MEDICAL SCIENCE

Explaining the clinical training experiences of anesthesiology students: A phenomenological study

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ABSTRACT

Introduction: The process of clinical training today is considered a primary element of education, especially for medical sciences, so it seems necessary to plan to improve how students understand clinical conditions. Hence, the present study sought to explain the clinical training experiences of anesthesiology students. *Method:* A qualitative study was conducted using descriptive phenomenological approach. The data were collected using in-depth and individual semi-structured interviews and data analysis was done simultaneously with the data collection using the Colaizzi analysis model. *Results:* The themes describing the experiences of people with psoriasis included: The operating room environment, stressful environment, the effective clinical training challenge and disrespecting students. *Conclusion:* The results showed that the stressful environment of the operating room is an important challenge for students; on the other hand, the problems and challenges of clinical training can be a serious threat to the quality-of-care services of the country's health system. Various disrespects to students in the operating room environment can decrease their self-confidence, discourage them and decrease their interest in caring for sensitive patients and it makes it very difficult for the student to bear the unfriendly conditions and atmosphere of the operating room. Also, professors, group managers and educational staff should try to improve the quality of clinical training and modify wrong procedures in the operating room environment by obtaining awareness about the students' experiences, while understanding them more.

Keywords: Clinical environment, descriptive phenomenology, Colaizzi approach

1. INTRODUCTION

All fields that somehow deal with practical activities are undergoing a paradigm shift from emphasis on theoretical knowledge to valuing practical learning and experience. The outcome of these changes is a better understanding of practical training and experience and its coherence with

theoretical knowledge and its purpose is to enrich theoretical knowledge and professional identity. On the other hand, the clinical environment is very important in the process of training medical professions (Papp et al., 2003; Windsor, 1987; Cheragi and Shams-Abi, 1998).

One of the main characteristics of medical sciences is that a student does not become competent just by theoretical training, and there is a close relationship between theoretical training and the clinical field (Papp et al., 2003). A suitable learning environment is vital for providing high-quality training. There is a proven relationship between the environment and the student's academic progress, satisfaction and success (Windsor, 1987). Also, the student's expectations from the clinical learning environment are different from the real environment. He is always looking for a better learning environment. Therefore, finding effective factors on clinical learning is of crucial in planning clinical training programs (Khorsandi and Khosravi, 2001). In his regard, the learning environment in education can be divided into two types: Academic environment and clinical environment.

The clinical environment includes everything that surrounds students, including the clinical department, devices and equipment, staff, patients and teachers. The academic environment only includes students and teachers and is controlled by the teacher. Learning in the clinical environment confronts students with challenges that did not exist in the classroom. For example, there is little control over environmental conditions in the clinical environment; students must combine cognitive, psycho-motor and emotional skills to able to respond to the needs of clients; patient safety should be maintained during the care that is provided by the student and the teacher should consider the needs of the patient and the needs of the student together (Rezaei et al., 2011).

Upon entering the clinical environment, students experience a new learning environment that is different from the classroom learning environment in terms of effective learning factors. Students go through a difficult adaptation process to move from an environment that only encouraged them to think to a clinical environment where most students' activities are practical in addition to thinking. In fact, the unpredictable nature of clinical experience makes it difficult for students to achieve the designed goals (Williams, 1999).

Research shows that students mention the clinical training course as the most stressful course. Many medical students recognize clinical experiences as a cause of anxiety. Some of the stressful factors reported by students are: First clinical experience, lack of attention and clinical knowledge to perform tasks as a student, using tools and equipment, accountability and committing errors, caring for dying patients, fear of unknowns, fear of harming patients, time limit when performing tasks, unfriendly atmosphere of the ward, interaction with teachers, feeling rejected by the patient, evaluation of clinical performance, self-evaluation, facing situations such as the death of patients and facing critically ill patients (Cox and Ewan, 1998). Shin defined clinical work as "placing students where they encounter real problems" and concludes that the nature of the clinical work environment is such that it provides opportunities for the student to apply theory in real clinical problems. But clinical work is more than providing the opportunity to apply the theory learned in the classroom. In this regard, learning and training to become an anesthesiology Bachelor of Science graduate is a multidimensional process that requires spending a long time with patients and a supportive and supervisory relationship by the instructor.

