Original Article

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_767_23

Barriers to reporting medical errors from the perspective of obstetric residents: A qualitative study

Reza Ghaffari, Roghaiyeh Nourizadeh[1], Khadijeh Hajizadeh[1], Maryam Vaezi[2]*

Abstract:

BACKGROUND: Patient safety is one of the basic dimensions of quality of care. Medical errors are one of the most important and influential factors in the quality of care and clinical outcomes, which can have a significant economic effect. The aim of this study was to explore barriers to reporting medical errors from the perspective of obstetric residents.

MATERIALS AND METHODS: This was a qualitative study using a conventional content analysis approach. Data collection was performed through 18 semi-structured and in-depth individual interviews and a group discussion session with 13 obstetricians in Tabriz, Iran. Purposeful sampling started in December 2021 and continued until data saturation in October 2022. Findings were analyzed concurrently with data collection using MAXQDA 10 software.

RESULTS: Four categories were obtained after analysis of the data: individual and organizational factors, the nature of the error, the educational hierarchy, and the fear of reactions and consequences of error reporting.

CONCLUSION: Considering the importance of patient safety, it is necessary to improve the quality of education and awareness of residents and direct supervision of attending, emphasize promoting professional communication and changing educational policies and strategies to reduce errors, and remove barriers to error reporting. Instead of blaming those in error, the organizational culture should support error reporting and reform the error-prone system, through which positive results will be achieved for both patients and healthcare providers.

Keywords:

Medical errors barriers, obstetric residents, qualitative study, reporting

Medical Education Research Center, Health Management and Safety Promotion Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran, [1]Midwifery Department, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran, [2]Department of Medical Education, Educational Development Center and Department of Obstetrics and Gynecology, AL-Zahra Hospital, Tabriz University of Medical Sciences, Tabriz, Iran

Address for correspondence:
Dr. Maryam Vaezi, Department of Obstetrics and Gynecology, AL- Zahra Hospital, Tabriz University of Medical Sciences, Tabriz, Iran.
E-mail: mva260@yahoo.com

Received: 31-05-2023
Accepted: 27-08-2023
Published: 29-08-2024

Introduction

Medical errors, accidents, injuries, and traumatic events are errors in medical care that can harm the patient.[1] According to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), a medical error is an unintended event that occurs due to negligence or is an action that leads to an adverse outcome.[2,3] In simpler terms, medical error means a failure in the treatment process that causes harm to the patient.[4] It should be noted that errors and outcomes are not necessarily related to one another. The patient may be harmed without any error, and conversely, many errors occur that, if identified in time, have no significant consequences for the patient. Understanding this is important in accepting an error report.[5]

Patient safety is one of the most important dimensions of quality of care from the perspective of the World Health Organization.[6] In recent years, various countries around the world have recognized improvement in patient safety as an important issue.[7] According to the result of a recent systematic review in Iran, the overall estimated prevalence of medical errors was 50%.[8]

How to cite this article: Ghaffari R, Nourizadeh R, Hajizadeh K, Vaezi M. Barriers to reporting medical errors from the perspective of obstetric residents: A qualitative study. J Edu Health Promot 2024;13:314.

The occurrence of medical errors in medical centers is very important due to the threat to patients' health and life. Medical errors have significant clinical and economic consequences and adversely affect mortality rates.[9] Costs for medical and extra hospitalization, litigation costs, nosocomial infections, disabilities, and job and income loss in various countries are estimated to cost between $ 6 billion and $ 29 billion per year.[10]

In examining physicians' malpractice, obstetricians are among the physicians who are exposed to complaints due to job sensitivity and vulnerability of mother and baby. In a systematic review in Iran, 43% of medical malpractice complaints were related to obstetricians.[11] Physicians often lack adequate training in defining and reporting errors.[12] A basic principle of ethics in medicine is telling the truth.[13]

In fact, error detection is the basis for maintaining and promoting patient safety.[14] Evidence shows that by increasing the amount of data available through error reporting, learning from errors can increase and cause positive changes in hospital processes and improved health system outcomes.[15,16] Reporting provides information to identify areas in need of improvement, but if there is no formal reporting in the organization, there will be no opportunities to improve patient safety. Therefore, knowing what factors prevent error reporting is an important prerequisite for improving patient safety.[17]

