JERN Journal of Education and Research in Nursing

Original Article
DOI:10.5152/jern.2022.21032

The Perioperative Experience of Patients Undergoing Spinal Surgery During the COVID-19 Pandemic: A Qualitative Study

Betül Güven[1], Özlem İbrahimoğlu[2], Eda Akyol[2], Merve Güngör[3]

[1]Department of Nursing, İstanbul Atlas University Faculty of Health Sciences, İstanbul, Turkey
[2]Faculty of Health Sciences, Department of Nursing, İstanbul Medeniyet University, Istanbul, Turkey
[3]Sultan Abdülhamid Han Training and Research Hospital, İstanbul, Turkey

Abstract

Background: The novel coronavirus disease (COVID-19) spreading worldwide has caused many restrictions in the lives of individuals as well as in hospitals. There is a need to examine the effects of COVID-19 and these restriction practices on patients undergoing surgical intervention.

Methods: The study sample consisted of 20 patients who underwent elective spinal surgery during the COVID-19 pandemic in a training and research hospital in Istanbul. Data were collected via semi-structured interviews by using telephone. The content analysis was used.

Results: In this study, the patients stated that they experienced anxiety during the decision-making process, were forced to make decision due to the difficulties they experienced, and overcame their concerns by trusting the hospital and their doctors. Most of the patients stated that they had fear of transmission of infection during their hospitalization and expressed that they had trust and distrust of preventive measures taken at the hospital. In addition to patients who felt ready to be discharged after surgery, there were also patients who stated that they wanted to stay in the hospital more due to pain. Most of the patients stated that they tried to cope with the problems such as wound care and pain at home by themselves.

Conclusion: The COVID-19 pandemic has had a significant effect on patients who need surgical care. In addition to the implementation of preventive measures against infection, the use of technological applications such as telehealth for educating patients before the surgery and follow-up after surgery can improve the experience of patients in the perioperative process during the pandemic.

Keywords: COVID-19, spinal surgery, qualitative research

Introduction

The novel coronavirus disease (COVID-19) is the infectious disease caused by the most recently discovered coronavirus. The widespread of the virus has been recognized as a pandemic by the World Health Organization (WHO).[1,2] It affected millions of people and caused high rates of death within weeks. Today, more than 4 million new cases are detected weekly and more than 90 000 deaths worldwide.[1]

COVID-19 has significantly affected healthcare systems and hospitals worldwide. The pandemic has also had a collateral health effect on the delivery of surgical care to millions of patients. There have been problems in the preparation and implementation of surgical interventions and in the follow-up of the healing process. It has been recommended to defer surgical interventions that are not significant or time-critical to a later date when the pandemic subsides.[3,4] Causes such as the participation of a large number of personnel in the operating rooms, the implementation of interventions with high risk of contamination such as airway management, as well as the stress caused by surgery and anesthesia, perioperative drugs, postoperative changes/complications (such as atelectasis in the lungs) can have effects on the susceptibility to COVID-19 or exacerbation of existing infection.[5] In the current pandemic, patients may prefer to postpone non-essential elective surgical interventions due to fear of contracting the disease while in the hospital. However, this fear may cause them not to receive timely care for problems that could be corrected or cured at an earlier stage.[4]

Cite this article as: Güven B, İbrahimoğlu Ö, Akyol E, Güngör M. The perioperative experience of patients undergoing spinal surgery during the covid-19 pandemic: A qualitative study. *J Educ Res Nurs.* 2022;19(2):220-227.

Corresponding author: Betül Güven,
E-mail: betulguwen@hotmail.com

Received: February 23, 2021
Accepted: June 16, 2021

Elective spinal surgery procedures have been postponed in the majority of hospitals to reduce patient exposure to COVID-19 and allow surgeons to focus on treating patients in need of urgent care. Time-sensitive interventions are performed to preserve life and/or function in spinal surgery.[6] The cases of spinal surgery performed to provide rehabilitation by reducing pain in spinal disorders such as fracture, stenosis, tumor, deformity, or disc degeneration have increased significantly in the last 30 years.[7] Maximizing patient satisfaction and health-related quality of life are among the primary goals of surgical interventions. In a qualitative study conducted with patients undergoing spinal surgery, it was determined that the needs that patients think play an important role in improving the surgical experience are better information and preparation, talking and asking questions, feeling safe, being treated with respect, care, support, and continuity of care.[8] In another study, it was reported that having information about the postoperative situation, maintaining communication with the surgeon, asking questions, and voicing their concerns are the factors that the patients and their families need in the perioperative period.[9]

Surgical intervention is a process that affects individuals physically and psychologically, from the decision of surgery to returning to normal daily activities after surgery. Times of crisis, such as a pandemic, require significant behavioral changes in individuals and also impose serious psychological burdens. Medical practices around the world continue to focus on the control of the coronavirus, but the impact of the pandemic on patients who do not have COVID-19 and need medical treatment and care is unknown. It is important for healthcare organizations to understand the problems, set priorities, and develop solutions in order to minimize the risks for patients during the COVID-19 pandemic and improve the experience of patients in the perioperative period.

