Experiences of Patients Undergoing Emergency Surgery in Covid-19 Pandemic: A Qualitative Study

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Abstract
The purpose of the study was to examine the experiences of patients undergoing emergency surgery during the Covid-19 pandemic. In-depth semi-structured interviews were conducted with 15 patients. Data analysis was performed using MAXQDA 20 software, and the descriptive and relational analysis method was used in the analysis of the data. Three themes were defined in the study: (a) Categories of the theme of corporate obligation: Corporate protective precautions, Covid-19 related training, individual protective precautions, and preoperative preparation; (b) Categories of the theme of challenging dilemma related to surgery: psychological factors and the difficulties of surgery in the pandemic; and (c) Categories of the theme of development of professional values: Communication with health workers, support, professionalism, and patient–institute trust relationship. We determined in the study that participants had positive and negative deep experiences. In the relational analysis, participants expressed opinions about trust in hospital staff and health workers, as well as about professionalism, environmental hygiene, physical distance, and mask necessity. The results of this study could help nurses identify the needs of patients undergoing emergency surgery during the Covid-19 pandemic, including informing and training about the surgery and discharge process, healthy communication, and psychological support.

Keywords
Covid-19, pandemic, emergency surgery

Introduction
The Covid-19 disease has been recognized as a pandemic by the World Health Organization (1). In addition to patients affected by the pandemic, it is extremely important to give the most appropriate treatment approach to patients with urgent surgical needs (2,3). Fear of contracting hospital-induced Covid-19 may delay surgical interventions. However, hospitalization is required in the case where emergency surgeries cannot be postponed even if most patients are in the risk group for Covid-19. In cases with urgent surgical needs, patients should be provided with the necessary health care by minimizing the possibility of contamination during perioperative periods and keeping the time spent in the hospital to a minimum (4–6). It is believed that this research leads to further studies in line with the needs for the emergency surgery process, positive and negative factors affecting the surgical periods during the Covid-19 pandemic, and guides health professionals in treatment, follow-up, care, and training related to the surgical periods (7). This study aimed to determine the experiences of patients undergoing emergency surgery during the Covid-19 pandemic.

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Material and Method

In this qualitative phenomenological study, the data was collected through the Zoom Cloud Meetings. The participants of the study were selected from patients who underwent emergency surgery during the pandemic, using a purposeful sampling method (8). Accordingly, people between the ages of 18 and 65 who were willing to participate in the study were involved. The study was executed until the data obtained from the individuals reached saturation. In this context, the samples of the research included 15 patients. Written approvals were obtained from the Ethics Boards of Turkey Ministry of Health and Çanakkale Onsekiz Mart University. Informed consent was taken from all patients. The interview form prepared by the researchers was preferred to reveal the feelings and experiences of the participants in-depth. The interview form consisting of 12 open-ended questions was used. The questions were prepared to reveal the perceptions of hospitalization, surgical processes, and discharge of patients. Comprehensive literature searching in the research subject was carried out. The interview form was submitted to the opinion of an expert in the field of qualitative research methods in terms of content, scope, language, then necessary arrangements were made. A pilot interview was executed with a patient chosen among the target participants of the study but not in the study group. During the pilot interview process, the participant’s ideas about the clarity and suitability of the questions and whether there were other questions that need to be added were taken. The interview form was recreated, and the interviews were started. In the study, in-depth interviews with the participants were executed under the guidance of a semi-structured interview form. It was taken care that the conversations took place in a chat atmosphere as much as possible. The interviews lasted on average of 45 to 50 min. The records from interviews were deciphered by researchers without changing their contents. The entire data set was transferred to the MAXQDA 20. In the reporting, categories were explained, descriptions were made, and the findings were explained and interpreted. For the organization of the results, relationships were explained, cause-and-effect relationships were established, conclusions were drawn from the findings, and a holistic meaning was established. In the analysis, descriptive and content analysis methods were used. In this context, descriptive analyses, code theory model, hierarchical code sub-code model, and comparative and relational analyses were employed.

