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Research Article

The effect of education provided by midwives to patients who will undergo endometrial biopsy on anxiety

Endometrial Biyopsi Uygulanacak Hastalara Ebe Tarafından Verilen Eğitimin Anksiyete Üzerine Etkisi

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Abstract

Aim: This study aimed to determine the effect of education provided by a midwife to patients undergoing endometrial biopsy on anxiety levels.

Material and Methods: The sample of the pre-test post-test measurement randomized controlled study consisted of 64 women who applied to Pursaklar State Hospital Gynecology Outpatient Clinic between June and December 2023, with planned endometrial biopsy due to abnormal uterine bleeding. Data of the study were collected using "Personal Information Form" and "Beck Anxiety Scale". Pre-test was applied to women in both groups. Education was provided to women in the experimental group by a midwife researcher face-to-face, interactive, question-answer, and demonstration methods within 30-40 minutes, using the Biopsy Education Booklet prepared in accordance with literature review. After the procedure, post-test Beck Anxiety Scale was administered to both groups. Study data were analyzed using the Statistical Package for the Social Sciences-SPSS 26 software package. The significance value of statistical tests was evaluated as $p<0.05$.

Results: The mean post-test "Beck Anxiety Scale" scores of women in the experimental group were found to be 23.51±4.14 (min=21.0, max=39.0), and those of women in the control group were 30.78±9.46 (min=21.0, max=60.0). A statistically significant difference was observed between the post-test Beck Anxiety Scale ($Z=-3.939$, $p=0.001$) and all subscale scores of women in the experimental and control groups after education.

Conclusion: It was concluded that the education provided before the endometrial biopsy was effective in reducing patients' anxiety levels.

Keywords: Anxiety, Midwife, Education, Endometrial Biopsy, Patient.

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Öz

Amaç: Bu çalışmada, endometrial biyopsi uygulanacak olan hastalara ebe tarafından verilen eğitimin anksiyete üzerine etkisini belirlemek amaçlanmıştır.

Gereç ve Yöntemler: Ön-test son-test ölçümlü randomize kontrollü çalışmanın örneklemini Pursaklar Devlet Hastanesi Kadın Doğum Polikliniğine Haziran-Aralık 2023 tarihleri arasında başvuru yapan, anormal uterin kanama nedeniyle endometrial biyopsi uygulanması planlanan 64 kadın oluşturdu. Çalışmanın verileri 'Kişisel Bilgi Formu" ve "Beck Anksiyete Ölçeği" kullanılarak toplandı. Her iki grupta yer alan kadınlara ön-test uygulandı. Eğitim, deney grubunda yer alan kadınlara ebe araştırmacı tarafından yüz yüze, interaktif, soru-cevap ve gösterim yöntemleri kullanılarak 30-40 dakika içerisinde, literatür taraması doğrultusunda hazırlanan, Biyopsi Eğitim Kitapçığı ile gerçekleştirildi. İşlem sonrası her iki gruba son-test Beck Anksiyete Ölçeği uygulandı. Çalışma verileri Statistical Packageforthe Social Sciences-SPSS 26 paket programı ile analiz edildi. İstatistiksel testlerin anlamlılık değeri p<0,05 olarak değerlendirildi.

Bulgular: Deney grubunda yer alan kadınların son-test "Beck Anksiyete Ölçeği" puan ortalamaları 23,51±4,14 (min=21,0, max=39,0), kontrol grubunda yer alan kadınların "Beck Anksiyete Ölçeği" puan ortalamaları 30,78±9,46 (min=21,0, max=60,0), olarak bulundu. Deney ve kontrol grubunda yer alan kadınların eğitim sonrası Beck Anksiyete Ölçeği (Z=-3,939, p=0,001) ve tüm alt boyut ölçeklerine yönelik son-test puan ortalamaları arasında istatistiksel olarak anlamlı bir fark olduğu görüldü.

Sonuç: Endometrial biyopsi öncesinde verilen eğitimin, hastaların anksiyete düzeylerini azaltmada etkili olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Anksiyete, Ebe, Eğitim, Endometrial Biyopsi, Hasta.

Introduction

Endometrial biopsy is a commonly preferred diagnostic method used to determine the source of abnormal uterine bleeding. This procedure can be performed using special tools such as Pipelle or Karmen, a Vabra aspirator, through the dilation and curettage method, or with hysteroscopy [1]. More than a third of referrals to gynecology clinics are due to abnormal uterine bleeding, making it the most common reason for referrals to these clinics [2].