Aim

The aim of the study was to explore the perioperative experiences of patients who underwent spinal surgery during the COVID-19 pandemic.

Material and Methods

Type of Research

A descriptive qualitative research design was used. Qualitative studies are valuable in investigating complex and sensitive issues. Information that cannot be obtained when other research methods are used can be obtained through interviews.[10]

Population and Sample of the Study

The population of the study consists of all patients who underwent elective spinal surgery in the neurosurgery clinic of a training and research hospital in Istanbul. In this study, the criterion sampling method, one of the purposive sampling methods, was used. The basic understanding of this sampling method is to study all cases that meet a predetermined set of criteria (core attributes). These criteria can be created by the researcher or a previously prepared criteria list can be used.[11] Before the participants were determined, a list of criteria was created by the researchers. The criteria list was determined as undergoing elective spinal surgery during the COVID-19 pandemic, being over the age of 18, not having a communication barrier, and being able to speak Turkish. Emergency surgical intervention and the presence of mental or psychological problems were the exclusion criteria of the study. Data were collected until data saturation was reached; therefore, when no new information was obtained in the subsequent interviews and all information was repeated, no new participants were recuited. In this context, a total of 20 patients were interviewed in the study. None of the patients who were interviewed for their participation in the study refused to participate in the study.

Data Collection

The study was carried out in the neurosurgery clinic of a training and research hospital in Istanbul between August and October 2020. The hospital where the research was conducted was a pandemic hospital, and the neurosurgery clinic which started elective surgical interventions during the COVID-19 pandemic and had a large number of cases was chosen as the working group.

Before discharge, patients were informed face-to-face about the purpose and method of the study, and their written consent was obtained for their participation and recording the telephone interviews. Each patient was given a code name without their names being used (P1, P2, P3, ..., P20). The data were collected with a personal information form containing the individual characteristics of the participants and an interview form consisting of semi-structured open-ended questions. The personal information form was applied to the patients whose consent was obtained before discharge. The personal information form consisted of 12 questions. In addition to the descriptive characteristics of the participants such as age, education level, and occupation, the questionnaire also included questions related to the surgery they had. After the first control of the patients in the hospital after the surgery, that was, at least 1 week after discharge, the patients were called by the researcher by phone. The researcher (MG), who carried out the interviews, worked in the clinic where the research was conducted, started communication with the patients during their hospitalization, and has a master of science in nursing degree. The data were collected by semi-structured interview technique. During the interviews, open-ended questions, which were prepared by the researchers, aimed to reveal the patients' decision to have surgery during the COVID-19 pandemic, the surgery and postoperative period in the hospital, and the experiences they had at home after discharge. The guide included questions: How did you decide to have surgery during the COVID-19 pandemic?, Can you tell me about the care you received during your hospitalization for the surgery and the preventive practices against the pandemic?, Did you feel ready for discharge, how was the care you received regarding your homecare during the discharge process?, Can you tell me how is your recovery at home after discharge?, and How has the process of the COVID-19 pandemic affected your recovery at home after surgery? In addition, the researcher tried to enable patients to open and elaborate their answers with different sides or sub-questions depending on the flow of the interview. Interviews in the study were conducted at a time when the patients did not have any discomfort such as pain or nausea. Interviews were made once with each patient, lasted an average of 25-40 minutes, and were recorded using a voice recorder.

Ethical Consideration

The approval was obtained from Demiroğlu Bilim University Clinical Research Ethics Committee (number: 44140529/8510) and the institution where the study was conducted. After patients were informed about the purpose and scope of the study, written informed consent

was obtained from the 20 patients before they were discharged from the hospital.

Data Analysis

Data were analyzed based on the content analysis method. First of all, all the interviews on the voice recorder were listened to on the same day as the interviews were conducted and written down by the researcher. Each interview was read carefully several times by two researchers who had experience in conducting qualitative research. They analyzed the data (codes) that they found to be related to each other in the sections and classified them into meaningful categories. Thus, conceptual expressions were determined. The researchers formed the themes by coding the data over these concepts. Afterward, the researchers came together and compared the results of their analysis, and a consensus was reached on the main theme and subthemes. The statements of the participants were examined by both the researchers and the five participants to ensure the reliability of the data. In addition, analyses were repeated 1 month later. The sample selection and characteristics of the participants were clearly shared and included in the text. In order to ensure the validity of the data, two different experts were consulted on this subject and the literature was reviewed and re-examined.