Results

Participants’ Profiles are Given in Table 1

A total of 514 primitive codes were obtained as a result of evaluating the data. The resulting codes were classified as codes based on meaning and conceptual similarity. As a result of data analysis, 9 sub-codes, 27 codes, 6 categories, and 3 main themes were defined (Table 2). Research themes were identified as a corporate obligation, the challenging dilemma related to the surgery, and the development of professional values.

Corporate Obligation. The theme was assessed under the categories of corporate protective precautions, training related to Covid-19, individual protective precautions, and preoperative preparation. The corporate protective precautions category was illustrated by environmental hygiene, physical distance, visitor/companion ban, mask requirement, warnings, body temperature measurement, patient-specific equipment, and room ventilation codes. Participants’ statements on codes are as follows:

After surgery, when the treatment process began and nurses came to the room, they were under full protection, they became snowmen with masks, medical bonnets, overalls worn from their heads to their feet, gloves in their hands. (P7)

After the surgery, they didn’t let anyone in the room. (P11)

The category of “training associated with Covid-19” was defined by patient training for the surgical period and training for discharge codes. A participatory statement regarding the codes is as follows:

We were told about the ban on visitors, the baby should not be approached other than his mother, every mother should approach with a mask and wash hands before breastfeeding. We were told not to come to the hospital unless we had to, we had to keep in touch with health workers by phone. (P14)

The category of individual protective precautions was defined by hand hygiene, mask, and physical distance codes. Participants mentioned hand hygiene, incessantly wearing masks in the hospital, distancing themselves from health workers and other patients, and taking their own precautions during their stay in the hospital. A participant’s statement on the subject is as follows:

I entered the hospital with a mask, and I left with the mask. (P5)

The preoperative preparation category was defined by the Covid-19 test and informed consent codes. The statements of the participants on the subject are as follows:

We were made to sign an informed consent because it was the Covid-19 period when I was hospitalized. (P6)

First, a PCR test was performed, a CT scan of the lungs was taken… (P7)

When the theme was examined according to the participants, it was determined that the participant’s opinions were focused on physical distance, environmental hygiene,
and mask requirement under the category of corporate protective precautions, and mask requirement under the category of individual protective precautions, and patient training for the surgical period under the training related to Covid-19. When the theme was also handled according to the surgery case, intense opinions were determined on the issues of the mask, environmental hygiene, physical distance, mask requirement, visitor/companion ban, and patient education related to the surgical period. The participants who reported the most intense opinion on these issues were those who had cesarean surgery.

The Challenging Dilemma Related to Surgery. The theme was handled under the categories of psychological factors related to the surgical process and the challenges of surgery in the pandemic. The category of psychological factors was defined under the codes of negative and positive factors. Negative factors were defined by anxiety about contracting Covid-19, fear about the surgical process, fear of contracting Covid-19, feeling lonely in the surgical period, feeling sad for losses caused by Covid-19, and restriction of freedom sub-codes. Participants emphasized that they were worried about contracting Covid-19 for themselves and their relatives during their hospital stay. Participants' statements regarding the process are as follows:

I was more positive and comfortable in my other childbirth, now we entered the operation as much more anxious, obviously, there is a little life, I have to protect it with me. I was so scared. (P3)

Along with the risk of pregnancy poisoning, the difficulties of the pandemic period and my last-minute surgery put me at a greater risk. Being away from my children and my wife caused me to have a difficult time. In addition, there was fear and anxiety that no one was allowed to be with me, the disease was life-threatening, my blood pressure was high, that is, the operation process was uncertain. (P5)

I had the fear that I could be infected more easily because my body would become weaker after the surgery. (P9)

After the operation, there were no visitors in the room, so of course it should be, but you may necessarily feel alone, you may be looking for someone to be with you. (P11)

