http://www.ijwhr.net
doi 10.15296/ijwhr.2025.7952
Open Access Original Article
IJWHR
International Journal of Women's Health and Reproduction Sciences
Vol. xx, No. x, xx 2025, x–x
ISSN 2330-4456

The Effect of Supportive Counseling on Anxiety in Women Undergoing Colposcopy

Fatemeh Hemmati[1], Roghaiyeh Nourizadeh[2,3*], Nooshin Mobaraki[4], Khalil Esmaeilpour[5], Esmat Mehrabi[2,3]

Abstract

Objectives: This study aimed to evaluate the effect of supportive counseling on anxiety in women undergoing colposcopy.

Materials and Methods: This experimental study was performed on 72 women undergoing colposcopy in Ardabil, Iran. Participants were randomly assigned to two groups. The intervention group received supportive counseling during three sessions every three days. The control group only received a pamphlet containing colposcopy information. The data were collected using the State Anxiety Inventory-Form Y1 and Visual Analogue Scale. Chi-square, independent t-test, Mann-Whitney, and ANCOVA tests were used.

Results: After counseling, the mean anxiety score in the intervention group was significantly lower than that in the control group [AMD: -7.02, 95% CI: -10.58 to -3.46, $P<0.001$]. The mean (SD) score of pain during colposcopy was 4 (3.06) in the intervention and 4.30 (2.47) in the control groups ($P = 0.386$).

Conclusions: Supportive counseling reduced the anxiety, but did not affect the pain during colposcopy.

Keywords: Anxiety, cervical cancer, colposcopy, pain, supportive counseling

Introduction

Cervical cancer is recognized as the fourth most common cancer globally (1-3). About 570 000 new cases are discovered worldwide each year, and about 311 000 women die from the disease, most of which occur in developing countries (4,5). A Pap smear test is considered the most effective screening method for diagnosing cervical cancer (6,7), which has reduced the incidence of cervical cancer by 79% and its resultant mortality by 70% over the last 50 years (8). The success of cervical cancer screening depends on follow-up and treatment, especially in abnormal Pap smear results (9-11). Colposcopy is a diagnostic method used to enlarge and clarify the image of the cervix to identify precancerous and cancerous lesions of the cervix (12). The sensitivity and specificity of colposcopy for diagnosing precancerous lesions and cervical cancer are about 92% and 67%, respectively (13).

Women referred for colposcopy experience high levels of anxiety (14). The anxiety experienced by patients undergoing colposcopy is related to fear of getting cancer, pain, and discomfort during the procedure (15). Anxiety before colposcopy can disrupt daily activities, sleep, and sexual desire in women with abnormal Pap smears. Hence, anxiety reduction strategies are considered as one of the most essential measures in women undergoing colposcopy (16).

One of the counseling approaches to reduce anxiety is supportive counseling, which means protecting the person from unpleasant emotions. Supportive counseling is a psychotherapeutic approach that integrates various therapeutic techniques, such as psychodynamic, cognitive-behavioral, and interpersonal conceptual models. The supportive psychotherapy aimed at decreasing the severity of manifested or presenting symptoms and distress (17). Supportive counseling is needed for individuals facing an impending or potential crisis, such as severe illness or loss of life security (18).

Various interventions, such as written educational pamphlets, cognitive-behavioral therapy, music therapy, and colposcopy video, have been used in different studies to reduce the anxiety in women undergoing colposcopy (19-21). However, a study using supportive counseling for this purpose was not found. Considering the importance of colposcopy in the diagnosis of cervical cancer and the necessity of anxiety management in women before colposcopy, which sometimes even leads to its avoidance, the present study aimed to evaluate the effect of supportive counseling on anxiety in women undergoing colposcopy.

Methods

Study Design and Participants

This experimental study was performed on 72 women

Received 10 January 2025, **Accepted** 10 June 2025, **Available online** 25 July 2025

[1]Student Research Committee, Midwifery Department, Faculty of Nursing and Midwifery, Tabriz University of Medical sciences, Tabriz, Iran. [2]Midwifery Department, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran. [3]Women's Reproductive Health Research Center, Clinical Research Development Unit, Al-Zahra Hospital, Tabriz University of Medical Sciences, Tabriz, Iran. [4]Department of Obstetrics and Gynecology, Ardabil University of Medical sciences, Ardabil, Iran. [5]Faculty of Education and Psychology, University of Tabriz, Tabriz, Iran.

