reporting insufficient time due to workload demands, echoing evidence that staffing shortages and high patient loads impede adherence to safety protocols [6]. Notably, however, only 20.0% identified inadequate staffing levels directly, suggesting that time pressure in this setting may derive as much from task distribution and process complexity as from headcount. Stress and burnout were reported by 26.2%, consistent with evidence that fatigue and emotional exhaustion erode nurses' capacity to follow safety procedures [15], [16].

Psychological barriers to error reporting were present but moderate, with 27.7% reporting fear of failure, 26.2% moral distress and 23.1% fear of blame or disciplinary action. Punitive workplace cultures are known to suppress the reporting on which safety learning depends [17], and even at these prevalences the findings support the establishment of non-punitive reporting systems. Lack of management support (23.1%) and ineffective leadership (16.9%) reinforce the role of leadership in sustaining a safety climate [9], [18].

Limitations

Several limitations qualify these findings. The sample was small ($n = 65$) and recruited by convenience from a single city, which restricts precision and generalizability. Male nurses were over-represented (73.8%), a distribution that does not reflect the global nursing workforce and may reflect the composition of the setting or self-selection into an online survey. All data were self-reported and dichotomous, so barrier severity and actual compliance behavior were not measured, and responses may be subject to recall and social desirability bias. The cross-sectional design precludes inference about causation, and no inferential testing was performed. Findings are most applicable to hospital settings with comparable staffing, resource and cultural conditions; larger multi-site studies incorporating observational measures and severity ratings are needed to confirm and extend them.

Conclusion

Barriers to the consistent application of safety standards and precautions in this sample of Iraqi nurses were predominantly systemic. Economic constraints, communication failures among staff, limited access to safety equipment and incomplete knowledge of specific protocols were reported far more often than resistance or unwillingness among nurses. Improving compliance in comparable settings therefore depends less on modifying individual attitudes than on changing the conditions in which nurses work.

Four priorities follow directly from the findings. Health care institutions should implement recurrent, protocol-specific safety training with competency assessment, rather than one-off orientation, since prior training attendance did not correspond to reported understanding of protocols. Standardized communication and handover processes should be introduced to address the most frequently reported non-financial barrier. Budgetary provision for safety equipment and for the replacement of outdated devices should be treated as a patient safety intervention in its own right. Finally, non-punitive incident reporting systems, backed by visible managerial commitment, should be established to convert errors into system learning. Policymakers can support these measures by streamlining overlapping safety regulations and by earmarking funding for safety infrastructure.

