Patient Safety Culture and Spiritual Health in the Operating Room: A Qualitative Study

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Research

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Abstract

Background The concept of patient safety is an essential component of health care systems and is one of the key pillars of quality in health care organizations. One of the most important factors related to the safety of patients is the spiritual health of staff and patients. Accordingly, this study strived to explain the status of patient safety culture and its relationship with spiritual health from the perspective of health care providers in teaching hospitals of Hamadan.

Methods This study was a qualitative content analysis study with a conventional approach using semi-structured open-ended interviews with samples selected by purposeful sampling technique to achieve data saturation. The proposed method of Granheim and Landman (2004) was also used for the qualitative content analysis of the data.

Results In this study, 5 themes and 11 sub-themes were obtained from the participants' experiences. These included: continuous and dynamic training and upgrading of safety skills, attention to spirituality and conscientiousness and work commitment, effective communication and teamwork, equipping human and logistical resources based on the principle of care, accurate recognition of instructions, and error control.

Conclusions The evaluation of safety culture clarifies the perceptions of safety participants in the organization and the attitude of managers and employees towards safety issue which can lead to the development of safety culture and quality improvement.

Background

One of the most conspicuous human rights tends to be the right to be safe from harm when it comes to health care. The concept of patient safety is considered a crucial part of health care systems and is one of the primary pillars of quality in health care organizations.

For this reason, it has been taken into account by professionals for three decades and that safety culture has been recognized as the most fundamental issue related to patient safety. In fact, the patient safety culture throws back the priority of patient safety in terms of employees in their workplace. On the other hand, its relationship with spiritual health and identifying ways to improve and ameliorate it, can improve the quality of services and health care.

As one of the main components of the quality of health services, patient safety means avoiding any harm to the patient while providing health care (1). Patient safety means preventing and reducing the incidence of accidents and adverse repercussions that may harm the patient while they are provided with services (2). These include medical errors (errors in the type or dose of prescribed medication), surgery (surgery in the wrong position, use of the wrong technique, postoperative complications), misdiagnosis (delayed diagnosis, non-diagnosis, misdiagnosis), nosocomial infections, patient falls, bed sores, and incorrect treatment (3).

In the viewpoint of the experts, one of the factors contributing to the reduction of medical errors and improvement of patient safety is the promotion of patient safety culture in health centers (4). Culture is defined as the set of perceptions, cognitions, and consciousness of a particular group whose members have their own cognitive, emotional, and behavioral elements. Furthermore, safety culture is the product of values, attitudes, perceptions, competencies, and individual and group behavioral patterns that determine the commitment, method, and efficiency of the health care organization (5). Patient safety culture is expressed in three terms: A culture that encourages the identification, communication, and resolution of patient safety issues; a culture that provides organizational learning for events; and a culture that provides resources, structure, and accountability to maintain an effective immune system (6). Features of a indestructible safety culture include managerial commitment to learning from mistakes, documenting and ameliorating patient safety, encouraging and practicing teamwork, identifying potential risks, using reporting systems, analyzing adverse events occurred in the hospital in relation to patient safety and evaluation, and patient safety culture among employees (7).

In general, errors will occur more often in units where the patient safety culture goes far below standard (8). In order to accomplish success in this regard, patient safety must be taken into consideration as an organizational priority and that all efforts in the organization must be centered on this axis (9). When all members of the organization realize the importance of safety and institutionalize it, it becomes valuable and a priority in an organization. At this time, safety in the organization has become a culture that necessitates people to be more careful in their work (10). Furthermore, a bulk of studies have shown that people with chronic illness or major surgery use spirituality as a way to deal with illness, create a sense of meaning and purpose in life, and manage the disease appropriately (11). The World Health Organization defines health in four aspects: physical, mental, social, and spiritual health, and accentuates on the significance of patients' beliefs in healing and communication between professionals and patients. Various studies have shown that spiritual care for patients facilitates and accelerates the healing process, which can be an important component of patient safety culture (12).