Results

As shown in Table 1, 50% (n=10) of the patients were male, 85% (n=17) were married, and 65% (n=13) were with primary education degree. Ages of the patients ranged between 31 and 80, with the average age being 51.05 ± 13.42. In total, 70% (n=14) of the patients stated that they had undergone surgery before and 65% (n=13) of the patients had undergone lumbar disc herniation at present. The mean hospital stay was 3.05 days.

As a result of the study, the perioperative experiences of the patients who had spinal surgery were determined by the themes of "decision-making process for surgery" with three subthemes (concern, obligation, and trust), "experiences during hospitalization" with two subthemes (fear of infection, trust and distrust), and "discharge and life at home" with two subthemes (feeling ready for discharge and difficulties in home care) (Table 2).

Table 1. Sociodemographic Characteristics of the Patients

Variables	Mean ± Standard Deviation
Age	51.5 ± 13.42
Length of hospital stay	3.05 ± 2.07
	n (%)
Gender	
Female	10 (50%)
Male	10 (50%)
Marital status	
Married	17 (85%)
Single	3 (15%)
Education level	
Primary school	13 (65%)
High school	2 (10%)
University	5 (25%)
Experience surgery	
Yes	14 (70%)
No	6 (30%)
Current surgery	
Lumbar disc herniation	13 (65%)
Cervical disc herniation	3 (15%)
Transpedicular fixation	2 (10%)
Kyphoplasty	2 (10%)

Theme 1 Decision Making Process for Surgery

Concern

Some of the participants stated that going into crowded environments during the preparation for the surgery and the thought of having an operation in the pandemic hospital cause anxiety.

> I had to come to the hospital every day for 10 days to determine the hospitalization, it made me very nervous. Because I always used the public transportation in my comings and goings, I was seriously worried due to this virus. I've seen careless people. We do not know, after all, it does not show the same symptoms in everyone (P15).

> I was scared, I panicked. I heard about the pandemic hospital or something, I said, that I was going to have an operation in that hospital (P12).

Obligation

A great majority of the participants stated that despite their efforts to postpone their surgical decisions due to the worries and fears they experienced during the pandemic period, the difficulties they experienced (pain, limitation of movement, difficulty in performing daily activities, etc.) forced them to take the decision for surgery.

> Actually, I have had pain for five or six months, but I couldn't go to the hospital because of the corona. I couldn't take that risk. I endured until I came to the end. I could no longer going to 30-40 yards road. So I was unable to walk. I said, I thought it was time to have an operation and I made my decision (P9).

Table 2. Main Theme and Subthemes of the Study

Main themes	Subthemes	n
Decision-making process for surgery	Concern	12
	Obligation	7
	Trust	4
Experiences during hospitalization	Fear of infection	14
	Trust and distrust	10
Discharge and life at home	Feeling ready for discharge	15
	Difficulties in home care	8

Some patients stated that although they came to the point of deciding for surgery due to their pain, they had to wait with rest and painkillers since their doctors postponed the surgery. Besides the participants who stated that they did not benefit from non-surgical treatment methods while waiting for the surgery, there were also participants who stated that they could not even go to the recommended physical therapy due to the fear of entering the hospital.

> The decision to have the surgery was a little bit hard. I have waited long time for the surgery so that I had the surgery as soon as possible and my leg pain would go away. The doctor said that surgery was needed but the surgery could not be done due to the pandemic. Then I waited with painkillers, injections, and health reports. I still experienced fear because I would have surgery in this pandemic (P5).

> I didn't even want to have the surgery. I couldn't even go to physical therapy. As the pain increased, I had to undergo the surgery (H13).

Some patients mentioned that even though they heard from their relatives that they did not find it right to take the decision for surgery in this process, that should not even be entered to the hospital, they stated that they had no other choice but to undergo surgery.

> I was afraid because there are many people who say that you will have an operation, while no one enters through the door of the hospital. Since my pain was so severe, I could not see anything at that moment (P11).

There were also patients who positively perceived to have an operation during this period, due to newly started surgeries during the pandemic, the low number of patients in the clinics and also visitors were not allowed.

> The pain was so severe that it upset all my decisions. I said I will definitely have surgery ... In fact, I felt lucky to be operated in the process of the pandemic. Since there were no visitors, I had a more comfortable process and we turned the negative into positive (H8).

Trust

The patients stated that they trust their doctors and the hospital and believe that the necessary precautions have been taken. Thus, they coped with the anxieties and fears they experienced.

