

RESEARCH ARTICLE

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Robotic Gynecologic Surgery: What it Means for Women

ABSTRACT

Objective: The aim of this study is to improve the understanding of the experiences of women undergoing robotic-assisted gynecologic surgery.

Methods: A qualitative descriptive phenomenologic approach was used. We conducted phone interviews with women who had undergone a gynecologic procedure via robotic-assisted surgery in a gynecology clinic of a university hospital (n=19). Semi-structured interviews were conducted with women, and data were analyzed using Colaizzi’s methods.

Results: Two major themes were identified. These two themes concerned: (1) Ambivalent Feelings on Robotic Surgery, and (2) Robotic Surgery was a Piece of Cake.

Conclusions: Because of the newness of this procedure, the women in this study indicated that they had concerns and lacked information about robotic-assisted gynecologic surgery but that their decision was influenced by the confidence they had in their physicians. The women indicated that they had confidence in the robotic technique and recovered quickly physically.

Keywords: Qualitative Research, Patient Education, Patient Experience, Phenomenology, Robotic Gynecologic Surgery

Jinekolojik Robotik Cerrahi: Kadınlar İçin Anlamı

ÖZET

Amaç: Bu çalışma ile, jinekolojik robotik cerrahi ile ameliyat olan kadınların robotik cerrahi ile ameliyat olma kararı, bu ameliyat şeklinin kadına ne hissettirdiği ve ameliyat sonrası deneyimlerini derinlemesine incelemek amaçlanmıştır.

Gereç ve Yöntem: Çalışmada nitel fenomenolojik yaklaşım kullanılmıştır. Araştırma kapsamında jinekolojik robotik cerrahi operasyonu geçiren 19 kadın ile görüşülmüştür. Kadınlar ile telefon görüşmesi yapılmış ve veriler yarı yapılandırılmış görüşme formu ile toplanmıştır. Görüşmeler sonucu elde edilen verilerin değerlendirilmesinde Colaizzi’nin fenomenolojik yorumlama metodu kullanılmıştır.

Bulgular: Çalışmada (1) Robotik Cerrahiye İlişkin Ambivalans Duygular ve (2) Robotik Cerrahi Çok Kolaydı olmak üzere iki ana tema tanımlanmıştır.

Sonuç: Kadınlar, robotik cerrahinin yeni bir uygulama olması ve daha önce duymamış olmaları nedeniyle kaygı ve anksiyete yaşadıklarını ifade etmiştir. Ancak kadınların tamamı doktorlarına duydukları güvenin bu kaygıyı azalttığını ve robotik cerrahi ile operasyonu kabul etmelerinde etkili olduğunu belirtmiştir. Kadınlar, robotik cerrahi sonrası kendilerini fiziksel olarak çok iyi hissettiklerini ve güven duyduklarını bildirmiştir.

Anahtar Kelimeler: Nitel Araştırma, Hasta Eğitimi, Hasta Deneyimi, Fenomenoloji, Robotik Jinekolojik Cerrahi

INTRODUCTION

The newest computer-assisted laparoscopic surgery (robotic-assisted surgery) is a popular option for minimally invasive surgical procedures. Robotic-assisted surgery provides advantages for patient and also health care professions (1). These advantages have led to more widespread use of robotic-assisted surgery in several specialties (2).

One of the most common fields of using robotic-assisted surgery is in gynecology (3). In many parts of the developed world, an increasing number of women are offered robotic-assisted surgery in gynecology as treatment for hysterectomy, myomectomy, tubal reanastomosis, ovarian transposition, gynecologic oncology procedures, and pelvic reconstructive surgery (4-6). Robotic-assisted surgery in gynecology is advantageous because of shortened operative times, reduced blood loss and transfusion rates, lessened hospital stay, decreased risk for complications, and an earlier return to a regular diet in the postoperative period (3,7,8).

