

## Medical Errors and Patient Safety as Perceived by Nurses

Raseel Shuja Alghamdi<sup>1</sup>, Alaa Madani Ahmed Alshareef<sup>2</sup>, Zahra Sonbol hadi Mubarak<sup>3</sup>, Renad Abdulaziz Alowayshiq<sup>4</sup>, Norah khaleed alarfaj<sup>5</sup>, Meaad khalaf olewe alenazi<sup>6</sup>, Ayidh Mohammed salem AlRasheed<sup>7</sup>, Maryam Saeed Jazi Alrefaei<sup>8</sup>, Yossra Mohammad Ali Abueisa<sup>9</sup>, Yasameen Salamah Alrefaei<sup>10</sup>, Amna yahia Abdullah Sufiany<sup>11</sup>, Rajaa Ali Hassan Gharawi<sup>12</sup>

Patient Care technician, NGHHA, Pediatric Emergency Medicine KASCH<sup>1</sup>, Senior specialist in critical care Nursing, Dammam Medical complex Eastern Health Cluster<sup>2</sup>, Nurse technician, Al Edabi general hospital, Jazan Health Cluster<sup>3</sup>, Nurse technician, Prince Sultan Military Medical City<sup>4</sup>, Nurse technician, Prince Sultan Military Medical City<sup>5</sup>, Nurse specialist, Northern Area Armed Forces Hospital (NAAFH)<sup>6</sup>, Nurse specialist, Yadama General Hospital, Najran health cluster<sup>7</sup>, Nurse Specialist in the 4th primary health care, Almadinah health cluster<sup>8</sup>, Nurse technician in the 4th primary health care, Almadinah health cluster<sup>9</sup>, Nurse Specialist in the 4th primary health care, Almadinah health cluster<sup>10</sup>, Nurse specialist, Jubail general hospital, Eastern Health Cluster<sup>11</sup>, Nurse specialist, Sabia Primary Health Care Center, Jazan health cluster<sup>12</sup>

---

Received: 10.07.2024

Revised: 19.08.2024

Accepted: 17.09.2024

---

### ABSTRACT

A worldwide issue, patient safety is a crucial component of the caliber of health care systems. One of the main risk factors for medical mistakes that compromise patient safety is the human element. In order to investigate how this element affects patient safety in the hospitals in the Saudi Arabian city of Ha'il, nurses' views of the categories of respondents' characteristics in relation to risk factors were evaluated using the ANOVA (One Way). At  $P < 0.05$ , significant differences were found between the study sample's demographic features and the human resources risk variables that contribute to medical errors.

**Keywords:** Medical Safety, Nurses, Medical Errors, Health Care System.

### INTRODUCTION

Medical errors continue to be a worldwide problem for the healthcare sector. The frequency of reported major medical errors (MEs) is still rising even though healthcare services have significantly improved. "A failure to carry out a planned action as intended or the application of an incorrect plan (commission or omission), at either the planning or execution phase" is the definition of MEs that the World Health Organization (WHO) approved. According to studies, MEs are responsible for up to 6.5% of hospital admissions and are the third most common cause of sickness and death in the US. MEs' primary responsibility is to rely on patients, medical personnel, and the health system. According to estimates in this context, human variables related to interpersonal contact are responsible for 70–80% of MEs. Individual characteristics (such as age, gender, length of experience, and kind of qualifications) and work environment features (such as the medical department and safety conditions) are among the factors and conditions linked to the development of MEs, according to several research. In this light, it has been acknowledged that the most frequent causes of MEs are inadequate teamwork and communication among medical personnel. Effective teamwork—which encompasses cooperation, coordination, communication, attitude monitoring, and other behaviors—has been shown in studies to be the cause of a significant range in MEs. For instance, one study found that fewer collaborative activities raise the likelihood of medical errors and surgical complications by five times. Therefore, it is impossible to undervalue the lack of collaboration, including poor communication and a failure to utilize available expertise, which raises the danger of medical errors because they can have a fatal influence on patients' lives and safety. Scholars from all over the world, including Saudi Arabia, are paying more an

d more attention to the study of patient safety inside the healthcare system. Each year, the Saudi Ministry of Health (MOH) gets 40,000 reports regarding ME-related occurrences. Twenty percent (8,000 cases) of these complaints have been found to be genuine medical errors following additional inquiry.