Abnormal uterine bleeding (AUB) is bleeding that occurs outside of the normal menstrual cycle pattern [3]. Endometrial biopsy is crucial in the management of abnormal uterine bleeding. However, there is limited research on the levels of anxiety caused by women's lack of knowledge about endometrial biopsy in the literature. Midwives, who are key figures in public health, have frequent interactions with women and thus play a significant role in providing education to them. Factors such as women's needs, education levels, preferences, the qualifications and experience of the educator, the educational environment, and available resources should be considered. These educational sessions can be conducted in an individual or group format [4].

Individuals' alertness levels increase when faced with unknown dangers. This heightened alertness can sometimes escalate into anxiety, fear, and even panic [5]. Patients in a hospital setting may feel their safety is at risk when encountering unfamiliar tools, smells, and sounds, as they are in an unfamiliar environment and may experience anxiety. The perception of an event as stressful depends on the event's structure and the individual's coping mechanisms. Anxiety serves as a warning sign for potential dangers, allowing the individual to take precautions to address these threats [6].

Endometrial biopsy is the quickest and most cost-effective invasive diagnostic procedure used to identify changes in the endometrium and diseases in the uterine cavity [7]. For premenopausal women under 45 experiencing abnormal uterine bleeding, especially in cases of obesity or lack of ovulation, or for postmenopausal women over 45 with abnormal uterine bleeding, it is recommended to undergo an endometrial biopsy to rule out the risk factors for endometrial cancer [8].

The nature of endometrial biopsy procedure may cause women to be unwilling to participate in gynecological examinations, leading to the postponement of the procedure or avoidance of this examination due to its harmful effects on

health. Since routine gynecological examination is an essential part of maintaining health as it enables early diagnosis and treatment of sexually transmitted diseases, it is necessary to ensure the preservation of one's health [9].

In the stages of life of midwives, it is necessary to detect anxiety and contribute consciously to its treatment. However, in order to achieve this, these midwives need to be aware of the most appropriate evidence-based interventions [10].

Lack of knowledge about invasive procedures such as endometrial biopsy, being in an unfamiliar environment, loss of women's privacy, and the level of pain after endometrial biopsy procedure can lead patients to experience anxiety [11].

The anxiety felt by women can reduce the effectiveness of anesthesia during the procedure, leading to negative changes in the recovery and pain tolerance after an endometrial biopsy [12]. It has been observed that providing education prior to gynecological procedures such as endometrial biopsy increases women's satisfaction levels and decreases anxiety levels [13,14].

Therefore, this study aims to investigate the effects of education provided through midwifery services on anxiety in patients who will undergo endometrial biopsy.

Material and methods

Type of Research

This research is a observational randomized controlled study that involves pre-test and post-test measurements.

Location and Date of the Study

The study was conducted on women who applied to the Gynecology Outpatient Clinic at Pursaklar State Hospital between June and December 2023 due to abnormal uterine bleeding and were scheduled to undergo an endometrial biopsy.

Population and Sample of the Study

The population of the study consisted of women who had applied to the Obstetrics and Gynecology Outpatient Clinic of Pursaklar State Hospital between June and December 2023.

The sample size for the study was calculated using the G*Power 3.1.9.7 program. An analysis of variance with a medium effect size for two-way mixed design (d=0.025), a 5% margin of error (α=0.05), and a 95% power (1-β=0.95) were considered in the calculation, resulting in a total of 54 participants [15]. The calculation protocol for G*Power is shown in Table 1. To account for potential data loss, the sample size for each group was increased by 20%, with 33 women planned to be included in each group, totaling 66 participants (experimental group n=33, control group n=33) [16,17]. Randomization was done using the "Research Randomizer" program to ensure an equal number of individuals in the intervention and control groups, irrespective of age and other characteristics. The study included women who were over 18 years old, had no communication barriers, and were scheduled for endometrial biopsy.

During the study, one patient from the control group declined the second interview, resulting in a total of 65 patients in the study - 33 in the experimental group and 32 in the control group (see Figure 1).

