

The Effect of Information and the Training for Coping with Anxiety Given to Women before Hysterectomy on their Levels of Anxiety: A Post-Test Randomized Controlled Experimental Study

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ABSTRACT

Objective: It was aimed to determine the effect of information regarding hysterectomy and the training to cope with anxiety over their anxiety levels, which were given to women before they undergo hysterectomy. Methods: The parallel group post-test randomized controlled experimental design was used. The trial registration for the research protocol was obtained retrospectively from clinicaltrials.gov (NCT05436691) and the protocol was following the non-pharmacological intervention guidelines (CONSORT). The sample of the study consisted of 59 (intervention=30; control=29) women hospitalized in the Gynecology Oncology Clinic of a city hospital in the Eastern Mediterranean Region of Turkey, who were scheduled to undergo hysterectomy between July 15, and December 15, 2018. The women in the experimental group were given information and a training about hysterectomy and coping with anxiety, and furthermore, a training booklet was distributed. Chi-square test, the Independent Sample t test, One Way ANOVA, Scheffe post hoc test, the Binary Logistic Regression analysis and the Hosmer-Lemeshow test were used in the analysis of the data. Results: It was determined that the training did not lead to a statistically significant difference in their anxiety levels but the mean scores obtained from the trait anxiety inventory by the women who received information from the nurse were lower. While the variable "having high school or higher education" increased their situation anxiety levels 1.2 times, the variable "having an income equal to or more than expenses" decreased their anxiety levels 0.8 times ($p<0.05$). While the variable "having a high school or higher education" increased their trait anxiety level 1.1 times, the variable "having an income equal to or more than expenses" decreased their anxiety levels 0.9 times ($p<0.05$). Conclusion: While the information and anxiety management training given to women before they undergo hysterectomy are integrated into routine nursing care, the training should be started as soon as hospitalized, and attention should be given to individual and cultural differences.

Key words: Anxiety, Hysterectomy, Nursing Care, Training.

Histerektomi Öncesi Kadınlara Verilen Anksiyete ile Başa Etme Eğitimi ve Bilgilendirmenin Anksiyete Düzeylerine Etkisi: Son Test Randomize Kontrollü Deneysel Bir Çalışma

öz

Amaç: Kadınlara histerektomi öncesi verilen histerektomi bilgisi ve anksiyete ile başa etme eğitiminin anksiyete düzeylerine etkisinin belirlenmesi amaçlandı. Yöntem: Paralel grup son test randomize kontrollü deney tasarımı kullanıldı. Araştırma protokolünün deneme kaydı geriye dönük olarak Clinicaltrials.gov (NCT05436691) adresinden alındı ve protokol, farmakolojik olmayan müdahale kılavuzlarını (CONSORT) takip etmektedir. Araştırmanın örneklemi, Türkiye'nin Doğu Akdeniz Bölgesi'ndeki bir şehir hastanesinin Jinekolojik Onkoloji Kliniği'nde 15 Temmuz-15 Aralık tarihleri arasında histerektomi ameliyatı planlanan 59 (müdahale=30; kontrol=29) kadın oluşturdu. Deney grubundaki kadınlara histerektomi ve anksiyeteye baş etme konusunda bilgi ve eğitim verildi, ayrıca eğitim kitapçığı da dağıtıldı. Verilerin analizinde ki-kare testi, Independent Sample t testi, One Way ANOVA, Scheffe post hoc testi, Binary Logistic Regresyon analizi ve Hosmer-Lemeshow testi kullanıldı. Bulgular: Verilen eğitimin kaygı düzeylerinde istatistiksel olarak anlamlı bir farklılığa yol açmadığı ancak hemşireden bilgi alan kadınların sürekli kaygı envanterinden aldıkları puan ortalamalarının daha düşük olduğu belirlendi. "Lise ve üzeri eğitime sahip olmak" değişkeni durum kaygı düzeylerini 1,2 kat artırırken, "gelirinin gidere eşit veya daha fazla olması" değişkeni kaygı düzeylerini 0,8 kat azalttı ($p<0,05$). "Lise ve üzeri eğitime sahip olmak" değişkeni sürekli kaygı düzeyini 1,1 kat artırırken, "gelirinin harcamaya eşit veya daha fazla olması" değişkeni kaygı düzeyini 0,9 kat azalttı ($p<0,05$). Sonuç: Kadınlara histerektomi öncesi verilen bilgilendirme ve kaygı yönetimi eğitimi rutin hemşirelik bakımına entegre edilirken eğitime hastaneye yatış anında başlanmalı, bireysel ve kültürel farklılıklara dikkat edilmelidir.

