



**Barriers to Safety Event Reporting for Nurses at Beni-Suef University Hospital, Beni-Suef,
Egypt**

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Abstract:

Patient safety and medical errors are one of the major challenges that health systems in all countries are grappling with to minimize and reduce the damage caused by them. An organizational culture of safety affects employees' attitudes, beliefs, perceptions, and values related to safe practice as well as their behaviors and level of engagement. The objective of the current study was to determine the barriers for nurses' reporting of medical errors. This was an exploratory descriptive qualitative study, conducted from March 2020 to July 2020 in the all departments and intensive care units (ICUs) in Beni-Suef University Hospital. In-depth interviews were held with twelve nurses. When barriers to error reporting were examined, the three areas identified from the data were: (The nurses' perceptions of error, Fear and, Barriers related to the system). This work may provide a road map for just culture implementation. Future qualitative and quantitative research should explore effects of just culture on safety reporting patterns and specific events such reducing medication errors or risk-taking behaviors.

Keywords: Patient Safety, Nurses, Safety Event Reporting.

1. Introduction:

Patient safety is crucial to the health care quality despite some times is missed due to the complexity of the healthcare systems.

There is a growing recognition that an institution's ability to avoid harm will be realized only when it is able to create a patient safety culture among its staff [1].

It has become well recognized globally that hospitals and other healthcare organizations are not as safe as they should be [2]. It is likely that millions of patients globally suffer from injuries, disabilities or even death due to medical errors. The WHO reported an adverse event rate of about 10 percent, which would mean that one in every ten patients seeking healthcare suffers an adverse event. Patient safety problems are believed to be hidden in health care organizations, especially in developing countries where less is still known about the impact of the problem [3].

It is believed that medical errors are symptoms of a diseased health care system. Error prevention efforts must therefore be directed mainly at the weaknesses in the system. This indicates that health care organizations should focus on continuous systems improvement in order to effectively minimize errors. Medical errors must be investigated to identify weaknesses in the

systems or processes instead of rushing to blame the staff [3].

It is widely believed that people can learn from their and others mistakes and if lessons are learned and shared, more people become aware, then they would become more effective in preventing similar mistakes. An effective safety event reporting system is an essential part of a comprehensive patient safety culture [4].

(1.2) Safety Events Burden:

- **Global burden:** It is estimated that 421 million hospitalizations occur in the world annually with approximately 42.7 million adverse events (AEs) resulting in 23 million disability-adjusted life years (DALYs) lost per year. AEs disproportionately affect people in low- and middle-income countries where more than two thirds of all AEs and the DALYs lost occur [5].

- **Eastern Mediterranean Region and Africa burden:** A study carried out in 26 hospitals of two African countries (Kenya and South Africa) and six Eastern Mediterranean countries (Egypt, Jordan, Morocco, Sudan, Tunisia and Yemen) found that almost one third of patients impacted by AEs had died, 14% had sustained permanent disability and 16% had sustained moderate disability and 80% of AEs were preventable. The study listed causes related to availability

and implementation of patient safety protocols and policies, training and supervision of clinical staff and reporting as the most common AEs [6].

In the Eastern Mediterranean Region: each AE causes an average of 9.1 additional days of hospitalization. It is estimated that the annual economic burden of all adverse events in low/middle-income countries ranges between US\$1,976 an US\$21,276 million with average cost US\$7,295 million [5].

A study in Lebanon found that AEs reporting to be a major predictor of a positive patient safety culture in health care organizations [7].

(1.3) Beni-Suef university hospital's

Context: In a recent study; El-Shabrawy et al. assessed for the first time the patient safety culture in Beni-Suef university hospital by using the Hospital Survey on Patient Safety Culture (HSOPSC) [8].

This study showed that all the fourteen safety culture dimensions were lower than the AHRQ (2014) benchmark report and all should be given care and attention with prioritization. The four safety issues with lowest positivity were:

- 1) Frequency of events reporting (23.2%),
- 2) Non-punitive response to errors (30.3%),
- 3) Communication openness (31.2%), and

4) Feedback and communication about errors (32.9%).