However, because a significant percentage of medical errors—particularly in rural areas—are not recorded, the MOH's reported ME rate may not accurately represent the scope of the issue in the Saudi healthcare system. In an effort to measure the culture of patient safety in Riyadh's hospitals, Al-Ahmadi (2008) investigated how staff members see patient safety, error reporting, and the variables that affect the frequency of incidents reported. The study compared public and private hospitals and discovered that the main areas that require improvement in public hospitals are staffing, communication openness, handoffs and transitions, and non-punitive response to error; in private hospitals, the areas that require improvement are staffing and non-punitive response to error. Additionally, the study discovered that the type of hospital, staff position, non-punitive response to error, supervisor/manager expectations and actions supporting patient safety, feedback and communication regarding error, and teamwork across units all had an impact on event reporting.



Source: <https://www.atrainceu.com/content/3-types-medical-errors>

**Figure 1:** Types of Medical Errors

According to the report, healthcare institutions should foster an environment of open communication and ongoing learning while reducing the culture of blame-fear. Mwachofi et al.'s study on the factors influencing nurses' perceptions of patient safety has attempted to investigate organizational/system and socioeconomic elements influencing nurses' views of patient safety and quality. The information was gathered from 566 nurses working in five Riyadh, Saudi Arabia, hospitals. According to the study, fewer obvious faults, the capacity to convey recommendations, information technology assistance and training, and a private error reporting system are all elements that enhance patient safety and the probability that nurses will utilize their own facility. The study discovered that functional feedback, suggestions, and error reporting are among the system characteristics that have a substantial impact on improvements in patient safety. Additionally, it discovered that the nurses' training to use their information systems has a beneficial impact. Zakari has carried out research on Saudi Arabian academic ambulatory nurses' attitudes regarding patient safety culture. In academic care settings, the study suggested that

improving the caliber of staff collaboration and the proactive organizational commitment to safety could foster a safety culture.

It also suggested that the first step in determining the obstacles nurses have in delivering safe patient care is to evaluate the safety culture in the workplace. According to a study by Almutairi, A. F. (2012), the quality and safety of patient care as well as the work environment at King Abdul-Aziz Medical City in the Riyadh region are affected by cultural diversity in a multicultural nursing workforce. The opinion of the safety atmosphere and cultural background categories differed significantly, according to the authors. The study contends that because of the conflicts resulting from disparate cultural norms, beliefs, actions, and languages, the multicultural nature of the nursing work environment is intrinsically dangerous.

In addition, the multicultural nursing workforce was unsure about both the nursing workforce's cultural safety and the clinical and cultural safety of the patient care setting. El-Jardali and colleagues carried out a cross-sectional study on the culture of patient safety in a sizable teaching hospital in Riyadh. The results of the regression analysis showed that being a doctor or other health professional, being older (46 years and older), having a Baccalaureate degree, and having more work experience were all associated with higher patient safety aggregate scores. Additionally, the study discovered that patient safety procedures are essential to raising the general effectiveness and caliber of care provided by healthcare institutions.

### Research Process

By employing a cross-sectional survey and self-administered questionnaires for data collection, this study used a descriptive methodology. Nurses working at the King Khalid Hospital and Hail General Hospital—provided responses. The study has been carried out with the consent of these hospital authorities. The Declaration of Helsinki's criteria were followed in the conduct of the study. The participants were recruited to fill out the questionnaire using a voluntary response sample technique. Before beginning the questionnaire, the informed consent was given, outlining the study's specifics and goals. The survey did not ask for any of the participants' personal information.

512 nurses employed in the chosen institutions were given a structured questionnaire with multiple sections that represented various aspects (i.e., the system, the patient, and the human resources risk factors). Only the human resources risk factor dimension was taken into account in this study; other components were examined separately in other publications. For the purposes of this study, two components of the survey were relevant. The participants' demographics and features were discussed in the first section, and nurses' opinions of the human resources risk factors contributing to MEs were examined in the second section. There were 200 survey respondents, or 54.66% of the total. SPSS Ver. 22.0 was used to analyze the data.

The variables under study were given descriptive statistics, including means, standard deviations (SD), and frequencies. Statistical significance was established at a threshold of  $p < 0.05$ . Using the Friedman test, the human resources risk indicators were ordered based on the overall scale mean. Additional analyses were conducted to comprehend the population's diverse perceptions of the risk factors.