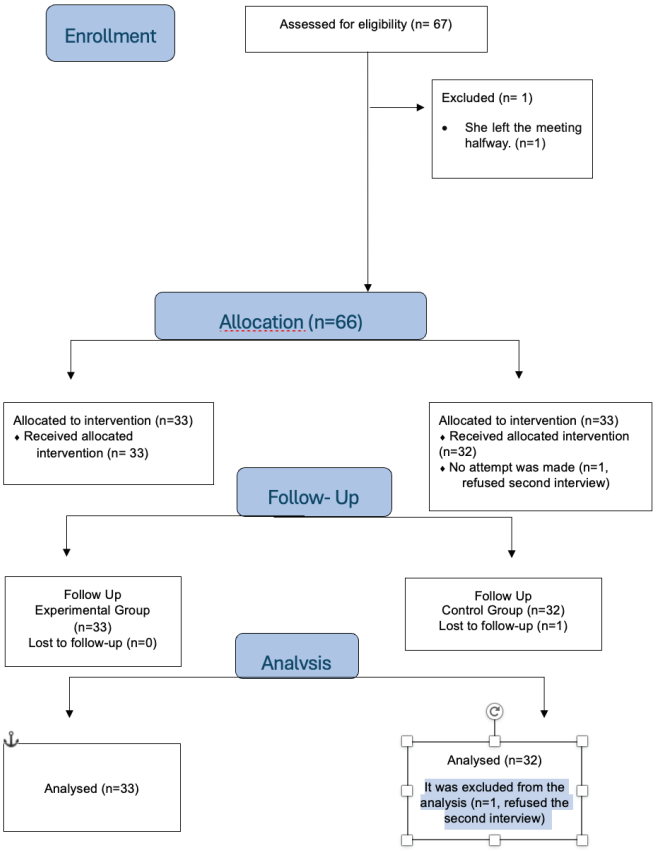

Figure 1. CONSORT statement according to the design and flowchart regarding the recruitment of participants.

Randomization

Experimental group: 1, 2, 3, 5, 6, 7, 9, 10, 11, 13, 14, 16, 17, 18, 21, 22, 24, 26, 27, 31, 33, 35, 37, 40, 42, 43, 46, 47, 53, 54, 56, 62, 63, 65, 66.

Control group: 34, 8, 12, 15, 19, 20, 23, 25, 28, 29, 30, 32, 34, 36, 38, 39, 41, 44, 45, 48, 49, 50, 51, 52, 55, 57, 58, 59, 60, 61, 64.

Inclusion Criteria

To be eligible for participation in the study, a person must be over 18 years old, female, without any sensory or psychiatric illnesses that would hinder participation, and have a need for an endometrial biopsy.

Exclusion Criteria

• Refusing to participate in the study

• Presence of any communication barriers

• Genitourinary abnormality

Research Hypotheses

H0: The education provided by the midwife before endometrial biopsy does not affect anxiety levels.

H1: The education provided by the midwife before endometrial biopsy does affect anxiety levels.

Data Collection Tools

The data for the study was collected using the "Personal Information Form" and the "Beck Anxiety Inventory".

Personal Information Form

The personal information form prepared by researchers consists of 14 questions that ask about the sociodemographic data of women in the study group, such as education level, marital status, etc.

Beck Anxiety Inventory

The Beck Anxiety Inventory was created by Beck, Steer, Epstein, and Brown in 1988 and translated into Turkish by Ulusoy et al [18]. This inventory is a Likert-type scale with 21 items, each scored between 0 and 3. The total score can range from 0 to 63, with higher scores indicating higher levels of anxiety. In studies testing the reliability of the Turkish version, the Cronbach's Alpha value was found to be 0.93, indicating strong internal consistency. The test-retest reliability coefficient was determined to be 0.57, showing moderate repeatability of the scale over time. In studies of criterion-related validity, the Beck Anxiety Inventory was found to correlate with the Automatic Thoughts Scale at r=0.41 and with the Continuous Anxiety Inventory at r=0.53. This demonstrates that the scale yields consistent results when compared to other anxiety measures. Additionally, factor analysis revealed that the scale consists of two factors: "Subjective Symptoms" and "Somatic Symptoms," which categorize anxiety symptoms into different subgroups [18].

Education Handbook

The educational book titled Biopsy Education Handbook was prepared by researchers in line with the literature knowledge [19]. Before the study, the opinions of 5 experts were consulted for the comprehensibility of the book. Three of them were experts in the field of midwifery, and two were faculty members in the department of women's health nursing. The language used in the education booklet is Turkish. The education booklet contains information about the introduction of endometrial biopsy, pre-procedure preparation, how the procedure will be performed, recommendations on what to pay attention to after the procedure, necessary points, and information about controls.

Study Procedure

The data for the study was collected during face-to-face interviews with patients in the hospital's training room. Prior to the interviews, participants were informed about the study's purpose in compliance with the Helsinki Declaration, and written consent was obtained for their voluntary participation.