In fact, taking into account the spiritual needs of patients in the treatment process by raising the level of adaptation, it will draw a better prognosis so that spiritual health is considered one of the important dimensions of human health. Overall, spiritual health provides a harmonious and integrated relationship among different forces and coordinates the physical, psychological, and social dimensions to adapt to the patient (13). To this end, improving safety culture in health care centers has been implemented as a key strategy to improve patient safety in health care and the study of safety culture as a patient safety strategy has been recommended in this respect (14). This study sought to investigate patient safety culture and its relationship with spiritual health in educational hospitals in Hamadan.

Methods

Study setting

This study was a qualitative content analysis study with a conventional content analysis using semi-structured open-ended interviews with samples selected by purposeful sampling technique to achieve data saturation. The research area encompassed Hamadan University of Medical Sciences (Iran) in 2019.

Participants

Participants were selected using purposeful sampling technique with maximum diversity in terms of work experience, type of ward, and gender. The participants were health care professionals in the operating room of educational hospitals in Hamadan city. The age of the participants in the study ranged from 24 to 52 years old. They also had bachelor's and master's degrees, specialist and supra specialist degrees. The inclusion criteria were surgeons, faculty members of operating room department, operating room clinical instructors, and operating room staff with at least one year of work experience, and operating room senior students, whereas the exclusion criteria were non-cooperation of participants as well as operating room staff with less than one year of work experience.

Data collection

Library and electronic resources were investigated to collect data in the first stage in order to determine the components of the concept of patient safety culture. In the second stage, the data were collected by in-depth and semi-structured interviews of the participants using the following question.

What do you think patient safety culture in the operating room means? During the study, the number (P1, P2, P3, etc.) was used in lieu of the names of the participants. Interviews were conducted with 10 participants until data saturation. First, in order to become more familiar and immersed in the data, the transcriptions of the interviews were read several times. In this method, data were collected and analyzed simultaneously. Finally, the initial codes were summarized with more thematic studies using more abstract titles; then the themes were extracted. The interviews continued until the classes were saturated.

Data analysis

The proposed method of Granheim and Landman (2004) was used for qualitative content analysis of the data. In the first step, the researchers converted the interviews and observations into written texts and read them from beginning to end several times to gain insight into the general flow that took place. In the second step, all interviews and observations were considered as the unit for analysis. The unit of analysis encompassed the notes that went under scrutiny and were coded. In the third step, words, sentences, or paragraphs were considered as semantic units. Semantic units are a set of words and sentences that are related to each other in terms of content. Such units are summarized according to the content and placed adjacent to each other. In the fourth step, semantic units reached the level of abstraction and conceptualization according to the concept hidden in them and were named by codes. In the fifth step, the codes were compared in terms of their similarities and differences and were categorized under more

abstract classes with a specific label. Eventually, in the sixth step, by comparing the classes with each other and thinking carefully and deeply about them, the content hidden in the data was recognized as the theme of the study.

Rigor

To augment the validity of the findings, the researcher used the long-term involvement of the researcher in the subject matter as well as the confirmation by the participants (i.e. the findings be indicative of their true and real experiences). This was obtained by returning the findings to the participants and examining the findings by them. In addition, the validity of the data analysis process was verified and crosschecked with the colleagues who were not included in the study.

Results

During the thematic analysis of the data, more than 200 initial codes were extracted. In later stages, these themes gradually diminished with the removal of similar themes and overlaps, and gradually manifested themselves as clusters of themes. In this study, 5 themes and 11 sub-themes were obtained from the participants' experiences. These included: continuous and dynamic training and upgrading of safety skills, attention to spirituality and conscientiousness and work commitment, effective communication and teamwork, equipping human and logistical resources based on the principle of care, accurate recognition of instructions and error control (Table 1).

1. Continuous and dynamic training and upgrading of safety skills:

In the present study, one of the most important themes tends to be continuous and dynamic training and upgrading safety skills. The interpretation of their experiences showed that training, increased knowledge and awareness and skills lead to an increase in the patient's immune culture.

