



## Nursing Students' Perceptions of Patient Safety Practices in Saudi Arabia: A Cross-Sectional Survey

Howaida Shaker Saati<sup>1</sup>, Lama Mohammed Alghamdi<sup>2</sup>, Ghadi Saleh Alzahrani<sup>3</sup>, Reham Ali Banamah<sup>4</sup>, Njod Nawar Alsulami<sup>5</sup>, Joud Ashraf Alshareef<sup>6</sup>, Shahad Ahmad Baroom<sup>7</sup>, Amwaj Abdullah Alsulami<sup>8</sup>, Ruyuf Majed Almajuni<sup>9</sup>, Rama Ali Alqarni<sup>10</sup> and Noor Mohammed Alharbi<sup>11</sup>

<sup>1-11</sup>Nursing Department, College of Nursing- Jeddah Branch, King Saud bin Abdulaziz University for Health Sciences (KSAU-HS), Jeddah, Saudi Arabia

<sup>\*</sup>King Abdullah International Medical Research Center, Jeddah, Saudi Arabia

Author Designation: <sup>1</sup>Assistant Professor, <sup>2-11</sup>Nursing students

<sup>\*</sup>Corresponding author: Howaida Shaker Saati (e-mail: [Saatih@ksau-hs.edu.sa](mailto:Saatih@ksau-hs.edu.sa)).

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**Abstract Objectives:** The current study was conducted to explore the perspectives of Saudi Arabian nursing students towards the issue of patient safety in the College of Nursing, Jeddah. **Method:** The study used cross-sectional survey design to collect systematic empirical data on nursing students in the four years of study (levels 1 to 4) of the Bachelor of Science in Nursing (BSN) curriculum at the College of Nursing, Jeddah. The investigation was done with a group of participants who were a convenience sample, specifically 184. Data were collected using a structured, self-administered questionnaire based on the Health Professional Education in Patient Safety Survey (H-PEPSS), covering domains including teamwork, communication, safety risk management, human factors, error recognition and reporting and clinical safety practices. **Results:** The research has found that, nursing students were highly confident on infection control (90%) and hand hygiene (85%) but showed relatively low confidence in evaluating safety risks (76%) and failure of identification (78%). Some of the main barriers that were identified were lack of adequate training in clinical settings (35%), lack of adequate supervision (25%) and time-restricting issues (15%). To the effect, students insisted on greater exposure to clinical practice (30%) and more training to develop communication skills (25%) as a response to better patient safety education. In addition, three-quarters of participants found their clinical training to be effective in incorporating patient safety practices, even though only two out of five believed patient safety was given enough focus in the curriculum. **Conclusion:** The research identifies a huge gap in patient-safety pedagogy among Saudi Arabian nursing undergraduates, in particular, their proficiency with acute high-risk situations and detection of safety deficiencies. The results however suggest that the clinical training is in need of recalibration, stricter supervision and more entrenchment of patient safety material in the nursing curriculum. Through filling up these gaps, nursing students would be better equipped to achieve the safety protocols in practice, thus improving safety and quality care provided.

**Key Words** Patient Safety, Nursing Education, Saudi Arabia, Clinical Training, Patient Safety Practices, Nursing Students, Patient Safety Competencies, Cross-Sectional Survey

### INTRODUCTION

Patient safety is one of the main constituents of global health-care systems, which plays a leading role in the guarantee of high-quality care delivery and helps to maintain the population trust in health-care facilities. It includes a range of policies and interventions that can mitigate the occurrence of bad events, mistakes of the procedure and patient damage through the clinical procedures and therapeutic interventions. According to the reports of the World Health Organization, about 42.7 million adverse events are reported in inpatient care every

year and a significant part of these events can be prevented [1,2]. In their specific example, medication errors are a highly important issue and indicate the urgency of the need to enhance patient safety in health-care environments.

Nurses are at the central stage of aiding the safety of patients. Since the nurses are the professionals who have the highest percentage of direct contacts with patients, they are in a better position to notice the risks and come up with safety measures. Their responsibilities include administering medication, surveillance of patients and also helping the patients communicate with their families [3].

Nurses play a crucial role by reducing harm that can be avoided and making medical interventions as safe and as efficient as possible and the ultimate factor is patient safety, which is jeopardized by the lack of coordination between providers in different disciplines but is mainly maintained through the consistency of nurses in enforcing the safety standards and predicting risks [4].