Current literature suggests that robotic-assisted surgery in gynecology has advantageous for patients. Healthcare professions are also aware of these advantages and use robotic surgery for the benefit of their patients (9-11). Yet, healthcare professionals should work harder to understand how the decision to undergo robotic-assisted surgery makes patients feel, as it is an important part of informing patients about the methods of the surgery. There is a gap in the literature regarding the opinions, experiences, and attitudes of women who are considering robotic surgery as an option/who have undergone robotic surgery (12). Because of the short length of hospital stay and limited contact in the outpatient clinic, healthcare professionals have only brief contact with these women (13).

How women feel about robotic-assisted gynecologic surgery has not previously been explored. Knowledge of women's experiences and feelings about the gynecologic diseases and their surgical treatment could better inform healthcare professionals, especially nurses, who spend significant amounts of time with patients (13). A deep understanding of patients' thoughts and feelings about robotic-assisted surgery during the pre-operation period is necessary in order to properly educate patients. More information on this topic could allow healthcare providers to offer more support to patients in giving appropriate information about treatment, providing relevant education concerning the surgery, and planning proper postoperative care.

This study aims to give voice women's feelings about undergoing robotic-assisted gynecologic surgery, the decision-making process involved, the implications of this type of surgery, and the post-surgery experiences of women

diagnosed with different gynecologic medical diseases/problems.

MATERIAL AND METHODS

A qualitative descriptive phenomenologic approach was used in this study. Phenomenology, a frequently used approach in qualitative research, focuses on the experience of individuals as the main method of understanding the broader meaning of people's life experiences (14). Phenomenologists assert that reality is not a fixed entity, and that it changes and develops according to people's experiences and the social context within which they find themselves (14).

Sample and Setting: This study was performed with women who had undergone robotic-assisted gynecologic surgery and have discharged from the gynecology clinic of a university hospital in Ankara, Turkey. In this gynecology clinic, 25 women had undergone robotic-assisted gynecologic surgery, the first cases of using such a surgery to treat malignant and benign diseases until the data collection. The study was started in September 2012 and completed in January 2013. Participants were recruited until the data saturation limit was reached, that is, when no new information was obtained. During the study period, 19 women undergone robotic-assisted gynecologic surgery were interviewed.

Criteria for inclusion in the study were as follows: (a) having undergone robotic-assisted gynecologic surgery for various gynecologic conditions such as gynecologic cancer, endometrial hyperplasia, abnormal uterine bleeding, myoma, and prolapsed pelvic organs; (b) being willing to participate in the study, and (c) having sufficient Turkish language proficiency. Women needing adjuvant treatment were excluded from the study. This study was approved by the local ethics committee of the hospital (Approval Number: 1539-282).

Data Collection: Data were obtained through audiotape-recorded telephone interviews. Consent and all data collection occurred in two phases.

In the first phase of data collection, potentially eligible women were identified using the patient registration system. A list of the women who had undergone robotic-assisted surgery was prepared. Patients' contact information was then found in the medical records, and an informational letter explaining the purpose and procedures of the study was sent to the women who had met the study's criteria.

In the second phase, a few weeks after being informed with letter the women were called by the principal investigator (PI-GK) while they were own home. The phone interviews were conducted by PI in a quiet, private room at hospital. The door of the room was locked to ensure confidentiality and

privacy during the phone interviews. PI introduced the study to the women and inquired about their interest. If women were interested in participating, they were provided sufficient time for questions and all questions answered by the PI. It also was explained that participation in the study is voluntary and they could refuse to participate or withdraw from the study at any time without any negative consequences on the services received from the hospital. Verbal consent was obtained for participation in the study from interested women. The women were then asked questions meant to prompt responses concerning their feelings and experiences regarding robotic-assisted surgery. All responses of the women were recorded during the phone interviews. Permission was also obtained to make audiotape recordings. Each interview lasted about 45-60 minutes. All the data including audiotape recordings and transcriptions were kept in a locked cabinet at a PI's office.