Step 1: Pre-Test

All women were administered a "Personal Information Form" and the "Beck Anxiety Inventory" face-to-face. Filling out the data collection tools took 10-15 minutes.

Step 2: Biopsy Education Session

The education session was provided to the women in the experimental group by a midwife researcher face-to-face in the hospital's training room. The control group did not receive education. The interactive education session was completed within 30-40 minutes using question-answer and demonstration methods.

Step 3: Post-Test

After the biopsy procedure, the Beck Anxiety Scale was administered to the women in the experimental (n=33) and control (n=32) groups at the first follow-up appointment (1 month). The women in the control group did not receive education.

Statistical Analysis of Data

The study data were analyzed using the Statistical Package for the Social Sciences-SPSS 26 package program. The significance value of statistical tests was evaluated as $p<0.05$. Skewness and kurtosis values within the range of +2 to -2 were considered to be in accordance with normal distribution [20]. The data were summarized as mean, standard deviation, number, and percentage. Mann Whitney U test, Continuity Correction Test, Fisher's Exact Test, and Independent-Samples T Test were used to test the homogeneity of categorical variables. For data that did not have a normal distribution, Mann Whitney U and Wilcoxon tests were used for analysis, while the Paired Samples Test was used for data that had a normal distribution.

Ethical Principles

Ethical approval was obtained from the Karabük University Non-Interventional Clinical Studies Ethics Committee for the implementation of the study (Date 16.05.2023, No: 2023/1401). After obtaining ethical approval, institutional permission was also

obtained. Necessary permission was obtained from the author for the measurement tool used in the study. Written and verbal consent was obtained from all women participating in the study.

Results

In the study, 65 women between the ages of 18 and 60 were included. Information on the sociodemographic characteristics of women and the comparison of the experimental and control groups are provided in Table 1.

There were no significant differences in the sociodemographic characteristics of women in the experimental and control groups, and it was noted that the groups had a similar distribution (Table 1).

In the experimental group, the average scores of women on the "Beck Anxiety Scale" were 23.51±4.14 (minimum=21.0, maximum=39.0), the average scores on the "Subjective Symptoms Subscale" were 14.24±2.44 (minimum=13, maximum=23), and the average scores on the "Somatic Symptoms Subscale" were 9.27±1.97 (minimum=8, maximum=16).

In the control group, the average scores of women on the "Beck Anxiety Scale" were 30.78±9.46 (minimum=21.0, maximum=60.0), the average scores on the "Subjective Symptoms Subscale" were 18.18±5.86 (minimum=13, maximum=38), and the average scores on the "Somatic Symptoms Subscale" were 12.59±3.99 (minimum=8, maximum=22).

There was a statistically significant difference between the pre-test and post-test scores for the Beck Anxiety Scale for Women (Z=-4.940, p<0.001), the Subjective Symptoms Subscale (Z=-4.945, p<0.001), and the Somatic Symptoms Subscale (Z=-4.945, p<0.001) as shown in Table 2.

There was no statistically significant difference between the pre-test and post-test scores for the Beck Anxiety Scale for Women (t=-1.791, p=0.083), the Subjective Symptoms Subscale (Z=-1.414, p=0.157), and the Somatic Symptoms Subscale (t=-1.000, p=0.325) (Table 3).

The comparison of post-test scores on the Beck Anxiety Scale and its sub-dimensions for women in the Experimental and Control groups is shown in Table 4.9. Statistical analysis revealed significant differences between the post-test scores of women in the Experimental and Control groups for the Beck Anxiety Scale (Z=-3.939, p=0.001), Subjective Symptoms Subscale (Z=-3.647, p=0.001), and Somatic Symptoms Subscale (Z=-3.626, p=0.001) (Table 4).

Table 1. Socio-demographic characteristics of women in the experimental and control groups