***Corresponding Author:** Roghaiyeh Nourizadeh, Email: rnourizadeh@gmail.com

undergoing colposcopy referred to the Alavi Oncology Clinic, Ardabil, Iran. The inclusion criteria were women aged 18-50 years, undergoing colposcopy within the next 10-15 days with a score of STAI-Y1 ≥ 43, abnormal Pap smear results (ASCUS, ASC-H, CIN), having at least a secondary school education degree, and residing in Ardabil. The exclusion criteria included women with a history of mental disorders based on medical records, taking anti-anxiety drugs, and a history of a previous colposcopy.

Sample Size

The sample size was calculated using G-Power software. According to the study of Chan et al (22) and based on the variable of anxiety, by considering m_1=45.56, with the default decrease of 20% in the mean score of anxiety due to the intervention (m_2 = 36.45), SD_1 = SD_2=11.16, power= 90%, and two sided α = 0.05, a sample size of 33 was obtained per group. For sample size estimation, researchers need to determine the magnitude of practical significance differences (effect size), obtained mainly by experience or judgment (23), which was considered 20% here. The final sample size was estimated to be 36 in each group, after calculating a 10% attrition.

Sampling Method

The researcher (first author) attended Alavi hospital and, after preparing a list of women undergoing colposcopy within the next 10-15 days, called and evaluated them regarding the inclusion and exclusion criteria and invited the eligible women to participate in the study. In the briefing session, after a more detailed assessment of the eligibility criteria and the completion of the State-Trait Anxiety Inventory-Form Y1 (STAI-Y1), the researcher explained the objectives and method of the study for those who obtained a state anxiety score of 43 and higher. Then, participants completed the written informed consent form and demographic and obstetric characteristics. The participants were assigned to the intervention and control groups with a ratio of 1:1 by block randomization using Random Allocation Software (RAS) with a block size of 4 and 6. The type of allocation was written on paper and put in opaque envelopes numbered consecutively for allocation concealment. A non-involved person in the sampling opened the envelopes sequentially. The outcome assessor (the third author) was blinded.

Intervention

The intervention group (n=36 people) received supportive counseling in groups of 3 subjects during three 45-60 minute sessions every three days in the counseling room of Alavi hospital. The fourth author conducted all consultation sessions. Based on the supportive counseling strategies, including empathy, supporting the client in expressing feelings and resolving ambiguities, strengthening and promoting social support, and strengthening positive thoughts (17,18), the content of the counseling sessions was as follows:

Key Messages

- Supportive counseling is effective in reducing the anxiety of women undergoing colposcopy through client support in resolving ambiguities, and teaching coping strategies.
- Since supportive counseling did not affect the perception of pain during colposcopy, other interventions for relieving pain is recommended.

First Session

The first session included introducing, encouraging women to talk about their concerns, thoughts, and feelings about cervical cancer, and explaining symptoms of cervical cancer, factors increasing the risk of cervical cancer, and the risks of late diagnosis. Abnormal Pap smear results and the need for diagnosis and follow-up through colposcopy were also explained.

Second Session

In the second session, a colposcopy video was shown. The session included encouraging women to restate the thoughts coming to mind about undergoing colposcopy and recount the emotional reactions. The counselor sought functional impairment and symptoms, such as anxiety, and explained how to deal with experienced anxiety through training relaxation techniques and searching for and gaining social support by improving communication skills with the spouse and others.

Third Session

The overall purpose of the third session was to examine the physical and psychological symptoms reported by the woman. The consultant tried to identify and address the participants' functional status, incorrect coping skills, and adaptive weaknesses in this session. Further, breathing techniques for reducing pain during colposcopy and mental imaging were explained.

The control group only received the pamphlet about how to perform a colposcopy, the steps before, and its complications. Both groups in the waiting queue for colposcopy re-completed the STAI. Participants completed the Visual Analogue Scale (VAS) immediately after colposcopy.

Data Collection Tools

The demographic and obstetric profile included the variables of age, number of children, level of education, occupation, family income level, age of first menstruation, age of first intercourse, age of menopause, and method of contraception.

The State-Trait Anxiety Inventory-Form Y1

STAI-Y1 with 20 items was used to evaluate the

individual's state anxiety. Each item is scored from 0 to 4, and a score of 4 indicates a higher level of anxiety. Items 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20 are scored inversely. The total score range is between 20 - 80, as scores 20-31 are for mild anxiety, 32-42 for low to moderate anxiety, 43-53 for moderate to high anxiety, 54-64 for relatively severe, 65-75 for severe, 76 and higher for very severe anxiety (24). The Cronbach's alpha coefficient of the instrument in the Persian version was 0.7 (25).

Visual Analogue Scale

The VAS is the pain ruler with a straight line scaled from 0 to 10, as zero indicates no pain and 10 represents unbearable pain. In this ruler, 0 is for painless, 1-3 for mild pain, 4-6 for moderate pain, 7-9 for severe pain, and 9-10 is very severe pain (26). Its validity and reliability were confirmed in the previous studies (27).