### Table 1. Participants Profile.

| Participants | Age | Marital Status | Sex | Education | Job | Chronic Diseases | Surgery Case | Polymerase chain reaction (PCR) testing status | Satisfaction with surgery |
|--------------|-----|----------------|-----|-----------|-----|-----------------|-------------|-----------------------------------------------|--------------------------|
| P1           | 52  | Married        | M   | Primary school | Non-health workers | −   | Acute appendicitis | Tumor | +                               | Satisfied                |
| P2           | 64  | Married        | M   | University   | Non-health workers | −   | −               | Tumor | +                               | Satisfied                |
| P3           | 30  | Married        | F   | University   | Non-health workers | −   | −               | Cesarean | −                               | Unsatisfied              |
| P4           | 23  | Married        | F   | High school  | Non-health workers | −   | −               | Cesarean | −                               | Unsatisfied              |
| P5           | 30  | Married        | F   | University   | Non-health workers | −   | −               | Cesarean | −                               | Unsatisfied              |
| P6           | 21  | Single         | F   | High school  | Non-health workers | +   | −               | Hemorrhagic hemorrhoids | +                               | Satisfied                |
| P7           | 45  | Married        | M   | High school  | Health workers     | +   | −               | Inguinal hernia | +                               | No Comment               |
| P8           | 64  | Married        | M   | Primary school | Non-health workers | +   | −               | Infected hip replacement revision Kolelitiazis | +                               | Satisfied                |
| P9           | 29  | Married        | F   | University   | Health workers     | +   | −               | −               | Satisfied |                       |
| P10          | 39  | Married        | M   | High school  | Health workers     | +   | −               | Fibröz displazi | +                               | Satisfied                |
| P11          | 25  | Single         | M   | University   | Non-health workers | −   | −               | Septum deviation | +                               | Satisfied                |
| P12          | 44  | Married        | M   | Primary school | Non-health workers | +   | −               | Urolithiasis | +                               | Satisfied                |
| P13          | 28  | Married        | M   | University   | Health workers     | +   | −               | Tumor | +                               | Satisfied                |
| P14          | 30  | Married        | F   | University   | Health workers     | +   | −               | Cesarean | +                               | Unsatisfied              |
| P15          | 22  | Single         | M   | University   | Non-health workers | +   | −               | Septum deviation | +                               | Satisfied                |
**Table 2. The Process of Abstracting Data.**

| Frame                                                                 | Themes                           | Categories                          | Codes                                      | Sub-codes                        |
|----------------------------------------------------------------------|----------------------------------|-------------------------------------|--------------------------------------------|----------------------------------|
| Experiences of patients undergoing emergency surgery in Covid-19 pandemic | Corporate obligation            | Corporate Protective Precautions     | Environmental hygiene                      |                                  |
|                                                                      |                                  |                                     | Physical distance                          |                                  |
|                                                                      |                                  |                                     | Visitor/companion ban                       |                                  |
|                                                                      |                                  |                                     | Mask requirement                           |                                  |
|                                                                      |                                  |                                     | Warnings                                   |                                  |
|                                                                      |                                  |                                     | Body temperature measurement               |                                  |
|                                                                      |                                  |                                     | Patient-specific equipment                 |                                  |
|                                                                      |                                  |                                     | Room ventilation                           |                                  |
| Covit-19 related training                                           |                                  |                                     | Patient training for the surgical period    |                                  |
|                                                                      |                                  |                                     | Training for discharge                      |                                  |
| Individual protective precautions                                    |                                  | Hand hygiene                         | Mask                                       |                                  |
|                                                                      |                                  |                                     | Physical distance                          |                                  |
| Preoperative preparation                                             |                                  | Covid-19 test                        | Informed consent                           |                                  |
| Challenging dilemma related to surgery                               | Psychological factors            | Negative factors                     | Anxiety about contracting Covid-19          |                                  |
|                                                                      |                                  |                                     | Fear about the surgical process            |                                  |
|                                                                      |                                  |                                     | Fear of contracting Covid-19                |                                  |
|                                                                      |                                  |                                     | Feeling lonely in the surgical period       |                                  |
|                                                                      |                                  |                                     | Feeling sad for losses caused by Covid-19    |                                  |
|                                                                      |                                  |                                     | Restriction of freedom                      |                                  |
|                                                                      |                                  |                                     | Positive factors                            |                                  |
|                                                                      |                                  |                                     | Relief                                      |                                  |
|                                                                      |                                  |                                     | Satisfaction                                |                                  |
|                                                                      |                                  |                                     | Trust in hospital-health workers            |                                  |
| The difficulties of surgery in the pandemic                          | Disease-privacy                  |                                    |                                            |                                  |
|                                                                      | Awareness                        |                                    |                                            |                                  |
|                                                                      | Systemic problems                |                                    |                                            |                                  |
|                                                                      | Early discharge                  |                                    |                                            |                                  |
|                                                                      | Family communication             |                                    |                                            |                                  |
|                                                                      | Postoperative working life       |                                    |                                            |                                  |
| Development of professional values                                   | Communication with health workers|                                    |                                            |                                  |
|                                                                      | Support                          |                                    |                                            |                                  |
|                                                                      | Professionalism                  |                                    |                                            |                                  |
|                                                                      | Patient–institute trust          |                                    |                                            |                                  |
|                                                                      | relationship                     |                                    |                                            |                                  |
I was nervous because I was wondering if I had Covid-19? I thought if I had Covid-19 it would affect my surgery. If I have Covid-19, how this situation would affect the staff if I would be taken into surgery? I was nervous because as far as I can see, the protective equipment would steam and restrict the vision, which could affect the surgery badly. After the surgery, I was uneasy with the symptoms showing similarity with the symptoms of Covid-19. (P13)