> Of course, there was uneasiness, but on the other hand, I thought that healthcare workers are constantly in those environments. We also may need to be present in case of emergency with the precautions. It was very important for me to trust the medical team. After all, I trusted them and thought that there would be no risk (P10).

> It is said that hospitals are the places where the coronavirus is most contagious. There are many people entering and leaving the hospital. True. I also knew that the hospital where I would be operated on was a pandemic hospital. But I trusted the institution; I said I will be in good hands (P4).

Theme 2 Experiences During Hospitalization

Fear of Infection

The majority of patients who were hospitalized for surgery stated that they were afraid of being intubated during the operation and being taken to the intensive care unit after the operation. The fact that intubation poses a risk of virus transmission and thought that patients who are positive for COVID-19 being treated in intensive care have caused these fears.

> They put me in the intensive care unit next to the patients with corona after surgery. I've been allergic; my eyes were swollen. I was trying to figure out what was going on. I was asking questions like what is going on, why am I here. This is how I got to the point of going crazy. I said, if I knew that I would die, I would not stay with these patients. If I hadn't been naked that day, I don't know if my wound would open or if I would die, believe me, I would run away from there blindfolded (P17).

> Because I was intubated during the surgery, the idea of a tube in my throat all the time during surgery scared me... I was afraid of going into intensive care. I am very afraid of being intubated. I wanted to go home immediately after the surgery (P14).

> I was in seclusion for three months. I've never been outside. I was under such a circle of protection. I came to the hospital unaffected by the virus. I was very stressed, I could not sleep all night before the surgery (P3).

Trust and Distrust

Among the participants, some evaluated the measures taken by the hospital management and employees during the surgery process as reassuring, and some stated that conditions were not sufficient for the pandemic. Healthcare professionals taking necessary measures and reminding patients to do so had built a sense of trust. Furthermore, the fact that the patients themselves and other patients wore masks, and the distance rule was followed, made them feel comfortable.

> It was comfortable actually. I felt safe. Health workers were very careful, even at night, we did not remove our masks. Once my nose was open, the nurse said to close it even when she was away. So, they were very careful. Of course, we did; for ourselves and others (P1).

> So, we took our precautions, the nurse at the hospital said that you will have an operation, your immune system may decrease a little, be very careful about wearing mask, and cleaning. I did what she said, I did not hug anyone, I did not contact with anyone, I took care of my cleanliness, I tried not to tire myself. After all, we are in the pandemic (P2).

The fact that the same rooms were shared by more than one patient and their relatives, that there were common areas in the clinic, and that cleaning practices were not sufficient was stated as the factors that cause the patients to feel insecure

> There were too many beds in the room. There were too many accompanying people. Accompanying people were not tested for COVID. I felt unsafe in the room because we used the same toilet. The number of beds should not be full capacity. The daily cleaning of the room was not done enough. We were constantly persistent for cleaning once or twice a day. Honestly, I was not very peaceful in terms of hygiene and cleanliness. Cleanliness was inadequate. It was also inadequate in terms of personnel (P7).

Theme 3 Discharge and Life at Home

Feeling Ready for Discharge

In contrast with the patients wishing to stay in the hospital and continue their treatment due to the pain they suffered after the surgery, some patients wanted to leave the hospital as soon as possible after the surgery due to pandemic-related concerns. Patients who did not feel ready for discharge said that they were discharged according to doctors' advice that prolonged stay in the hospital is risky.

> When I was discharged, I did not feel well at all. I said to my doctor, I am not going out of the hospital because my leg is hurting so much. They said you look good. They said that we can't keep you because of the pandemic (P6).

> I was ready to go home. I might not want to go if I was in so much pain. I was fine and wanted to go because of the virus. I'm not normally someone who goes to the hospital a lot. I had the surgery and came home as quickly as possible (P19).

The most important factor affecting the patients' readiness for discharge was the anxiety of experiencing pain at home. Patients who expressed these concerns think that pain treatment cannot be undertaken at home as in the hospital and it cannot be handled by themselves.

> First, I resisted, okay, I know that virus too, but I was in a lot of pain. When I say I have pain, they give me painkillers, even with a low dose. They relaxed me for an hour or two. I said I will go home now; this intervention will not be done to me at home, and I will be alone with all my pain. I experienced this uneasiness (P16).

Difficulties in Home Care

Patients who were discharged home from the hospital stated that they were more careful caring at home because of the pandemic. Many of the patients marked that their relatives made the wound dressing because they were afraid of being in crowded environments and visiting the hospital. The patients who visited the hospital for wound care said that they had the fear of getting infected with the virus after returning from the hospital. Some patients also indicated that they preferred to do the wound care at home, as they did not find it appropriate for healthcare professionals to spend time on dressings during the pandemic.