Variable	Experimental group n (%) / mean (SD)	Control Group n (%) / mean (SD)	Statistic p
Age	41,33±6,41	40,12±6,07	t=0,780* p=0,439
Marital status Married Single	 30 (46,2) 3 (4,6)	 29 (44,6) 3 (4,6)	 X2=0,02** p=0,968
Education status Primary school Secondary school High school University	 11 (16,9) 6 (9,2) 13 (20,0) 3 (4,6)	 4 (6,2) 8 (12,3) 12 (18,5) 8 (12,3)	 X2=5,81*** p=0,119
Status familiae Elementary family Extended family	 25 (38,5) 8 (12,3)	 25 (38,5) 7 (10,8)	 X2=0,51** p=0,821
Residence Village County City	 1 (1,5) 11 (16,9) 21 (32,3)	 2 (3,1) 7 (10,8) 23 (35,4)	 X2=1,298*** p=0,523
Economic situation Income equals expenses Income exceeds expenses Income is less than expenses	 13 (20) 5 (7,7) 15 (23,1)	 20 (30,8) 5 (7,7) 7 (10,8)	 X2=4,380*** p=0,112
Smoking habit Yes No	 9 (13,8) 24 (36,9)	 10 (15,4) 22 (33,8)	 X2=0,124** p=0,112
Alcohol addiction Yes No	 - 33 (50,8)	 2 (3,1) 30 (46,2)	 X2=2,900** p=0,089

SD: Standard Deviation, *Independent samples t-test, **Fisher's-Freeman-Haltonn Exact Test, ***Pearson Chi-square test

Table 2. Comparison of pre-test and post-test Beck Anxiety Scale and subscale score averages of women in the experimental group.

Scale	Pre-test Median	Post-test Median	Statistic p
Beck Anxiety Scale	31	22	Z=-4,940 p<0,001
Subjective Symptoms Subscale	18	13	Z=-4,945 p<0,001
Somatic Symptoms Subscale	13	8	Z=-4,875 p<0,001

Z: Wilcoxon Signed Rank Test

Table 3. Comparison of pre-test and post-test Beck Anxiety Scale and subscale mean scores of women in the control group.

Scale	Pre-test Mean±SD	Post-test Mean±SD	Statistic p
Beck Anxiety Scale	30,68±9,49	30,78±9,46	t=-1,791 p=0,083
Subjective Symptoms Subscale	18,12±5,87	18,18±5,86	Z=-1,414 P=0,157
Somatic Symptoms Subscale	12,56±3,99	12,59±3,99	t=-1,000 p=0,325

Z: Wilcoxon Signed Rank Test, t: Paired Samples test

Table 4. Comparison of post-test Beck Anxiety Scale and subscale mean scores of experimental and control groups.

Scale	Experimental Group Ort±SS	Control Group Ort±SS	Statistic p
Beck Anxiety Scale	23,51±4,14	30,78±9,46	Z=-3,939 p=0,001
Subjective Symptoms Subscale	14,24±2,44	18,18±5,86	Z=-3,647 p=0,001
Somatic Symptoms Subscale	9,27±1,97	12,59±3,99	Z=-3,626 p=0,001

Z: Mann- Whitney U test

Table 4. Comparison of post-test Beck Anxiety Scale and subscale mean scores of experimental and control groups.

Scale	Experimental Group Ort±SS	Control Group Ort±SS	Statistic p
Beck Anxiety Scale	23,51±4,14	30,78±9,46	Z=-3,939 p=0,001
Subjective Symptoms Subscale	14,24±2,44	18,18±5,86	Z=-3,647 p=0,001
Somatic Symptoms Subscale	9,27±1,97	12,59±3,99	Z=-3,626 p=0,001

Z: Mann- Whitney U test

Discussion

In our study, we examined the average scores of the Beck Anxiety Inventory (BAI) for women before and after education. We observed that the average pre-test BAI score for women in the experimental group was 35.36±11.98, while the post-test score average was 23.51±4.14. Additionally, the average pre-test scores for the Subjective Symptoms Subscale and Somatic Symptoms Subscale were 21.09±7.22 and 14.27±5.24 respectively. The post-test average score for the Subjective Symptoms Subscale was 14.24±2.44, and for the Somatic Symptoms Subscale was 9.27±1.94.

It was noted that the BAI scores of women in the experimental group decreased significantly after receiving education compared to their scores before education. Providing education by a midwife to patients scheduled for endometrial biopsy was found to significantly decrease the overall anxiety levels of the patients. A similar decrease was also observed in the Subjective Symptoms Subscale (emotional symptoms) and the Somatic Symptoms Subscale (physical symptoms). This decrease in scores from pre-test to post-test reflects a reduction in anxiety levels in terms of both emotional and physical symptoms. The average BAI score was 23.51±4.14. The pre-test score average for the Subjective Symptoms Subscale was 21.09±7.22, the Somatic Symptoms Subscale score average was 14.27±5.24, the post-test score average for the Subjective Symptoms Subscale was 14.24±2.44, and the Somatic Symptoms Subscale score average was 9.27±1.94.