We designed the semi-structured interview guide that facilitated the in-depth interviews (Table 1). A pilot study with two women was conducted before the formal study. The PI performing the interviews had received previous training on qualitative study methods and their implementation. PI (GK) and the co-authors (AA, MS) in the data analysis were not responsible for the care or treatment of the women.

Table 1. Interview guide.

1. What did you think when you were told that you would be operated on using robotic surgery, and how did you feel about it?
2. What influenced your decision to undergo robotic surgery?
3. How did your surgery being performed by robotic surgery make you feel? Can you describe your emotions and what you felt after the surgery?
4. Could you compare your previous experience of surgery, if any, with your current experience?
5. Did you need postoperative help and support? Can you explain what issues you needed help and support for?
6. Would you prefer robotic surgery if you had to undergo surgery again?
7. Is there anything you would like to add regarding your experience?

Data Analysis: All audiotape-recorded interviews were transcribed verbatim and managed using Microsoft Word by the principal investigator (GK). Analysis of interview transcriptions was based on Colaizzi's phenomenologic methodology: (a) Reading and rereading the participants' descriptions of the phenomena to acquire a feeling for their experience and make sense of their account. (b) Extracting significant statements that pertain directly to the phenomenon. (c) Formulating meanings for these significant statements. (d) Categorizing the formulated meanings into common thematic clusters and validating these

clusters. (e) Providing an exhaustive description of the phenomenon by integrating these findings. (f) Validating the findings by returning to participants to ask how the researcher's story matches with their own. (g) Incorporating any changes offered by the participants into the final description of the phenomenon (15).

During the analysis, in order to become familiar with the data, researchers (GK, AA) began by separately reading through the data multiple times. Significant statements and phrases that pertained to the study objectives were identified. Meanings were formulated from these significant statements and phrases. The two researchers recorded notes of their first reactions to the initial analysis process and created multiple codebooks, with the codes identifying from the separate texts. The formulated codes were then organized into clusters of themes. In the last stage of data analysis, researchers discussed the wording of themes and categories until unanimous agreement was reached. The final analysis revealed two major themes.

To maintain the credibility of data analysis, the transcripts were examined repeatedly by each researcher in order to include them into the data. Two researchers worked independently to identify the major categories of the transcripts. The coding was compared. Between the coding of the two researchers, which mainly related to the choice of words, were minor differences. Differences were discussed until a final agreement was reached. To achieve final validation (15), two participants were selected randomly and contacted again to read the descriptions; they agreed that the analyses had accurately represented their personal experiences. To preserve confidentiality, each participant was described the letter "P" and assigned a number (P1, P2, P3, etc.).

RESULTS

Characteristics of participants in this study are shown in Table 2. Participants' median age was 51.5 years (min=42; max=71). Most of the participants (57.9%) graduated primary school and 63.2% being unemployed. 57.9% of the participants had gynecologic cancers.

Table 2. Characteristics of participants.

Age, Median (min-max), years	51.5 (42-71)	
	n	%
Education Status		
Primary school/Elementary school	11	57.9
Secondary school / High school	5	26.3
College – graduate	3	15.8
Work status		
Not working	12	63.2
Working	3	15.8
Retired	4	21.0
Diagnosis		
Benign gynecologic diseases	8	42.1
Malignant gynecologic diseases	11	57.9

Analysis of the data resulted in the following two main themes: (1) “Ambivalent Feelings on Robotic Surgery”, and (2) “Robotic Surgery was a

Piece of Cake”. Themes and categories of the study are shown in Figure 1.