> There is no family health center or private hospital within walking distance. I would walk under normal conditions, but my daughter did the dressing changes because I didn't want to take the risk of taking public transportation every day (P18).

> We have become more meticulous in the care at home. We have been very meticulous in cleaning and meeting with people. During this process, we do not go to the hospital for dressing changes so that we do not keep the hospitals busy (P15).

There were some patients who were concerned about transmitting the infection to their relatives at home by contacting the virus during their hospital stay.

> "I had a lot of fear that in case I get the infection in the hospital and infect those around me at home. I stressed a lot about that" (P20).

It was indicated that the tradition of paying a visit to those who were recently discharged from the hospital could not be followed throughout the pandemic and this upset both the patients and their relatives.

> I felt bad because there were no visitors. I did not accept my friends at home (P7).

> When significant people can't come, they get upset. I do not accept visitors at home without a mask anyway, they follow the distance rule even at home (P18).

Some patients stated that they tried to reach health professionals for the problems they encountered at home (taking a shower, the condition of the sutures, etc.), but they could not reach them, so they found their own solution.

> I would like phone support. I wish I had a phone number that I could call and ask when I needed it (P3).

Discussion

COVID-19 has had a significant impact on patients who need surgical care, as well as on the surgical procedure and surgical team. This study was conducted to determine the perioperative experience of patients who underwent spinal surgery during the pandemic. In this study, the patients stated that the decision-making for undergoing surgery in the pandemic hospital and staying at crowded rooms during the preparation phase of the surgery caused anxiety. It is known that beyond the pandemic process and surgical intervention, even just hospitalization causes anxiety for patients.[12] Uncertainty of the outcome of the surgical intervention, complications such as pain, bleeding, and infection associated with the surgery caused fear and anxiety.[13] Studies have shown that the anxiety level of patients who undergo surgery is very high; and that factors such as gender, education level, previous surgical experience, social support, unexpected results of surgery, fear of surgeon, or nurse error are associated with anxiety.[14-16] Preoperative anxiety is also related to the type of surgical intervention. As in our study group, studies investigating the level of preoperative anxiety for patients undergoing spinal surgery, anxiety was found to be common and at a high level.[15,17] Anxiety and depression before spinal surgery can be associated with severe pain, physical disorders, and poor quality of life.

As the COVID-19 infection becomes a pandemic, it affects the whole world rapidly, high morbidity and mortality rates; caused anxiety and fear in society.[2] Fear of contracting the virus has also affected non-COVID-19 patients who need medical care and want to receive timely and adequate care. In this study, some of the patients stated that the hospital where they will be operated is a pandemic hospital, as a situation that causes their anxiety. Similarly, Reuken et al[18] found that patients who are candidates for liver transplantation and their relatives have a fear of COVID-19 infection, and patients see hospitals as similar to shopping centers in terms of infection transmission. There are also studies investigating the effects of the fear of being infected with the virus on patients with chronic diseases, in addition to patients who have undergone or need for surgery. In a study conducted with cancer patients, it was determined that almost all patients had various levels of fear of COVID-19, fear was associated with misinformation from the media, and the majority of patients expected disruptions in their cancer treatments.[19] Karacin et al[20] determined that the anxiety and fear experienced due to the transmission of the COVID-19 infection delayed the chemotherapy treatments of the patients.

Surgical procedures that are not necessary or time-critical have been postponed due to COVID-19. At the same time, patients may delay or reject their surgical procedures due to fear and anxiety. Delaying the decision for surgery due to the efforts of patients to maintain social distance and avoid contact with infected people will cause their quality of life to deteriorate due to the physical problems they experience. In this study, the patients' doctors or themselves postponed the decision for surgery due to infection, but some patients stated that they could not get results from drug therapy or physical therapy. Although the majority of the patients experienced fear and anxiety about the transmission of COVID-19 infection and their relatives did not support their decision for surgery during the pandemic, they stated that pain and limitation of movement compelled them. In the study of Vanni et al.[21] it was determined that the fear of contracting COVID-19 in patients with suspected breast mass and breast cancer diagnosis was one of the primary reasons for refusing treatment.

