

Factors Affecting Non-Reporting Of Medical Errors in Cardiac Surgery Departments of Iran: A Qualitative Study from the Perspective of Cardiac Surgeons

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Abstract

Background and purpose: The increase in medical errors, in addition to the loss of life and money, is responsible for a main cause of avoidable deaths, which doubles the importance of the issue. This study was conducted to explain the reasons for non-reporting of medical errors in Iranian heart surgery departments from the point of view of heart surgeons.

Materials and methods: This was a qualitative study conducted in 2023. In order to conduct the interviews, the snowball method was used to obtain a sample population with maximum diversity. The criteria for selecting people to enter the study included at least 5 years of experience as a cardiac surgery specialist in the heart surgery departments of public, social security, and private hospitals, as well as having sufficient experience and knowledge in the field of medical errors. For used to evaluate the quality of the results using MAXQDA software version 2022.

Findings: A total of 30 interviewees were included. The findings of this study revealed five main themes: legal, organizational culture, financial, regulatory, and managerial factors with 5, 3, 3, 5, and 5 sub-themes, respectively. The most important reasons for not reporting the occurrence of errors from heart surgeons' point of views were lack of trust, fear of causing trouble for colleagues, and an ineffective error reporting system.

Conclusion: In order to increase error reporting tendency, hospital managers and officials should provide conditions where surgeons can trust them and report errors to prevent further problems without fear of being punished or reprimanded.

Keywords: reporting, medical errors, heart surgeons, Iran.

Introduction

Today, the emergence of modern medicine has led to complex forms of therapeutic methods and care processes, the result of which is the improvement of care, but at the same time, it has increased the possibility of errors and damage to the patient (1). Although exact estimates on this problem are not available, it is likely that millions of people have suffered disabling injuries or died directly due to health care errors (2). Regarding causes of death, health care errors are considered among the leading 10 causes. In the last decade, patient safety has attracted wide attention and has been raised as an international problem (3). Medical errors are among the factors that threaten the safety of patients (4, 5). Despite the efforts made to reduce errors, errors still occur in clinical settings (6).

Medical errors can be regarded the failure of a planned health and treatment action to achieve the set goals (i.e., implementation errors) or the use of a wrong plan to achieve a goal (i.e., planning errors) (7). A medical error may or may not result in harm to the patient. Unintended complications are unintentional injuries caused by medical errors that are inflicted on the patient. Unwanted side effects are those that happen to the patient because of the medical services provided not because of the disease itself or the patient's clinical condition (8). Therefore, unwanted harm is a type of injury caused to the patient (i.e., the demanding side) by the health service provider (i.e., the supplying side).

Factors such as non-standard infrastructures, faulty work processes, lack of protocols and clinical guidelines or their non-application, complexity of the disease, lack of continuity of treatment, shortage of staff, low knowledge, overwork and tiredness of staff, insufficient training, carelessness and sloppiness, employees' hypocrisy, lack of safe equipment, poor management and leadership, insufficient supervision, weak organizational communication, and inappropriate organizational culture can lead to the occurrence of medical errors and unwanted complications (9).

The increase in medical errors has led to concerns for policymakers, health service providers, and the public. Patients are the first victims of medical errors. Patients who experience medical errors have a longer stay in the hospital and higher mortality due to unwanted complications (10). Medical errors are responsible for the loss of 23 million years of life per year. Approximately two-thirds of unwanted complications and lost years of life occur in low- and middle-income countries (11).

The complex nature of hospital services increases the chance of errors. About 50 to 70% of medical errors are preventable, including wrong indications, wrong drug dosage, and wrong medications (12). Several studies in Iran investigated the rate of medical errors in hospitals. For example, in the study of Shams et al. in 2018, the type and rate of errors in documenting medical records were studied in Ayat al-Taleqani Hospital in Tehran, reporting errors such as failure to document the diagnosis and the time of drug usage, reaching as high as 50%. A significant relationship was observed between file registration errors and some demographic characteristics (13).