References

- [1] World Health Organization, *Global Patient Safety Action Plan 2021–2030: Towards Eliminating Avoidable Harm in Health Care*. Geneva, Switzerland: World Health Organization, 2021.
- [2] K. Turner, V. S. Staggs, C. Potter, E. Cramer, R. I. Shorr, and L. C. Mion, "Fall prevention practices and implementation strategies: Examining consistency across hospital units," *Journal of Patient Safety*, vol. 18, no. 1, pp. e236–e242, Jan. 2022, doi: 10.1097/PTS.0000000000000758.
- [3] L. H. Aiken, D. M. Sloane, H. Barnes, J. P. Cimiotti, O. F. Jarrín, and M. D. McHugh, "Nurses' and patients' appraisals show patient safety in hospitals remains a concern," *Health Affairs*, vol. 37, no. 11, pp. 1744–1751, Nov. 2018, doi: 10.1377/hlthaff.2018.0711.
- [4] D. Jackson, R. Anders, W. V. Padula, J. Daly, and P. M. Davidson, "Vulnerability of nurse and physicians with COVID-19: Monitoring and surveillance needed," *Journal of Clinical Nursing*, vol. 29, no. 19–20, pp. 3584–3587, Oct. 2020, doi: 10.1111/jocn.15347.
- [5] M. Panagioti, K. Khan, R. N. Keers, A. Abuzour, D. Phipps, E. Kontopantelis, P. Bower, S. Campbell, R. Haneef, A. J. Avery, and D. M. Ashcroft, "Prevalence, severity, and nature of preventable patient harm across medical care settings: Systematic review and meta-analysis," *BMJ*, vol. 366, p. l4185, Jul. 2019, doi: 10.1136/bmj.l4185.
- [6] D. M. Sloane, H. L. Smith, M. D. McHugh, and L. H. Aiken, "Effect of changes in hospital nursing resources on improvements in patient safety and quality of care: A panel study," *Medical Care*, vol. 56, no. 12, pp. 1001–1008, Dec. 2018, doi: 10.1097/MLR.0000000000001002.
- [7] C. Dall'Ora, J. Ball, M. Reinius, and P. Griffiths, "Burnout in nursing: A theoretical review," *Human Resources for Health*, vol. 18, no. 1, p. 41, Jun. 2020, doi: 10.1186/s12960-020-00469-9.
- [8] A. J. Hessels, M. Paliwal, S. H. Weaver, D. Siddiqui, and T. A. Wurmser, "Impact of patient safety culture on missed nursing care and adverse patient events," *Journal of Nursing Care Quality*, vol. 34, no. 4, pp. 287–294, Oct./Dec. 2019, doi: 10.1097/NCQ.0000000000000378.
- [9] E. T. Lake, J. Sanders, R. Duan, K. A. Riman, K. M. Schoenauer, and Y. Chen, "A meta-analysis of the associations between the nurse work environment in hospitals and 4 sets of outcomes," *Medical Care*, vol. 57, no. 5, pp. 353–361, May 2019, doi: 10.1097/MLR.0000000000001109.
- [10] M. Vaismoradi, S. Tella, P. A. Logan, J. Khakurel, and F. Vizcaya-Moreno, "Nurses' adherence to patient safety principles: A systematic review," *International Journal of Environmental Research and Public Health*, vol. 17, no. 6, p. 2028, Mar. 2020, doi: 10.3390/ijerph17062028.
- [11] S. M. Aloush and F. A. Alsaraireh, "Nurses' compliance with central line associated blood stream infection prevention guidelines," *Saudi Medical Journal*, vol. 39, no. 3, pp. 273–279, Mar. 2018, doi: 10.15537/smj.2018.3.21497.
- [12] S. E. Lee, L. D. Scott, V. S. Dahinten, C. Vincent, K. D. Lopez, and C. G. Park, "Safety culture, patient

- safety, and quality of care outcomes: A literature review," *Western Journal of Nursing Research*, vol. 41, no. 2, pp. 279–304, Feb. 2019, doi: 10.1177/0193945917747416.
- [13] P. Carayon, A. Wooldridge, P. Hoonakker, A. S. Hundt, and M. M. Kelly, "SEIPS 3.0: Human-centered design of the patient journey for patient safety," *Applied Ergonomics*, vol. 84, p. 103033, Apr. 2020, doi: 10.1016/j.apergo.2019.103033.
- [14] O. T. Guttman, E. H. Lazzara, J. R. Keebler, K. L. W. Webster, L. M. Gisick, and A. L. Baker, "Dissecting communication barriers in healthcare: A path to enhancing communication resiliency, reliability, and patient safety," *Journal of Patient Safety*, vol. 17, no. 8, pp. e1465–e1471, Dec. 2021, doi: 10.1097/PTS.0000000000000541.
- [15] L. H. Hall, J. Johnson, I. Watt, A. Tsipa, and D. B. O'Connor, "Healthcare staff wellbeing, burnout, and patient safety: A systematic review," *PLoS ONE*, vol. 11, no. 7, p. e0159015, Jul. 2016, doi: 10.1371/journal.pone.0159015.
- [16] M. K. Shah, N. Gandrakota, J. P. Cimiotti, N. Ghose, M. Moore, and M. K. Ali, "Prevalence of and factors associated with nurse burnout in the US," *JAMA Network Open*, vol. 4, no. 2, p. e2036469, Feb. 2021, doi: 10.1001/jamanetworkopen.2020.36469.
- [17] A. Okuyama, C. Wagner, and B. Bijnen, "Speaking up for patient safety by hospital-based health care professionals: A literature review," *BMC Health Services Research*, vol. 14, no. 1, p. 61, Feb. 2014, doi: 10.1186/1472-6963-14-61.
- [18] A. A. Ammouri, A. K. Tailakh, J. K. Muliira, R. Geethakrishnan, and S. N. Al Kindi, "Patient safety culture among nurses," *International Nursing Review*, vol. 62, no. 1, pp. 102–110, Mar. 2015, doi: 10.1111/inr.12159.