1.1 The role of education in upgrading patient safety culture to staff:

One of the most important and fundamental themes in the participants' experience of continuous and dynamic training is the upgrading of safety skills, training and promotion of patient safety culture. Interpretation of participants' experiences suggests that training can be reminiscent of points whose absence could greatly jeopardize patient safety. On the other hand, such training should be provided in the right direction by experts so that it can have a proper impact. In this regard, a participant said:

"... The most important factor in increasing patient safety is training personnel about patient safety, training on the need to implement it and how to do it properly. Classes are better to be held, which of course is in the best interest of the staff; however, whatever happens, it would be a problem for everyone, both the surgeon and the staff and the rest of the surgical team. Meanwhile, a 35-year-old operating room

expert postulated that: Training classes, staff incentives, regular follow-up, patient complaints can all increase safety. Therefore, it can be concluded that from the viewpoint of the participants, patient safety could be improved along with appropriate training" (a male surgeon / 55 years old).

1.2 Increasing the knowledge, awareness and patient safety skills of the staff:

Another important aspect of increasing patient safety culture is to augment the knowledge, awareness and patient safety skills of the staff. In this regard, the participants considered factors such as safety training for personnel and monitoring them as ways to increase patient safety culture. Skills training can dramatically increase the safety of that skill and reduce the patient's mental and physical complications. In this respect, a participant stated:

"... Patient safety culture is a set of rules and regulations that everyone should probably be trained to do to keep up with patient safety and security. This is an important phenomenon since the patient who comes here so as to be treated and their problem be solved, not another problem be added to its existing problems. If we do not have the skills to do the job, it will definitely bring about a new problem ..." (an operating room technician / 37 years old).

Another thing that expressed by the participants was to increase the safety culture by working in the field. Participants believed that working in only one field could increase repetition and reduce error. A participant said:

"... When I do something several times, that skill is repeated for me and I make fewer mistakes afterwards. In fact and in general, it can be said that wrong training or skill by non-experts can decline patient safety..." (A female instructor / 24 years old).

2. Effective communication and teamwork

In this study, another important and fundamental theme is effective communication and teamwork. It has 3 sub-themes: having a sense of responsibility in patient safety; having an effective relationship in establishing patient safety culture; and improving teamwork and collaborative efforts.

2.1 Having a sense of responsibility in patient safety

The irresponsibility of the staff, the lack of reminders of the person in charge of the operating room and the lack of sufficient information about patient safety are some of the factors that reduce patient safety culture. Being responsible means having responsibilities to the patient, and if a person performs his or her duties to the patient in a good way, it means that he or she is responsible. In this regard, a participant stated that:

"... The irresponsibility of the staff towards the patient and their duties is really excruciating. Lack of reminding the person in charge of the operating room (in fact, the negligence of the person in charge regarding observing patient safety), lack of sufficient information about patient safety and other cases ..." (a male surgeon / 41 years old).

2.2 Having an effective relationship in establishing patient safety culture

Effective communication can greatly improve patient safety, whereas the lack of effective communication can lead to increased error and reduced patient safety. In this regard, a participant stated:

".... I think the main pillar of patient safety is good communication, which means that the more teamwork, the more patient safety there will be. When they want to identify the patient's identity, or the location of the surgery, or the organ being operated on, or even when the patient is injected with blood, if there is collaboration and teamwork, all the work will be performed safely…" (A female operating room technician / 36 years old)

2.3 Improving teamwork and collaborative efforts

Creating a spirit of cooperation among staff and sharing efforts among them to cover services, especially when the patient is discharged, is one of the ways to increase patient safety culture. In this regard, a participant stated:

"... It is the spirit of cooperation among the staff and the continuous training and the right guidance that has a positive effect on teamwork. If a surgical team has a lot of cooperation with each other, in fact, if they have a positive team work, it can be said that there is less error for the patient" (a female operating room technician / 34 years old).

3. Attention to spirituality, conscientiousness and work commitment

Another major theme of the study was attention to spirituality, conscientiousness and work commitment, which had two sub-themes: respecting religious principles and beliefs of the patient and the impact of commitment and conscientiousness on spiritual health.

3.1 Respecting religious principles and beliefs of the patient

Spiritual health means respecting religious principles and beliefs of the patient, in other words, spiritual health means choosing religion based on one's own studies, not the ones imposed on one. In this regard,

a participant stated:

"... Respecting one's religious principles and beliefs, such as a catheterization for a patient performed by staff of the same sex, or, for example, maintaining the patient's privacy during and after the operation. Or, for example, paying attention to the patient's religious beliefs and culture. For instance, some things are forbidden in some cultures, but in some not. In short, care should be taken in this regard ..." (a female anesthesiologist / 31 years old).