A review of the literature shows that the most important barriers to reporting errors include healthcare providers' concerns about disciplinary and legal actions, contract termination, lack of system support, a culture of punishment and blame for errors, no clear definition of errors, loss of reputation among colleagues, fear of negative publicity against the doctor, and the damage that occurs in a person's personality and self-esteem.[18-20] According to the results of a systematic review, the willing to report medical errors in Iran was the lowest among the Middle East countries.[21] In the literature review, only in one Iranian qualitative study, barriers to reporting medical errors among staff in the face of error have been investigated.[22]

Reporting medical errors is a major challenge in patient safety and improving service quality.[23] Error detection is necessary to prevent injury, especially in the fields of obstetrics and midwifery, in which healthcare providers are responsible for the lives of two people. The consequences of medical errors include morbidity and mortality. Accordingly, to lessen medication errors and their consequences, this study was designed to examine the barriers to reporting medical errors from the perspective of obstetric residents with the goal of increasing the reporting of these errors. Understanding the multiple factors that influence non-reporting errors is crucial to supplying the missing elements of an effective communication program.

Materials and Methods

Study design and setting

A qualitative content analysis with a conventional approach was conducted. Participants were recruited from obstetric residents of the Tabriz University of Medical Sciences who were being trained at Tabriz Women's Training Hospitals (Al-Zahra and Taleghani).

Study participants and Sampling

Sampling was purpose-based: People who were included in the study needed to have experienced the phenomenon or had specific experiences and views about it. Sampling at this stage continued until saturation of data, which occurred after the eleventh interview; in all, 13 residents were selected to participate. The demographic characteristics of the participants are shown in Table 1.

Data collection method

First, the objectives of the study and method were discussed with the obstetric residents. Due to the sensitivity of the issue, the researcher encouraged participants to share their experiences and assured them that their information would be kept confidential. If they agreed to participate in the study, they were invited for an interview. Before the interview, written

Table 1: Demographic characteristics of the participants

Characteristics	Frequency (%)
Age	
28–30	5 (38.5%)
30–35	5 (38.5%)
35–40	3 (23.1%)
Marital status	
Married	3 (23.1%)
Single	10 (76.9%)
Academic year	
First	4 (30.8%)
Second	4 (30.8%)
Third	3 (23.1%)
Fourth	2 (15.4%)
Economic level	
Below average	0 (0%)
Average	10 (76.9%)
Over average	3 (23.1%)
Number of children	
0	11 (84.61%)
1	2 (15.4%)
2	0 (0%)

informed consent was obtained. Samples were selected with maximum diversity in terms of demographic characteristics and length of residency training.

Based on this, 13 semi-structured and in-depth face-to-face interviews with open questions were performed in Persian, and five additional interviews were conducted to obtain more information or to clarify ambiguities where necessary. A total of 18 interviews with 13 participants were performed from December 2021 to October 2022. Interviews started with open questions, such as "Please talk about any medical errors you have committed so far. What did you do when you first made the error? Why and what made you make this error? Did you encounter any problems or obstacles in reporting it?" Questions continued with exploratory and in-depth interview questions such as "Can you tell me more about this?" "What do you mean by that?" "Why?"... "How?"

The entire interview process was recorded using a digital tape recorder and transcribed every other line with a margin at home on the same day. In only four cases, notes were used due to dissatisfaction with the recording. The duration of each interview was about 45–60 minutes up to a maximum of 90 minutes to prevent frustration. Complementary interviews were usually 15–20 minutes by telephone.

Also, due to the sensitivity of the issue and to achieve more confidential findings that participants may not feel comfortable expressing themselves in an individual interview, following the interviews at the end of the sampling, a group discussion session was scheduled for 90 minutes. Interviews and group discussion were conducted in the counseling room of Taleghani and Al-Zahra teaching hospitals.

Data analysis

Each interview was coded and analyzed before the next interview. Analysis was performed simultaneously with data collection using MAXQDA 10 software. Data analysis began by reading the entire text. Texts were read word by word to extract codes. First, objective words were identified from the text that seemed to contain the main concepts. The codes were then categorized based on differences and relationships from the third interview. The generated subcategories were also compared with each other and were categorized into higher-level categories.