Anahtar kelimeler: Anksiyete, Eğitim, Hemşirelik Bakımı, Histerektomi.

INTRODUCTION

Hysterectomy is the removal of the uterus through abdominal, vaginal or laparoscopic surgery, mostly due to benign diseases. Hysterectomy surgery is one of the most frequently performed operations on women and can cause changes not only in basic genderly and sexual functions but they can also cause changes regarding the body image. Since people consider the uterus as the symbol of femininity and reproduction, hysterectomy may cause women to worry that they will lose their femininity (Taşkın 2020; Yıldız et al 2015; Majumdar and Saleh 2012; Demir 2021). As stated in studies which were conducted on women who were scheduled to undergo hysterectomy, women think that the uterus is a very important organ for them, and the loss of it will cause them to feel empty, unwomanly, and make them to worry that their relationships with their spouses will end. Therefore, they suffer from intense anxiety (Elweley and Sabra 2015; Demir 2021; Reis et al 2008).

Undergoing oophorectomy together with hysterectomy causes premenopausal women to enter surgical menopause, which can damage their self-esteem by causing individuals to experience sexual problems such as loss of libido, vaginal dryness, and to feel incomplete and defective (Taşkın 2020; Yıldız et al 2015). Changes in body image is another factor causing women to think that their sexual life with their spouses will change negatively. As stated in El-Sayed, Hassan and Ibrahim's study, (2017) among the factors causing anxiety in women who will have hysterectomy are; waiting for the surgery, suffering postoperative pain and the development of complications. In Patil et al (2017), it was reported that 80% of the women had psychiatric complaints. Preoperative evaluation and counseling can reduce patients' misconceptions and reduce their anxieties. The counseling to be given is also important because it prevents the occurrence of psychological and sexual problems after the surgery. Burma and Kaylak (2021) recommend that nurses who are in constant communication with the patients should detect whether patients who will undergo hysterectomy have anxieties about the surgery and in the case if they have such anxieties, the nurses should try to eliminate their anxieties. On the other hand, Özdemir and Pasinlioğlu (2009)

recommend that nurses should investigate whether patients who will undergo hysterectomy have false beliefs about the surgery, and they should make an attempt to eliminate their hysterectomy-related false beliefs (Taşkın 2020; Yıldız et al 2015; Burma and Kaylak 2021; El-Sayed et al 2017; Patil et al 2017; Özdemir and Pasinlioğlu 2009).

Nurses should use their educational capabilities and competencies in terms of the interventions which will be applied to patients who have had hysterectomy. Within the scope of their educational capabilities, if nurses are to provide holistic care, they should also include information with regards to sexual health and they should consider the socio-cultural factors of individuals while they plan the relevant training (Abay and Kaplan 2017; Yılmaz et al 2015). In this study, the aim was to determine the effect of information and anxiety management training over their anxiety levels, interventions which were given to women before they undergo hysterectomy.

Hypotheses of the study

Hysterectomy-related information and anxiety management training given to the women in the intervention group

H01: have no effect on their trait anxiety levels.

Ha1: have an effect on their trait anxiety levels.

H02: have no effect on their state anxiety levels

Ha2: have an effect on their state anxiety levels

MATERIAL AND METHOD

Participants and Design

In the present study, which was conducted to determine the effect of information about hysterectomy and anxiety management training over their anxiety levels, which were given to women before they underwent hysterectomy, the parallel group post-test randomized controlled experimental design was used. There is an additional bias where post-test results can be affected by pre-test results. In this case, any difference in the measured outcome is only related to the intervention, not to the baseline difference between the groups. Since the participants were randomly assigned in

this study, this design was chosen to avoid selection bias in this process and to obtain comparable groups. (Alpar 2016). The trial registration for the research protocol was obtained retrospectively from clinicaltrials.gov (NCT05436691). In the study, the researchers complied with the non-pharmacological intervention guidelines (Boutron et al, 2017). The CONSORT flow diagram is shown in figure 1.