Since the occurrence of medical errors leads to loss of trust and dissatisfaction of patients, the analysis of medical errors can help specialists and health managers better know why these errors occur and how to reduce or prevent these errors. Prevention of these errors depends on their accurate reporting and proper management. In order to reduce errors, there must be a correct understanding of the factors that cause them. In cardiac surgery departments, the importance of this issue is doubled. A comprehensive approach toward the reasons of these errors requires the qualitative methodology. In a qualitative study, different aspects of a phenomenon are analyzed to obtain a better understanding of its nature. Identifying the causes of errors in cardiac surgery is the first step to prevent errors and many avoidable deaths, which doubles the importance and necessity of research in this area. Therefore, this study was conducted to explain the factors behind the non-reporting of medical errors in Iranian heart surgery departments from the point of view of heart surgeons.

Methods

This was a qualitative study that was conducted in 2023. In order to conduct the interviews, the snowball method was used to obtain a sample with maximum diversity. The interviewees entered the study after giving informed written consent. In this type of sampling, the samples that have the highest level of information on the subject are selected. For this purpose, the first interview was started with one of the experts, and the next interview was

conducted with a person introduced by the first interviewee. Interviews were continued until data saturation (i.e., when the researcher could find new information or interviews could not rich the data anymore). Each interview lasted at least 30 minutes.

The criteria for selecting people to enter the study included at least 5 years of experience as a cardiac surgeon in the heart surgery departments of public, social security, and private hospitals, as well as having sufficient experience and knowledge in the field of medical errors.

In this study, semi-structured interviews were used, and in order to finalize the questions from the interview guide, probing questions, such as: What happens in cardiac surgery departments? Explain about your experience with medical errors? What factors contribute to errors? Can you explain more?) were asked. To start the interviews, two to three in-depth interviews were conducted with people who had the most work experience related to medical errors in Iran.

The interview was conducted by a group of experts in a face-to-face manner. In this type of interview, the interviewee was given enough time and freedom of action to present his opinions in a particular way, and any insinuations about the correctness or incorrectness of the answers were avoided during the interview. With the consent of the interviewee, an audio recorder was used to record the voice, and notes were taken during interviews.

The interview process was as follows:

Before conducting the interview, coordinating with the organizations and people under study were made, explaining the goals and setting the interview schedule. The time and place of the interview were determined according to the participants' opinions and previous arrangements with them. After the initial arrangements, the notification form was available to the participants by visiting in person or sending it through the portal or e-mail address. Before conducting the interview, the objectives of the study were explained to the subjects, and informed consent was obtained from them. The interviews lasted at least 30 minutes. During the interview, all items were recorded by an audio-recorder device with consent and permission. After the completion of each interview, the text was implemented and a copy of the text was sent to the interviewee to gain approval. At the end, any comments were discussed in a meeting with stakeholders and experts. To ensure the reliability of extracted codes and themes, an agreement between two coders was reached through discussions and resolution of disputed cases.

In order to determine the reliability and validity of the collected data, the reliability index was used according to four criteria proposed by Lincoln-Guba as follows.

Validity

The internal validity means a conscious effort to ensure the interpretation of the meaning of the data would be accurate and correct. To gain credibility, efforts were made to select participants with maximum diversity in terms of experience. For this purpose, the interview text and the extracted codes were presented to interviewees to receive their comments on accuracy, and any discrepancy was resolved afterwards.

Transferability

This item ensures that the information obtained can be used in other places. The different views and experiences of different interviewees about a phenomenon or the principle of maximum diversity can increase the transferability of findings.

Stability or Reliability

The stability criterion refers to the stability of data over time and under different conditions. In other words, this criterion indicates the ability to repeat data in similar times and conditions, which can be considered similar to the reliability in quantitative research. Here, research audit, which means a detailed review of data by an external observer, was used to increase the stability of the data. Also, we avoided prolonging the data collection time (conducting interviews) as much as possible and questioned the interviewees only about the subject of the research.

Verifiability: This is the same as objectivity, the quality of the obtained results was verified by handling and inspecting the collected information. The process of doing the work was presented to several research colleagues to confirm the accuracy of the research methodology and protocols.

Before coding the concepts, the entire text was read several times so that the researchers were fully familiar with the data. Then, semantic units and primary codes were extracted from the raw data. After coding, the primary codes were classified, and similar codes were placed in subclasses. The interviews were classified in the form of main fields and their components. The members of the research group coded some of the interviews separately and checked the similarity of the codes. In cases where there was a difference of opinion, a consensus was reached. MAXQDA software version 2022 was used for data analysis.