Accuracy and stability of findings

The trustworthiness of the findings was enhanced by using Lincoln and Cuba's criteria: credibility, dependability, confirmability, and transferability.[24] In this study, sampling with maximum diversity [Table 1], long involvement of the researcher (second author) in conducting in-depth interviews, open and empathetic communication with participants, and member checking were used to increase the credibility of the findings.[25] Five residents were asked to check the congruency between the generated concepts and categories with their own experiences in the member-checking process. To increase dependability, the peer-checking technique was employed. Two expert researchers (second and third authors) in the field of qualitative research recoded the interviews, and they supervised the analysis.[26] The researcher (fourth author) attempted to remain neutral in her assumptions in the process of data collection and analysis as much as possible to increase confirmability.[27] In terms of data transferability, sampling with maximum diversity, a thick description of the study methodology, and comparison of the findings of this study with related studies were performed.[28]

Ethical considerations

The research was approved by the Tabriz University of Medical Sciences (ethics code: IR.TBZMED.REC.1400.639). After explaining the objectives and method of the study, all participants provided informed written consent to take part in the study and recording of their statements, and they were assured that their information and identity would be kept confidential. They were also assured that they would be able to leave the study at any stage of the research if they wished to do so.

Results

In all, 413 codes were extracted after 18 individual interviews and one group discussion. Data analysis yielded nine subcategories and four main categories, individual and organizational factors, nature of error, educational hierarchy, and fear of reactions, and negative consequences of error reporting [Table 2].

Individual and organizational factors

This category consists of subcategories of "personality type" and "organizational factors." One of these factors was personal factors and characteristics such as a sense of responsibility or courage. Participant number 9 stated the relationship between lack of compassion for the patient and failure to report medical errors.

"The nature of the individual and his or her compassion for the patient are very important. In the face of an error, the individual must report the error because the lives of the people are very important whether the attending or the senior resident behaves well or badly." (Second-year resident)

Participant number 7 said the following about the resident's sense of responsibility toward the patient and

Table 2: Classification of factors affecting the non-reporting of medical errors

Main code	Subcategories	Main categories
Lack of empathy and compassion for the patient	Type of personality	Individual and organizational factors
Lack of responsibility		
Lack of attention to the consequences		
Not daring to report an error		
The small environment of women's hospitals		
Friendly relationship of people working in the hospital	Organizational factors	
Not reporting minor errors		
Not reporting due to insignificant error	Type and severity of error	Nature of the error
Reporting an error based on the severity of the injury and the error		
Not reporting if there is possibility of no complication		
Not report the error of junior residents for the first time		
Reporting the error of a junior resident in case of negligence and repetition of the error	Repetition of error	
Not following the errors of junior residents by attending	No attention of attending to junior residents	Educational hierarchy
No feedback by attending on junior resident reports		
Not allowed to inform the attending or fellow in addition to the senior resident	Not allowed to transfer messages to higher levels	
Not allowed to communicate with the chief resident in cases of conflict of decision with the senior resident		
Humiliation by senior resident	Fear of emotional reactions to error report	Fear of reactions and consequences of error reporting
Humiliation among staff and patients		
Insulting manner of senior resident		
Embarrassed by senior resident		
Fear of feedback and tension		
Fear of attending's anger		
Senior resident threat		
Horror of the senior resident		
One-sided judgment of attending and senior resident		
Notoriety and distrust of the person in the system	Stigma and social judgment	
Concerns about disgrace		
Concern about the negative mentality of the attending to the resident		
Fear of paying ransom	Fear of punishment	
Fear of being questioned and punished by a forensic medicine		
Imposing additional on-calls by the senior resident		

the relationship with the reporting or non-reporting of medical errors: "The individual herself is very important. A sense of responsibility can be instrumental in deciding to report medical errors." (First-year resident)

Participant number 3 agreed, expressing her opinion about individual courage in reporting medical errors: "In my opinion, if the doctor has made an error, she should at least have the courage to report it to the senior resident." (Third-year resident)

Participants identified organizational factors such as the small size of women's hospitals and the close relationship of individuals with each other, which leads to the rapid spread of news and a culture of blame and shame of error, along with individual factors in not reporting medical errors. In this regard, participant number 10 said:

"I was already accepted in the pediatrics' field. I worked there for a few months. The atmosphere there was not like this hospital. Here is small and everyone knows each other, the errors spreads quickly. There is a bad atmosphere in women's hospitals." (First-year resident)

The nature of the error

This category consists of the subcategories "type and severity of error" and "frequency of error." According to participants, the nature of errors can influence the decision to report medical errors because some errors may be associated with complications and reoperation for the patient. Participant number 11 noted the following about the relationship between the type and severity of an error and the reporting or non-reporting of medical errors: "I personally report errors that are critical or are accompanied by adverse events for the patient." (Fourth-year resident)

Another resident pointed out the frequency of errors and justified not reporting it if she noted someone committing it for the first time: "As a senior resident, if there is minor error, I warn the person first, but if I see that the person's negligence and repetition of the error have increased, I will definitely report her error." (Participant number 3, third-year resident)

Educational hierarchy

This category consists of the subcategories of "attending lack of attention to junior residents" and "lack of permission to convey messages to higher levels." Some participants criticized attending doctors' poor supervision and lack of feedback from their own reports to the attending. They stated that the attending or chief residents often dismissed the reports of junior residents, even in cases where the junior resident may have noted that the senior resident had not made the right decision. Participant number 6 said: "As a junior resident, when I report an error, the attending and fellows pay no attention. So it certainly reduces my motivation to report the next error." (Second-year resident)

Lack of supervision and support and lack of feedback from some attending on the errors that occur reduce the motivation of residents to report errors. In this regard, Participant number 8 noted: "I wish the attending would follow our errors more. When an error occurs and I, as a senior resident, report a first-year resident's error, I do not receive any feedback from the attending, so I prefer not to report that error." (Third-year resident)

Participants also noted they were not allowed to contact a chief resident or an attending to report an error due to rigid hierarchies. Residents expressed that they wished that in the event of medical errors, they would be allowed to contact a chief resident, a fellow, or even the attending herself to reduce the extent of the error. Participant number 1 said in this regard:

"The labor had declining arrest. I waited for a while and the senior resident waited for an hour. The senior resident said the fetus was small and could be given birth naturally. Because there is a hierarchy in the women's hospitals, I could not tell the chief resident directly about this. I wish I could even call the fellow and the baby would not have asphyxia." (First-year resident)

Participant number 10 supported this:

"I was waiting for a mother to give birth. I thought the perineum was short and the fetus was big and it would be a difficult delivery and a 3rd and 4th degree rupture would occur. I reported it to senior resident and she aggressively insisted on natural childbirth. As I had predicted, it was a difficult delivery with a large rupture. I wish I could have informed the attending as well, but because of the hierarchy, I had only reported it to the second-year resident." (First-year resident)

Fear of reactions and consequences of error reporting

This category consists of the subcategories "Fear of emotional reactions," "Fear of legal punishment," and "Stigma and social judgment." Participants stated that they were afraid of the aggression of the senior resident or some attending or the threat of extra or long on-calls and were forced to hide some errors. They were afraid of disgrace and legal issues. Participant number 4 noted: "Fear of the attending or senior resident's anger among everyone, including staff, junior residents and even the patient's bedside, causes the person to hide the error that has occurred." (Second-year resident)

Participant number 5 said: "Resident humiliation for an error between thirty to forty people in morning report is not good. It will make you be blind to the errors next time." (Second-year resident)

Participants were concerned about disgrace and notoriety, and engendering distrust of attending and staff toward them, as participant number 12 said in terms of fear of stigma: "If something goes wrong, the resident will be disgraced or will be known by that name in the hospital. Concerns about disgrace make us hide the errors." (First-year resident)

Some participants also stated that fear of punishment such as long on-calls prevented them from reporting medical errors. In this regard, participant number 7 said: "We have 15 on-calls per month; however, senior residents punish us with extra on-calls." (First-year resident)

Participants also acknowledged that they were afraid of legal issues and payment of fines that would make them conceal medical errors. As participant number 13 said: "Commuting to forensics medicine and the stress of legal issues force us to hide our errors and try to cover up the errors that have been taking place." (Fourth-year resident)

Discussion

According to the objectives of the present study, to explain the barriers to reporting medical errors from the perspective of obstetric residents, we found that the factors affecting the failure to report medical errors could be categorized into four categories: individual and organizational factors, the nature of the error, educational hierarchy, and fear of reactions and consequences of error reporting.