The population of the study consisted of women who were hospitalized in the Gynecology Oncology Clinic of a city hospital in the Eastern Mediterranean Region of Turkey in order to undergo hysterectomy between July 15, 2018 and December 15, 2018. G*Power software was used to calculate the sample size of the study (Faul et al 2009). Between March 01, 2018 and April 01, 2018, 60 patients underwent hysterectomy in the Gynecology Oncology Clinic of a city hospital in the Eastern Mediterranean Region of Turkey. Considering this number, the sample size was calculated based on the knowledge that 15 patients a week on average applied to the hospital to undergo hysterectomy and that they were all over the age of 18. According to this information, an average of 60 patients were expected to apply to the

clinic in a month. The minimum sample size was calculated as 42 women with the G*Power analysis (power: 99% and maximum Type I error: 1%). Considering the fact that there might be losses in the number of participants while such studies are performed (Alpar 2016), in order to prevent the decrease regarding the statistical power of the study, it was decided to include 17 more women in the study at the rate of 40% of the minimum sample number, and the final sample size was calculated as 59 (Alpar 2016; Faul et al 2009). The software program <https://e-picos.com/> was used to assign the 59 women included in the sample into the intervention (n=30) and control groups (n=29).

Inclusion Criteria

The inclusion criteria to participate in the study included the following: being able to speak and understand Turkish, being in the age group of 18-65 years, being admitted to the aforementioned clinic with a planned hysterectomy surgery, not having any health problems preventing the person from hearing and speaking, willing to cooperate in the study, and not having received any training on hysterectomy before the surgery and during discharge.

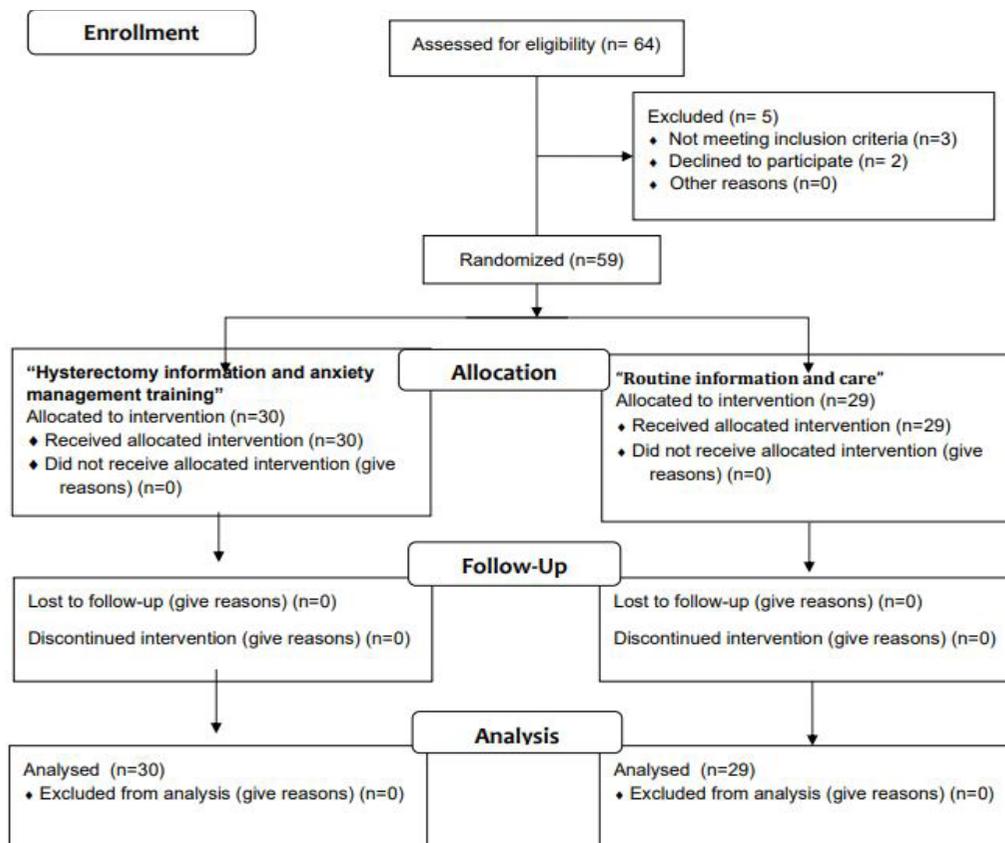


Figure 1. CONSORT flow diagram

Measures and Tools

The study data was collected by the first researcher using the Personal Information Form and State Trait Anxiety Inventory (STAI).

- Personal Information Form

The form prepared by the researchers were in line with the current literature and it made inquiries in terms of the participants' sociodemographic and clinical characteristics (menopausal initiation status, the name of the operation and the meaning of the operation to be performed, etc.) (Elweley and Sabra 2015; Özdemir and Pasinlioğlu 2009; Yıldız et al 2015).