Event reporting is an essential component for achieving a learning patient safety culture; which can only happen in a non-punitive environment where events can be reported without the staff being blamed, shamed or the failure is concealed. As demonstrated in El-Shabrawy study; 85.2% of the studied group have not reported any events in the past year and 7% had reported only one or two events [8].

Nurses are the front lines of safety and quality health care delivery and the health care professionals who are with the patient almost 24 hours a day. Their role is critical in nearly all aspects of patient assessment, safety and care. Nurses are required to understand and develop the skills needed to improve health care processes and to take that as a professional responsibility [9].

This study may provide a road map for enhancing nurses' attitude, skills and knowledge of patient safety culture and safety event reporting at Beni-Suef University Hospital.

The current study was designed to determine the barriers for nurses' reporting of medical errors.

2. Subjects and Methods:

2.1. Study type and sampling:

This was an exploratory descriptive qualitative study, conducted from March 2020 to July 2020. Two randomly selected departments from Beni-Suef University Hospital had been chosen. Sampling was strictly limited to those who provide direct patient care. Registered nurses, female, or male with at least 1 year experience, in staff or management positions were invited to participate in this phase.

2.2. Data Collection Methods:

An information questionnaire on socio-demographic characteristics and an interview form were used as data collection instruments. The semi-structured interview form, designed based on a review of the literature, consisted of three open-ended questions:

- (1) Can you please provide an example of an event that you believe would be classified as a medical error?
- (2) Why do you think physicians and nurses prefer not to make a report when they come across a medical error?
- (3) What do you think about the adequacy and functionality of your present reporting system?

Errors were defined as “anything that happened in your own practice related to the testing process that should not have

happened, that was not anticipated, and that makes you say, ‘That should not happen in my practice, and I don’t want it to happen again’.”

All interviews were conducted by the same researcher and recorded. The interviews were held in a quiet corner of the unit where the respondents worked a room where no interruptions would be experienced. Each interview took 30 to 45 min.

2.3. Data Analysis:

All interviews were audio-recorded and transcribed verbatim in Arabic language then translated in English. Data analysis began after the first interviews were transcribed. Thematic content analysis was guided by methods described in [10]. The voice recordings were transcribed by the researcher. Then we do open coding of data creating main themes and sub-themes. To ensure the validity of the research, data continued to be collected until data saturation was reached. Care was shown to hold the interviews in an appropriate environment so that the barriers to error reporting could be understood. We also included in the analysis spontaneous comments made throughout the interviews that related to barriers and motivators for reporting.

2.4. Ethical Consideration:

All the individuals included in the study had been informed about the procedures regarding the study and informed of their rights to refuse participation or withdraw from the study without having to give reasons. Participants were guaranteed anonymity and all information provided would be treated with confidentiality. Before the interviews, a written consent and statement of voluntary participation of the participants was obtained after they were informed about the purpose of the research and how it will to be conducted, as well as the fact that the interviews would be recorded. The required administrative regulations were fulfilled. The ethical approval of the faculty of medicine, Beni-Suef University research ethical committee

(REC) was obtained prior to the beginning of the work.

3. Results:

A total of twelve nurses were interviewed: three males and nine females with an average age of 33.24 ± 4.67 years old. Half of the interviewed nurses hold bachelor's degree, three nurses had diploma degree and three nurses had master's degree. Table (1) shows the characteristics of the participants in the sample.