Emphasis on clinical practice provided more than half of the educational experience for undergraduate anesthesiology programs (Windsor, 1987). Therefore, clinical practice is a vital component of the curriculum of medical and paramedical groups, which is still placed in a complex social context (Taheri et al., 2011). Since the purpose of providing academic units is for students to acquire scientific skills, they will gain better skills and more realism if they work under the supervision of an instructor who is proficient in clinical skills and familiar with the realities of the clinical environment (Rezaei et al., 2011). One of the essential elements of student learning in the bedside is to gain bedside experience, train and practice the required skills, achieved through observation, performing with the trainer and direct performance (Sadat, 2010). Paying attention to this point that anesthesiology students should be trained in the clinical environment due to the clinical nature of the field makes the training centers further strengthen the clinical skills of these students so that they can perform better in their future jobs. In fact, students of this field are trained in clinical departments (operating room and ICU) and not in the classroom due to their special professional task (Windsor, 1987).

Considering limited studies in this field and the nature and unique experiences of the experimenters, this issue cannot be evaluated only by being examined in the form of a few questionnaires and closed questions and thus obtain the lived experiences of people as a result of social interactions (Massarweh, 1999; Peyman et al., 2010). Naturalistic approach and qualitative methods should be used if the information available in a specific field is limited and determining what the unknowns are is a problem in itself (Wilcock and Lewis, 2002). This approach advocates qualitative methods in research. Qualitative research is a systematic and subjective method that provides important and deep information about events and human behavior and activities and allows us to define, interpret and better understand the meaning of activities, problems and processes in the social context gives.

The foundation of conducting qualitative research is based on the fact that people themselves in certain situations own the best position to analyze and describe their experiences and feelings by their own language (Zahraei et al., 2008). Qualitative perspective epistemology relies on perception and perception is the result of interpreting human social situations (Wilcock and Lewis, 2002). Qualitative research, in fact, is defined as a systematic method of investigation to understand human beings and their interaction with themselves and their surroundings, which is a holistic method and considers humans in the environment with all its complexities (Delaram, 2006). Qualitative research studies are carried out to have a deep and comprehensive understanding of why and how of existing phenomena and processes and selecting an appropriate research method depends on the phenomenon to be investigated and the research question (Talaee et al., 2012).

Qualitative studies are conducted in different ways and the aim is to investigate meanings in all qualitative approaches (Nash et al., 2015). All qualitative researches, regardless of their type, have many common aspects, including: Focusing the views of the participants, belief in multiple facts, conducting research in natural conditions, commitment to follow methods that lead to a deeper understanding of the phenomenon in question, focusing on the researcher's participation in the study and conveying what he has understood in the form of a literary report rich in the statements of the research participants (Nabei et al., 2002).

Since medical professions have a very strong humanistic point of view in their daily practices, using the positivist point of view does not suffice the response to its problems and questions. With the expansion of the holistic paradigms emphasized by scholars of humanities and medical sciences, the use of naturalistic research has also been emphasized besides quantitative studies. In this regard, qualitative research methods can answer many deep and complex questions about humans and their behaviors, such as the experience of anesthesiology students. Accordingly, the current study set to conduct qualitative research to deeply understand the experiences of these patients to explore the clinical training experiences of anesthesiology students of Zahedan University of Medical Sciences.

2. MATERIALS AND METHODS

Study design and research question

This is qualitative research that was conducted to explain the clinical training experiences of anesthesiology students in Zahedan University of Medical Sciences. This research was done using the phenomenology method. One of the best methods of research is phenomenology to deeply understand the experience and conceptualizing a key meaning. Phenomenology is an interpretation for investigating and exploring relationships and meanings. This approach is a special type of phenomenology whose purpose is to reveal the hidden meanings of phenomena.

Participants and their selection

In this study, the anesthesiology students of Zahedan University of Medical Sciences and Health Services were invited as participants. Purposive sampling method was used. The researcher tried to select the participants in a targeted manner based on what kind of specific information is needed. During sampling, sampling with maximum diversity can be done to obtain different views, such as age, gender, ethnicity, different academic semesters, etc. until data saturation. In this study, 10 Bachelor of Science anesthesiology students participated.

Before the study, each participant was informed about the purpose and method of the study and interview. Finally, 10 interviews were conducted until data saturation. From the eights interview onwards, no new codes were obtained and data saturation was attained.