- The State Trait Anxiety Inventory (STAI)

The STAI was developed by Spielberger et al. in 1970. The validity-reliability study of the Turkish version of the STAI was conducted by Öner and Le Compte (1983) (Spielberger et al 1970; Öner, and Le Compte 1983). The inventory is made up of two separate parts, each containing 20 items. The State Anxiety Inventory (SAI) is used to determine how an individual feels in a certain area under certain conditions. The Trait Anxiety Inventory (TAI), on the other hand, is used to determine how a person generally feels, independent of the current situation and conditions he or she is in. While a score between 20 and 39 indicates that the level of anxiety is low, a score between 40 and 59 indicates it is moderate, and finally, a score between 60 and 80 indicates that it is high (Spielberger et al 1970; Öner and Le Compte 1983). In the present study, the Cronbach's alpha value was 0.957 for the SAI and 0.812 for the TAI.

2.4. Intervention

The information booklet about the training was created by the researchers through the review of the current literature (Elweley and Sabra 2015; Özdemir and Pasinlioğlu 2009; Yıldız et al 2015). The booklet provides information on what hysterectomy is, why it is performed, what risks it has, what should be done before, during and after the operation, what rules the patient should comply with after hysterectomy, in which cases she should apply to the health institution, and information on what changes she might experience in her social, physical, sexual and emotional life after the surgery.

The booklet also provides information about discharge training and coping with anxiety. Before the study was executed, expert opinion was obtained from two faculty members who are experts in the field of psychiatric nursing, with regards to the content and clarity of the training booklet. In line with the opinions received from the experts, the training booklet was finalized.

The content of the training is the same as the contents of the training booklet given above. The training given to the women before the hysterectomy surgery was given by the researchers in quiet and calm patient rooms. The training period lasted an average of one hour for each patient as a single session.

Ethical Considerations

Before the study data was collected, the ethical approval from the clinical research ethics committee (decision date: June 6, 2018, decision number: 2018/254) and institutional permission from the hospital where the study was to be conducted were obtained.

Statistical Analysis

The collected data was analyzed using the SPSS software, version 22.0 (Statistical Package for Social Sciences). An alpha level of 0.05 was used as the cut off point for significance. Reliability was checked using the Cronbach's alpha coefficient. Normal distribution of the data was confirmed through Kolmogorov-Smirnov test, and the kurtosis and skewness coefficients. The chi-square test was used to compare the experimental and control groups in terms of their socio-demographic and clinical characteristics. Statistical data evaluation was performed using the Independent Sample t test for comparisons between two groups and the analysis of variance (One Way ANOVA) test to compare the means of more than two homogeneous groups. The variables with significant differences between more than two homogeneous groups, according to the ANOVA test results, were further analyzed with Scheffe post hoc test (Mayers 2013).

In multivariate analysis performed in order to determine the variables affecting the SAI and TAI levels of the participants, the variables that were statistically significant and close to significance in the previous analysis were tested with the

Table 1. Comparison of Sociodemographic and Clinical Characteristics of Experimental and Control Groups

		Experimental (n=30)		Control (n=29)		Test
		n	%	n	%	
Sociodemographic characteristics						
Age	Between 31-46	12	40.0	18	62.1	$\chi^2=2.874$ p=0.090
	Over 46	18	60.0	1	37.9	
Marital status	Married	23	76.7	2	100.0	$\chi^2=7.678$ p=0.006
	Not married	7	23.3	0	0.0	
Education level	Illiterate-Literate-Primary education	21	70.0	25	86.2	$\chi^2=2.418$ p=0.299
	High School -University -Graduate	9	30.0	4	13.8	
Working status	Working in any job	8	26.7	1	3.4	$\chi^2=6.149$ p=0.013
	Housewife	22	73.3	28	96.6	
Income level	Income less than expenses	11	36.7	9	31.0	$\chi^2=0.209$ p=0.648
	Income equal to or more than expenses	19	63.3	20	69.0	
Health insurance	No	2	6.7	2	6.9	$\chi^2=0.001$ p=0.972
	Yes	28	93.3	27	93.3	
Having children	No	1	3.3	1	3.4	$\chi^2=0.001$ p=0.981
	Yes	29	96.7	28	96.6	
Clinical characteristics						
Menopausal status	No	18	60.0	24	82.8	$\chi^2=3.724$ p=0.054
	Yes	12	40.0	5	17.2	
Name of the surgery	TAH-VAH	17	56.7	10	34.5	$\chi^2=2.924$ p=0.087
	TAH+BSO-VAH+BSO	13	43.3	19	65.5	
Source of information about hysterectomy	Physician	0	0.0	10	34.5	$\chi^2=30.382$ p=0.646
	Nurse	30	100.0	2	6.9	
	No	0	0.0	17	58.6	
What hysterectomy means	"I will not be a woman anymore"	2	6.7	6	20.7	$\chi^2=8.627$ p=0.281
	"I will not be a mother anymore"	1	3.3	0	0.0	
	"My sex life with my husband will change."	2	6.7	2	6.9	
	"I will be treated"	22	73.3	17	58.6	
	"I will not be a mother anymore"- "I will be treated"	2	6.7	0	0.0	
	"I wanted to have children."	0	0.0	1	3.4	
	"I will not be a woman anymore"- "My sex life with my husband will change."	0	0.0	2	6.9	
	"Something will be taken from my body and I will be incomplete."	1	3.3	1	3.4	