Figure (1) shows that; when barriers to error reporting were examined, the interviewed nurses were truthfully open and willing to discuss the topic. The three areas identified from the data were:

- (1) The nurses' perceptions of error
- (2) Fear, and
- (3) Barriers related to the system,

Table (1): Demographic Characteristics of the interviewed nurses; (No= 12)

		No.	%
Gender; No (%)	Male	3	25
	Female	9	75
Age; (Mean \pmSD years)		33.24 \pm 4.67	
Educational Level; No (%)	Bachelor's degree	6	50
	Master's degree	3	25
	Diploma degree	3	25
Years in practice; No (%)	<5 years	3	25
	5 – 10 years	7	58.33
	>10 years	2	16.67

Work Setting; No (%)	Surgical units	2	16.66
	Internal medicine units	3	25
	Intensive care units	5	41.67
	Emergency services	2	16.67

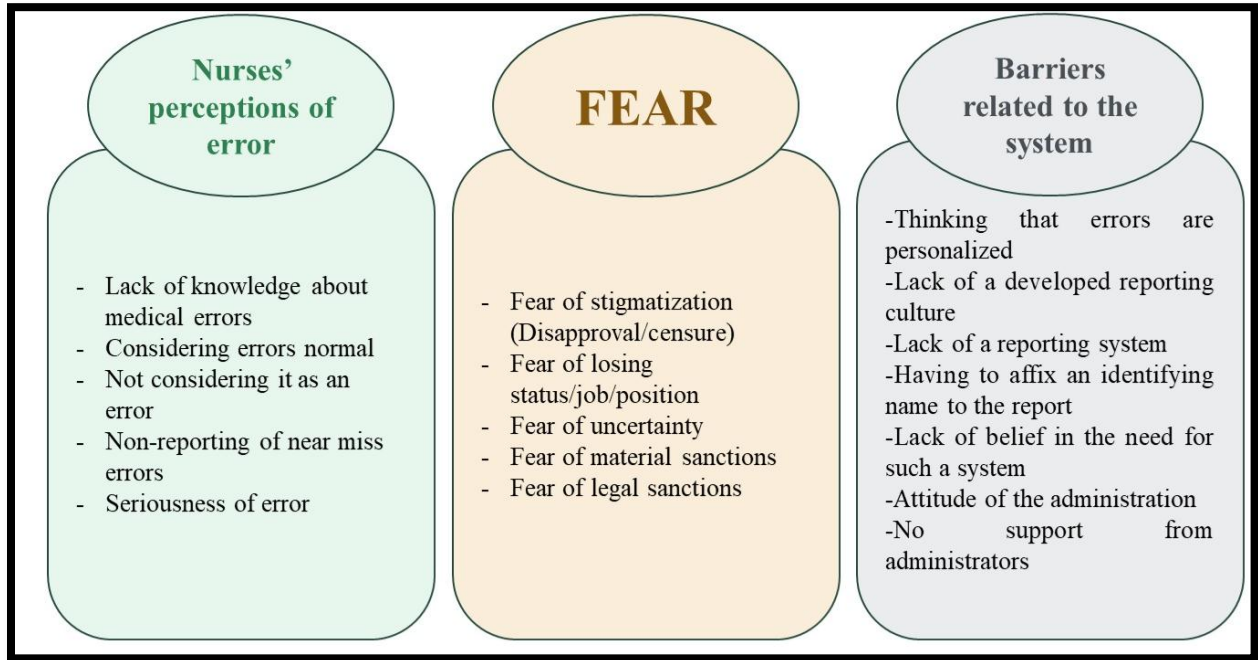


Figure (1): Main Themes and Sub-Themes Related to Barriers to Medical Error Reporting by Nurses in the present study.

(1) The nurses' perceptions of error:

The interviews started by asking the nurses about the meaning of word (error). Most stated they thought of medication errors, others talked about events that caused patient harm. Then nurses were asked to recall an error-related event that had 'stuck with his/her.' Most of the nurses related their own error experiences with little

encouragement. A few nurses were more reticent about sharing their own stories, discussing primarily errors made by others.

The nurses in the study were hesitant about which situations should be considered medical error; in general, the examples that nurses said about medical errors were as follows:

“Administering medications by an incorrect route”,

“Giving a patient the “other person’s dose,” and

“Committing omissions in communication with other units or staff“.