Data collection

Interview is the main method of data collection in phenomenological research studies, which provides an opportunity for the participant to describe his view of the world as he has experienced using his own language and words. The purpose of the interview in phenomenological studies is to extract the answers of the participants about the depth of the topic and the participants discuss their experiences about the topic in question (14). Data collection in phenomenological studies includes semi-structured, in-depth and multiple interviews with participants. In this study, the researcher used semi-structured interviews to collect data. The questions are included in an interview guide.

This research started on 30 September 2021 and ended on 17 May 2022. The interviews were conducted in one of Zahedan hospitals (operating room ward) and also in the dormitory of four participants in the form of open questions. The interviews lasted 60 to 90 min based on the desire of the participants; the interviews were conducted with two participants on two sessions. All materials were recorded on tape with the consent of the samples and then accurately transcribed on paper. The questions focused

on the expression of life experiences since the beginning of hands-on trainings so far (how did you feel when you first entered the operating room? explain it to me! what has happened to you since you entered the operating room?). All interviews were conducted by the researcher.

The researcher selected the participants purposefully and based on the inclusion criteria and explained the purpose of the study to them. He also explained his position in the study to the participants. The interviews lasted 60-90 min; however, the interview time depended on the willingness of the participants. The place and time of the interview were conducted according to the opinion of six participants in the hospital (operating room) and four participants in their dormitory. The interviews were recorded with the permission of the participants and ensuring the confidentiality of their identities.

Data analysis

The data analysis was done using Colaizzi's seven-step method by MAXQDA software after each interview, the while audio of the interview transcribed word for word as the unit of analysis. Next, to initiate the descriptive phenomenological analysis based on the first step, the typed text studied carefully several times to get a general understanding. In the second step, the researchers extracted important meaningful words and statements. Also, during the second step, the sentences or phrases related to the research phenomenon underlined. In the third stage, primary codes were extracted. In the fourth step, the collected codes were converted into sub-themes. In the fifth step, themes were created based on the similarities and differences of the sub-themes. In the sixth step, a comprehensive and unambiguous description of the phenomenon was presented. In the last step, validation was completed by referring to the participants and asking about the findings. In qualitative studies, the data validation process can be obtained by referring to each participant to follow up their opinions regarding the validity of the data.

Ethical considerations

Permission to conduct this study was obtained from the Ethics Committee of Zahedan University of Medical Sciences IR.ZAUMS.REC.1401.427. In the process of the study, the ethical principles of freedom, independence and confidentiality were observed for the participants. For inclusion in the study, written and oral informed consent was obtained from all the participants and their participation in the study was voluntary. They were also assured of the confidentiality of their information. Before conducting the interview, the necessary information was given to the participants regarding the purpose and method of the study. Written consent was obtained for audio recording and note taking during the interview and they were allowed to leave the study freely.

Study rigor

To increase the study rigor, the criteria of Lincoln and Guba (2004), four criteria of credibility (validity), dependability (reliability), confirmability and transferability were considered (Griffiths and Barker, 2008). For the credibility of the study, methods such as member check were used, i.e., the interview text was returned to the participants after coding and it was ensured that the researcher and the participant had identical understanding. The researcher had prolonged engagement regarding data collection and also concurrently analyzing and coding them, immersing in the data. Also, the coding and data analysis process was reviewed and approved by experts of the research team who had sufficient experience in the field of qualitative research. Maximum diversity was also considered in sampling students, which contributed to transferability. To increase conformability, the researcher tried to document all the stages of the research, including data collection, analysis and formation of sub-categories and categories completely so that it can be assessed by others.

Table 1 Demographic characteristics of the participants

Religion	Ethnicity	Gender	Living place	Age	Code
Shia	Fars	Female	Shiraz	24	1
Shia	Zaboli	Female	Zabol	21	2
Sunni	Baluch	Female	Khash	22	3
Shia	Birjandi	Female	Zahedan	23	4
Shia	Zaboli	Female	Zahedan	20	5
Shia	Fars	Female	Zahedan	23	6
Sunni	Baluch	Male	Zahedan	22	7
Shia	Zaboli	Male	Zabol	20	8

Sunni	Baluch	Male	Iranshahr	23	9
Shia	Fars	Male	Zahedan	24	10

3. RESULTS

Data analysis resulted in the extraction of 180 primary codes, classified into three main categories: Operating room environment with a lot of stress, the challenge of effective clinical training and disrespect to students.

