



Explaining the experiences of Patients Undergoing Surgery From Awareness During Anesthesia: A Qualitative Content Analysis

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Abstract

Background: Patients who experience awareness during anesthesia, in addition to the pain they experience during surgery, develop postoperative physical and psychological disorders that can affect the course of their lives. This study aimed to explain the experiences of patients undergoing surgery in the field of awareness under anesthesia.

Methods: The present qualitative research was conducted using conventional content analysis in 2022 in Iran. The present qualitative research was conducted using contract content analysis in 2022 in Iran. Twelve participants were purposefully selected from patients undergoing surgery at Valiasr Hospital in Borujen who had experienced awareness under anesthesia. Data were collected using in-depth semi-structured individual interviews and were analyzed using the Graneheim and Lundman approach. To manage the data, MAXQDA software version 10 was used.

Results: The important experiences of the participants were divided into 1 main category, invisible surgical wound, and 4 subcategories (living with psychological damage, residual fear, physical trauma, and spiritual distress).

Conclusion: Study participants experience physical and psychological trauma during awareness during anesthesia. To prevent many psychological and physical symptoms following the recollection of this phenomenon in individuals, we should first identify these individuals by conducting interviews and asking appropriate questions about the accuracy of this phenomenon in individuals. In the next stage, by examining the physical and psychological symptoms in different periods after the occurrence of the phenomenon and by timely identifying the different symptoms in these people and taking counseling and treatment measures, the severity of the symptoms and their negative effects on people's daily lives can be prevented.

Keywords: Awareness, Anesthesia, Patient, Surgery, Spiritual distress

Citation: Roshanzadeh M, Taj A, Miri A, Mohammadi S. Explaining the experiences of patients undergoing surgery from awareness during anesthesia: a qualitative content analysis. *J Qual Res Health Sci*. 2025;14:1281. doi:10.34172/jqr.1281

Received: May 23, 2023, **Accepted:** July 17, 2024, **ePublished:** July 9, 2025

Introduction

Awareness during anesthesia is defined as a reminder of intraoperative events by the patient under general anesthesia (1). Various clinical studies and interventions are effective in making effective decisions to improve anesthesia and prevent this phenomenon. However, in the event of this phenomenon, it is important to study the mental state of these patients and the content of their experiences, which can play an important role in their recovery and treatment in the context of this bitter experience (2). The challenge is how to reduce patient complications if this phenomenon is uncontrollable. In this regard, what is still unclear in various studies and sources is that individuals have different characteristics, and therefore, different reactions of people to drugs and their anesthesia conditions are effective factors in managing anesthesia conditions and should be considered. Although anesthesiologists consider the complication

of consciousness during general anesthesia to be an uncommon occurrence, this potential complication is a significant concern in patients. More than 50% of patients are worried about it (3).

Based on annual studies in the United States, about 36,000 patients (about 0.1-0.2%) suffer from awareness during anesthesia, and the prevalence of post-traumatic stress disorder in these patients is reported to be 78% (4). The prevalence of awareness during anesthesia has been reported between 11% and 43% in different medical centers and anesthesia conditions (5). Najafi et al. stated that the level of awareness during anesthesia was 43.3 (6), and Lee et al stated that the awareness of patients during cesarean section was 8% (7).

Awareness during surgery is a very serious problem for the anesthesiologist and the patient (8). From the patient's point of view, awareness under anesthesia after nausea and vomiting after surgery is one of the most troublesome



complications related to anesthesia (9, 10), and patients describe it as the worst experience that they have ever endured (11). Preventing awareness during anesthesia can play an important role in improving patient outcomes and reducing complications (12).

What increases the need for further awareness during anesthesia is complications that patients experience even for a long time (13). Psychological disorders and post-traumatic stress disorder in such patients can persist for years (14). Experiencing this awareness during anesthesia can disrupt their quality of life. Long after surgery, these patients experience consequences such as sleep disturbances, nightmares, and anxiety during the day that may be transient or persist for a long time (15).