For many of the nurses, the error occurred at a time in their nursing career when they were either inexperienced as a nurse or new to a particular nursing role or work environment or at a time when they *“felt taxed by the demands placed on us, including the need to complete our work in a specified time frame (e.g. the nurses’ shift hours)”*.

At the same time, the nurses stated that they believed that reporting an error depended on the extent of the harm the error caused a patient, that only those errors that were big enough to cause injury to the patient needed to be reported.

A nurse stated, *“Should we exaggerate the simple things??”*

Another said *“The error is an error when a serious complication occurs”*

Another opinion, some participants said that errors that were serious enough to cause patients harm should be concealed to protect the person responsible, and that it was necessary to keep these hidden as much as possible. One nurse said, *“There were no*

complications with the patients; why should we make the event too obvious”!!

Majority of the interviewed nurses in the present study did not believe in the need for a reporting system, did not think it to be of any use, and said that that they did not report medical errors when they witnessed them.

(1) Fear:

The nurses stated in the interviews that they preferred not to report errors when they witnessed them or were responsible for them. The primary reason for this was fear. According to the participants in this study, most of the nursing concerns were summarized as:

“Afraid of blame, of being described as ineffective and incompetent”,

“Fear of being described as lack of knowledge and ineffectiveness in my work as a nurse”,

“Fear that this mistake will keep chasing me in my work and among my colleagues, and to point out what I did wrong....,

“Fear of punishment or transfer to another department or elsewhere”

Feeling personally responsible for an error was a barrier for some participants. For example, *“I never thought of reporting something that I did,”* and *“If it’s something I failed on it’s a lot easier to say, I’m not sure that was an error.”*

Another type of fear was the fear of paying for a machine that was accidentally destroyed. Sometimes, there have been issues with compensation; as one nurse said *“To avoid paying for the material damages or deducting it from my salary”*.

One last reason for not reporting errors is fear of legal liability; as said by a nurse: *“We need to hide errors for many reasons; simply I don’t know about the positive or negative sanctions”*

(2) Barriers related to the system:

Among reasons that prevent nurses from reporting errors in the present study; that there was no reporting system in the hospital, when the errors occurred: *“when an error occurs; it remains within the team, there was no system for reporting.”* People often report incidents due to the overall reporting culture within the organization: *“No one required us to report errors; if you see something wrong, you report it”*; as said by one nurse.

Nurses in our study said they did not receive adequate support from the hospital administration when they did report errors, that from time to time they would get no feedback after reporting, and that they believed when no feedback arrived that management did not respect them.

Moreover, nurses said that no effort was made to delve into the causes of errors that were made, that attempts to find solutions remained superficial, that errors were personalized and blame was readily placed, or that when errors were witnessed and reported.

A nurse said: *“Usually, we are not informed of the procedures used to prevent recurring errors or similar errors, so there is no point in reporting, adding to that the personalization of errors and the feeling of blame”*.

4. Discussion:

(1) The nurses’ perceptions of error:

The main reason for not reporting errors in the present study was weaknesses in nursing training programs. Nurses need to be trained about the meaning and types of errors and near miss incidents, error management and how to report errors.

The factors classified in this theme were based on the nurses’ experiences and error perceptions which stopped them from reporting the errors. These factors included: (Lack of knowledge about medical errors, considering errors normal, not considering it as an error, non-reporting of near miss errors and seriousness of error).

In health care workplace, nurses may be under an increasingly workload that can lead to attention deficits, lack of motivation, and fatigue. In such situations, individuals may believe that errors are likely to be made, and thus acceptable. Studies have shown this to be true [11].