The education about patient safety is essential in the process of reducing medical errors and improving the quality of the entire care. Patient safety competency is applied in the areas of effective communication, teamwork, medication safety and infection control. The WHO has issued principles of how patient safety can be incorporated into health-care education providing clear guidelines on the nursing training programs [5]. However, in most jurisdictions, especially in Europe, there still remains a challenge in integrating holistic patient safety education into nursing education mainly because there is no unified approach to educational methods [6].

The lack of successful integration of the patient safety education incorporation in the nursing curricula can be supported by the empirical evidence. Okuyama *et al.* [7] conducted a systematic review of numerous instruments used to assess the competencies of patient safety among the health-care professionals but none of them reported a comprehensive evaluation of all the necessary competencies [8]. In the recent past, research-tested instruments like the Health Care Professionals Patient Safety Assessment Curriculum Survey (HPPSACS) have been used as more precise tools to estimate the patient authority of health-care workers in the patient safety area. With the expansion of the research comes the fact that assessment mechanisms that are inclusive and validated with nursing students should be encouraged [9].

Safety of patients has been one of the major concerns in global health-care systems. The issue of medication error alone has the negative impact on a range of about 1.5 million patients in the United States every year and a significant amount of such happenings can be avoided [10]. Those data highlight the urgency of filling the educational and training gaps with reference to patient safety in health-practitioners. There are issues with the nursing education system in Saudi Arabia as it cannot equip students with the requirements of patient safety in practice. Although their contribution to patient safety is paramount, Saudi Arabian programs often do not create the knowledge, skills and attitudes necessary to practice effective patient safety [11].

The further development of patient safety in Saudi Arabia requires the complex approach, involving such aspects as the upgrading of nursing education and the establishment of strong safety measures in the hospital facility and the establishment of the culture of transparency and free communication between health-care providers. Nurses are to be provided with the tools set and knowledge base to detect the risks, prevent mistakes and add to a pervasive safety culture in the health environments. The studies have shown that specific educational interventions can significantly enhance the level of safety among the staff which in turn can improve the patient outcomes [12,13].

The given research aims at exploring the effectiveness of patient safety educational interventions and their contribution to the presence of a culture of safety in health-care organizations. The proposed research will help in creating safer health-care settings, lessening errors and increasing patient confidence in health-care system by determining the best practice and effective learning methods. Dealing with the issue of patient safety is crucial to improving the health-care quality, reducing the financial cost of negative patients' outcomes and ensuring patient well-being in the context of health-care facilities in different parts of the world [14].

Patient safety is a burning and highly important issue in the health -care industry that requires a concerted effort by health -care professionals, particularly nurses, to reduce malpractice and improve the quality of care. Patient safety education and training cannot be undervalued in equipping future nurses to decide and avoid risks in clinical scenarios. With the ever-changing environment of health-care, there is need to ensure that nursing education is equipped to manage the change and that nurses are well equipped to take care of patient safety in a fast-changing world.

### Aim

To explore the perception of the Saudi nursing students on patient safety practices with the primary aim of defining their understanding, knowledge and practice of patient safety measures in the clinical education setting at the College of Nursing, Jeddah.

### Objectives

- To assess nursing students' knowledge of patient safety standards and protocols taught during their academic and clinical training
- To explore students' attitudes and perceptions towards the importance of patient safety in clinical settings
- To identify the challenges and barriers nursing students face in implementing patient safety practices during their training
- To evaluate the role of clinical supervision and faculty guidance in fostering safe practice environments
- To examine the impact of patient safety education on students' confidence and competence in managing patient safety risks

To gather recommendations from nursing students on how to improve patient safety education and training.

### METHODS

This was a cross-sectional descriptive study conducted at the College of Nursing, Jeddah, Saudi Arabia, over a defined study period. The design was selected to assess nursing students' perceptions and self-reported competencies regarding patient safety at a single point in time.

### Study Population and Sampling

The study population comprised undergraduate nursing students enrolled in the Bachelor of Science in Nursing (BSN)

program (levels 1–4). Participants were recruited using a non-probability convenience sampling technique. Students who had completed at least one clinical placement were eligible to participate, as they were expected to have exposure to patient safety practices. A total of 184 students were included in the study.

### Inclusion and Exclusion Criteria

Inclusion criteria were undergraduate BSN students (levels 1–4) who had attended clinical training and provided informed consent. Students without any clinical exposure and those enrolled solely in internship programs were excluded to ensure that participants had adequate experience to respond to patient safety-related items.