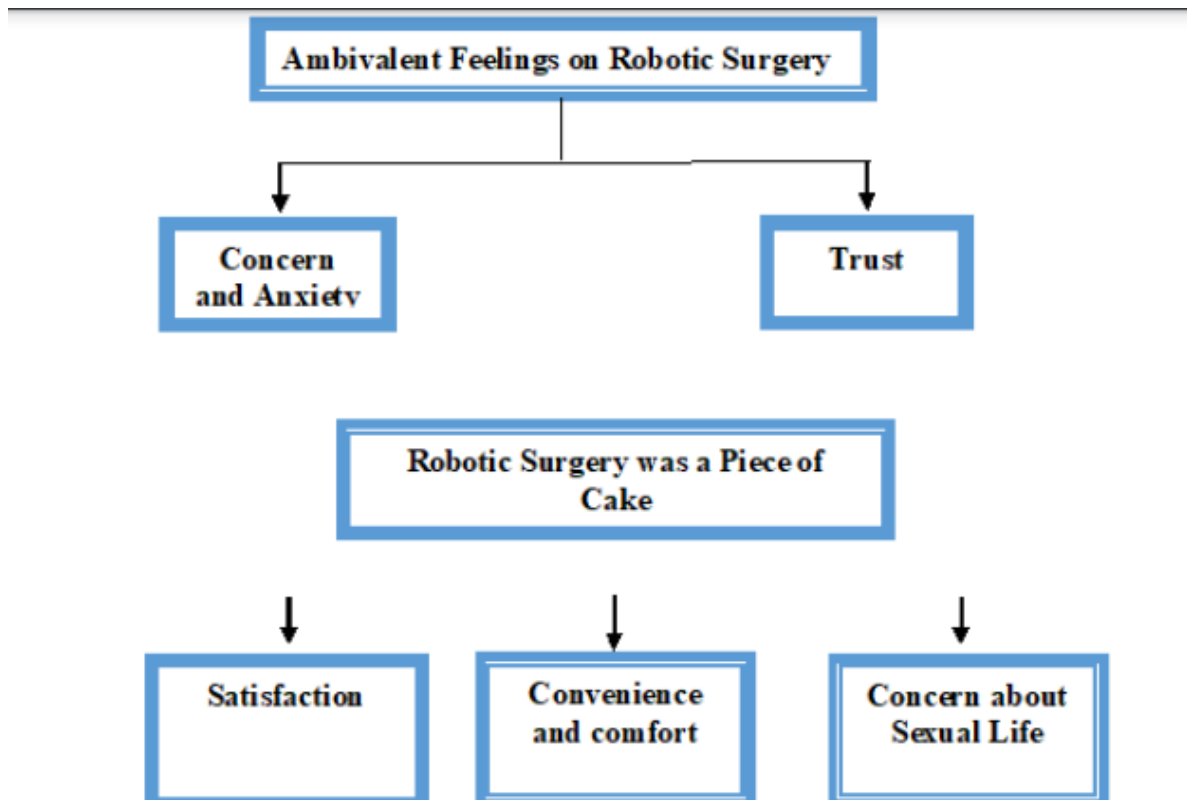


Figure 1. Themes and Categories of the Study

Theme 1. Ambivalent Feelings on Robotic Surgery: All the patients in the study arrived to the gynecologic outpatient department with symptoms of bleeding and pain. Patients stated that they experienced intense fear when they first heard that they had to undergo robotic surgery after examination. However, they also stated that they put their physician trust in.

Concern and anxiety about robotic surgery. Most of the patients in the study stated that they experienced concern and anxiety when they first heard they would undergo robotic surgery. Their reasons for such concern were related to the fact that robotic surgery is a new practice and that they therefore knew little about it.

One patient said: I was worried when I first heard that my surgery would be performed with a robotic technique; I got anxious. I thought, this is a new technology. Has it ever been used before? Or am I the first? (P2).

Three patients said that their worries continued due to the fact that the surgeon performs the surgery in a section (console) away from the patient and their fear that he/she may not be able to intervene easily if any mistake/problem occurred during the surgery. The loss of tactile feedback for surgeons was also a concern.

One patient expressed her concern about robotic surgery: My doctor would perform my

surgery somewhere far away from me, what if the doctor's hand slipped while pressing the keys and another of my organs suffered damage? (P12).