Although the participants of the present study did not have a universal agreement on the meaning of word (error), the majority considered the impacts and consequences of errors as important issues in their decision to report or not, which is consistent with the results of a large number of other studies conducted on this issue [12]. Based on the nurses' perceptions in this study, errors or near misses which did not harm the patients as well as the ambiguity in the notion of error stopped them from reporting. Moreover, reporting the errors of no adverse outcomes depended on no harsh, threatening, and aggressive confrontation of the authorities. Generally; healthcare personnel tend to avoid reporting the errors of no adverse outcomes [13] although, reporting near misses is highly important in preventing and reducing the likelihood of error in future and increasing the patient safety [14]. In a recent similar study conducted in Iran to investigate the barriers of the reporting and disclosing of medical

errors via nurses' perceptions; authors reported that error reporting was depending upon the severity of the consequences to the patients; nurses would not rather report near miss cases or errors without consequences even informally [15].

Studies in diverse nursing practice areas indicate clinical judgment, experience, and knowledge help determine if an incident occurred and if it requires reporting [16-18]. New and inexperienced staff showed less awareness and don't realize how reporting errors is useful in promoting patient safety. This was identified as a problem because newly graduated make a large percentage of the staff [19].

Uncertainty about exactly what constitutes an error also reduces reporting. The lack of a consistent definition of medical error leads to discrepancies that vary with individual perception. This in turn has an impact on whether a hospital employee will decide that a particular event is an error and whether or not the employee will file a report [20-22].

(2) Fear:

The next major theme in this study among the barriers in reporting the medical errors was fear. Different fears were identified as (fear of stigmatization, fear of losing status/job/position, fear of uncertainty, fear

of material sanctions and fear of legal sanctions).

In this studied sample, nurses preferred not to report their errors because of fear of stigmatization and professional reputation. In a study conducted in the United States, nurses refused to disclose error to other nurses and physicians [23]. Fear of reputational impact was also reported as a barrier to reporting errors in the general wards in Iran [22]. Nurses are afraid of being considered as professionals who make a lot of mistakes, because it undermines the reputation of their profession [24].

An important reason why nurses may not be willing to report their errors is a cultural one. The organizational culture should be one of acceptance that human errors occur, but with systemic learning and positive support to individuals in response to error reporting [14]. The fear of being blamed by their peers at the hospital was common for nurses in the present study. *Sari et al.* reported that it may under-report incidents due to fear of shame, blame and unsatisfactory processes [25]. Blame culture is an unhealthy environment for reporting or learning from mistakes, it is referred to as being among the most important factors in the under-reporting of medical errors [22], [26], [27].

Fear of punishment and legal consequences in clinical practice has always been one of the barriers to error reporting. It is estimated that about 95% of medication errors are not reported due to the fear of punishment [28]. A study made on “Incident Reporting at a Tertiary Care Hospital in Saudi Arabia,” indicates that incident reports occur at a rate of 5.8 per 1000 patient days, which falls in the low range when compared with internationally reported rates [29]. In the Iranian study, the fear of occupational legislation and threat were reported as factors associated with reduced reporting of nursing errors [22]. In the study by *Elder et al.*, the fear of being punished or found guilty was one of the important barriers of reporting error by nurses in ICUs [23]. The low rates of reporting errors are due to the fear of punishment and legal ramification [26].

(3) Barriers related to the system:

Factors related to hospital system in the present study are among the identified themes of obstacles in reporting the errors. Nurses have reported that they do not practice error reporting due to the absence of an error-reporting system. It is essential to create a positive climate as a motivator factor to encourage nurses to report.

Those results indicated that the managers' inappropriate reactions, especially nursing manager, in response to the reported error, they focus on human factors versus systemic approach, and the subsequent reprimand were among the barriers hindering error reporting. These findings are consistent with research results which mentioned the reasons for not reporting errors including lack of positive feedback as well as the concern that managers might develop a negative attitude toward the nurses [15], [30].

Nurses in this study said they get no feedback after reporting; in a study by *Sanghera et al.*, in United Kingdom, lack of encouragement by managers was reported as a one of the barriers to medication error reports in ICUs [31]. The literature as well as the results of this study shows that administrative attitudes directly affect error reporting, that every negative feedback will adversely affect error-reporting rates, and a complete lack of feedback makes personnel feel as if they are of no value to management [26].