### DATA ANALYSIS AND INTERPRETATION

#### Summary of ANOVA Results

On the basis of Years of Gender	F	Sign
There is lack of team work in concerned medical staff	.155	.926
Basic work protocols are not followed by the medical staff	.688	.559
Negligence in equipment handling is common	.660	.577
Chance of error in diagnosis	.365	.778
There is a chance of medical staff less qualified	.889	.446
Miscommunication among medical staff is detected	4.408	3.005
Some lack in the infrastructure is there	3.445	3.017
Post surgery facilities are not very good	.316	.814
On the basis of Age		
There is lack of team work in concerned medical staff	3.098	3.016
Basic work protocols are not followed by the medical staff	.534	.711
Negligence in equipment handling is common	.983	.817
Chance of error in diagnosis	1.885	1.112
There is a chance of medical staff less qualified	1.117	1.348
Miscommunication among medical staff is detected	1.443	1.219
Some lack in the infrastructure is there	3.445	3.017

Post surgery facilities are not very good	.316	.814
<b>On the Basis of Experience</b>		
There is lack of team work in concerned medical staff	.329	.804
Basic work protocols are not followed by the medical staff	1.575	1.195
Negligence in equipment handling is common	1.222	1.301
Chance of error in diagnosis	3.376	3.018
There is a chance of medical staff less qualified	.524	.666
Miscommunication among medical staff is detected	.539	.655
Some lack in the infrastructure is there	3.961	3.008
Post surgery facilities are not very good	.534	.711

## RESULTS

As can be seen from the above given table of ANOVA test, it is being found that in most of the cases Sign. value is higher than the F value this shows that most of the respondents were agreed to the point in question that the chances of error in medical procedures, lack of basic material handling, issue in infrastructure facilities and even some of the error from the side of physicians is there. Such errors may lead to the trauma for patients. Here the thumb rule of decision is that if the Sign value is higher than the F value then there is a condition of agreement for given point in question. The above analysis shows the same results in relation to this thumb rule. Detailed results are mentioned in the findings given below.

## FINDINGS

The impact of human risk factors on patient safety at MOH hospitals in the Hail region is highlighted in the study. The study demonstrated that respondents believed a number of elements combined to breach patient safety, which is connected with human risk factors. According to the findings, half of the risk factors at the human level were thought to be the most important. Nonetheless, these elements—such as "poor teamwork among medical staff," "unqualified medical staff," and "miscommunication among medical staff"—were thought to be present in the MOH hospitals at a moderate degree, or "somewhat exists."

The study also evaluated the significant variations in the study sample's characteristics with respect to the patient safety risk factors that were tested. The first risk factor, "poor teamwork among medical staff," was found to be statistically significantly positively correlated with age, nationality (in favor of non-Saudi nurses), and nursing professional level. This might be the outcome of a deeper comprehension of the intricate work procedures involving numerous departments and pros, as well as how they collaborate throughout time. Another possibility is that these seasoned nurses understood the value of teamwork because of their job level and cumulative experience. Additionally, Saudi resident nurses' varied experiences abroad might help them appreciate the value of collaboration. It is true that providing patient care requires teamwork. Individual employees in a ward or department must collaborate well in order to provide patients with excellent treatment. For the benefit of patients, the team must work well together, even if the members are outstanding individual nurses or doctors with clinical knowledge and expertise. Errors typically occur as a result of inadequate teamwork or communication rather than a lack of technical understanding of a condition or medication.

For effective team building and operation in Ha'il hospitals, hospital administrators should include teamwork training programs in their in-service education initiatives, giving younger medical staff precedence. According to nurses from various medical departments, "Unqualified medical staff" was ranked as a moderate risk factor for patient safety in the second place, with emergency room nurses ranking highest. These results are in line with those of prior research that indicated this barrier is more likely to arise in emergency departments, intensive care units, and operating rooms. Furthermore, our data revealed a statistically significant positive link between the risk factor "Unqualified medical staff" and the assessment of nurses' various professional levels.