Health professionals play an important role in reducing the anxiety of patients. In this study, the patients stated that they were able to cope with the emotions they experienced by trusting the measures to be taken by the hospital and their doctors while making the decision for surgery. Similarly, Lee et al[17] determined that the most helpful factor in coping with the preoperative anxiety of patients who underwent spinal surgery was their belief in health professionals. In a qualitative study, it was found that patients who underwent surgery stated that they trusted health professionals and believed that they would do their best, and the feeling that healthcare professionals have the ability to ensure their well-being made them feel comfortable.[22]

COVID-19 can be transmitted easily and rapidly from person to person in hospital settings, such as in social activities, through respiratory droplets or direct contact with contaminated surfaces. In the literature, it has been reported that hospital-acquired, patient-to-patient contact with COVID-19 is in 55% of cases and the risk is higher in elderly patients.[23,24] It was determined that 5.4% of the patients who underwent neurosurgery were positive for COVID-19 in the perioperative period,[25,26] and 16.2% of the patients who underwent robotic urological surgery had COVID-19 symptoms after discharge, but only one patient had a positive test.[24] Despite the low positivity rates, 29.4% of the patients were found to have a major fear of coronavirus transmission in the hospital or during surgery.[24] Similarly, our study showed that patients hospitalized for surgical procedures experienced fear of contact with patients with COVID-19, being admitted to the intensive care unit, and intubation. It is shown to the public through the media that intubating COVID-19 patients in the intensive care unit and receiving mechanical ventilation support is a death-related condition. It is thought that this situation affects the fear of intensive care and intubation in patients.

The necessity of hospitalization for surgery in patients who isolate themselves at home from the beginning of the pandemic to the surgery period has created the fear of contracting the disease in the hospital. Hospitals' implementation of the necessary measures to provide a low-risk environment for COVID-19 can increase patients' sense of security. In the articles published on the rules that hospitals should apply during surgical care, it is stated that the minimum number of people entering and leaving the patient rooms, hand washing, antiseptic procedures, and the widespread use of personal protective equipment should be strictly followed.[3,5] In our study, there were patients who stated that the inadequacy of the measures taken and the conditions of the hospital created distrust, as well as the patients who trusted the hospital and health workers. Employees' use of protective equipment and nurses warning patients about protective practices ensured patients' trust. In addition, the high number of patients in the rooms, the presence of companions, and the inadequacy of cleaning practices in the hospital caused insecurity in the patients. Similarly, it was determined in a qualitative study that the patients considered the low number of nurses, poor cleaning, lack of cleaning personnel, lack of toilets, and showers as factors affecting the transmission of infection in the hospital.[27] In another study, patients stated that clinical staff appeared to be worried, hesitated about how to deal with the patient, inconsistent and sometimes excessive use of protective measures, and lack of knowledge about nosocomial infection.[28] Infection is one of the negative or undesirable events that can affect the success of the treatment and care applied to the patient and threaten patient safety. In this regard, both hospitals and healthcare professionals should take all precautions.

In the COVID-19 pandemic, it is recommended to provide early mobilization of patients after elective surgeries and to encourage early discharge. Implementation of accelerated recovery protocols and discharge planning will play an important role in shortening the hospital stay.[29] In the study, there were patients who felt ready and wanted to be discharged after surgery due to infection, as well as patients who stated that they wanted to continue to be treated at the hospital, especially because of pain. After discharge, patients may experience problems at home, have difficulty caring for themselves, and return to the hospital for problems such as pain, edema, and exercise.[30] Although there is improvement in pain and other symptoms after spinal surgery, it is known that complete relief is rarely seen, and symptoms continue to varying degrees in patients.[31] Debono et al[32] determined that pain management and regulation of analgesic treatments were the primary issues for patients to contact with their doctors after lumbar surgery. In a qualitative study, patients who had spinal surgery stated that they had problems with wound care and physical activity after discharge and emphasized the need for continuous support, the provision of a healthcare professional they could reach when they needed, and the continuity of care.[8] In this study, the patients stated that they did their wound care with the support of their family members for fear of infection and not to occupy the hospital. There were patients who expressed that they wanted to get support by phone for the problems they encountered at home. The spread of COVID-19 infection has recently increased the interest in telehealth in healthcare delivery.[33] Telehealth applications can provide effective patient follow-up and continuity of patient care. Postoperative exposure of patients and their relatives to environments with a high risk of infection can be reduced. At the same time, providing education to patients about the perioperative process with telehealth services before the surgery may contribute to the reduction of fear and anxiety that may be experienced related to hospitalization due to false information that patients may receive from the media or other sources.

Limitations of the Study

The results cannot be generalized since the sampling was taken from one single institution and limited dates. Since the patients were selected only from the spinal surgery group, inferences cannot be made for all patient groups.

