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Nurses' Perceptions Toward Medication Errors in Emergency Departments, Taif, Saudi Arabia

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Abstract
Medication errors are common in the healthcare service in general and especially in emergency rooms at hospitals. The causes of these errors vary and it is important to explore them, because they can have serious consequences for patients and heath organization. The aim of this study is to explore nurses' perceptions of medication errors in the emergency department of the Ministry of Health hospitals in Taif city, Saudi Arabia. A qualitative descriptive study implemented from July, 2022 to January, 2023. The study invited all nurses working in ER in the Ministry of Health hospitals in Taif city to participate. The total participants in this study were 15 nurses from the emergency departments at Ministry of Health hospitals in Taif, KSA. Four themes were identified: the causes of medication errors; the causes of not reporting of medication errors; factors that encourage nurses to register medication errors; the ways of reducing the incidence of medication errors, which include medication awareness, giving medication in the presence of a senior nurse and increasing the number of nurses. Overall, the current study found many of the factors that increase medication errors, such as work pressure and shortage of nursing staff. Other factors include nurses' fear of accountability and punishment, or of investigation committees. Therefore, this study recommends promoting a culture of reporting and learning from errors to maintain a positive work environment

1. Introduction

The Universal Declaration of Human Rights states that individuals and families have the right to a standard of living adequate for health and well-being. This statement guarantees that all member states ensure the healthcare rights for every individual (Sullivan, 2018). The provision of health services takes place through various centres and hospitals. For example, the emergency department (ER) in any hospital is one of the most sensitive and crowded departments, which needs to good management (Greenwood-Ericksen and Kocher, 2019). Medication errors are the most common errors occurring in healthcare departments (Gunes et al., 2020). ER described as complex environment which is at risk for medication errors (Althobaiti et al., 2022). A medication error can be described as an act or event that may cause harm to the patient as a result of using an inappropriate drug (Rutledge, Retrosi and Ostrowski, 2018). Research has shown that the most common medication error made by nursing departments is directing the wrong dose to the patient (Shitu et al., 2020). Therefore, the healthcare department needs to ensure a high quality of management and monitoring to reduce or eliminate such errors in healthcare, especially in the emergency department.

Saudi Arabia (SA) offers high-quality healthcare facilities to its citizens free of charge. Internationally, the healthcare system or services of Saudi Arabia are ranked 26th for best service, which means the state has an effective and efficient healthcare system (Qaffas, Hoque and Almazmomi, 2021). However, it has been found that the percentage of medication error incidents in the hospitals of Saudi Arabia is estimated at 44.4%, which is remarkably high (Almalki et al. 2021). In Saudi Arabia there has been little research to examine the causes and impacts of medication errors; thus, this study is highly important (Al Khreem & Al-khadher, 2021). The research in the healthcare department, especially in the emergency department of the KSA, indicates a high number of medication error incidents. However, no research has yet evaluated it from the perspective of the Nursing and Emergency Department in Taif city. Therefore, this study aimed to explore

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nurses' perceptions of medication errors in the emergency department of the Ministry of Health hospitals in Taif city, Saudi Arabia.

2. Methodology

This is a qualitative descriptive study implemented from July, 2022 to January, 2023. The study invited all nurses working in ER in the Ministry of Health hospitals in Taif city, Saudi Arabia to take part in this research. Semi-structured interviews were used in data collection. Open-ended questions were used, such as "From your point of view, what are the causes of medication errors in ER?", "How are medication errors in ER reported?", "What could encourage you to record medication errors?" and "What are the ways to reduce medication errors in ER?" The interviews were conducted in Arabic. They lasted 40–50 minutes. Both researchers were aware of the study's confirmability, credibility and transformability. For example, both genders were included in this study. Sometimes researchers asked more questions for clarification when it was required. Moreover, both researchers listened to the interviews and ensured that the correct meaning was gathered. They both analysed the data and agreed on the themes.

This study has ethical approval from the Makkah Ethical Committee at the Ministry of Health number (H-02-K-076) on 10/07/2022 and IRB Registration Number (H-02-K-076-0622-760). All data was collected after a formal consent form had been signed by all the participants.

3. Result:

The total participants in this study were 15 nurses from the emergency departments at the Ministry of Health hospitals in Taif, KSA. Their ages were between 25 and 42 years of age. Their years of experience varied between one year up to 19 years, as shown in the Table 1. Four themes were identified: the causes of medication errors; the causes of not reporting of medication errors; factors that encourage nurses to register medication errors; the ways of reducing the incidence of medication errors, which include medication awareness, giving medication in the presence of a senior nurse and increasing the number of nurses.