Higher professional level nurses may be more conscious of errors made by less experienced medical personnel, especially those with less training. Additionally, they may have years of experience or have taken certain patient safety training. Thirdly, participants viewed "Miscommunication among medical staff" as a moderate risk factor for patient safety, and it was significantly positively correlated with nurses' professional level. In fact, numerous studies have demonstrated that a lack of communication among medical personnel can lead to medical errors. These mistakes could result in serious harm or unanticipated patient death. According to estimates, professional misunderstandings account for 80% of significant safety incidents in this context. According to estimates, the third most common cause of mortality is medical error. Up to 80% of major medical errors are the result of poor teamwork and communication among medical personnel. Patient safety is affected in a synergistic way by the top

risk human elements that nurses in this study perceived. Each of these risk factors is closely related to the others. Effective communication between a range of disciplines (such as nursing, physician specialties, physical therapy, and social work) and the utilization of the available expertise and highly qualified medical staff to provide patient care are undoubtedly necessary for teamwork.

Therefore, in order to guarantee highly qualified employment, which will in turn improve the quality of patient care, health care professionals—especially those in leadership positions—must think about ways to improve team-based, effective communication among medical staff and support the medical staff with ongoing training courses. Even if some risk variables were ranked lower than others, policymakers and hospital administrators must pay attention to and be concerned about all risk factors in order to promote patient safety in healthcare settings. The study's conclusions might have an impact on how better healthcare is provided at MOH hospitals.

The study advances our understanding of patient safety in Saudi Arabia and provides some insights into the link between elements that may impede patient safety improvement and those that promote it. Achieving a satisfactory level of patient safety necessitates that all tiers of a healthcare organization create a shared system, which includes organizational support for the procedures as well as a positive safety culture. Nevertheless, there are several restrictions on the study. Due to time restrictions and project budget limitations, the current study was restricted to MOH hospitals in a single geographic area (the Hail region); hence, the proposal that the study's findings are applicable to all MOH needs to be investigated through further research. It's also critical to remember that safety is not solely the responsibility of nurses. Including more than one group in the current study would have needed a significantly bigger sample, which would have required more time and resources beyond the project's scope. Future research might examine the opinions of additional medical professionals in other parts of Saudi Arabia.

### Conclusion

We looked at the underlying human resources elements that lead to medical errors in the Hail region's MOH hospitals in Saudi Arabia. We also looked into the significant variations in the study sample's demographics with respect to the risk factors for medical errors caused by human resources. In Ha'il hospitals, other medical personnel, especially nurses, were viewed as moderate risk factors, while "poor teamwork among medical staff," "unqualified medical staff," and "miscommunication among medical staff" were viewed as moderate risk factors. However, the importance of these elements in patient safety and medical errors was not well perceived by younger Saudi and technical nurses. In order to create a cohesive and productive team at Ha'il hospitals, training programs should be ongoing, giving priority to these groups.

### REFERENCES

- World Health Organization (WHO). (2019). "Patient safety". Available from: <https://www.who.int/news-room/fact-sheets/detail/patient-safety>
- Malheiros Carboni, R., Reppetto, M. A. and Nogueira, V. O. (2018). "Erros no exercício da enfermagem que caracterizam imperícia, imprudência e negligência: uma revisão bibliográfica [Errors in nursing practice that characterize malpractice, recklessness and neglect: a bibliographic review]". *Revista Paulista de Enfermagem*, 29 (3), 100–107
- Rocha, R. C., Bezerra, M. A. R., Martins, B. de M. B. And Nunes, B. M. V. T. (2021). "Teaching patient safety in nursing: integrative review". *Enfermería Global*, 20 (4), 700–743. <https://doi.org/10.6018/eglobal.441691>
- Hababbeh, A. A. and Alkhalaileh, M. A. (2020). "Effect of an educational programme on the attitudes towards patient safety of operation room nurses". *British Journal of Nursing*, 29 (4), 222–228. <https://doi.org/10.12968/bjon.2020.29.4.222>
- Granados Plaza, M. and Gea Caballero, V. (2018). "Patient safety in the nursing practice environment". *Enfermería Clínica*, 29 (3), 200–201. <https://doi.org/10.1016/j.enfcli.2018.09.005>
- Forte, E. C. N., Pires, D. E. P., Padilha, M. I. and Martins, M. M. F. P. S. (2017). "Nursing errors: A study of the current literature" *Texto e Contexto Enfermagem*, 26 (2), 1–10.
- Galiza, D. D. F., Moura, O. F., Barro, V. L. and Luz, G. O. (2014). "Preparo e administração de medicamentos: erros cometidos pela equipe de enfermagem [Preparation and administration of medications: errors made by the nursing staff]". *Revista Brasileira Farmácia Hospitalar e Serviços de Saúde*. 5 (1), 45–50.
- Schroers, G., Ross, J. G. and Moriarty, H. (2021). "Nurses' perceived causes of medication administration errors: A qualitative systematic review". *Joint Commission Journal on Quality and Patient Safety*, 47 (1), 38–53. <https://doi.org/10.1016/j.jcjq.2020.09.010>