What is a challenge in various studies in this field is that most of the studies in the concept of awareness during anesthesia have dealt with this issue more than the medical and anesthesia aspects (16). Also, the purpose of these studies was only to investigate the effect of different drugs and the prevalence of this phenomenon in different operations and conditions (17). However, paying attention to patients and the events that happen to them after this experience has often been neglected (18).

Various studies in Iran on this phenomenon have been performed in patients under general anesthesia, but it should be said that most of these studies have either focused on its prevalence and incidence or have compared the effect of different drugs on the occurrence of this phenomenon. However, even after a thorough review of the literature, we could not find a study that specifically addressed the content of this problem from a patient's perspective. This study aimed to explain the experiences of patients undergoing surgery in the field of awareness under anesthesia.

Methods

This study aimed to explain patients' experiences undergoing surgery in the field of awareness during anesthesia in 2022 at Shahrekord University of Medical Sciences. Considering that the study question is about the effects of awareness during anesthesia on these patients, and also due to the few studies in this field and the Iranian health systems, the conventional content analysis approach was chosen to conduct the study.

Purposeful sampling was performed on patients who underwent surgery in Valiasr Hospital in Borujen and experienced awareness during anesthesia, and according to the inclusion criteria (ability to express experiences, having awareness experiences under general anesthesia, and no drug addiction). The participants had a history of hospitalization in general, gynecology, and ENT surgery departments. After obtaining permission from Shahrekord University of Medical Sciences and Valiasr Borujen Hospital, by referring to different surgical departments and talking to staff and patients, people who

experienced this phenomenon during anesthesia were extracted. Also, with the coordination of the hospital officials, the information of the patients who had such experience in the past and were currently discharged was accessed, and after contacting them, they were invited to participate in the study. To achieve maximum diversity in sampling, participants were selected with a maximum age, sex, type of surgery, and occupation. Semi-structured, in-depth, face-to-face interviews were used to collect data. The place and time of the interview were determined according to the selection and consent of the participants. After stating the purpose of the study to the participants, their demographic information was collected, and then the main interview questions were asked sincerely. Further research was conducted by asking exploratory questions. All interviews were recorded in the Persian language using a digital tape recorder. Interview questions include:

- Please describe the experience you had with your anesthesia.
- What did you experience during anesthesia? Please share your experiences.
- Please state how this phenomenon has affected you.

Also, probing questions (such as: Please explain more) were used to collect in-depth participant data. Sampling was continued until saturation of the data so that no new topics or categories of interviews were obtained. After 10 interviews, we reached data saturation. Two interviews were also conducted for confirmation.

To analyze the data, qualitative content analysis was used by the Graneheim and Lundman method (19). First, the researcher implemented the collected interviews, and the text was read several times to understand the content of the text fully. Then, the meaning units of the interview text were identified, and initial coding was performed. The initial codes were compared and classified based on their similarities, differences, and content. All interviews were conducted and analyzed by the researcher under the supervision of the research team. MAXQDA software version 10 was used to manage the data.

For the study to be rigorous, Lincoln and Guba criteria (Credibility, Dependability, Confirmability, Transferability) were considered (20). For credibility, the transcribed interview was returned to the participants after the coding. It was confirmed that the researcher and participants shared a common understanding of the research. Prolonged engagement of the researcher with collected data and the process of analysis and coding implies immersion in the data. The process of coding and analyzing data was also monitored by a professional research team with sufficient qualitative research experience. Maximum variation was also observed in the sampling of nursing managers. To increase the fittingness, the researcher tried to document all stages of the research, including data collection, analysis, and the classification of categories and subcategories in a manner

fully measurable by others.