Findings

The demographic information of 30 interviewees, including gender, hospital, management records, age, and work experience, has been given in Table 1.

Table 1. Frequency distribution of demographic characteristics of interviewees

Descriptive Statistics Participants		Frequency (percentage)	Descriptive Statistics Participants		Frequency (percentage)
Gender	Man	30(100)	Age (years, mean)		52
Hospital	Governmental	22(73.3)	Management records	yes	18(60)
	Private	4(13.3)		No	12(40)
	Social security	4(13.3)			
Work experience		14.5 average year			

The findings of this study, which were obtained based on the interview questions, were categorized under five main themes: legal (5 sub-themes), organizational culture (3 sub-themes), financial (3 sub-themes), regulatory (5 sub-themes), and managerial (5 sub-themes) regulations (Table 2).

Table 2. Factor affecting non-reporting of medical errors in cardiac surgery departments

Factor affecting non-reporting of medical errors		
Main theme	Sub-theme	Abundance
Legal regulations	Fear of reprimand	6
	mistrust	9
	Improper communication of one's mistake to others	5
	Fear of causing trouble for colleagues	9
	Inefficient error reporting system (lack of standard system, definitions, procedures)	9
	Weakness of the organization in providing feedback on previous reports or taking corrective actions	4

Organizational Culture	Lack of training in the field of common medical errors in any process	5
	Not paying or offering rewards for reporting	6
	Lack of knowledge and awareness in the field of work error	6
	Fear of revealing the matter to the patient and his family and the reaction from them	8
Financial regulations	Cost-effectiveness of reporting	7
	Worried about the impact on salary deductions	4
	Creating additional work for the person (to report)	8
Regulatory regulations	Being exposed to accusations	4
	Increasing the liability insurance tariff for the individual	7
	Suspension of activity license	8
	Considering the error report as unimportant and useless	4
	Loss of reputation of the organization	8
Managerial regulations	The disproportion of the managers' reaction with the importance of the error	6
	Failure to receive proper feedback from managers following error reporting	4
	Managers' focus on the person who made the mistake without paying attention to other factors affecting the occurrence of the line	3
	The lack of importance of reporting errors for officials	4
	The rule of the culture of blame and punishment instead of the culture of safety on the part of managers	3

1. The factor affecting the non-reporting of medical errors in cardiac surgery departments

1-1 Legal regulations

One of the factors contributing to non-reporting of medical errors according to most interviewees was legal factors. In this area, 5 sub-codes were obtained from interviews. For example, interviewee No. 3 stated that the fear of causing trouble to colleagues and not causing problems to them caused medical errors to remain unreported. Interviewee No. 8 stated that the existing system was inefficient so that errors and reports could not be reported properly.

2-1 Organizational culture

Regarding organizational culture, 5 sub-codes were obtained from interviews. For example, interviewee No. 5 stated that the lack of knowledge and awareness in the field of medical errors caused them to remain non-reported. Interviewee No. 9 stated that the fear that the issue would cause to the patient and his family, and their subsequent reactions cause errors to remain unreported.

3-1 Financial regulations

Another factor behind non-reporting of medical errors included financial factors. In this area, 3 sub-codes were obtained from interviews. For example, interviewee No 2 noted that the discomfort and concerns of salary deductions forced many surgeons to not report medical errors. Interviewee No. 6 stated that the cost-effectiveness

of reporting and additional work given to the individual with no income for the individual led the errors to go unreported.

4-1 Regulatory factors

In this area, 5 sub-codes were obtained from interviews with experts. For example, interviewee No. 18 stated that the increase in the liability insurance tariff for the individual and the destruction of the organization's reputation were among reasons for not reporting medical errors. Interviewee No. 22 stated that perceiving the report of medical errors as unimportant and useless was another hurdle in this area.

5-1 Managerial regulations

In this area, 5 sub-codes were obtained from interviews with experts. For example, interviewee No. 11 declared that not receiving proper feedback from managers when receiving reports of medical errors would encourage not reporting of errors. Interviewee No. 14 stated that the disproportion of managers' reactions to the importance and severity of the error was another reason for declining to report medical errors correctly.