### Data Collection Instrument

Data were collected using a structured, self-administered questionnaire based on the Health Professional Education in Patient Safety Survey (H-PEPSS), a validated instrument designed to assess patient safety competencies among healthcare trainees. The tool evaluates multiple domains, including teamwork and collaboration, communication, safety risk management, understanding of human factors, error recognition and reporting and clinical safety practices.

The H-PEPSS instrument was used in a contextually adapted form, with minor wording modifications to suit the local educational and clinical environment while preserving the original domains and structure. Content validity was ensured through review by subject experts in nursing education. Responses were recorded on a Likert scale to assess levels of agreement and confidence across domains.

### Data Collection Procedure

Ethical approval for the study was obtained from the Institutional Review Board of King Saud bin Abdulaziz University for Health Sciences. Participants were recruited through institutional communication channels, including emails and in-class announcements. Written informed consent was obtained from all participants prior to data collection. The questionnaire was administered using both online (Google Forms) and paper-based formats to maximize accessibility and participation. Clear instructions were provided and participants were assured of confidentiality and anonymity. Participation was voluntary and no identifying information was collected.

### Data Analysis

Data were entered and analyzed using SPSS version 21. Descriptive statistics were used to summarize the data. Continuous variables were reported as means and standard deviations, while categorical variables were presented as frequencies and percentages. Inferential statistical analysis was performed using independent sample t-tests and chi-square tests to examine associations between variables. A p-value of less than 0.05 was considered statistically significant. Where applicable, subgroup analyses were conducted to explore differences based on demographic and academic characteristics.

## RESULTS

The results of the survey as presented in Table 1 refer to knowledge and confidence levels of nursing students in various domains of patient safety. The areas considering were teamwork and collaboration, communication, risk management, understanding of human factors, error identification and reporting and clinical safety procedures. The statistics show that the students were significantly confident in most domains of patient safety. The largest mean score, 4.3 was equal to clinical safety procedures and the corresponding level of confidence 86.0. On the other hand, the smallest mean was obtained in risk management with a score of 3.8 with the confidence level of 76.2%. Overall, the kit of responses to the aggregate inquiries demonstrated a fairly high degree of trust in the patient safety depth and competence, with the domain scores displayed between 80.0–86.0.

Table 2 outlines the challenges that nursing students are facing in an attempt to implement patient safety protocols in their clinical rotations. A significant number of the participants (35 percent) mentioned that lack of sufficient clinical training formed a major barrier to the successful implementation of patient safety practices. Other barriers included lack of adequate oversight by clinical faculty (25) overwhelm resources and equipment (20) were others. Another important limitation highlighted in the 15.00 of the respondents was the existence of temporal constraints in clinical placements. Lastly, 5 per cent of the cohort reported about inadequate inter-professional communication as a challenge to the adoption of safety. Taken together, these findings indicate that despite the awareness of the students concerning the importance of patient safety, a complex of extrinsic elements inhibits their ability to put into practice the obtained knowledge.

Table 3 displays the suggestions of nursing students regarding the course of change in regard to patient safety education. Most students (30 percent) also indicated more practical practice in clinical locations to be a major change that would help improve patient safety training. The other 25 per cent. pointed out that better communication skills training is required. Other aspects that students suggested to be incorporated better in the curriculum were patient safety (20) and greater emphasis on teamwork and collaboration (15%).

Table 1: Knowledge and Confidence about Patient Safety

Survey Domain	Mean Score	Standard Deviation	Confidence Level (%)
Teamwork and Collaboration	4.2	0.9	84
Communication	4.0	0.8	80
Managing Safety Risks	3.8	1.0	76
Understanding Human Factors	4.1	0.7	82
Recognizing and Reporting Errors	3.9	0.9	78
Clinical Safety Procedures	4.3	0.8	86

Table 2: Challenges in Implementing Patient Safety Practices

Challenges	Frequency (%)
Lack of sufficient training in clinical settings	35
Inadequate supervision from clinical staff	25
Lack of resources and equipment	20
Time constraints in clinical placements	15
Insufficient inter-professional communication	5

Table 3: Recommendations for Improving Patient Safety Education

Recommendation	Frequency (%)
More hands-on practice in clinical settings	30
Improved communication skills training	25
Better integration of patient safety topics in the curriculum	20
Increased focus on teamwork and collaboration	15
Enhanced supervision and mentorship during clinical placements	10

Table 4: Confidence in Clinical Training on Patient Safety

Patient Safety Measure	Confidence Level (%)
Hand Hygiene	85
Medication Safety	80
Infection Control	90
Safe Clinical Practice	78
Patient Risk Management	82

Table 5: Perceptions of Effectiveness of Patient Safety Education

Perception	Agree (%)	Disagree (%)
Patient Safety Education is adequate	70	30
Clinical training integrates safety well	75	25
Patient safety is emphasized enough in the curriculum	60	40
Patient safety protocols are practical	65	35

Also, 10 percent of the students recommended closer supervision and mentorship during the clinical placements. These suggestions illustrate the wish of the students to have a more practical, collaborative and comprehensive method of patient safety education.