The second problem is having to wear a mask in the postoperative period. I was more nervous about getting infected. (P14)

The positive factors code was defined by relief, satisfaction, and trust in hospital-health workers’ sub-codes. A participant statement regarding the process is as follows:

They were sensitive about the hygiene, warning signs, announcements about the use of masks for certain periods of time, visitor restriction, a certain distance between patients when walking in the corridor. (P13)

I felt a sense of confidence, they were doing their duties in a controlled way, I felt confident that they were keeping the job steady and taking it seriously. (P14)

The category of difficulties of surgery in the pandemic was defined by disease-privacy, awareness, systemic problems, early discharge, family communication, and postoperative working life codes. Related to the disease-privacy code, participants emphasized that people should pay attention to their illness and the urgency of the operation when deciding to have surgery during the pandemic period. The participants’ statements about disease privacy are as follows:

I certainly wouldn’t have chosen to undergo surgery at this time if it was another surgery, except for cesarean section. (P4)

After the necessary tests are prepared, it can be performed during this period, if it is a necessary operation. (P7)

A participant’s statement on awareness:

I think this period made us feel that we should pay attention to our health very well, we should comply with hygiene very well, and we should always pay attention. (P6)

A participant expression for the systemic problems code is as follows:

They turned the service, which I stayed, into a fevered diseases mixed service, and when a fevered patient arrived, they called him a Covid-19 suspect. I was very nervous to know that there was a Covid-19 suspect in the next room, and I was very nervous to know that the team that looked after me was also looking after him. (P14)

A participant expression related to the early discharge code is as follows:

I was discharged on the same day I underwent the surgery. (P6)

The participant statement regarding the code of contact with the family is as follows:

During my hospitalization, I first had a longing for being away from my children. I could only contact my family by phone. My hospital stays lasted about two weeks. It was tough for me. (P5)

Participants’ views on the challenging dilemma related to surgery focused on anxiety about contracting Covid-19, fear about the surgical process, relief about the process, and trust in hospital-health workers. The theme is also handled according to the surgery case, there are intense opinions on the issues of anxiety about contracting Covid-19, relief about the process, and satisfaction.

Development of Professional Values. The theme was handled under communication with health workers, support, professionalism, and patient–institute trust relationship codes. As part of this theme, participants expressed most intensive opinions about communication with health workers.

Participants spoke about the supportive and relieving attitude of health workers during their hospital stay.