Some of the patients stated that they have heard about robotic surgery for the first time. They had concerns because of not having any knowledge about robotic surgery. However, all the patients stated that their anxiety decreased after their physicians provided preliminary information regarding robotic surgery.

One patient made the following comments: It (robotic surgery) was something I had never heard of before. ... I had worries and concerns such as: Will my doctor not touch me during my surgery? Will the robot operate on me from the beginning to the end? Will my life be in danger? (P5).

Another patient stated that: My doctor explained to me with pictures how my surgery would be performed with the robotic technique. After the explanation, my concern regarding the surgery decreased slightly (P16).

One patient experienced surprise and fear when she saw the arms and parts of the robot at the operating theater.

I was surprised when I saw the robotic device (da Vinci Robotic System) that would be used in my surgery in the operating theater, I felt like I was in a space base. I was a little frightened.

But I was also thinking how technology had progressed (P4).

Trust in physician and decision to undergo robotic gynecologic surgery. All of the patients said that they had learned about the advantages of the robotic technique after preliminary explanation and information was provided by their physicians before the surgery. The patients were convinced that they got the most up-to-date treatment available and thankful for that after information by their physicians. All of the patients stated that they had faith in their physicians. These had affected their acceptance of undergoing surgery with the robotic technique.

One patient stated that: My doctor explained to me how he would operate with the robot and even showed pictures. At that moment, I felt surgery with the robot was safer. I was very confident in my doctor. I thought that I would not have much pain if I underwent surgery with the robot and therefore decided to have surgery with the robotic technique (P1).

Another patient made the following case: When my doctor told me about the surgery with the robot and its benefits, I thought of my health first. I am diabetic, and my wounds heal with difficulty. With the robot, the wound is small and the healing quicker. I therefore decided to undergo surgery with the robot in order to avoid any difficulties with the surgery (P7).

Another patient expressed her decision to undergo robotic surgery: My doctor explained the robotic surgery to me and said that he would operate the robotic device. I was very confident in my doctor..... I therefore accepted my surgery to be performed with the robotic technique (P17).

Theme 2. Robotic Surgery was a Piece of Cake

Satisfaction of having robotic gynecologic surgery. The patients stated that before the robotic surgery, they thought that they may experience problems such as pain, bleeding, and the inability to perform daily tasks after the surgery. However, after the robotic surgery, most patients reported that they felt physically very well, as if they had not undergone surgery at all. Due to the lack of pain or presence of pain at a minimum level after surgery (13 patients), early ambulation (14 patients), a very small incision site (15 patients), and lack of bleeding (12 patients), they stated they were very satisfied with having undergone robotic surgery.

One patient noted that: There was a small incision on my abdomen after the surgery. I felt so well that...I wondered whether I had actually undergone surgery (P2).

Another patient said: I had almost no pain after the surgery, no bleeding. I was very comfortable. It almost looked like I had not undergone any surgery; I can say that I did not even have a scar on my abdomen. I thought that it was

quite good to have my surgery done with a robot. I am very pleased (P8).

After discharge from the hospital, the patients were in doubt about normal bodily functions. The patients attributed positive outcomes to the robotic surgery. Seventeen of the patients stated they did not need any support to take care of their daily activities after robotic surgery.

One of them said: I was very comfortable after the surgery, and I got up right away the next day. The other patient in the room had a lot of pain, a lot of stitches on her abdomen, and they were changing the dressing every day. I had four holes, and I did not have any pain. I am very satisfied (P6).

Two of the patients interviewed within the scope of the study stated that they needed support for a few days due to gas, distension, and groin pain after surgery.

One patient stated that: I had gas pain and bloating after surgery, and I could not do a lot of housework because of these troubles (P18).

Another patient said: I had pain in my groin for a few weeks after surgery, and there was pain when urinating ... My sibling, therefore, helped me with my daily needs for the next few days after the surgery (P14).