When the literature was reviewed in a study conducted to determine the effects of the education provided by physicians and midwives to women in the menopausal period before invasive procedures on quality of life, it was observed that there were significant improvements in all scores of women's quality of life after education compared to before education, and these improvements were statistically significant [21]. In another study conducted to determine the effects of education provided by midwives and nurses on postpartum mothers at a family health center in the city center of Erzurum, it was found that the education increased maternal self-confidence in postpartum and newborn care [22]. In a study conducted with 250 women who visited a university hospital's obstetrics and gynecology clinic to determine their anxiety levels and influencing factors before a gynecological examination, it was found that women experienced "moderate" anxiety prior to the examination. By using a nursing/midwifery approach before and after the procedure, the women were provided with a more positive experience during the examination [23]. A study was conducted to determine how feelings of shyness and anxiety related to gynecological examinations differ among women of varying generations. The study found that establishing

correct and positive communication with women before the examination, providing information about the procedure, being gentle when using tools, and treating women with respect are effective in reducing anxiety levels [24].

The psychosomatic communication skills of doctors and nurses, who provide pre-procedure education to women, help reduce the frequency of anxiety during the first gynecological examination [25]. A study was conducted to investigate the impact of a supportive midwifery approach on the anxiety levels of women undergoing pelvic examination. The study found that applying the supportive midwifery approach to the experimental group reduced the anxiety of women [26].

A study examining the psychosocial factors that impede gynecological examinations in women has stated that the lack of information and education provided by healthcare personnel about the procedure increases the patient's anxiety [27]. In the present study, there were no significant differences observed in the pre-test and post-test comparisons of the average scores of BAI and all sub-dimensions in the control group of women. In a study investigating the impact of prenatal education on the anxiety and depression levels of mothers and fathers, no significant difference was found in the average scores of BAI in the control group that did not receive education [28]. In a separate study analyzing how web-based education affects the self-confidence and anxiety levels of parents of premature infants, researchers found that the pre-test and post-test scores of the control group, who did not receive any education, were similar [29]. In their 2019 study, Özbek and Sümer found that the anxiety levels of women who received information and proper preparation before an examination decreased [14]. The results of Çetinkaya and Karabulut's study also indicated that education has a positive impact on anxiety [30]. In his study, Özberksoy (2006) investigated the effect of informative and educational nursing approach during the preoperative period on postoperative pain and anxiety levels in patients with breast cancer. In the group that received education, lower VAS values were recorded compared to the control group [31]. Our study results are consistent with the literature.

In this study, no difference was found in the pre-test score averages of women in the experimental group, but a significant difference was observed in the post-test BAI and all sub-dimension score averages. The post-test score averages of women were significantly lower. The literature indicates that healthcare professionals should educate patients about all steps to ensure that women develop a positive attitude and reduce their anxiety [32]. A study examining the effect of education provided by nurses on the anxiety levels of patients before coronary artery bypass surgery found that pre-operative education effectively reduced anxiety levels in patients awaiting the surgery [33].

Conclusion

In our study, which aimed to investigate the effect of education provided by a midwife to patients who will undergo endometrial biopsy on anxiety, it was observed that providing education to patients by the midwife before, during, and after the procedure significantly reduced anxiety levels. Therefore, in order to ensure that women benefit more from healthcare, reduce anxiety about gynecological procedures, and promote the development of a positive attitude, midwives should be more involved in women's health programs.

Development of Education Programs: It is necessary for anxiety management education programs to be more widely developed and implemented in order to increase individuals' coping skills with stress. These programs can assist individuals in recognizing anxiety symptoms, learning positive coping strategies, and developing effective stress management skills.

Early Detection and Intervention: Anxiety disorders can be better managed when detected and treated early. Therefore, educational and informational programs should be organized to increase awareness of anxiety symptoms in the community and provide early intervention opportunities.

Training for Health Professionals: It is important for health professionals to be trained in recognizing, assessing, and effectively intervening in anxiety disorders. This can help provide the most appropriate treatment and support options for coping with anxiety.

Social Awareness Campaigns: By organizing social awareness campaigns related to anxiety disorders, efforts can be made to reduce misunderstandings about anxiety and alleviate stigma associated with it. Such initiatives can contribute to creating a more understanding environment towards anxiety in society.

Research and Development: (Future Research): More research should be conducted to examine the effectiveness of anxiety management and educational programs. This research can help develop better strategies.

Conflict of Interest/ Funding

Authors declare no conflict of interest. This study received no financial support.

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