Table 1: Demographic data

No	Age	Gender	Years of Experience	Experience in ER
1	35	Male	13 years	8 Years
2	30	Female	5 years	5 Years
3	27	Male	2 years	2 Years
4	30	Male	2 years	2 years
5	35	Female	13 years	2 years
6	36	Female	14 years	5 years
7	35	Female	14 years	5 years
8	38	Female	17 years	5 years
9	37	Female	14 years	4 years
10	42	Female	19 years	4 years
11	25	Male	Year	Year
12	27	Female	Year	Year
13	35	Female	10 years	2 years
14	30	Female	8 years	4 years
15	30	Female	10 years	2 years

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Theme 1: Causes of medication errors

The majority of the participants mentioned that the work pressure due to the huge number of patients in ER and the shortage of nursing staff were factors that increase the number of medication errors, as quoted below:

"The emergency crowd and the number of nurses is not enough, and also the number of working hours is long because the nursing lasts 12 hours due to the lack of nurses, so there is pressure on us and therefore their concentration is low and they are mentally distracted with body fatigue therefore medication error can occurred" (participant 2).

"Overcrowding and the large number of patients, lack of nurses and the nurses receiving more than one patient, the pressure from the patients who want everything quickly, so they become confused and you can give the wrong medicine, sometimes the doctor writes the order wrong, and the error also comes from the system" (participant 8).

Theme 2: Causes of not reporting of medication errors

The majority of them agreed that the reasons for not reporting medication errors were fear of accountability, punishment, or transfer to investigation committees, as quoted below:

"Sometimes if this happened with me, I didn't report the medication error because of fear of punishment from the head of department and they take action and turn to investigation" (participant11).

"Surely the first reason is the fear of punishment and it is possible they are afraid of the penalties or investigations" (participant 9).

Theme 3: Factors that encourage nurses to register medication errors.

However, a few of the participants report medication errors because of their concern for the patient's safety, and to gain time to take proper action. They mentioned that reporting a medication error is a right of the patient and that comes from a religious motivation. Moreover, there are positive points that can be obtained in the annual evaluation. The reporting can be through special forms that are filled out and submitted to the direct supervisor on paper or electronically via the hospital website or via e-mail, as quoted below:

"I preserve the patient's safety, and this is the most important thing. I am trying to convince them that it preserves the patient's safety, and the probability of preserving the patient's safety" (participant 6).

"I motivate them, of course. Currently, we have "best nurses" every month, and we also have courses that are given free of charge in the educational building" (participant 4).

Theme 4: Ways to reduce the incidence of medication errors.

4.1 Medication awareness

Many participants mentioned that awareness of the available medication remains important and highly necessary in the nursing field. Therefore, they mentioned that there is a great need for an awareness programme about the medicines which are available in the hospital. This programme will increase medication awareness, and it will also help detect and reduce medication errors, as quoted below:

"Awareness of nursing in terms of medication errors and how to deal with them. As for the new nurses, they are not allowed to give the medicine except to those who have an intensive training programme for a period of not less than 3 months" (participant 7).

"Checking, especially in high-risk medicines, intensifying lectures and raising awareness about medication errors, as well as increasing the number of nurses for the families, it is better to have a security guard or a social worker in emergency. Do an assessment of nursing every period" (participant9).

4.2 Giving medication in the presence of a senior nurse

Most participants believed that the incidence of medication errors could be reduced by ensuring that senior staff were present when a dose was administered or when they prepared to a patient, because experienced nurses can confirm the dosage of the drug before giving it to the patient, as shown below:

"I am careful so that he does not give the medicine except in the presence of the senior staff with the junior staff. A generalisation was given that if the treatments are of the high alert medication, they are

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given only in the presence of senior staff" (participant 1).

"I always ask the nurses about something they know. I teach them about it. Make them tests every period about the existing medicaments and check the deceptions with the nurse before you give" (participant 12).

4.3 Increasing the number of nurses

Many of the participants believe that increasing the number of nurses is a solution to reduce medication errors, as shown below:

"Increasing the number of nurses and intensifying awareness in terms of medication errors, as well as checking during the preparation of the medication by the nurse in charge of the case" (participant 3).

"To reduce medication errors, cases must be distributed among the nursing staff so that no pressure occurs on the nurse with more than one case, and this is done by increasing the number of nursing and thus reducing medication errors" (participant 7).

4. Discussion

The present study sheds light on the perceptions of nursing professionals towards medication errors in the emergency departments of Taif Ministry of Health hospitals in Saudi Arabia. This study indicated that work pressure and staff shortages were the primary reasons for medication errors. Similarly, studies found that the emergency department of a hospital is considered a high-stress and high-demand work environment due to its fast-paced and unpredictable nature (Aboshaiqah, 2018; Alkatheri et al., 2017). Furthermore, nurses expressed that working in such an environment is constantly exposing them to various stressors, such as high workload, long working hours, and complex patient conditions. As a result, nurses become vulnerable to experiencing negative health outcomes such as fatigue, exhaustion, stress, and insomnia (Gunes et al., 2020).