Convenience and comfort after robotic gynecologic surgery. Due to the rapid recovery after robotic surgery (16 patients), short duration of hospitalization (17 patients), and a quick return to normal life (15 patients), almost all of the patients were satisfied with the surgery and said they would prefer robotic surgery if they had to undergo it again. Four patients said that the surgery had an aesthetic advantage because the incision was very small.

I had a cesarean delivery, and there were quite a lot of stitches on my stomach, and the scar is still there. My abdomen was cut less in this surgery; here were three holes. They improved immediately; you cannot even really see the scar. Surgery with the robot was more comfortable than the other one (P19).

Another patient said that: My pain was very light, and I almost had no incision in my abdomen and no bleeding. It is really very comfortable and an ideal surgery method for women in terms of aesthetics (P16).

When the patients looked back, they were surprised how little bleeding, pain they experienced postoperatively.

One patient stated her experience: Surgery with the robot was really very different, very comfortable compared to my previous surgeries, and there is less blood loss. The risk of infection is less. There is a small scar, and it is not important (P11).

Overall, recovery after the robotic surgery was experienced as easy and rapid by the patients. One patient expressed nervousness that she would

be unable to take care of her roles and responsibilities immediately after the surgery. However, she stated that she had recovered much more quickly than she had hoped and had returned to her duties and responsibilities within a very short time.

I was so nervous that I would not be able to return to my duties in a short time and fulfill my children's needs. However, I got up just one day after my robotic surgery. ... I started working soon. The surgery with the robotic technique was very good (P10).

Concern about sexual life after surgery. Independently from robotic surgery, all of the patients stated that before the surgery, they worried that their sexual life would be negatively affected, as they would be undergoing surgery for a gynecologic problem. However, most of the patients expressed that they experienced no such problems after surgery. Three patients did say that they avoided having intercourse with their spouses after the surgery, thinking that they may feel pain.

One of these patients stated that: We did not have any problems during my first sexual intercourse with my husband after the surgery, but I had not been with my husband for a long time previously because we had thought that something could happen to me (P3).

Another patient said that: I did not have sexual intercourse with my husband for 4-5 months after the surgery. My spouse was afraid because he thought that I would become ill or could get hurt. Later, when we had sexual intercourse, I did not experience any discomfort (P9).

Some of the patients stated that due to surgical menopause, they suffered from symptoms such as vaginal dryness, hot flashes, sweating, and nervousness. One patient stated that she experienced pain during sexual intercourse due to vaginal dryness, while another patient stated that she experienced emotional problems related to the loss of a sexual organ:

I felt psychologically uncomfortable because my womb was removed. I felt like I was not a woman anymore. I was empty inside, and I would not experience menstruation any longer. I was reluctant to have intercourse; I think my husband was uncomfortable about this situation and could not tell me. I did not have sexual intercourse with my husband for a long time because I thought I could experience pain or get hurt (P13).

Another patient stated that: We did not experience any problems with sexuality after the surgery. However, there was a decrease in nervousness, hot flashes, and lubrication because I had menopause. That made me feel uncomfortable during intercourse (P15).

DISCUSSION

After the approval of robotic surgery in gynecology by the FDA in 2005, it has been widely adopted at various centers in the USA and is being

increasingly performed worldwide. Most of the patients in this study expressed concern and fear when they first heard about robotic surgery. They felt disbelief and surprise when they were informed that they would undergo surgery performed by a robot. Some of the patients were anxious about the success of the surgery because they believed that the doctor would not be present in the operating room during the surgery. However, after being informed of the details of the surgery by their doctors, all of the patients expressed relief and made the decision to undergo surgery. Similarly, in another qualitative study, women who underwent robotic surgery stated that they had little knowledge about the procedure but had faith in the robotic surgeons (13). Due to lack of knowledge, such patients may experience anxiety about undergoing surgery performed by a robot. The same study also reported that healthcare attitudes might affect patients' decision to undergo robotic surgery (13). These findings reinforce the importance of providing preoperative education and healthcare approach when informing patients about robotic surgery. Because many patients are hearing about the surgery for the first time, it is necessary that medical health professionals give adequate information to patients in order to relieve their concerns.