Consistent with the findings of the present study in terms of individual factors affecting the non-reporting of medical errors, the type of personality in not revealing errors has been mentioned in other studies.[29,30] In this regard, it seems that strengthening the sense of responsibility and altruism can reduce the likelihood of medical errors or concealment of medical errors among obstetric residents.

Regarding organizational factors, which have not been mentioned in other studies, Iran has a unique context and women's hospitals are different from other disciplines with a single specialty and small atmosphere. Thus, people working in hospitals know each other closely, so fear of spreading news of an error, and creating an atmosphere of notoriety and inappropriate behavior by senior residents can reduce the likelihood of reporting an error.

We often believe that when a medical error occurs, only the patient is affected. The physician who makes the mistake also needs help, and when a medical error occurs, it is best for the physician to be supported by the system for its subsequent consequences.[31] However, error can be reduced by respecting the self-esteem of individuals and correcting some factors in the system.

Regarding the importance of reforming the system, James Reason's theory is worth considering: We may not be able to change the human condition, but we can change the conditions under which humans work to get to proper functioning under such conditions.[32] In the present study, another important reason for not reporting medical errors was the nature of the error, with two subcategories, "type and severity of error" and "frequency of error." Obstetric residents were reluctant to report minor or less severe errors. The lack of importance of errors was an important reason for not reporting in other studies as well, which is consistent with the present study.[33-35] In this regard, it should be noted that the correct definition of an error and the importance of noting an error, however small, to enhance the patient's safety, as well as the role of its disclosure in preventing major injury to the patient, should be taught.

However, Kaldjian *et al*.[36] noted the probability of reporting medical errors leading to minor injuries was 17.8% and major injuries leading to malformations and death was 3.8%. Garbutt *et al*.[37] found that the tendency to reveal minor errors was about 72%, minor injuries 61%, and major and serious injuries 39%. In the present study, due to educational hierarchy and supervision by senior residents, the probability of severe errors was low, while minor errors were not usually reported. Ranaei *et al*. also refer to the issue of the "iceberg" in error detection. An emphasis on increasing information and attention to any medical errors, even simple and minor, and how to manage them can reduce the incidence and severity of the final injury[30]; therefore, defining and preparing booklets and pamphlets introducing and defining different types of errors can be effective and useful to increase error reporting.

The next effective factor in not reporting medical errors is educational hierarchy, which is classified into two subcategories: "professors' lack of attention to junior residents" and "lack of permission to convey messages to higher levels." In this regard, it seems that direct and accurate supervision of attending toward the performance of junior residents and their continuous monitoring, as well as replacing the inflexible educational hierarchy with a more flexible structure for the efficiency of the education system, can reduce medical errors among junior residents and lead to timely reporting of errors to the appropriate person.

The last factor affecting non-reporting of medical errors was fear of reactions and negative consequences of error reporting. This category includes three subcategories: "fear of emotional reactions," "stigma and social judgment," and "fear of punishment." Fear of emotional reactions included humiliation by the senior resident, humiliation among staff and patients, insulting manner of senior resident, fear of the attending' anger, and intimidation from the senior resident. In many studies, the factor of fear and exposure to threats has been mentioned as a barrier to not reporting medical errors.[38-41]

The factors of fear of stigma and social judgment, fear of losing reputation, and negative attitudes toward the physician or the offender have also been reported in similar studies.[38-42] In line with the findings of the present study, in terms of fear of punishment, fear of organizational punishment has also been mentioned as a barrier to reporting medical error.[41,42]

Limitation and recommendation

One of the limitations of this research is that the generalization of the results of this study should be conducted carefully due to the qualitative approach. Although qualitative studies do not claim to be generalizable, they can be relevant to those who wish to apply the findings. In this regard, an attempt has been made to increase the accuracy and power of the findings by selecting participants with maximum diversity with the guidance and supervision of experts and external review. In this study, it is suggested that other in-depth interviews be conducted with obstetric attending doctors and professors to gain a broader perspective.