Results

Twelve participants were included in the study. The average age of the participants was 53 years. Seven of the participants were women. The lowest level of education was a diploma, and the highest was a master's degree. Participants were interviewed over 5 months. Twelve face-to-face interviews were conducted with 12 participants. The average duration of the interview was 25 minutes. The characteristics of the participants are described in Table 1. The results showed that the important experiences of the participants were divided into 1 main category, invisible surgical wound, and 4 subcategories (living with psychological damage, residual fear, physical trauma, and spiritual distress). The study category and subclasses are shown in Table 2.

Invisible Surgical Wound

The main category of this study was invisible surgical

wounds. This category included 4 subcategories of life with psychological trauma, residual fear, physical trauma, and spiritual distress. Patients' experiences have shown that after experiencing awareness during anesthesia, they experience conditions that are not visible but disrupt their life processes for a long time.

Number 1) Living with psychological damage

Participants stated that during the aftermath of the accident, the memory of the accident was damaged, and the process of remembering it is still like a psychological wound that afflicts their psyche. They also stated that the recollection of this incident affects their psychological state in different ways. Some have had nightmares of recalling it, and some have reported behaviors such as isolation, selfishness, and violence against others, especially loved ones.

One night, I saw that bitter incident in a dream ... until a few days later, I was still afraid that I might want to dream again. (Participant 1)

Earlier, when this incident happened to me, I got angry

Table 1. A summary of the participants' demographic characteristics

Number	Age (y)	Gender	Occupation	Type of surgery	Education	Duration of anesthesia (M)
1	55	Female	Hospital Supervisor	plastic surgery	Bachelor	300
2	40	Male	Emergency medical personnel	Cholecystectomy	Master	40
3	65	Female	Housewife	Cholecystectomy	Diploma	50
4	68	Female	Retired teacher	Hysterectomy	Bachelor	120
5	69	Male	Retired nurse	Tympanoplasty	Bachelor	90
6	45	Male	Hospital Supervisor	Appendectomy	Master	30
7	57	Female	Head nurse	Hysterectomy	Bachelor	180
8	40	Female	Laboratory expert	plastic surgery	Bachelor	60
9	53	Female	Housewife	Cholecystectomy	Bachelor	35
10	56	Female	Housewife	Hysterectomy	Diploma	95
11	49	Male	Teacher	Cholecystectomy	Bachelor	40
12	45	Male	Unemployed	Appendectomy	Diploma	20

Table 2. Category and subcategories, and examples of the codes

Category	Subcategories	Examples of the Meaning Units
Invisible surgical wound	living with psychological damage	Remembering that is a nightmare for me
		That incident bothered my psyche.
		After that incident, I was no longer the former person psychologically.
		I'm still afraid to go to the hospital.
	Residual fear	I always pray that I do not get sick and do not have to go to the hospital.
		I get scared when I hear someone has surgery.
	Physical trauma	I get an increase in heart rate when I think about it.
		After that, I had nervous headaches.
		In conditions of illness, it seems that I feel sicker.
		I do not understand why this happened to me.
	Spiritual distress	I think God wanted to punish me.
		After that incident, I have many unanswered questions that I would like to ask God.
		It was as if God wanted to warn me of our inability.

for no reason and hit my husband on the head ... I was really under psychological pressure. (Participant 8)

Number 2) Remaining fear

Participants stated that they are afraid of the possibility of a recurrence, even though it has been a long time since the incident. Also, because this incident was scary for them, they are even afraid of it happening to others; in other words, fear has been institutionalized in them. This residual fear afflicts them like a wound and disrupts their way of life.

Once they were going to operate on my son ... I could not be with my son for fear of that accident, and I left the hospital. (Participant 2)

They operated on my aunt. I was always scared, and I reviewed that incident with myself so that my aunt would not experience that incident either. (Participant 7)

Number 3) Physical trauma

Patients stated that following the experience of awareness during anesthesia, they also experienced physical complications in such a way that their psychosis also affected their bodies. Following the experience and recall of the incident, they described various types of physical problems such as headaches, increased heart rate, anxiety, and insomnia.