Although some studies show that robotic surgery does not seem to have significant advantages over conventional laparoscopic surgery for the treatment of benign gynecological diseases (16), more surgeons are adopting the use of robotic surgery in laparoscopy due to the fact that it is minimally invasive (16). Robotic surgery in gynecology is highly feasible (17) because it allows surgeons to be more precise, which is particularly important in more complex surgeries (16,18). Moreover, operations by robotic surgery are usually shorter, depending on the surgeon's experience (16). In addition to the advantages of robotic surgery for the surgeon, it also has advantages for the patients. In a systematic review, it was reported that robotic surgery shortened the length of hospital stays and, when compared to open and laparoscopic surgeries, reduced the amount of postoperative blood loss (17). Some of the other benefits of robotic surgery include smaller incisions, lower morbidity rates, less postoperative pain and scarring, less risk of infection, and a shorter return to normal daily life (16,19,20). Most of the patients in this study stated that they felt physically well after the surgery, or that they felt as if they had not undergone surgery at all. All of the women were extremely satisfied by the surgery because they were able to walk shortly after, experienced little pain, and little bleeding or scarring. Despite patients' concerns prior to their decision to undergo surgery, all were satisfied with the robotic technique. Similarly, a previous study shows that women who had undergone robotic surgery were

very surprised by the little amount of postoperative blood, though some of them thought that less bleeding may be abnormal (13).

The patients in this study rated their overall surgery experience as comfortable and easy and expressed satisfaction with a shorter hospital stay and a quicker return to normal life. Almost all of them stated that if there was a need in the future, they would definitely prefer to have surgery by the same technique.

CONCLUSIONS

Although there is concern about the cost and training requirements for robotic surgery (17, 20), it has the potential to make the patient experience an easier one. All patients spoke positively about the robotic surgery technique and claimed that it eased their concerns about undergoing surgery. The only

concerns the patients expressed were those stemming from the lack of knowledge about the surgery. Therefore, it is vital that patients are provided with the necessary information in order to make their experience a more comfortable one. In order to make the transition from the decision-making process to the postoperative period a smooth one, patients should be able to place trust in their healthcare professionals. The findings of this study reinforce the importance of preoperative patient education about the procedures of robotic surgery and the need for more support for patients from their healthcare providers. Healthcare providers, as very crucial responsibility, should inform patients and educate them before the robotic procedure in order to give robotic surgery advantages to the patients.