Conclusion

As a result, the COVID-19 pandemic has had significant effects on the surgical process of patients who need surgical care from the decision for surgery to returning to normal daily activities after surgery. Although the fear of infection caused anxiety in the patients, the pain and movement limitations led the patients to the decision for surgery. Although there were patients who consider hospitals to be more risky in terms of COVID-19 transmission and experience insecurity, the majority of patients stated that they trust the measures taken by the hospital and the staff. After discharge, patients who did not prefer to go to the hospital by public transport and enter the hospital due to infection received support from their relatives in their wound care. Due to the fact that patients are discharged from the hospital in a short time after surgery during the COVID-19 pandemic, discharge planning and home follow-up are of particular importance. The discharge requirements of patients who underwent surgery during the pandemic period can be determined in future studies. Discharge planning can be supported with visual materials such as brochures and videos in line with the needs of the patients. The continuity of education can be ensured and patient monitoring can be performed with telehealth applications (messaging, phone calls, videos, etc.).

Ethics Committee Approval: Ethics committee approval was received for this study from the Demiroğlu Bilim University Ethics Committee (date and number: 01.09.2020/2020-16-02).

Informed Consent: Informed consents of the 20 patients who participated in the study were taken face-to-face after the purpose and scope of the study were explained before they were discharged from the hospital.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – B.G.; Design – B.G., Ö.İ.; Supervision – B.G., Ö.İ., E.A., M.G.; Resources – B.G., Ö.İ., E.A., M.G.; Materials – B.G., Ö.İ., E.A., M.G.; Data Collection and/or Processing – B.G., Ö.İ., E.A., M.G.; Analysis and/or Interpretation – B.G., Ö.İ.; Literature Search – B.G., Ö.İ.; Writing Manuscript – B.G., Ö.İ., E.A.; Critical Review – B.G., Ö.İ., E.A., M.G.

Acknowledgments: The authors would like to thank all the patients who participated in the study.

Declaration of Interests: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study has received no financial support.