p values >0.05 in bold.

n=number of observations, %=percente, χ^2 :Chi square test, TAH: Total Abdominal Hysterectomy, VAH: Vaginal Hysterectomy, BSO: Bilateral Salpingoophorectomy.

Binary Logistic Regression analysis. Model fit was assessed with the Hosmer-Lemeshow test. If the p value in the model is greater than 0.05, the predictive value of the model was considered high (Alpar 2016). According to the results of the study, the Hosmer-Lemeshow test p value was determined as 0.902 for the SAI and 0.856 for the TAI. Therefore, the predictive value of the model was accepted as high.

RESULTS

As shown in Table 1, most of the participants' socio-demographic (age, education level, income level, health insurance, having children) and clinical characteristics (menopausal status, name of the surgery, source of information about hysterectomy, what hysterectomy means) were similar ($p>0.05$). However, there were differences between them in terms of the variables of marital and working status ($p<0.05$).

As shown in Table 2, in this post-test randomized controlled experimental study, the analysis performed to assess the effect of the training given demonstrated that the post-

training mean score for the SAI was 40.56 ± 5.72 in the experimental group and 41.03 ± 7.09 in the control group. The post-training mean score for the TAI was 48.13 ± 6.68 in the experimental group and 49.17 ± 6.25 in the control group. These results indicated that anxiety levels of the participants in the experimental and control groups were moderate after the training which was given before the hysterectomy. In the analysis performed to assess the effect of the training given in the study, no significant difference was determined between the mean scores for the SAI and TAI after the training ($p>0.05$).

As shown in Table 3, while there were no significant differences between the menopausal and non-menopausal women in terms of the relationship between the variable "menopausal state", and the mean scores obtained from the SAI and TAI in the experimental group ($p>0.05$), the differences between the menopausal and non-menopausal women in the control group were significant ($p<0.05$). In the control group, the menopausal women obtained higher mean scores from the SAI and TAI than did the non-menopausal women. In

Table 2. Comparison of Data and Mean Scores on SAI and TAI in Experimental and Control Groups

Scales	Experimental (n=30)			Control (n=29)			Test	
	$\bar{x}\pm sd$	Min-max	Cronbach alpha	$\bar{x}\pm sd$	Min-max	Cronbach alpha	t	P
SAI	40.56±5.72	33-54	0.957	41.03±7.09	30-57	0.957	-0.279	0.781
TAI	48.13±6.68	37-65	0.812	49.17±6.25	38-62	0.812	-0.616	0.541

p values <0.05 in bold.

\bar{x} =mean, sd=standard deviation, min-max=minimum-maximum, t=Independent samples t test, SAI: The State Anxiety Inventory, TAI: The Trait Anxiety Inventory.

the control group, while there was no significant difference between the menopausal and non-menopausal women in terms of the relationship between the variable "source of information" and the mean score they obtained from the TAI ($p>0.05$), there was a significant difference between them in terms of the relationship between the variable "source of information" and the mean score they obtained from the SAI ($p<0.05$). Scheffe test was used to determine the group that which this difference stemmed from in the control group. The difference between those who received the information from a physician and those who received the information from a

nurse, and between those who received the information from a physician and those who received the information from nobody was significant ($p<0.05$). The mean SAI scores of the women who received information about hysterectomy from a nurse and those who did not receive any information were lower than those of the women who received information from a physician. While there was a significant relationship between the variable of "what hysterectomy means" and the mean TAI score in the experimental group ($p<0.05$), there was no significant relationship between them in the control group ($p>0.05$). Scheffe test was also used to determine

Table 3. Comparison of Women's SAI and TAI Mean Scores According to Clinical Characteristics