3.2 The impact of commitment and conscientiousness on spiritual health

Spiritual health is about one's conscientiousness and beliefs. Spiritual health is work conscience that will directly affect other human actions. In this regard, a participant said:

".... Spiritual health means having a work conscience and a sense of effective cooperation among the staff and building a better relationship with the patient and respecting the patient's right. This in turn means to do his works in the best way i.e. the observance of all the principles while doing his works. For example if we imagine the patients are our loved ones and be bound to respect all the rights of the patient to promote and protect patient safety during treatment and always have a clear conscience and consider God to be in charge of our actions and to observe the privacy and safety of the patient, then we have helped the patient a lot…" (a male anesthesiologist / 37-year-old).

4. Equipping human and logistical resources based on the principle of care:

One of the main themes of this study is equipping human and logistical resources based on the principle of care, which has two sub-themes of material and human resources and sufficient equipment, and patient care as the pillar of patient safety.

4.1 Material and human resources and sufficient equipment

One of the important sub-themes in this study is material and human resources and sufficient equipment. In this study, participants believed that inefficient and unaware staff, high workload, high and tedious shifts could adversely affect patient safety culture. In this regard, a participant stated:

"... The lack of follow-up by officials, inefficient and ignorant staff, high workload, and high and tedious shifts all cause fillers. The fact that an unsuccessful surgery is reported is because the whole team has done badly. Not just the surgeon or anesthesiologist…" (A male surgeon / 47 years old).

4.2 Patient care as the pillar of patient safety

Caring is the essence, the core, and the main element of the health system that facilitates the promotion of health and well-being and safety of patients. Quality in the health system is defined in the form of safe, timely, effective and patient-centered care. In this regard, a participant said:

"... Safety culture means the patient without side effects, that is, not adding problems to the patient. Patient safety means respecting the patient's rights. In any case, to prevent doing things that pose a risk to the patient; therefore, to do things correctly, or at least to the standard level, as well as to train them for the future so that the patient does not suffer from possible complications..." (A female instructor / 37 years old).

5. Accurate knowledge of instructions and error control:

Another main theme in this study is accurate knowledge of instructions and error control, which includes two sub-themes of careful instructions and treatment protocols, and recognizing and controlling errors and risks.

5.1 Careful instructions and treatment protocols

According to the participants in this study, inadequate accuracy in following the instructions is one of the factors that reduce patient safety culture. In this regard, one of the participants said:

"....Lack of adequate supervision, inadequate care in the proper implementation of instructions, limited human and financial resources can impair the patient's safety ...." (A female, head of the operating room / 44 years old).

Patient safety culture means improving the quality of services provided to patients in medical centers, so if this quality is low, it can jeopardize patient safety. The experience of one of the participants in this regard was as follows:

".... The quality of the pillar is very important. We should not just think about doing the work, we should also pay attention to its quality. Quality working is always better..." (A male surgeon / 49 years old).

5.2 Recognizing and controlling errors and risks:

Safety culture is defined as the prevention of injuries and the dangers that threaten the life of the patient, which can be real or partial injuries, in other words, recognizing errors and eliminating them is a factor contributing to increased safety culture. One participant stated:

"....We have a duty to provide safety for the patient so that he is not harmed like falling from a bed, burns caused by a cutter, etc. For example, as a surgeon, I must check my patient's tourniquet to make sure that the perp solution does not penetrate under the cuff. "Sometimes people think that if the solution goes down, nothing will happen, but it's not, and it makes very bad burns ..." (a male surgeon / 43 years old).