References

1. World Health Organization. Coronavirus; 2021. Available at: https://www.who.int/health-topics/coronavirus#tab=tab_1
2. Ornell F, Schuch JB, Sordi AO, Kessler FHP. "Pandemic fear" and COVID-19: mental health burden and strategies. *Braz J Psychiatry*. 2020;42(3):232-235. [CrossRef]
3. Karaca AS, Özmen MM, Uçar AD, Yastı AÇ, Demirer S. COVID-19'lu Hastalarda Genel Cerrahi Ameliyathane Uygulamaları. *Turk J Surg*. 2020;36(1):VI-VX. [CrossRef]
4. Søreide K, Hallet J, Matthews JB, et al. Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. *Br J Surg*. 2020;107(10):1250-1261. [CrossRef]
5. Al-Balas M, Al-Balas HI, Al-Balas H. Surgery during the COVID-19 pandemic: a comprehensive overview and perioperative care. *Am J Surg*. 2020;219(6):903-906. [CrossRef]
6. Ghogawala Z, Kurpad S, Falavigna A, et al. Editorial. COVID-19 and spinal surgery. *J Neurosurg Spine*. Apr 2020;17:1-3. [CrossRef]
7. Barbera L. Fixation and fusion. In: Galbusera F, Wilke HJ, eds. *Biomechanics of the Spine, Basic Concepts, Spinal Disorders and Treatment*. 1st ed. United Kingdom: Academic Press; 2018:301-327.
8. Davis RE, Vincent C, Henley A, McGregor A. Exploring the care experience of patients undergoing spinal surgery: a qualitative study. *J Eval Clin Pract*. 2013;19(1):132-138. [CrossRef]
9. Davis Y, Perham M, Hurd AM, et al. Patient and family member needs during the perioperative period. *J Perianesth Nurs*. 2014;29(2):119-128. [CrossRef]
10. Hammarberg K, Kirkman M, de Lacey S. Qualitative research methods: when to use them and how to judge them. *Hum Reprod*. 2016;31(3):498-501. [CrossRef]
11. YıldırımA, Şimşek H, eds. *Sosyal Bilimlerde Nitel araştırma Yöntemleri (6th edition)*. Ankara: Seçkin Yayıncılık; 2008.
12. Yılmaz E, Aydın E. Cerrahi Girişim Yapılan Hastalarda Ameliyat Öncesi-sonrası Anksiyetenin Derlenme Kalitesine Etkisi. *Fırat Sağlık Hizmetleri Derg*. 2013;8(23):80-95.
13. Aziato L, Adejumo O. An insight into the preoperative experiences of Ghanaian general surgical patients. *Clin Nurs Res*. 2014;23(2):171-187. [CrossRef]
14. Bedaso A, Ayalew M. Preoperative anxiety among adult patients undergoing elective surgery: a prospective survey at a general hospital in Ethiopia. *Patient Saf Surg*. 2019;13:18. [CrossRef]
15. Gurses L, Yılmaz ER. Beyin Cerrahi Servisinde Spinal Travma Tanısı ile Yatan Hastalarda Anksiyete Düzeyleri ve Hasta Iyileşmesi Üzerine Etkileri. *Ank Univ Tıp Fak Mecmuası*. 2020;73(1):53-59. [CrossRef]
16. Matthias AT, Samarasekera DN. Preoperative anxiety in surgical patients experience of a single unit. *Acta Anaesthesiol Taiwan*. 2012;50(1):3-6. [CrossRef]
17. Lee JS, Park YM, Ha KY, Cho SW, Bak GH, Kim KW. Preoperative anxiety about spinal surgery under general anesthesia. *Eur Spine J*. 2016;25(3):698-707. [CrossRef]
18. Reuken PA, Rauchfuss F, Albers S, et al. Between fear and courage: attitudes, beliefs, and behavior of liver transplantation recipients and waiting list candidates during the COVID-19 pandemic. *Am J Transplant*. 2020;20(11):3042-3050. [CrossRef]
19. Guven DC, Sahin TK, Aktepe OH, Yildirim HC, Aksoy S, Kilickap S. Perspectives, knowledge, and fears of cancer patients about COVID-19. *Front Oncol*. 2020;10:1553. [CrossRef]
20. Karacin C, Bilgetekin I, B Basal FB, Oksuzoglu OB. How does COVID-19 fear and anxiety affect chemotherapy adherence in patients with cancer. *Future Oncol*. 2020;16(29):2283-2293. [CrossRef]
21. Vanni G, Materazzo M, Pellicciaro M, et al. Breast cancer and covid-19: the effect of fear on patients' decision-making process. *In Vivo*. 2020;34(3) (suppl):1651-1659. [CrossRef]
22. Svensson M, Nilsson U, Svantesson M. Patients' experience of mood while waiting for day surgery. *J Clin Nurs*. 2016;25(17-18):2600-2608. [CrossRef]
23. Rickman HM, Rampling T, Shaw K, et al. Nosocomial transmission of coronavirus disease 2019: a retrospective study of 66 hospital-acquired cases in a London teaching hospital. *Clin Infect Dis*. 2021;72(4):690-693. [CrossRef]
24. Tabourin T, Sarfati J, Pinar U, et al. Postoperative assessment of nosocomial transmission of COVID-19 after robotic surgical procedures during the pandemic. *Urol Oncol*. 2020;20:S1078-S1439. [CrossRef]
25. Dowlati E, Zhou T, Sarpong K, et al. Case volumes and perioperative coronavirus disease 2019 incidence in neurosurgical patients during a pandemic: experiences at two tertiary care centers in Washington, DC. *World Neurosurg*. 2020;143:e550-e560. [CrossRef]
26. Sarpong K, Dowlati E, Withington C, et al. Perioperative coronavirus disease 2019 (COVID-19) incidence and outcomes in neurosurgical patients at two tertiary care centers in Washington, DC, during a pandemic: a 6-month follow-up. *World Neurosurg*. 2021;146:e1191-e1201. [CrossRef]
27. Burnett E, Lee K, Rushmer R, Ellis M, Noble M, Davey P. Healthcare-associated infection and the patient experience: a qualitative study using patient interviews. *J Hosp Infect*. 2010;74(1):42-47. [CrossRef]
28. Currie K, Melone L, Stewart S, et al. Understanding the patient experience of health care-associated infection: a qualitative systematic review. *Am J Infect Control*. 2018;46(8):936-942. [CrossRef]

29. Iyengar KP, Jain VK, Vaish A, Vaishya R, Maini L, Lal H. Post COVID-19: planning strategies to resume orthopaedic surgerychallenges and considerations. *J Clin Orthop Trauma*. 2020;11(Suppl 3):S291-S295. [CrossRef]
30. Dal Ü, Bulut H, Demir SG. The problems experienced by the patients at home after surgery. *Med J Bakırköy*. 2012;8(1):34-40.
31. Fekete TF, Haschtmann D, Kleinstück FS, Porchet F, Jeszenszky D, Mannion AF. What level of pain are patients happy to live with after surgery for lumbar degenerative disorders? *Spine J*. 2016;16(4):S12-S18. [CrossRef]
32. Debono B, Bousquet P, Sabatier P, Plas JY, Lescure JP, Hamel O. Postoperative monitoring with a mobile application after ambulatory lumbar discectomy: an effective tool for spine surgeons. *Eur Spine J*. 2016;25(11):3536-3542. [CrossRef]
33. Hakim AA, Kellish AS, Atabek U, Spitz FR, Hong YK. Implications for the use of telehealth in surgical patients during the COVID-19 pandemic. *Am J Surg*. 2020;220(1):48-49. [CrossRef]