It is very important that the institution gives self-confidence to the patient. It’s important to make the patient feel that trust. I was definitely given that trust at the hospital where I underwent the surgery. I went to the operating room with that confidence, and I’m grateful for it. (P2)

We can’t communicate with anyone with open faces. Even if the mask was in our mouth, they could give us any information we wanted, we could make eye contact. The nurses were giving me explanations when I was talking, even at a distance, it was fine. There was no communication problem with any of them. (P6)

Of course, we don’t see much of the facial expression due to the mask and the bonnet, because they’re all masked. I can only see their eyes, but of course, the eyes were smiling, they were very interested. (P11)

The theme handled according to the participants focused on health workers, communication, and support codes.

After my admission to the service, the nurses explained the process to me in detail and their approach was very nice. (P9)
The staff entered the room with their personal protective equipment, gave the necessary answers to my questions and detailed information about the process. (P13)

The participants also talked about the feeling of trust that the hospital makes the patient feel.

It is very important for the institution to make the patients feel confident. I had the trust on the hospital where I had my surgery. I went to the operation room with self-confidence, I am grateful to all the healthcare workers. (P2)

As a result of relational analysis, it was determined that participants gave opinions about trust in hospital-health workers, while also expressing opinions on professionalism, environmental hygiene, physical distance, and mask necessity (Figure 1). The statements of the participants summarize this situation as follows:

The precautions taken at the hospital were relieving me. They had special equipment for every patient. The rooms were for one person, and they should be cleaned. What I’ve seen becomes a relief for me. (P11)

I’ve never had any tension or anxiety, so it was very comforting to know that I was there with them and that I was in their care. Knowing that it was the Covid-19 time. Even though they were working, I also knew what difficulties they were struggling with and paying attention to. (P15)

**Discussion**

**Corporate Obligation**

In the study, we determined that some protective precautions were taken in hospitals such as environmental hygiene, physical distance, etc. The precautions that can be taken to break the chain of infection were determined as “keeping distance, hand hygiene, use of personal protective equipment, health training, etc.” (9). All personnel entering the patient room should use masks, gloves, glasses, and aprons (10). Our study showed that patients also take individual protective precautions such as hand hygiene and masks in addition to corporate protective precautions. Van Doremalen et al. (11) reported that Covid-19 maintains its vitality for different periods of time on different surfaces. When unwittingly touching surfaces contaminated with droplets of patients, the virus spreads to any environment by hand (11). Kwok et al. (12) reported that a person touches face 23 times an hour. By touching the face, eyes, nose, or mouth, the passage of the virus into the respiratory tract is facilitated (12). According to the literature, hand hygiene is critical to protection from Covid-19 (10).

The severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) virus is transmitted from person to person as a result of exposure to droplets scattered in the environment as a result of cough of sick individuals, and all patients should wear face masks as part of the precautions taken. If necessary, the companion must also wear a mask (13,14). Following the rules of social isolation and avoiding contact during the pandemic are the most important precautions (15). According to the study findings, it was found that
patients individually tried to apply the precautions found in the literature to protect themselves from the Covid-19 virus, in addition to the institution-based precautions during their hospitalization.

We found that some participants were trained in hand hygiene, social distance, and post-discharge visit restriction issues. Some participants stated that they did not receive training. A study reported that the stress of exposure may decrease due to the high level of information that will occur as a result of accurate medical information related to the pandemic of Covid-19 provided by competent persons (16). It has been reported that the lack of information about the pandemic or exposure to misleading information on social media may cause negative social behaviors along with fear and uncertainty (17). We think that the surgical process will be carried out more professionally during the pandemic and that the quality of patient care can increase and stress levels may decrease. A study found that people with more information about how Covid-19 disease is transmitted will exhibit more conscious behavior to protect themselves and maybe more defensive against unnecessary concerns. It has been stated that people with accurate knowledge of Covid-19 have more positive attitudes and use stricter preventive precautions (18). We believe that accurate training to protect individuals undergoing surgery during the pandemic can affect and reduce the stress levels of patients due to increased self-protection.