Clinical characteristics	SAI			TAI		
	Experimental (n=30)		Control (n=29)	Experimental (n=30)		Control (n=29)
	$\bar{x}\pm sd$	Test	$\bar{x}\pm sd$	Test	$\bar{x}\pm sd$	Test
Menopausal status						
No	40.00±5.93	t=-0.657	39.83±6.96	t=-2.119	48.27±6.38	t=0.142
Yes	41.41±5.55	p=0.516	46.80±4.81	p=0.043*	47.91±7.40	p=0.888
Source of information about hysterectomy						
Physician	..**	..**	46.50±6.67	F=6.591	..**	..**
Nurse			41.00±0.00 ^a	p=0.005*		
No			37.82±5.77 ^b			
What hysterectomy means						
"I will not be a woman anymore"	39.00±4.24	F=1.634	37.33±3.01	F=0.432	61.50±2.12 c	F=3.178
"I will not be a mother anymore"	54.00±0.00	p=0.189	-	p=0.822	55.00±0.00d	p=0.024*
"My sex life with my husband will change."	37.00±1.41		40.00±4.24		42.50±7.77	
"I will be treated"	40.81±5.47		42.47±8.74		47.63±5.81	
"I will not be a mother anymore"- "I will be treated"	38.50±7.77		-		44.50±2.12	
"I wanted to have children."	-		41.00±0.00		-	
"I will not be a woman anymore"- "My sex life with my husband will change."	-		41.50±0.70		-	
"Something will be taken from my body and I will be incomplete."	36.00±0.00		40.00±0.00		44.00±0.00	

p values <0.05 in bold.

\bar{x} =mean, sd=standard deviation, min-max=minimum-maximum, t=Independent samples t test, F= One way ANOVA, SAI: The State Anxiety Inventory, TAI: The Trait Anxiety Inventory

a and b statistically significant difference from the "Physician" group

c and d statistically significant difference from the "I will be treated" group

..**Since all of the women in the experimental group received the information about the surgery from the nurse, the analysis could not be performed.

the group that which this difference stemmed from in the experimental group. The differences between the groups who are concerned about "not being a woman anymore" and "I will be treated" after hysterectomy and between the groups who perceived themselves as "not a mother anymore" and "I will be treated" after the operation were significant ($p<0.05$). The mean scores obtained from the TAI by the women who stated that "I will not be a woman anymore" and "I will not be a mother anymore" were significantly higher than were those obtained by the women who stated the following: "I will be treated".

As shown in Table 4, according to the Binary Logistic Regression analysis of the relationship between the participants' SAI levels and their socio-demographic and clinical characteristics, the regression model which emerged was significant ($\chi^2=21.597$, $p<0.05$). The model created estimated the participants' SAI levels by 78.0% using these variables. While the variable of "having high school or higher education" increased the participants' SAI levels 1.2 times, the variable of "having an income equal to expenses" decreased their SAI levels 0.08 times. However, according to the Binary Logistic Regression analysis of the relationship between the participants' TAI levels and their socio-demographic and clinical characteristics, the regression model which emerged was significant ($\chi^2=23.074$, $p<0.05$). The model created estimated the TAI levels of women at the rate of 76.3% by using these variables. While the variable of "having a high school or higher education" increased the participants' TAI levels 1.1 times, the variable regarding "having an income equal to expenses" decreased it 0.9 times.

DISCUSSION

In the present study, state and trait anxiety levels of the participants in the experimental and control groups were determined as moderate. Similarly, in their study, Sappenfield, O'Sullivan and Steinberg (2022) determined that state and trait anxiety levels of the participants in the experimental and control groups were moderate (Sappenfield et al 2022). In Patil et al study (2017), 30% of the women who would undergo hysterectomy had mild anxiety and 37% had moderate anxiety (Patil et al 2017).

In the present study, in the analyses performed to assess the effect of the training given to the participants, no significant

difference was determined between the pre- and post-training mean SAI and TAI scores in the experimental and control groups. In Thorn and Uhrenfeldt's study (2020), preoperative counselling given to the women who were scheduled to undergo hysterectomy did not cause a significant difference in the anxiety levels of the experimental and control groups (Thorn and Uhrenfeldt, 2020). Similarly, in Sappenfield, O'Sullivan and Steinberg's study (2022), the support given to individuals who would undergo a pelvic reconstructive operation did not lead to a significant difference in the mean SAI and TAI scores in the experimental and control groups (Sappenfield et al 2022). Contrary to these findings, in the study conducted by Erdoğan et al. (2020), psychological care given to the patients who would undergo hysterectomy significantly reduced their anxiety levels after surgery (Erdoğan et al 2020). In Pınar, Kurt and Güngör's study (2011), the pre-operative training given to patients who would undergo gynecological surgery did not have a significant effect on their preoperative anxiety levels, but reduced their postoperative anxiety levels (Pınar et al 2011). In their systematic review, Darwish et al. (2014) stated that there was an inverse relationship between undergoing hysterectomy for benign reasons and the anxiety levels of women (Darwish et al 2014). In the light of the literature, it can be said that in the present study, measuring anxiety levels only through a post-test in the preoperative period and not establishing the criteria for inclusion of the participants in terms of their condition being benign or malignant may have caused no significant difference in the participants' anxiety levels.