- World Health Organization (WHO). (2017). "Patient safety. Making health care safe". Available from: <https://apps.who.int/iris/rest/bitstreams/1084830/retrieve>
- Yoshimatsu, K. and Nakatani, H. (2020). "Home visiting nurses' job stress and error incidents". *Home Health Care Management and Practice*, 32 (2), 110–117. <https://doi.org/10.1177/1084822319899392>
- Yang, Y., Liu, H. and Sherwood, G. D. (2021). "Second-order problem solving: Nurses' perspectives on learning from near misses". *International Journal of Nursing Sciences*, 8 (4), 444–452. <https://doi.org/10.1016/j.ijnss.2021.08.001>
- Amrollahi, M., Khanjani, N., Raadabadi, M., Hosseinabadi, M., Mostafaei, M. and Samaei, S. (2017). "Nurses' perspectives on the reasons behind medication errors and the barriers to error reporting". *Nursing and Midwifery Studies*, 6 (3), 132–136. [https://doi.org/10.4103/nms.nms\\_31\\_17](https://doi.org/10.4103/nms.nms_31_17)
- Najafpour, Z., Arab, M., Biparva Haghighi, S., Shayanfard, K., Yaseri, M., Hatamizadeh, M., Goudarzi, Z. and Bahramnezhad, F. (2021). "Nurses' decisions in error reporting and disclosing based on error scenarios: A mixed-method study". *Health Scope*, 10 (3), e114868 <https://doi.org/10.5812/jhealthscope.114868>
- Lee, J. (2021). "Understanding nurses' experiences with near-miss error reporting omissions in large hospitals". *Nursing Open*, 8 (5), 2696–2704. <https://doi.org/10.1002/nop2.827>
- Koehn, A. R., Ebright, P. R. and Draucker, C. B. (2016). "Nurses' experiences with errors in nursing". *Nursing Outlook*, 64 (6), 566–574. <https://doi.org/10.1016/j.outlook.2016.05.012>
- Mok, W. Q., Chin, G. F., Yap, S. F. and Wang, W. (2020). "A cross-sectional survey on nurses' second victim experience and quality of support resources in Singapore". *Journal of Nursing Management*, 28 (2), 286–293. <https://doi.org/10.1111/jonm.12920>
- Creswell, J. W. and Creswell, J. D. (2018). "Research design" (5th ed.). Los Angeles: SAGE Publications.
- Opara, V., Spangsdorf, S. and Ryan, M. K. (2023). "Reflecting on the use of Google Docs for online interviews: Innovation in qualitative data collection". *Qualitative Research*, 23 (3), 561–578. <https://doi.org/10.1177/14687941211045192>
- Braun, V. and Clarke, V. (2006). "Using thematic analysis in psychology". *Qualitative Research in Psychology*, 3 (2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Jo, J., Marquard, J. L., Clarke, L. A. and Henneman, P. L. (2013). "Re-examining the requirements for verification of patient identifiers during medication administration: No wonder it is error-prone". *IEEE Transactions on Healthcare Systems Engineering*, 3 (4), 280–291. <https://doi.org/10.1080/19488300.2013.862329>
- Riplinger, L., Píera-Jiménez, J. and Dooling, J. P. (2020) "Patient identification techniques – approaches, implications, and findings". *Yearbook of Medical Informatics*, 29 (01), 081–086. <https://doi.org/10.1055/s-0040-1701984>
- Alrabadi, N., Haddad, R., Haddad, R., Shawagfeh, S., Mukatash, T., Al-rabadi, D. and Abuhammad, S. (2020). "Medication errors among registered nurses in Jordan". *Journal of Pharmaceutical Health Services Research*, 11 (3), 237–243. <https://doi.org/10.1111/jphs.12348>
- Intan, C. (2021). "Nurse hand hygiene behavior with prevention of surgical site infection in surgery room". *Journal of Applied Nursing and Health*, 3 (1), 1–7. <https://doi.org/10.55018/janh.v3i1.18/10.1016/j.ijmedinf.2016.09.002>