Exactly one week after that surgery, my headaches started. Every time I remember that incident, my headache gets worse. (Participant 4)

When I subconsciously remember that incident, I get anxious, and my heart beats. (Participant 6)

Number 4) Spiritual Distress

Experiences have shown that people are spiritually in distress after the incident. They stated that they did not know the reason for this incident and were still looking for the meaning and concept of this incident in their lives. They also consider this incident a punishment for themselves and think they are not strong in their beliefs. These conditions and controversies of people and their mental concerns have caused them a kind of spiritual distress.

When I was in recovery after the operation, I only thought about God, and I wanted to know why this accident happened to me, and otherwise I made a mistake... (participant 7)

I used to be a proud person, but that incident punished me and taught me that I am a very disabled person... (participant 10)

Discussion

The results showed that patients experience invisible surgical wounds after becoming aware during anesthesia. Living with psychological damage, residual fear, physical trauma, and spiritual distress creates conditions for invisible surgical wounds.

The main category in this study was invisible surgical wounds. This means the important, damaging effects

that this phenomenon can have on the body and mind of patients. In this regard, Kim et al. have stated that there is a very fine line between awareness and lack of awareness during anesthesia, and therefore, many people who remember the events during the surgery, due to their inability to wake up, will suffer from various wounds and discomforts after regaining consciousness and trying to think about that bitter event (5). Odor et al. state that awareness experiences during surgery can have different manifestations in different people. In general, the confusion caused by its occurrence in these patients can be common, and their ability to adapt to this incident psychologically can determine and predict many of its complications (2). Messina et al. have stated in their study that awareness during anesthesia is an unpleasant experience in which the patient does not need to be fully awake, but the inability to move or communicate is considered waking. They stated that this feeling could be very unpleasant and affect their future lives differently (21).

The results of the stated studies also confirm the results of our study. This phenomenon can be considered a bitter event, no matter how severe the patients perceive it. Also, remembering this event in the future can psychologically affect people.

One of the subclasses of this study is living with psychological damage. This concept specifically refers to the psychologically damaging aspect of this phenomenon, which can cause serious effects as well. In this regard, Bonhomme et al. stated that awareness during surgery is an important problem for the patient and the physician. Patients have a very unpleasant experience that can affect their psychological health for the rest of their lives. Many patients are disturbed even in the first minutes of consciousness, and this indicates a traumatic experience that can have various psychological effects throughout their lives (1). Alonso et al. have also pointed out that the severity of psychological effects after this incident in different people is not yet well known, and the psychological incompatibility of the individual with this incident is an important factor for the onset and severity of psychological symptoms (3). Ghaderi stated that anxiety and disability following muscle paralysis due to anesthesia while awake after surgery can lead to a condition called post-traumatic stress disorder that requires psychiatric support. They also stated that patients' research, even a few days after surgery, by asking questions about how they were anesthetized, could indicate that their minds sought to prove the experience (22).

The results of these studies show that the cognitive effects of this accident can appear in various complications. Of course, it should be said that according to studies (22, 1), the personality type of people can be different depending on the severity of psychological symptoms.

One of the subcategories of this study is residual fear. In other words, it should be said that fear is institutionalized

in these people, and they may express it during other treatment processes or normal activities such as sleep. Koch et al. on some of the problems of these patients are that these patients feel confused at the beginning of consciousness and seek to express things that later prove the occurrence of this phenomenon to others. In addition, some people are still mentally concerned about the cause of the accident for some time after recovery and may enter the legal process and complain about the medical system for their relief (8). Yayla states that these patients feel a fear in their subconscious, along with various psychological and physical symptoms. This fear's intensity can manifest in their daily activities or only in situations such as sleep and nightmares. Even this fear can sometimes disrupt the work of the patient's relatives (23).

In analyzing the results of these studies, it should be said that the fear of an incident that happened in the past can cause severe damage to the daily life of these people. These people often refuse to refer to vital medical and health services.