Operating room environment with a lot of stress

This category includes three sub-categories as follows:

Students' stress

The stress of working with the surgeon

The tension and conflict of the operating room personnel together. Due to the critical condition of the patient and the excessive sensitivity of the treatment team to provide the best services in a short period of time, the operating room creates a very stressful atmosphere. In the meantime, students are confused because of experiencing their first encounter with such conditions, leading to a decrease in individual performance below their real potential, which ultimately imposes psychological pressure on anesthesiology students.

Regarding the subcategory "students' stress", the participants described it as follows:

"… Some nights, I was so stressed that I couldn't sleep because I was afraid that I would have hands-on training tomorrow....I tried to convince myself but I couldn't..." (P1)

Also, another participant said the following about this sub-category:

"…The semesters when we entered the operating room for the first time, we didn't know what we were going to learn....I was even afraid of the door and the wall of the operating room because the professor had alerted us to be very careful because everywhere was sterile... equipment are sterile.... Because of the stress, I saw everything as strange..." (P10)

Also, another patient had the following statement regarding the "stress of working with a surgeon" sub-category:

"… In the operating room, there is a looking down behavior and they look at people according to their academic degrees and below all of this is the student. When you are working in the room with the doctor and if you make a mistake, everything will be very bad, and I was constantly stressed that I might forget things or may not be able to quickly bring the things needed by the surgeon..."(P9)

Another participant about the sub-category "tension and conflict between operating room personnel" said that:

"... The hospital bedside is full of stress for students, doctors, and staff... I was taking medicine once, but the vial fell and broke, even though it was an educational hospital, so much tension and controversy arose between the doctor and the staff that was surprising."

Also:

".....When a conflict occurs in the operating room, the first accused is the students and if we are acquitted, the personnel will quarrel because of the stressful situation and maybe they don't even have any intention and after the operation, they might even apologize, but at that moment, they had high stress, which led to conflicts and fights..." (P5)

The challenge of effective clinical training

This category includes two sub-categories as follows:

Corona is the cause of unapplied virtual training

Lack of experienced professors

In this study, the challenge of effective clinical training means that anesthesiology needs synchronization of theoretical and practical training due to dealing with different patients. On the other hand, due to the coronavirus pandemic during the past years, the possibility of more presence of students in the operating room decreased, causing the dissatisfaction of anesthesiology students. In the evaluation of educational systems, university professors play an essential role in the teaching and learning process, among which experienced professors in various operating rooms may transfer effective experiences to students. Defects in this factor can be highly effective in the implementation of clinical training goals. This problem becomes critical when anesthesiology becomes highly dependent on the clinical experience of the professors and the lack of manpower can seriously affect the future of patient care during heavy operations, resulting in irreparable consequences.

In this study, anesthesiology students described the sub-category "coronavirus as an unapplied virtual learning agent" as follows:

"...During the coronavirus pandemic, virtual training had a very bad effect. We only saw the film and photos and the time spent in the operating room was reduced. For example, the double-lumen tube was only shown in photos and I could not see it, touch it and I use it for the patient..." (P3)

Also, another patient had the following statement about this sub-category:

".....I come from another city and I am studying here, I am afraid to go to my own city because it is a metropolis. They might ask me to have practical training that I may not be familiar with because I had several semesters of virtual training and we had a short period of internship and it was held intensively..." (P8)

One of the participants described the sub-category "lack of experienced professors" as follows:

"..Our professor used to say that I am just making mistakes, but he did not use to say where I was wrong, for example, during intubation... whether the way I hold the laryngoscope blade wrong or not..." (P7)

Another participant also stated:

"..... For example, it would be much better learned and understood by the student if our professor, as in other disciplines like in the operating room where students gather and talk about the type of operation and the tips and tools used after surgery on the patient, explained about the disease and explained if the person' disease was X and the type of anesthesia was determined according to the type of disease X,..." (P2)

Disrespecting students

This category includes two sub-categories:

Persistent insult by operating room personnel

Professors have an insulting attitude if they see that a mistake is made by the student

In this study, disrespect to students means that operating room personnel are not able to answer students' questions due to high work stress and due to the students' crowd, the possibility of medication errors increases greatly, causing disrespectful interactions made by the personnel, which is said to be unbearable for the students. Professors have the role of controlling the performance of students and in case of an inadvertent error on the part of the student; they will be severely reprimanded by the professors. The combination of these two factors together causes a sense of disappointment and a decrease in students' self-confidence.