Discussion

In this study, from the viewpoint of the participants, the concept of patient safety culture was considered an important concept that can in turn cover all aspects of this study. As mentioned, in the present study, one of the most important themes is continuous and dynamic training and upgrading safety skills. Based on the findings of this study, it can be said that training can remind the points whose absence can greatly jeopardize patient safety. On the other hand, this training should be provided in the right direction by experts so that it can have a proper impact. In line with this study, Kristensen et al. (2015) concluded that one of the important methods in improving patient safety is individual and organizational learning and gaining experience from errors that have occurred in the hospital, which requires proper leadership in systems that provide health services and the existence of a culture that facilitates the process of learning and sharing error experiences (15). A study by Alswat et al. (2017) also suggested that one of the dimensions that obtained the highest positive score in safety culture was related to organizational learning, continuous learning and organizational improvement (16). The study by Fitch and Bartlett (2019), which was conducted to identify systemic factors in nurses' perception of the patient's organizational safety culture, confirms this as well (17). The results of the study carried out by Top and Tekingündüz (2015) on nurses' perception in relation to safety culture showed six important predictors of overall safety perception, one of which was continuous training and upgrading organizational learning (18). Overall, it can be said that knowledge and skills training is an important principle for creating safety in the hospital. This change requires experienced and trained personnel to make the best use of space, equipment and forces in the operating room. In general, team training can have a positive effect on the health team processes and patient outcomes.

In this study, another important and fundamental theme was effective communication and teamwork. Participants believed that effective communication could greatly improve patient safety, and that the lack of effective communication could lead to increased error and reduced patient safety. In this regard, the results of qualitative study by Pishhab also showed that both nursing and patient groups considered communication as an important factor in patient safety, although patients' stress and nurses' workload reduce the effective communication. Also, the findings of this study showed that creating partnerships between nurses and patients is the main pillar in patient safety. In this regard, Gillespie et al. (2013) concluded in a study that the three main areas of common understanding of open communication, managing stressors in a hierarchical environment and intermittent membership affect team performance. As a result, creating a safety culture in a healthcare organization depends on open discussion of teamwork and team expectations (19). In the study by Nobahar (2015), the main theme of "teamwork" was abstracted by analyzing the findings from the sum of the extracted themes. The sub-themes encompassed "empowerment", "job satisfaction" and "supportive management". The results of the study

showed that in the intensive care unit, providing teamwork is of particular importance in reducing occupational errors and maintaining and enhancing patient safety (20). In this regard, Marmarian et al. (2020) through a qualitative study extracted 6 themes of team work barriers, including disordered structure and planning, poor communication and coordination, lack of financial resources, inefficient education system, incorrect cultural beliefs, and insufficient knowledge and experience. Most of the participants stated that poor communication and coordination is one of the main obstacles in teamwork. Having interaction and cooperation among the medical staff is a prerequisite and one of the most important factors in the effective treatment of clients for rehabilitation services. Lack of this connection leads to the intensification of disability and the imposition of heavy costs on the individual and society, which manifests itself in the form of poor communication and coordination (21).

Another major theme of the study was attention to spirituality, conscientiousness, and work commitment. From the perspective of the participants in this study, spiritual health meant respecting religious principles and the beliefs of the patient. Ellington et al. (2017) believe that today there is a broad perspective of health in physical, mental, social and spiritual dimensions, of which the spiritual dimension of health is considered an important factor in human growth and development (22). Also in this regard, Martins and Caldeira (2018) concluded in several studies that various factors cause different levels of commitment in different people. They believe that factors such as religious beliefs, morality, culture, sense of belonging, economic status, level of education, personality traits, etc. are involved in people's level of commitment (23). On the other hand, Matise et al. (2018) acknowledged during the study that the existence of spirituality and religious beliefs along with the presence of friends and family can create a sense of security in them. They also noted that nurses could increase patient safety by increasing spiritual intervention (24). Chiang et al. (2016) also believe that spiritual health in nurses creates a value and belief system that can have a positive effect on their attitude and care performance, hence providing services with love and affection to the patient and on the other hand, promote professional commitment in them (25). According to this study and similar studies, it can be understood that the components of spiritual health can serve physical health and benefit patients. Various studies also acknowledge that the components of spiritual health have often positive effects on patient safety. On the other hand, in order to achieve physical health, the spiritual potential of patients and members of the treatment team should be exploited.