REFERENCES

1. Best J, Day L, Ingram L, Musgrave B, Rushing H, & Schooley B. Comparison of robotic vs. standard surgical procedure on postoperative nursing care of women undergoing total abdominal hysterectomy. *Medsurg Nurs*. 2014; 23(6):414-422.
2. Kurt G, Loerzel V.W, Hines R.B, Tavasci K, Galura S, Ahmad S, et al. Learning needs of women undergoing robotic versus open gynecologic surgeries. *JOGNN*. 2018;47(4):490-497. doi.org/10.1016/j.jogn.2018.04.133
3. Madhuri T. K, & Butler-Manuel S. Robotic surgery in gynaecology/gynaecological oncology. *Obstet Gynaecol Reprod Med*. 2017;27(2):65-67.
4. Lenihan J. P. How to set up a robotic assisted laparoscopic surgery centre and training of staff. *Best Pract Res Clin Obstet Gynaecol*. 2017;45:19-31. doi: 10.1016/j.bpobgyn.2017.05.004
5. Madueke-Laveaux O. S, & Advincula A. P. Robot-assisted laparoscopy in benign gynecology: Advantageous device or controversial gimmick?. *Best Pract Res Clin Obstet Gynaecol*. 2017;45:2-6. doi.org/10.1016/j.ogrm.2017.01.002
6. Zanagnolo V, Garbi A, Achillarre M. T, & Minig L. Robot-assisted surgery in gynecologic cancers. *J Minim Invasive Gynecol*. 2017;24(3):379-396. doi: 10.1016/j.jmig.2017.01.006
7. ElSahwi K.S, Hooper C, De Leon M.C, Gallo T.N, Ratner E, Silasi D.A, et. al. Comparison between 155 cases of robotic vs. 150 cases of open surgical staging for endometrial cancer. *Gynecol Onco*. 2012;124(2012):260-264. doi: 10.1016/j.ygyno.2011.09.038
8. Gala R.B, Margulies R, Steinberg A, Murphy M, Lukban J, Jeppson P, et. al. Systematic review of robotic surgery in gynecology: robotic techniques compared with laparoscopy and laparotomy. *J Minim Invasive Gynecol*. 2014;21(3):353-361. doi: 10.1016/j.jmig.2013.11.010
9. Abitbol J, Lau S, Ramanakumar A.V, Press J.Z, Drummond N, Rosberger Z, et. al. Prospective quality of life outcomes following robotic surgery in gynecologic oncology. *Gynecol Oncol*. 2014;134(1):144-149. doi: 10.1016/j.ygyno.2014.04.052
10. Martino M.A, Shubella J, Thomas M.B, Morcrette R.M, Schindler J, Williams S, et al. A cost analysis of postoperative management in endometrial cancer patients treated by robotics versus laparoscopic approach. *Gynecol Oncol*. 2011;123:28–531. doi: 10.1016/j.ygyno.2011.08.021
11. Reza M, Maeso S, Blasco J.A, Andradas E. Meta-analysis of observational studies on the safety and effectiveness of robotic gynaecological surgery. *Br J Surg*. 2010;97:1772–1783. doi: 10.1002/bjs.7269
12. Lau S, Aubin S, Rosberger Z, Gourdjji I, How J, Gotlieb R, et. al. Health-related quality of life following robotic surgery: a pilot study. *J Obstet Gynaecol Can*. 2014;36(12):1071-1078. doi: 10.1016/S1701-2163(15)30384-4
13. Herling S.F, Palle C, Moeller A.M, & Thomsen T. The experience of robotic-assisted laparoscopic hysterectomy for women treated for early-stage endometrial cancer: a qualitative study. *Cancer Nurs*. 2016;39(2):125-133. doi: 10.1097/NCC.0000000000000260
14. Yıldırım A, & Simsek H. Nitel araştırmada geçerlik ve güvenilirlik (Validity and Reliability of Qualitative Research), Sosyal bilimlerde niteliksel araştırma yöntemleri (Qualitative Research Methods in Social Sciences). Seckin Publishing; Ankara, Turkey, 2006, pp. 255-73.
15. Colaizzi P. Psychological research as the phenomenologist views it. In R. Valle & M. King (ed). *Existential phenomenological alternative for psychology*. New York: Oxford University Press, 1978, pp. 48–71.
16. Sinha R, Sanjay M, Rupa B, Kumari S. Robotic surgery in gynecology. *J Minim Access Surg*. 2015;11(1):50–59. doi: 10.4103/0972-9941.147690

17. Lauterbach R, Matanes E, Lowenstein L. Review of robotic surgery in gynecology—the future is here. *Rambam Maimonides Med J*. 2017;8(2):e0019. doi:10.5041/RMMJ.10296
18. Sait K.H. Early experience with the da Vinci® surgical system robot in gynecological surgery at King Abdulaziz University Hospital. *Int J Womens Health*. 2011;3:219–226. doi.org/10.2147/IJWH.S23046
19. Goetgheluck J, Carbonnel M, Ayoubi J.M. Robotically assisted gynecologic surgery: 2-year experience in the French Foch hospital. *Front Surg*. 2014;1(8):1-5. doi: 10.3389/fsurg.2014.00008
20. Weissman J.S, & Zinner M. Comparative Effectiveness Research on Robotic Surgery. *JAMA*. 2013;309(7):721-722.