In this study, students described the sub-category of "persistent insults by operating room personnel" as follows:

".... One day I had a question about the anesthetic drug that was started for a patient and because our professor was in the operating room next door, I couldn't go there, so I had to ask the anesthesia technician...; when he heard my question, he had a humiliating smile and answered me. If there is an empty chair in the room and we wish to sit on it for a few minutes, they will shout loudly in front of the surgical team and say that how dare a student sit and will loudly say stand up, you are a student, you should not sit.... (P5)

In addition, another patient regarding the subcategory of "professors have an insulting attitude if they see that a mistake is made by the student" had the following statement:

"... One day, we injected the patient midazolam and fentanyl to induce mild sedation.... These drugs are very safe and I was negligent to the patient's monitoring when the personnel came into the room and said why the patient was bruised; I saw that the oxygen saturation level of the patient's blood was 34% instead of 95%; I had made a mistake; the professor came in and harshly insulted me and said: "You can never be an anesthesiologist at all, you don't deserve to take care of the patient, so I became very sad... "(P1)

4. DISCUSSION

The results demonstrated that the experiences of anesthesiology students were classified into three areas: The operating room environment with a lot of stress, the challenge of effective clinical training and disrespect for students. This categorization can be attributed to issues such as the crucial nature of patient care, high work stress, etc. Since limited studies have been conducted qualitatively on the experiences of these students and the studies in Iran are limited, in this section, we discuss and analyze the articles that are somewhat similar to the present study. Education is very important in learning and plays a more prominent role in clinical work and activities. Having scientific-practical information, communication skills, good morals and high motivation are important characteristics of clinical professors. Mortazavi et al., (2017) mentioned the role of anesthesia assistants in the clinical training of anesthesiology students (Mortazavi et al., 2017), pointing to similar problems of the category of effective clinical learning challenges that assumed the importance of experienced professors. In the current study, some students also pointed out that the role of senior anesthesiology students in the operating room as playing an effective role in their education.

Bahrami et al., (2012) compared the conditions of clinical training in the two disciplines of anesthesiology and operating room and pointed out that in both disciplines behaving with students scored a relatively desirable value, which is in agreement with the findings of the current study. Considering the lack of facilities in deprived areas and the high number of patients, these disrespectful words and behaviors can increase. Due to cultural reasons, this topic was emphasized a lot by anesthesiology students.

Yamani et al., (2017) conducted a study on educational justice from the point of view of guardians and students of various fields of medical sciences and pointed out that the proficient and experienced professors motivate the students and the course unit was not chosen by the students just for passing it, which is consistent with the theme of the lack of experienced professors. Moreover, this study mentioned the role of the clinical environment for medical students, which are also referred to in our study, i.e., coronavirus caused limited access to clinical wards. Also, Sadati et al., (2022) directly referred to the problem of the Internet in virtual training. Many students in the present study also pointed out that clinical training was not effective enough during the coronavirus pandemic due to the geographical location of the province and the lack of constant access to the Internet; the results of both studies are sufficiently consistent.

Previous study explained the clinical experiences of anesthesiology students of Golestan University of Medical Sciences regarding medical ethics in the operating room. The themes extracted included trustworthiness, having pure eyes, confidentiality and maintaining the patient's privacy and veiling. And keeping the cover was sick. The main theme taken from the study was that the patient is a trust property (Alhavaz et al., 2013).

5. CONCLUSION

Studies with a quantitative approach have been effective in increasing the knowledge of students' understanding of the clinical environment. However, based on the naturalistic view, there is no one specific truth and the truth can be different in the context and life of each individual. Therefore, according to the context and experience of students with a qualitative approach can contribute to the academic and educational community and the clinical training in discovering new ideas.

The results showed that work stress in the challenging environment of the operating room is an important challenge for students; on the other hand, clinical training through medical simulators is more important for students because the occurrence of global crises such as COVID-19 can seriously affect clinical training and it can reduce the quality of care for patients in the short future. Guaranteeing the quality of medical services is significantly affected by the defective training of universities. The suffering of the students due to the constant insults of the operating room personnel leads to their isolation and makes the learning environment very difficult for them. On the other hand, mistakes and insults by the professors damage the two-way educational relationship between the professor and the student. Since the student motivation is reduced, this situation would be very painful and uncomfortable for him. The research team recommends conducting further studies and using participants who have just graduated and it is less than a year, as the best participants to gain real experiences and away from routine fears.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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