According to other studies; even when there is a system for reporting errors, personnel have not had enough training about the error-reporting system and are thus not adequately aware of its value [11]. Raising

awareness about systems, making them easy to use, and developing telephone or online reporting will increase error-reporting rates [32]. Reporting systems should be designed to improve themselves and to avoid personal repercussions, and employees should not have to identify themselves in their reporting.

The presence of a simple and user-friendly incident-reporting system and unexaggerated managerial feedback without negative consequences with focusing in system approach rather than personal approach can positively affect the process and manner of error reporting and patient safety culture in health care system [33].

From the present study findings and previous research, to reach effective disclosure practices, a training role at healthcare system is necessary to instruct professional ethics, communication skills and disclosure guidelines to eliminate the punitive measures after voluntary reporting and improve the level of patient safety culture [34].

5. Conclusion and Recommendations:

The qualitative assessment highlighted nurses' positive attitude towards patient safety and the importance of patient safety practices. The reporting barriers explored in

the qualitative assessment part of the current study could serve as the foundation for scaling up the efforts to create effective, easily accessible, practical reporting systems that will make employees feel comfortable and anonymous.

It is recommended to conducting long-term studies and additional actions are required to improve patient safety culture and adverse events reporting, given the importance of reporting errors and adequate staffing in improving patient safety, it is recommended that these items should be considered as a top priority for healthcare managers and hospital policymakers, and, The nursing staff needs more meetings and conferences to provide them with up-to-date information in order to improve their attitudes, knowledge, and skills about patient safety and how to deal with them.

6. References:

1. Nie Y, Mao X, Cui H, He S, Li J, Zhang M. Hospital survey on patient safety culture in China. *BMC Health Serv Res.* 2013 Jun 24;13:228. doi: 10.1186/1472-6963-13-228. PMID: 23800307; PMCID: PMC3701538.
2. Marciano, B., Rodriguez, S.N., Berestein, G., Ortiz, Z., & Dackiewicz, N. Measuring Climate in a tertiary care pediatric Hospital 2010.
3. Sexton JB, Helmreich RL, Neilands TB, Rowan K, Vella K, Boyden J, Roberts PR, Thomas EJ. The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Serv Res.* 2006 Apr 3;6:44. doi: 10.1186/1472-6963-6-44. PMID: 16584553; PMCID: PMC1481614.
4. Cochrane D, Taylor A, Miller G, Hait V, Matsui I, Bharadwaj M, Devine P. Establishing a provincial patient safety and learning system: pilot project results and lessons learned. *Healthc Q.* 2009;12 Spec No Patient:147-53. doi: 10.12927/hcq.2009.20717. PMID: 19667793.
5. Jha AK, Larizgoitia I, Audera-Lopez C, Prasopa-Plaizier N, Waters H, Bates DW. The global burden of unsafe medical care: analytic modelling of observational studies. *BMJ Qual Saf.* 2013 Oct;22(10):809-15. doi: 10.1136/bmjqs-2012-001748. Epub 2013 Sep 18. PMID: 24048616.
6. Letaief M, El Mhamdi S, El-Asady R, Siddiqi S, Abdullatif A. Adverse events in a Tunisian hospital: results of a retrospective cohort study. *Int J Qual Health Care.* 2010 Oct;22(5):380-5. doi: 10.1093/intqhc/mzq040. Epub 2010 Aug 4. Erratum in: *Int J Qual Health Care.* 2018 Aug 1;30(7):576. PMID: 20685729.