Table 4 illustrates the degree of confidence of nursing students over various patient safety precautions in their training in clinical settings. According to the data, the students expressed extremely high confidence rates in becoming like infections control (90%) and hand hygiene (85%). Medication safety (80%) and patient risk management (82%), were followed with these measures and had quite high confidence scores, as well. On the other hand, the lowest confidence level was at 78% found in safe clinical practice. Taken together, the results indicate that the students are the most confident about their interaction with infection control and hygiene behaviors, which presupposes that these areas are satisfactorily covered in their clinical education. However, the comparatively reduced levels of confidence in such aspects of the curriculum like risk management and the general clinical practice are an indication of potential areas of curricular improvement.

Table 5 provides an overview of the student perceptions on their patient safety education effectiveness. Most students (75%) said that patient-safety measures were successfully incorporated into clinical training and 70% thought the patient-safety curriculum was satisfactory. Conversely, 60% of the respondents considered patient safety to have been adequately covered in the curriculum and 65% rated the practical relevance of patient-safety policies as satisfactory. These results suggest that even though students understand and acknowledge the importance of patient-safety education, they also point to some points in the program that should be stressed more and applied to practice, in particular, the inclusion of patient safety in the curriculum and the applicability of the corresponding protocols in practice.

Table 6: Role of Clinical Supervision in Promoting Patient Safety

Supervision Aspect	Effective (%)	Ineffective (%)
Adequate Supervision	80	20
Faculty Feedback	70	30
Opportunities to Discuss Safety Issues	75	25
Practical Guidance on Safety Protocols	65	35
Support for Implementing Safety Practices	60	40

Table 6 addresses the purpose of clinical supervision and faculty guidance in enhancing patient safety in nursing students. Analysis shows that 80% of the students felt that the supervision that they actually received throughout the clinical placements was satisfactory, which made it easier to implement the safety measures effectively. Moreover, 70% of interviewees considered faculty feedback to be a key determinant. Chances to raise safety concerns within the framework of training were perceived as efficient by 75% of participants. Conversely, applied advice on safety measures and assistance in means of putting safety into practice were less endorsed and 65 and 60% respectively recognized these elements as effective. These results not only emphasize the primary importance of supervision and mentorship in developing a patient safety culture but also highlight the spheres that require additional enhancement, namely, practical guidance and support.

## DISCUSSION

The current study was designed to focus on exploring the views of Saudi nursing students with respect to patient safety practices within the scope of the College of Nursing, Jeddah. The findings have posed some of the key observations related to knowledge, confidence, challenges and perceptions of the students in relation to patient safety, highlighting the importance of necessary methodological improvements of nursing education and training. The results provide viable information on the current level of patient safety training in nursing students and indicate potential directions on how the merger of safety activities in the nursing curriculum can strengthen.

The researchers found that nursing students indicated reasonably high confidence in their patient safety knowledge, the highest level of confidence was reported in clinical safety practices (86%) and infection control (90%). These findings are consistent with prior research that points to students developing greater confidence in areas where they are given greater levels of experience. Yurrebaso Macho *et al.* [15], found that nursing students in Cyprus exhibited increased confidence in infection control and hand hygiene, which are pre-empted by clinical exposure and practice. On the other hand, the comparatively low levels of confidence in dealing with safety hazards (76% Strategies/practices) and in identifying and reporting mistakes (78%) indicate that students can perceive themselves as partially unprepared to face complicated, high-risk situations. This tendency supports previous studies that identify the gaps in nursing education in the area of safety-risk management and error reporting. Therefore, the idea that increased focus on risk management and error reporting in nursing education should be reinforced [16].