Another major theme of this study was the equiping human and logistical resources based on the principle of care. In this study, participants pointed to the existence of material and human resources and sufficient equipment. In this regard, the study by Martins and Caldeira (2018) also showed that managerial defects in the field of manpower, facilities and equipment can cause unsafe clinical activities such as drug errors. In this study, patient care was also mentioned as a pillar of patient safety (23). The results of the study by Gonçalves (2017) also showed that factors related to patient safety included 7 main categories were factors related to the patient, individual employee factors, team factors, factors related to duty and technology, work environment factor, management factors and organizational background factors (26). Furthermore, the results of a study by Ripamonti et al. (2016) revealed that patient safety and error prevention were the main issues in the operating room where nurses are the main

factor in patient protection and safety. Organizing and dividing work into more specialized groups is also essential to ensure patient safety. As a result, operating room nurses shared a common understanding of the core and purpose of their work, which was to ensure patient safety during surgery (27). Based on these studies, it can be acknowledged that having the appropriate facilities and workforce is one of the most significant pillars of patient safety, which should be given special attention.

Another major theme of this study was to know the exact instructions and control errors. Participants in this study believed that following medical guidelines and protocols and recognizing and controlling errors and risks could enhance patient safety culture. In this regard, the study by Torabi et al. (2018) also emphasizes this claim and believes that the culture of principled reporting of errors versus concealment of errors; punitive culture and inspection versus incentive culture in dealing with errors; evaluating errors with an individual approach to a systemic approach; organizational learning and sharing experiences of errors; establishing an organizational mission based on compliance with patient safety standards and preventive corrective actions, errors, teamwork culture, and compliance with patient legal rights can improve patient safety (28). The results of the study by khoshoei and Salehi (2018) also showed that officials' views on the process of reporting work errors (the need to report, barriers to reporting and facilitating reporting factors), the response of officials to work errors (why to deal with error, type of reaction, the need to fit the type of error encounter), and solutions to reduce errors (holding training classes, reducing workload (nurse-patient ratio), reducing multiple shifts, reviewing the educational process of nursing students) are some of the ways to increase patient safety (29). A study by Aljadehi (2014) showed that the lack of effective policies and guidelines such as the lack of standardized drug lists, multilingualism, and lack of patient safety-related programs can lead to errors (30). The results of the cross-sectional descriptive study conducted by Top and Tekingündüz (2015) with the aim of examining nurses' perceptions of safety culture showed that the lowest scores in the field of organizational safety culture belong to accident reporting areas, non-punitive response to errors, open communication and transmission and the transfer of important patient information among departments and from shift to shift (18). On the other hand, the participants in this study believed that recognizing and correcting errors was one of the factors that increased safety culture. In fact, they defined safety culture as the prevention of injuries and the dangers that threatened the patient's life, which could be either real or partial injuries. In this respect, Shimazono's (2017) study showed that error detection, which is composed of organizational culture factors, provider-related factors, error-related factors, disclosure status and structural factors, are effective factord in error control and have the greatest impact on management error and prevent it from occurring (31).

Research Limitations

One of the limitations of this research is the reluctance of the staff working in the operating room to cooperate and participate in this research.

Conclusion

Assessing safety culture sheds light on participants' perceptions of safety in the organization and managers' and employees' attitudes toward safety. In fact, it is a diagnostic tool for identifying areas that need to be ameliorated in the organization. In this study, the evaluation of safety culture and its relationship with spiritual health from the perspective of operating room staff, instructors, surgeons, and professors were addressed. According to this study, effective communication in the organization and providing feedback on error reporting will lead to organizational learning from errors and identification of ways to prevent these errors in the future. They can also contribute to increase patient safety, spiritual health, and conscience and morals.

Declarations

Ethics approval and consent to participate

In order for the participants to be eligible to take part in the study, written consent forms were taken from them. Moreover, anonymity, confidentiality of information, and the right to withdraw during the study were considered. The study was approved by the Ethics Committee of Hamadan University of Medical Sciences with the number (IR.UMSHA.REC.1397.1005) and No. 980120238. It should be noted that the time and place of the interview were also arranged with the coordination with and request of the participants.

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Authors' contributions

Study design: BI, EM; data collection: BI, EM; data analysis: BI, EM; manuscript preparation: BI, EM; final approval: BI, EM.

Conflict of interest

There is no conflict of interest for the authors of this article.

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