7. El-Jardali F, Dimassi H, Jamal D, Jaafar M, Hemadeh N. Predictors and outcomes of patient safety culture in hospitals. *BMC Health Serv Res.* 2011 Feb 24;11:45. doi: 10.1186/1472-6963-11-45. PMID: 21349179; PMCID: PMC3053221.
8. Ekram, M. "El-Shabrawy, Manal M. Anwar, Zahra'a Mohammed Mostafa. Assessment of Patient Safety Culture among Health Care Workers in Beni-Suef University Hospital, Egypt." (2017). *The Egyptian Journal of Community Medicine*, 35(3), 11-19. doi: 10.21608/ejcm.2017.4089
9. Julianne M. Nurses create a culture of patient safety: it takes more than projects. *Online J Issues Nurs.* 2011 Sep 30;16(3):2. doi: 10.3912/OJIN.Vol16No03Man02. PMID: 22324568.
10. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005 Nov;15(9):1277-88. doi: 10.1177/1049732305276687. PMID: 16204405.
11. Soydemir D, Seren Intepeler S, Mert H. Barriers to Medical Error Reporting for Physicians and Nurses. *West J Nurs Res.* 2017 Oct;39(10):1348-1363. doi: 10.1177/0193945916671934. Epub 2016 Sep 30. PMID: 27694427.
12. Espin S, Wickson-Griffiths A, Wilson M, Lingard L. To report or not to report: a descriptive study exploring ICU nurses' perceptions of error and error reporting. *Intensive Crit Care Nurs.* 2010 Feb;26(1):1-9. doi: 10.1016/j.iccn.2009.10.002. Epub 2009 Nov 27. PMID: 19945283.
13. Mitchell I, Schuster A, Smith K, Pronovost P, Wu A. Patient safety incident reporting: a qualitative study of thoughts and perceptions of experts 15 years after 'To Err is Human'. *BMJ Qual Saf.* 2016 Feb;25(2):92-9. doi: 10.1136/bmjqs-2015-004405. Epub 2015 Jul 27. PMID: 26217037.
14. Farag A, Vogelsmeier A, Knox K, Perkhounkova Y, Burant C. Predictors of Nursing Home Nurses' Willingness to Report Medication Near-Misses. *J Gerontol Nurs.* 2020 Apr 1;46(4):21-30. doi: 10.3928/00989134-20200303-03. PMID: 32219454.
15. Najafpour, Z., Arab, M., Yaseri, M., Hatamizadeh, M., Goudarzi, Z., Bahramnezhad, F., & Shayanfard, K. Understanding the Barriers to Nurses Error Reporting and Disclosure: A Mixed Methods Study. 2020.
16. Covell CL, Ritchie JA. Nurses' responses to medication errors: suggestions for the development of organizational strategies to improve reporting. *J Nurs Care Qual.* 2009 Oct-Dec;24(4):287-97. doi:

- 10.1097/NCQ.0b013e3181a4d506. PMID: 19755878.
17. Waters NF, Hall WA, Brown H, Espezel H, Palmer L. Perceptions of Canadian labour and delivery nurses about incident reporting: a qualitative descriptive focus group study. *Int J Nurs Stud.* 2012 Jul;49(7):811-21. doi: 10.1016/j.ijnurstu.2012.01.009. Epub 2012 Feb 11. PMID: 22326817.
18. Peyrovi H, Nikbakht Nasrabadi A, Valiee S. Exploration of the barriers of reporting nursing errors in intensive care units: A qualitative study. *J Intensive Care Soc.* 2016 Aug;17(3):215-221. doi: 10.1177/1751143716638370. Epub 2016 Mar 15. PMID: 28979494; PMCID: PMC5606520.
19. Mousavi-Roknabadi RS, Momennasab M, Askarian M, Haghshenas A, Marjadi B. Causes of medical errors and its under-reporting amongst pediatric nurses in Iran: a qualitative study. *Int J Qual Health Care.* 2019 Aug 1;31(7):541-546. doi: 10.1093/intqhc/mzy202. PMID: 30272214.
20. Handler SM, Perera S, Olshansky EF, Studenski SA, Nace DA, Fridsma DB, Hanlon JT. Identifying modifiable barriers to medication error reporting in the nursing home setting. *J Am Med Dir Assoc.* 2007 Nov;8(9):568-74. doi: 10.1016/j.jamda.2007.06.009. Epub 2007 Oct 22. PMID: 17998112; PMCID: PMC2151929.
21. Koohestani, H. R., & Baghcheghi, N. Barriers to the reporting of medication administration errors among nursing students. 2009. *Australian Journal of Advanced Nursing, The,* 27(1), 66.
22. Hashemi F, Nasrabadi AN, Asghari F. Factors associated with reporting nursing errors in Iran: a qualitative study. *BMC Nurs.* 2012 Oct 18;11:20. doi: 10.1186/1472-6955-11-20. PMID: 23078517; PMCID: PMC3534596.
23. Elder NC, Graham D, Brandt E, Hickner J. Barriers and motivators for making error reports from family medicine offices: a report from the American Academy of Family Physicians National Research Network (AAFP NRN). *J Am Board Fam Med.* 2007 Mar-Apr;20(2):115-23. doi: 10.3122/jabfm.2007.02.060081. Erratum in: *J Am Board Fam Med.* 2007 Jul-Aug;20(4):425. PMID: 17341747.
24. Mayo AM, Duncan D. Nurse perceptions of medication errors: what we need to know for patient safety. *J Nurs Care Qual.* 2004 Jul-Sep;19(3):209-17. doi: 10.1097/00001786-200407000-00007. PMID: 15326990.
25. Sari AB, Sheldon TA, Cracknell A, Turnbull A. Sensitivity of routine system for reporting patient safety incidents in an NHS