The vast majority of people infected with Covid-19 are asymptomatic, which has been described as a “formidable source of transmission,” therefore the prevention of transmission from asymptomatic people is important (13). Also, the polymerase chain reaction (PCR) test resulted in a high false-negative rate in the first week of the disease, and patients experienced a “change to positivity” with PCR after two consecutive negative results (19,20). Based on the literature, we believe that standard precautions should be taken for patients with a negative PCR test. In the literature, the importance of chest computed tomography (CT) in Covid-19 patients whose PCR results were false negative was emphasized, and CT sensitivity was reported as 98% (21). But trauma surgery should not be delayed to assess the condition of patients with Covid-19 disease (22–24).

**The Challenging Dilemma Related to Surgery**

Surgery is not only a source of physiological stress for a patient but also a strong source of psychological stress. For this reason, a patient’s psychological preparation before surgery is also important. In surgery, patients are afraid of the risks that may occur during surgery, although they agree that the operation is beneficial for them. At the beginning of the causes of anxiety, there are unknowns that may occur as a result of surgery (25). In our study, participants expressed intense views on the difficulties associated with the pandemic process and the concern of contracting hospital-acquired Covid-19 due to the severity of the disease. “It put a lot of pressure on me psychologically. I had very serious fears about what kind of process awaits me if I contract Covid-19 in the hospital.” a participant said. A study stated that there was an increase in the number of patients expressing distress and fear due to uncertainty related to the pandemic, also patients with mental illnesses such as depression and anxiety showed fear, and patients with cardiovascular disease comorbidity experienced symptoms of angina (26).

It was determined that participants experienced a sense of loneliness associated with the surgical period. Sullivan defines loneliness as a decidedly uncomfortable and unpleasant experience resulting from insufficient satisfaction of the need for interpersonal intimacy (27). In individuals who have moved away from the family environment before surgery, a sense of isolation develops, and the level of anxiety increases (25). “Without visitors to the room after surgery, I feel lonely inevitably” a participant said.

**Development of Professional Values**

During the Covid-19 pandemic, health workers who had a high risk of infection, intense and strenuous working conditions, frustration, discrimination, isolation, negative feelings, and difficulty in contact with their families faced burnout symptoms. This condition causes mental health problems such as stress, anxiety, depressive symptoms, insomnia, and fear (1,28). The mentioned mental health problems may negatively affect the attention, understanding, and decision-making capacity of health workers in the fight against Covid-19, but may also have a lasting negative impact on their overall well-being (29). Studies mentioned that health workers have significant anxiety, depression, and insomnia problems and that the symptoms of women and nurses are more pronounced (30,31). In our study, participants reported that they could not see facial expressions because of the mask of the health workers, but communicated verbally with eye contact.

Health workers should take appropriate precautions and use personal protective equipment. The high contagiousness of SARS-CoV-2 and its rapid spread with droplet contact caused an increase in cases, and occupational exposure cases significantly (13,14). It has been noted that psychological adaptation is better in medical personnel working in well-equipped facilities and a safe structured environment (32). In our research, the health workers serve professionally and selflessly by following the necessary precautions and providing the necessary information.

**Conclusion**

The result of this study is a combination of negative and positive experiences of patients undergoing emergency surgery during the Covid-19 pandemic. The results could help nurses identify the needs of patients, including informing and training about the surgery and discharge process,
healthy communication, and psychological support. By understanding the negative experiences of patients, nurses will be able to plan appropriate approaches and care. This is important because it can severely disrupt the patient and family psychologically if the negative challenges of patients in the perioperative and discharge period are not addressed. The fact that patients undergoing emergency surgery during the Covid-19 pandemic show positive experiences, such as trust in hospital staff and health workers, can be a source of hope and incentive for nurses to continue their care.

Authors Note
FY and AA were responsible for the study conception and design and drafting of the manuscript. Written approvals were obtained from the Ethics Boards of Turkey Ministry of Health (2020-09-04T14:43:07) and Çanakkale Onsekiz Mart University Institute of Education Sciences (4026528-050.01.04-2000184622). Informed consent was obtained from all patients after explaining the objectives of the research.

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