Participants in this study expressed that the shortage of nursing staff in the emergency department further exacerbates the problem. This is because with a limited number of nurses available to provide care to a large number of patients, nurses are forced to take on additional responsibilities, resulting in increased workload and reduced time available for medication administration. The shortage of nursing staff has been identified as a significant factor contributing to medication errors in prior research (Gupta et al., 2021). Addressing the issue of medication errors in the emergency department requires a multi-faceted approach that involves addressing the underlying causes, including staffing shortages and high workload. Strategies such as increasing the number of nursing staff, improving the work environment, implementing medication safety protocols, and providing adequate training and support to nurses can help to reduce medication errors and improve patient safety in the emergency department. It is essential to prioritise the well-being of healthcare providers to enable them to provide safe and effective care to patients.

Moreover, the findings reveal that nurses' fear of accountability, punishment, or investigation committees were identified as the primary reasons for not reporting medication errors. This is consistent with prior research which has highlighted the fear of disciplinary action and the potential impact on their career as key reasons for underreporting of medication errors by nurses (Asadi et al., 2020). However, the study also found that some nurses reported medication errors because they were concerned about the patient's safety, because of their religious beliefs, and to gain positive points in their annual evaluation. This indicates that while fear of accountability is a significant barrier to reporting medication errors, other factors such as professional ethics, organisational culture, and personal motivation can also influence nurses' reporting behaviour. This is supported by previous studies which have highlighted the importance of creating a supportive work environment that encourages reporting and learning from medication errors (Pelayo et al., 2020).

The consequences of medication errors can be severe, ranging from minor adverse effects to significant harm or even death. The study by Tsegaye et al. (2020) also highlights the potential impact of medication errors on patient outcomes, including disability, paralysis, and death. However, it is important to note that not all medication errors have evident consequences. The study by Zirpe et al. (2020) suggests that most medication errors made by nurses are negligible and do not cause harm to patients. To promote a culture of safety and minimise the occurrence of medication errors, it is important to address the fear of

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accountability and provide a supportive work environment that encourages reporting and learning from errors. This can be achieved through educational initiatives, creating a non-punitive reporting system, and promoting a blame-free culture that focuses on identifying and addressing system failures rather than individual blame. It is essential to prioritise patient safety and empower healthcare providers to report errors and work collaboratively towards improving medication safety in the emergency department.

In terms of reducing medication errors, the study suggests that increasing medication awareness through awareness programmes and training for nurses, checking high-risk medicines, increasing nursing staff, and periodic nursing assessments can help to reduce the incidence of medication errors. These findings are consistent with previous research studies which have suggested that training, education, and efficient communication are crucial in reducing medical errors in hospital emergency departments (Koteswari et al., 2020; Mieiro et al., 2019). Healthcare professionals require sufficient training and knowledge to identify high-risk medications and to prevent medication errors. Additionally, a well-trained nursing staff is essential in providing safe and efficient care, especially in high-stress environments such as the emergency department.

The present study highlights the importance of having senior staff present during medication administration, to reduce the incidence of medication errors in the emergency department. This finding is consistent with the literature review which indicates that an instructional programme for nurses to enhance their reporting abilities concerning medication errors can improve patient outcomes (Dyab et al., 2018). Having senior staff present during medication administration can provide an additional layer of oversight and support to ensure medication safety. Overall, the study provides valuable insights into nurses' perceptions of medication errors in emergency departments, highlighting the importance of medication awareness, increasing nursing staff, and reporting medication errors to improve patient safety.

5. Conclusion:

The current study found that the there are many factors that increase the number of medication errors, such as work pressure and a shortage of nursing staff. Moreover, there are factors for not reporting medication errors, which are nurses' fear of accountability and punishment, or of investigation committees. Therefore, organisations must prioritise patient safety and foster a culture of learning and improvement to reduce the incidence of medication errors and improve patient outcomes. This study recommends promoting a culture of reporting and learning from errors to maintain a positive work environment. It suggests creating a non-punitive reporting system, and promoting a blame-free culture that focuses on identifying and addressing system failures, rather than individual blame.

References

[1] Aboshaiqah, A. E. (2018). Nurses' perceived barriers to reporting medication administration errors. Journal of Nursing Education and Practice, 8(8), 83-91. https://doi.org/10.5430/jnep.v8n8p83

[2] Al Khreem, S. M., & Al-khadher, M. (2021). Perceptions of nurses about medication errors: a cross-sectional study. Journal of Scientific Research in Medical and Biological Sciences, 2(1), 30-41.