- hospital: retrospective patient case note review. *BMJ*. 2007 Jan 13;334(7584):79. doi: 10.1136/bmj.39031.507153.AE. Epub 2006 Dec 15. PMID: 17175566; PMCID: PMC1767248.
26. Bokhari, R. M. Improving Patient Safety and Reducing Medical Errors in Saudi Healthcare Organizations. 2019. *Journal of Medical and Pharmaceutical Sciences*,3(1).
27. Elliot, J. M. *Nursing-related medication errors: A review of factors that facilitate and hinder error reporting, and recommendations for improvement*. 2010. (Doctoral dissertation, The University of Texas School of Public Health).
28. Copping C. Preventing and reporting drug administration errors. *Nurs Times*. 2005 Aug 16-22;101(33):32-4. PMID: 16130498..
29. Arabi Y, Alamry A, Al Owais SM, Al-Dorzi H, Noushad S, Taher S. Incident reporting at a tertiary care hospital in Saudi Arabia. *J Patient Saf*. 2012 Jun;8(2):81-7. doi: 10.1097/PTS.0b013e31824badb7. PMID: 22525364..
30. Vrbnjak D, Denieffe S, O'Gorman C, Pajnkihar M. Barriers to reporting medication errors and near misses among nurses: A systematic review. *Int J Nurs Stud*. 2016 Nov;63:162-178. doi: 10.1016/j.ijnurstu.2016.08.019. Epub 2016 Sep 1. PMID: 27637011.
31. Sanghera IS, Franklin BD, Dhillon S. The attitudes and beliefs of healthcare professionals on the causes and reporting of medication errors in a UK Intensive care unit. *Anaesthesia*. 2007 Jan;62(1):53-61. doi: 10.1111/j.1365-2044.2006.04858.x. PMID: 17156227.
32. Alemdar, D. K., & Yilmaz, G. Evaluation of the Relationship Between the Patient Safety Culture and Medical Error Attitudes of the Pediatric Nurses. 2020. *Clinical and Experimental Health Sciences*, 10(1), 60-68.
33. Rodziewicz, T. L., & Hipskind, J. E. Medical error prevention. 2020. In *StatPearls [Internet]*. StatPearls Publishing.
34. Stroud L, Wong BM, Hollenberg E, Levinson W. Teaching medical error disclosure to physicians-in-training: a scoping review. *Acad Med*. 2013 Jun;88(6):884-92. doi: 10.1097/ACM.0b013e31828f898f. PMID: 23619064.