One of the subcategories of this study is physical trauma. This concept specifically refers to the physical injuries that patients experience following psychological trauma. Things like insomnia and nightmares can indicate this concept. Singla & Mangla have stated that some patients develop psychosomatic illnesses due to the psychological effects of awareness during anesthesia, and recalling these events can often cause physical symptoms such as stomachache and heart pain in patients (12). Tasbihgou has also stated that it may not be possible to find an exact causal relationship between awareness during surgery and the onset of symptoms of physical illness, but it should be noted that some personality types that are psychologically disturbed in the occurrence of certain events are likely. The incidence of physical illnesses following accidents will be higher (11).

In the analysis of these results, it should be pointed out that the direct effect of psychological trauma is on the occurrence of physical symptoms.

One of the subcategories of this study is spiritual distress. This concept of dedication refers to his feeling of duality and suffering due to his spiritual connection with the higher factor. Perhaps many chronic and incurable diseases can be seen in this concept, but studies showing this concept in these patients were not found. Kim stated that spirituality plays an important role in adapting to stressful conditions caused by chronic diseases. In other words, incurable patients in the early stages of the disease are more aware of spiritual and spiritual dimensions (24). Samiee Rad and Kalhor stated that the level of spiritual health and patients' tendency towards spirituality have been stated as average. He also points out that patients may need spiritual health attention and interventions in these stressful conditions (25).

The analysis of the results of these studies shows that,

in general, humans notice superhuman power. The results of the stated studies were contrary to the results of our study. In our study, people blame themselves due to the narrowness and mental and physical damage, and express dissatisfaction with their fate and existing conditions. This stage can be seen in the stage of psychological denial of patients in the face of sadness.

Analysis of the results of various studies showed that one study did not directly examine the effects of this phenomenon on life. The issues raised in various studies have mostly referred to post-traumatic stress syndrome, which can occur in individuals following the experience of awareness during anesthesia. Of course, post-traumatic stress syndrome does not occur in all people. Various studies also showed that these people experience different psychological and physical symptoms at different intensities. Some experience physical symptoms such as nightmares, headaches, and psychosomatic symptoms. Some people also experience personality turmoil and cannot cope with this event for a long time in their lives. In the present study, the symptoms of spiritual distress in patients have been pointed out. Because these people are Muslims and pay attention to the phenomenon of death, it can be said that some people do not understand the cause of this incident spiritually, and sometimes consider it low. Also, some people are looking for questions from God regarding the causes of this phenomenon, and when they do not find the answer, a state of confusion and mental exploration occurs. No case was found in various studies in this field.

Conclusion

According to the obtained results and the different effects of this phenomenon on people, it should be said that to prevent the occurrence of many psychological and physical symptoms following the recall of this phenomenon in people, we should first identify these people by interviewing them and asking appropriate questions. In the next stage, by examining the physical and psychological symptoms in different periods after the accident and by timely identifying the various symptoms in these people and performing counseling and treatment measures, the severity of the symptoms and their negative effects on people's daily lives can be prevented.

It should also be said that the effects of this phenomenon on the working process and these people's lives can be different. It is recommended that various psychology courses be effective in these people for timely treatment and prevention of complications such as effects on work and life, as well as their sleep and comfort. Forming peer groups with similar experiences allows people to easily talk to others who share this experience and share their blind spots without being ashamed of expressing them. In Iranian society, stressing the aspect of spiritual care as a calming factor can play an important role in supporting

people from the complications of this issue. Finally, it should be said that these people's social and especially family support can play an important role in controlling and preventing the physical and psychological effects of this phenomenon.

Acknowledgements

The authors thank all the participants in this study, as well as the Vice Chancellor for Research and Technology of Shahrekord University of Medical Sciences.

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Competing Interests

The authors declared no conflict of interest.

Ethical Approval

The code of ethics (IR.SKUMS.REC.1400.141) was obtained from Shahrekord University of Medical Sciences.

Funding

This study was funded by Shahrekord University of Medical Sciences.

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