Conclusion

The findings showed that individual and organizational factors, the nature of the error, the educational hierarchy, and the fear of reactions and consequences of error reporting were the main barriers to report medical errors from the obstetric residents' perspectives. Regarding the importance of patient safety, it is necessary to take steps to reduce errors and remove barriers to error reporting by promoting training, increasing direct supervision and

monitoring of professors, emphasizing the promotion of professional communication, and changing stubbornly inappropriate policies related to the educational hierarchy to engender system reform.

Acknowledgments

This study was conducted and written as a master's thesis in medical education under the supervision of the Medical Education Research Center. The authors appreciate the Research Deputy of Tabriz University of Medical Sciences (ethics code: IR.TBZMED.REC.1400.639), Taleghani and Al-Zahra teaching hospitals, and participants for their participation in the study.

Financial support and sponsorship

The Research Deputy of Tabriz University of Medical Sciences financed this work (grant ID: IR.TBZMED.REC. 1400.639).

Conflicts of interest

There are no conflicts of interest.

References

1. Källberg AS, Göransson KE, Östergren J, Florin J, Ehrenberg A. Medical errors and complaints in emergency department care in Sweden as reported by care providers, healthcare staff, and patients–A national review. Eur J Emerg Med 2013;20:33-8.
2. Rosenberg K. The joint commission addresses health care worker fatigue. Am J Nurs 2014;114:17.
3. Morey TE, Sappenfield JW, Gravenstein N, Rice MJ. Joint commission and regulatory fatigue/weakness/overabundance/distraction: Clinical context matters. Anesth Analg 2015;121:394-6.
4. Mendonça V, Gallagher T, Hendryx N. Medical error: Concept, characterization and management. Saúde e Soc. 2019;28:255-66.
5. Farre A, Shaw K, Heath G, Cummins C. On doing 'risk work' in the context of successful outcomes: Exploring how medication safety is brought into action through health professionals' everyday working practices. Health Risk Soc 2017;19:209-25.
6. World Health Organization. Global Patient Safety Action Plan 2021-2030: Towards eliminating avoidable harm in health care. Geneva: WHO, 2021.
7. World Health Organization. Patient Safety Tool Kit: World Health Organization. Regional Office for the Eastern Mediterranean. Geneva: WHO; 2015.
8. Vaziri S, Fakouri F, Mirzaei M. Prevalence of medical errors in Iran: A systematic review and meta-analysis. BMC Health Serv Res 2019;19:622.
9. Reddy AK, Engelhard SB, Shah CT, Sim AJ, Thorne JE. Medical malpractice in uveitis: A review of clinical entities and outcomes. Ocul Immunol Inflamm 2018;26:242-8.
10. Walsh EK, Hansen CR, Sahm LJ, Kearney PM, Doherty E, Bradley CP. Economic impact of medication error: A systematic review. Pharmacoepidemiol Drug Saf 2017;26:481-97.
11. Raeissi P, Taheri Mirghaed M, Sepehrian R, Afshari M, Rajabi MR. Medical malpractice in Iran: A systematic review. Med J Islam Repub Iran 2019;33:110.
12. Aggarwal R, Mytton OT, Derbrew M, Hananel D, Heydenburg M, Issenberg B, *et al*. Training and simulation for patient safety. BMJ Qual Saf 2010;19:i34-43.
13. Taylor RM. Ethical principles and concepts in medicine. Handb Clin Neurol 2013;118:1-9.
14. Mosadeghrad AM, Woldemichael A. Application of quality management in promoting patient safety and preventing medical errors. In: Riga M, editor. Impact of Medical Errors and Malpractice on Health Economics, Quality, and Patient Safety. IGI Global; 2017.
15. Shepherd L, LaDonna KA, Cristancho SM, Chahine S. How medical error shapes physicians' perceptions of learning: An exploratory study. Acad Med 2019;94:1157-63.
16. Katz-Navon T, Naveh E, Stern Z. Active learning: When is more better? The case of resident physicians' medical errors. J Appl Psychol 2009;94:1200.
17. Yousef N, Yousef F. Using total quality management approach to improve patient safety by preventing medication error incidences. BMC Health Serv Res 2017;17:1-6.
18. Aljabari S, Kadhim Z. Common barriers to reporting medical errors. Sci World J 2021;2021:6494889.
19. 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;63:162-78.
20. Fathi A, Hajizadeh M, Moradi K, Zandian H, Dezhkameh M, Kazemzadeh S, *et al*. Medication errors among nurses in teaching hospitals in the west of Iran: What we need to know about prevalence, types, and barriers to reporting. Epidemiol. Health 2017:39:e2017022.
21. Aidah S, Gillani SW, Alderazi A, Abdulazeez F. Medication error trends in Middle Eastern countries: A systematic review on healthcare services. J Educ Health Promot 2021;10:227.
22. Samadi Sh, Alipour F, Shahvari Z. Barriers to reporting medical errors: A qualitative study in Iran. J Patient Saf Qual Improv 2021;9:65-71.
23. Massah L, Mohammadi R, Namnabati M. Improvement of medication error reporting: An applied motivation program in pediatric units. J Educ Health Promot 2021;10:189.
24. Lincoln YS, Guba EG. Naturalistic Inquiry. CA: Sage, Newbury Park. 1985.
25. Sandelowski M. Whatever happened to qualitative description? Res Nurs Health. 2000;23:334-40.
26. Delamont S. Handbook of Qualitative Research in Education. UK: Edward Elgar Publishing; 2012.
27. Creswell J. Educational Research: Planning Conducting and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Amazon; 2012.
28. Billups F. The quest for rigor in qualitative studies: Strategies for institutional researchers. NERA Res 2014;52:1-5.
29. Ghalandarpoorattar SM, Kaviani A, Asghari F. Medical error disclosure: The gap between attitude and practice. Postgrad Med J 2012;88:130-3.
30. Ranaei A, Gorji HA, Aryankhesal A, Langarizadeh M. Investigation of medical error-reporting system and reporting status in Iran in 2019. J Edu Health Promot 2020;9:272.
31. Wu AW. Medical error: The second victim: The doctor who makes the mistake needs help too. BMJ 2000;320:726-7.
32. Reason J. Human error: Models and management. BMJ 2000;320:768-70.
33. Jahromi ZB, Parandavar N, Rahmanian S. Investigating factors associated with not reporting medical errors from the medical team's point of view in Jahrom, Iran. Glob J Health Sci 2014;6:96.
34. Mansour R, Ammar K, Al-Tabba A, Arawi T, Mansour A, Al-Hussaini M. Disclosure of medical errors: Physicians' knowledge, attitudes and practices (KAP) in an oncology center. BMC Med Ethics 2020;21:1-8.
35. Poorolajal J, Rezaie S, Aghighi N. Barriers to medical error reporting. Int J Prev Med 2015;6:97.

36. Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. Reporting medical errors to improve patient safety: A survey of physicians in teaching hospitals. Arch Intern Med 2008;168:40-6.
37. Garbutt J, Brownstein DR, Klein EJ, Waterman A, Krauss MJ, Marcuse EK, *et al*. Reporting and disclosing medical errors: Pediatricians' attitudes and behaviors. Arch Pediatr Adolesc Med 2007;161:179-85.
38. Askarian M, Sherafat SM, Ghodsi M, Shayan Z, Palenik C, Hatam N, *et al*. Prevalence of non-reporting of hospital medical errors in the Islamic Republic of Iran. East Mediterr Health J 2020;26:1339-46.
39. Kohan AD, Mahfoozpour S, Palesh M, Ouchhesar FF. Assessing barriers to medical errors reporting among clinical staff members of teaching hospitals affiliated with Shahid Beheshti University of Medical Sciences in Tehran-2016 J Health Field 2017;5:8-16.
40. Mirsadeghi A, Pazokian M. Barriers to reporting medication errors in Iran: A systematic review. Int J Med Rev 2015;2:317-21.
41. Soydemir D, Seren Intepeler S, Mert H. Barriers to medical error reporting for physicians and nurses. West J Nurs Res 2017;39:1348-63.
42. Mahdaviazad H, Askarian M, Kardeh B. Medical error reporting: Status quo and perceived barriers in an orthopedic center in Iran. Int J Prev Med 2023;11:14.