One notable study finding was the large number of barriers to the adoption of patient safety practices by nursing students on clinical training courses. The most commonly mentioned obstacles included the lack of training at clinical environments (35%) and ineffective continuous monitoring by clinical personnel (25%). These impediments are in keeping with previous research studies by Mahmoud *et al.* [17] and Gqaleni and Mkhize [18], which found ineffective training and supervision as well as key barriers to effective patient safety implementation. Another finding that Al-Malki *et al.* [19], observed was that nursing students were largely unable to transfer theoretical knowledge to real clinical settings because exposure to real clinical experiences is limited. Time and resource limitations became the other limitation in this ongoing research, which is also associated with a comparable study conducted by Mira *et al.* [20], who also highlighted that time constraints during the clinical placements hinder the effective implementation of safety measures. This collective of outcomes demonstrates the urgent need to promote and enhance a more integrated approach to patient safety education as a component of clinical training with a stronger focus on increased hands-on practice and clinical supervision.

Based on the identified challenges, the nursing students in the current study suggested a number of strategies in the amelioration of patient safety education. The most common suggestion included more practical clinical (30%) and then, more enhanced training regarding communication skills (25%). These ideas are echoed by findings of previous researches that have highlighted the importance of experiential learning in patient safety education. Ginsburg *et al.* [21], revealed that practical clinical training was indispensable in enhancing the confidence of students on the use of safety procedures. Moreover, recent study by Bianchi *et al.* [22] emphasized the role of high-quality communication training, as the emphasis on effective communication is essential to provide patient safety, especially in the team-based environment. Students also encouraged a more effective integration of patient safety issues across the curriculum, a view that can be linked to the results of Mansour *et al.* [23] also confirmed that patient safety education requires a firmer entrenchment in nursing courses to support its importance.

The research also found that nursing students expressed most confidence in infection control (90%) and hand hygiene (85%), as compared to other areas of medication safety (80%) and patient risk (82%). These findings can be interpreted to mean that students are ready to handle most of the norms of patient safety, including infection control, but are less confident about addressing more challenging and high-risk situations. The observation is similar to Nabilou *et al.* [24] who found that although healthcare professionals tended to have high confidence in basic safety actions, numerous issues with the more complex safety risks such as the risk of medication errors or potential harm detection in patients were found. These results, therefore, highlight the need of curricular development, which aligns fundamental safety measures with advanced patient safety measures, especially those related to medication safety measures and risks management.

Participants in this research exhibited contradictory views concerning the usefulness of their patient safety-training. Despite 75% of students agreeing on the claim that the clinical training incorporated patient safety in an effective manner, 60% still expressed that patient safety was given proper emphasis in the curriculum. These results are consistent with clinical training by Mansour [23] and Mira *et al.* [20], which showed that although clinical training gave them practical experience of patient safety, theoretical nursing information at times did not dwell adequately on patient safety measures. Also, Okuyama *et al.* [7] have shown that inclusiveness of patient safety education in both theoretical and clinical settings can significantly improve student preparedness towards controlling safety risks. The current findings suggest that there is a need to have a more integrative and holistic patient safety education process, which integrates both theory and practice smoothly.

This paper also outlined the effect of clinical supervision on improving patient safety. The results showed that most of the students (80%) had appropriate supervision experience in clinical placements which influenced their ability to use safety practices positively. However, the outcomes also established that practice-based instruction on safety measures and assistance to adopt safety measures were not so effective, as 60 and 65% of students, respectively, expressed that these factors could be enhanced. These findings align with previous studies by Ginsburg *et al.* [21] and Motamedzadeh *et al.* [8] who emphasized that clinical supervision is a critical element in defining how students will understand and implement patient safety measures. Nevertheless, as Mansour *et al.* [23] remarks, supervision is not enough, but should be accompanied by continuous mentorship and concrete, practical instructions in order to make sure that the students have sufficient skills to implement patient safety protocols in the real medicine setting.

## CONCLUSION

The results of the present study are aligned with the previous studies conducted on issues and gaps in patient safety training among nursing students. Though the students of nursing in Jeddah showed significant confidence in the core safety practices, the outcomes showed significant gaps in the ability to cope with a high-risk situation and identify safety errors. The research was able to find similar challenges that are in line with other problem areas, which included lack of training, poor supervision and time limit. Improvement of patient safety education implies more attention to the experiential training, the strengthening of teaching communication skills and more effective implementation of patient safety into nursing programs. A more substantive way to improve the situation is to equip the nursing programs with means of addressing these shortcomings, so that students would be better prepared to take care of the patient safety hazards, contributing to safer healthcare conditions.

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