Discussion

The results of the current research showed that legal factors, organizational culture, supervisory regulations, management, and financial factors were the most important factors contributing to not reporting of medical errors from the point of view of heart surgeons, who all agreed that the lack of trust, fear of causing trouble for colleagues and ineffective error reporting systems (lack of standard systems, definitions, procedures) were important factors in this field. In the same way, in the study of Zahtakashan and Ghasemi, fear of reprimand and punishment and lack of support from officials were mentioned as the most important reasons for not reporting errors (14, 15). The most important reasons for not reporting errors in the study of Salvati et al. included not receiving positive feedback from officials following the reporting of medication errors, officials' focus on the person making the mistake without considering other possible factors involved in the occurrence of errors (i.e., management factors), and fear of legal issues and consequences of reporting (16). Chiang Pepper also listed the fear of the consequences of reporting errors as one of the important factors causing staff to avoid reporting medical errors (17).

In the present study, among the factors of organizational culture from the point of view of heart surgeons, the fear of revealing the matter to the patient and his family and, accordingly, the reaction on their part was another issue encouraging not reporting the mistake. In the field of management factors, lack of positive feedback for reporting was mentioned by nurses as one of the most important reasons (18). In another study conducted in Australia, the most important obstacle to reporting errors by doctors and nurses was the lack of feedback after reporting errors (19). In Hashemi et al.'s study, the organizational factors that led to the avoidance of error reporting by nurses included the following: unpleasant interactions and previous inappropriate reactions of the organization, managers, doctors, and colleagues, as well as the inadequacy of the manager's reaction to the severity of the error. Also, the recent study showed that there was a weakness in the organizational culture regarding a limited threshold of error tolerance, lack of team accountability (i.e., seeing one individual as the only person to blame), using a culture of fault-finding, as well as blaming and shaming people (20).

Management factors were among other factors affecting non-reporting of medical errors. Error reporting can be increased by managers' support of error reporters and by educating personnel about the purposes of error reporting. Danesh Kohn et al. (2018) concluded that there was a significant negative correlation between safety culture and perceived barriers to error reporting. Finally, they came to the conclusion that setting up an anonymous reporting system and supporting managers in reporting errors and providing positive feedback to nurses were essential steps to improve error reporting (21). It is better for officials to communicate effectively with personnel and provide feedback and take a positive step in a direction so that people can make decisions without worrying about complications.

Medical errors are threats to patient safety and one of the concerns of health systems. Behavior based on a systemic approach to reporting errors in managers and eliminating pseudo-fear and punishment in employees can increase error reporting, and naturally, the ways to prevent errors that were reported in the study should be given more importance.

Among the limitations of this research was the shortage of free time of cardiac surgeons and the small number of surgeons with expertise in reporting medical errors, which were solved to a large extent with follow-ups and organizational communication with the researchers.

Conclusion

According to the results of the current research, the most important reasons for the occurrence of errors from the heart surgeons' point of view were lack of trust, fear of causing trouble to colleagues, and ineffective error reporting systems. It is suggested that in order to resolve this problem, hospital managers and officials should provide conditions that people can use in the event of an error, trust officials, and report their mistakes in order to prevent more problems without fear of being punished and reprimanded. The errors that occur at work indicate many problems in the entire system, indicating the absence of safety culture and the existence of unfavorable working conditions for heart surgeons. Basically, the organization's attention to the category of reporting types of errors provides precious information to prevent future errors.

According to the results of the present study, it is better for authorities to take measures to reduce the work burden of cardiac surgeons, training them on what leads to error, focusing on safety-promoting approaches, the analysis of the root causes of errors, evaluate the causes of existing errors. In this way, it is possible to provide effective strategies to reduce the rate of errors and improve the quality of care.

Declarations

Ethics approval and consent to participate

This research was approved by the Ethics Committee of the Ministry of Health of Iran with number "IR.AJUMS.REC.1402.221. All protocols in this study were conducted in accordance with the ethical guidelines of Declaration

Consent for publication

Not applicable.

Availability of data and materials

The datasets generated and code used for the analysis are available from the corresponding author upon reasonable request.

Competing interests

All other authors declare that they have no financial/ competing interests.

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Authors' contributions

EM, SN, BG: Study design, data collection, writing the proposal.

FF: Assistance in the preparation of the manuscript.

SB: Data collection.

MD: Data analysis, manuscript preparation, supervision.

All authors have read and approved the final draft of the manuscript.

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