In the present study, some socio-demographic and clinical characteristics of the participants in the experimental and control groups were consistent with those found in the literature (Erdoğan et al 2020; Cheung et al 2003; El-Sayed et al 2017). In the Binary Logistic Regression analysis, having a high school or higher education increased trait anxiety, while income equal to or more than expenditure had a decreasing effect over anxiety levels. These findings emphasized the necessity of psychological intervention and anxiety education in routine perioperative nursing care. The participants' anxiety levels increased as their education levels increased, which was probably due the fact that their knowledge and awareness

Table 2. Comparison of Data and Mean Scores on SAI and TAI in Experimental and Control Groups

Değişkenler (referans)	SAI				TAI			
	95% Confidence interval for EXP ^a (B) ²				95% Confidence interval for EXP ^a (B) ²			
	β	OR	Min-max	p	β	OR	Min-max	p
Age (over 46)	-0.026	0.067	0.855-1.110	0.693	0.112	0.069	0.977-1.281	0.105
marital status (not married)	1.586	1.209	0.457-52.269	0.190	1.792	1.257	0.511-70.541	0.154
Education level (having high school or higher education)	3.411	1.208	2.839-323.063	0.005*	2.449	1.177	1.152-116.240	0.037*
Working status (housewife)	0.100	1.263	0.093-13.144	0.937	-1.493	1.205	0.021-2.384	0.215
Income level (income equal to or more than expenses)	-2.343	0.813	0.020-0.473	0.004*	-2.326	0.935	0.016-0.611	0.013*
Health insurance (yes)	-0.631	1.459	0.030-9.282	0.665	0.444	2.110	0.025-97.527	0.833
Having children (yes)	-1.865	1.745	0.005-4.731	0.285	17.756	2.627	0.022-95.529	0.999
Menopausal status (yes)	-1.494	1.099	0.026-1.932	0.174	1.361	1.161	0.400-37.966	0.241
Name of the surgery (TAH+BSO-VAH+BSO)	-0.255	0.872	0.140-4.276	0.770	-1.008	0.899	0.063-2.125	0.262
SAI; Nagelkerke R ² :0.409; p<0.05 The rate at which the model correctly predicts SAI: %78.0 The Hosmer-Lemeshow test p value of the model: 0.902 The predictive value of the model is high. Since the p value of the model is greater than 0.05, it has a sufficient fit.				TAI; Nagelkerke R ² : 0.445; p<0.05 The rate at which the model correctly predicts TAI: %76.3 The Hosmer-Lemeshow test p value of the model: 0.856 The predictive value of the model is high. Since the p value of the model is greater than 0.05, it has a sufficient fit.				

Bold values indicate statistically significant $p < 0.05$. Nagelkerke R²: Displays the percentage of the explained variance of the dependent variable.
a 95% Confidence interval for Exp(β)

β: Regression Coefficient, OR: Odds Ratio, Min: minimum, Max: maximum, SAI: The State Anxiety Inventory, TAI: The Trait Anxiety Inventory, TAH: Total Abdominal Hysterectomy, VAH: Vaginal Hysterectomy, BSO: Bilateral Salpingoophorectomy.

of the surgery increased in parallel with their education levels. In the study of El-Sayed et al. (2017), the education and working status of the participants did not lead to a statistically significant difference in the participants' anxiety levels (El-Sayed et al 2017). Pinar et al. (2011) determined that there was an inverse correlation between the education levels of women and their anxiety levels; however, it was not statistically significant. There was an inverse correlation between the income level of the women in the experimental group and their anxiety levels. However, they also determined that the socio-demographic characteristics of the participants did not lead

to a statistically significant difference in their mean scores for the SAI and TAI (Pinar et al 2011). This result suggests the participants whose income was equal to and more than their expenses had lower levels of anxiety because they were able to access and obtain education, health services and opportunities more easily than the ones with lower economic means.