[3] Alkatheri, A. M., Albekairy, A. M., Ferwana, M., & Sheikh, A. (2017). Impact of medication reconciliation and review on clinical outcomes. Annals of Saudi Medicine, 37(5), 365-372. https://doi.org/10.5144/0256-4947.2017.365

[4] Almalki, Z. S., Alqahtani, N., Salway, N. T., Alharbi, M. M., Alqahtani, A., Alotaibi, N., & Alshammari, T. (2021). Evaluation of medication error rates in Saudi Arabia: A protocol for systematic review and meta-analysis. Medicine, 100(9).

[5] Althobaiti M, Alghamdi AJ, Almalki M, Alkarani AS, Alamri S. (2022). Identification of Factors Affecting Patient Safety in the Emergency Department: A Retrospective Study, J Clin of Diagn Res. 16(3), LC01-LC05. https://www.doi.org/10.7860/JCDR/2022/52095/16062

[6] Asadi, N., Mirzaee, M., & Garshasbi, S. (2020). Factors influencing medication errors among nurses in hospitals: A systematic review. Journal of Clinical Nursing, 29(15-16), 2676-2691. https://doi.org/10.1111/jocn.15330

[7] Dyab, E., Elkalmi, R., Bux, S., & Jamshed, S. (2018). Exploration of nurses' knowledge, attitudes, and perceived barriers towards

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

medication error reporting in a tertiary health care facility: A qualitative approach. Pharmacy, 6(4), 120. https://doi.org/10.3390/pharmacy6040120.

[8] Greenwood-Ericksen, M. B., & Kocher, K. (2019). Trends in emergency department use by rural and urban populations in the United States. JAMA network open, 2(4), e191919-e191919.

[9] Gunes, U. Y., Gok Metin, Z., & Arikan Donmez, F. (2020). Factors affecting stress and burnout among emergency department nurses. Journal of Emergency Nursing, 46(1), 64-70. doi: 10.1016/j.jen.2019.07.014

[10] Gunes, U., Efteli, E., Ceylan, B., Baran, L., & Huri, O. (2020). Medication errors made by nursing students in Turkey. Int J Caring Sci, 13(2), 1183-1192.

[11] Gupta, R., Ahmed, A. M., & Verma, A. (2021). Perceptions and attitudes of nurses towards medication errors: A systematic review and meta-analysis. Journal of Nursing Management, 29(5), 1013-1023. https://doi.org/10.1111/jonm.13234

[12] Koteswari, D., Dhanalakashmi, D. R., & Tiwari, R. (2020). The Role of Training and Work Environment on Retention and Job Satisfaction as a Mediator at Startups, Bangalore. International Journal of Management, 11(9), 1181-1191. DOI: 10.34218/IJM.11.9.2020.112.

[13] Mieiro, D. B., Oliveira, É. B. C. D., Fonseca, R. E. P. D., Mininel, V. A., Zem-Mascarenhas, S. H., & Machado, R. C. (2019). Strategies to minimize medication errors in emergency units: an integrative review. Revista Brasileira de Enfermagem, 72, 307-314.

[14] Pelayo, M., Agra, Y., & Fernandez-Mondejar, E. (2020). Analysis of medication errors detected by nurses in a Spanish hospital: A descriptive observational study. BMC Health Services Research, 20(1), 1-9. https://doi.org/10.1186/s12913-020-05434-5

[15] Qaffas, A. A., Hoque, R., & Almazmomi, N. (2021). The internet of things and big data analytics for chronic disease monitoring in Saudi Arabia. Telemedicine and e-Health, 27(1), 74-81.

[16] Rutledge, D. N., Retrosi, T., & Ostrowski, G. (2018). Barriers to medication error reporting among hospital nurses. Journal of clinical nursing, 27(9-10), 1941-1949.

[17] Shitu, Z., Aung, M. M. T., Tuan Kamauzaman, T. H., & Ab Rahman, A. F. (2020). Prevalence and characteristics of medication errors at an emergency department of a teaching hospital in Malaysia. BMC health services research, 20(1), 1-7.

[18] Sullivan, D. (2018). The public/private distinction in international human rights law (pp. 126-134). Routledge.

[19] Tsegaye, G., Bekele, A., & Gebeyehu, M. (2020). Medication administration errors and contributing factors among nurses in Ethiopian public hospitals: A cross-sectional study. Drug, Healthcare and Patient Safety, 12, 1-9. doi: 10.2147/DHPS.S237882

[20] Zirpe, K., Seta, B., Gholap, S., Aurangabadi, K., Gurav, S., Deshmukh, A., Wankhede, P., Suryawanshi, P., Vasanth, S., Kurian, M., Philip, E., Jagtap, N., & Pandit, E. (2020). Incidence of medication error in critical care unit of a tertiary care hospital: where do we stand? Indian J Crit Care Med, 24(9), 799. https://www.ijccm.org/doi/pdf/10.5005/jp-journals-10071-23556.