In the control group, the SAI and TAI mean scores of the menopausal women were higher than those of the non-menopausal women. In Özdemir and Pasinlioğlu's study

(2009), contrary to this finding, the women who did not enter menopause had more negative thoughts about hysterectomy than the women who entered menopause. This difference between the results of our study and those in the literature may be related to cultural differences between the women in terms of the meaning they attributed to hysterectomy and menopause.

In the present study, the analysis of the effect of clinical characteristics of the participants on their mean scores for the SAI and TAI demonstrated that the participants who received information about hysterectomy from the nurse or the participants who did not receive any information obtained lower scores from the SAI than the participants who received the information from the physician. Weins, et al. (2012) assigned the women who would undergo hysterectomy into control and experimental groups and gave the routine preoperative training to the control group, and a combination of video training and routine training to the experimental group. While the type of training given to the women participating in the study did not have a significant effect on their anxiety levels, feedback received from the patients by telephone indicated that that having the chance to directly communicate with a nurse and to ask him or her questions had a positive and decreasing effect on their anxiety levels (Weins et al 2012). This finding not only shows that the pre-operative nurse-led training and counseling services have positive effects on patients, but it also reveals the importance of the nurse-patient interaction.

The analysis of the effect regarding the variable of "what hysterectomy means", which is another clinical characteristic of the women participating in the study, on their mean scores for the SAI and TAI demonstrated. The differences between the groups who perceived themselves as "I will not be a woman anymore" and "I will be treated" after hysterectomy and between the groups who perceived themselves as "I will not be a mother anymore" and "I will be treated" were significant. The mean scores obtained from the TAI by the participants who stated that "I will not be a woman anymore" and "I will not be a mother anymore" were significantly higher than were those obtained by the participants who expressed the words "I will be treated". These results are consistent with those

in the literature. Özdemir and Pasinlioğlu (2009) stated that the women who would undergo hysterectomy had positive thoughts such as getting rid of complaints and regaining health after hysterectomy, and negative thoughts such as losing a piece of their femininity (Özdemir and Pasinlioğlu, 2009). The individuals involved in the case study conducted by Demir (2021) expressed their concerns as follows: "they will become half-women after hysterectomy, some spouses will leave women for this reason, they will feel empty, and their femininity is over" (Demir 2021). In Banovcinova and Jandurova's study (2018), the participating women who would undergo hysterectomy mostly wanted to get support from their spouses or partners (Banovcinova and Jandurova, 2018). In their study, Reis, et al. (2008) stated that women who thought that they would no longer feel like women and that their relationships with their spouses would change for the worse suffered high levels of anxiety (Reis et al 2008). Similarly, in Elweley and Sabra's study (2015), the participating women had high levels of depression and anxiety before and after surgery due to the fact that they perceived the uterus is an important organ and that they believed that uterine loss due to hysterectomy would negatively affect their femininity (Elweley and Sabra, 2015). These results in the literature are consistent with our results. The differences in the meanings attributed to the hysterectomy by women who would undergo hysterectomy may have been due to differences in terms of individual and cultural elements. Within this context, conducting qualitative studies that phenomenologically examine the feelings and thoughts of women regarding hysterectomy in future studies may reveal the differences among the attributed meanings towards hysterectomy.

CONCLUSIONS

In the present study, anxiety levels of the participating women who were going to undergo hysterectomy were found to be moderate and the training provided did not cause a statistically significant difference in their anxiety levels. Having a high school or higher education level increased the state anxiety, while income equal to or more than the expenditure decreased it. These findings emphasize the necessity of psychological intervention and anxiety education in routine perioperative nursing care. In the light of these results, while the information

and anxiety management training given to women before they undergo hysterectomy are integrated into routine nursing care, the training should be started as soon as the woman is hospitalized, and attention should be given to individual and cultural differences. It is expected that the prospective evaluation of women's anxiety levels and psychological well-being after discharge in future studies will contribute to the assessment of the long-term effect of psychological care.

LIMITATIONS

Because this study was conducted only in a city hospital in the Eastern Mediterranean Region of Turkey, our findings may not be applicable to other settings and patient populations.

AUTHOR CONTRIBUTION

Idea/Concept: EA, HAD, MY; Design: EA, HAD, MY; Data Collection and/or Processing: EA, HAD; Analysis and/or Interpretation: EA, HAD, MY; Writing the Article: EA, HAD, MY.

CONFLICT OF INTEREST

All authors declare that they have no conflicts of interest.

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ETHICAL STATEMENT

Before the study data was collected, the ethical approval from the clinical research ethics committee (decision date: June 6, 2018, decision number: 2018/254) and institutional permission from the hospital where the study was to be conducted were obtained.

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