Data Analysis

The data were analyzed using SPSS 24 software, and data normality was assessed using the Shapiro-Wilk test. The anxiety was considered the primary outcome, and pain was the secondary outcome. An independent t-test was employed before the intervention, and an ANCOVA test was used after the intervention to compare the anxiety score between the two groups by adjusting for the effect of baseline score. ANCOVA requires at least one categorical and one continuous independent variable. Further, a chi-square test was applied to compare the levels of anxiety between the two groups before and after the intervention. The Mann-Whitney U test was used to compare the intensity of colposcopy pain between the two groups. All analyses were performed based on the intention-to-treat (ITT) principle.

Results

Sampling was done from September 2021 to February 2022. Out of 100 women who attended, 28 were excluded due to not fulfilling the eligibility criteria (non-residence in Ardabil = 20 subjects, lack of minimum literacy of secondary school = 3, anxiety score <43 = 5). Finally, 72 eligible women participated in this study, who were randomly assigned to the intervention (n = 36) and control (n = 36) groups. Three participants were withdrawn from the research, and finally, 69 subjects were analyzed (Figure 1).

The mean (SD) age of participants was 34.22 (6.44) in the counselling group and 36.87 (6.63) in the control group ($P = 0.06$). Most women (69.44% in the counselling group and 75% in the control group) were not employed ($P = 0.72$). Most participants (100% in the counselling group and 94.44% in the control group) were not menopausal ($P = 0.88$). There was no statistically significant difference in the demographic characteristics

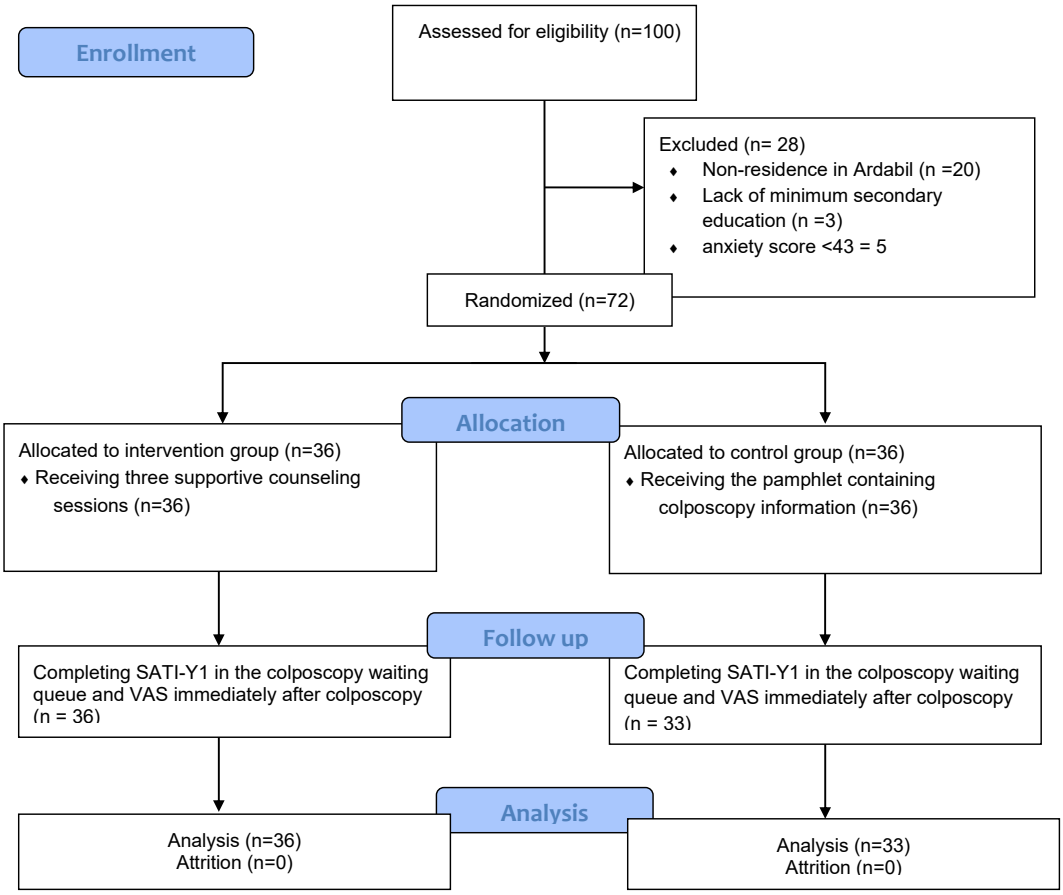

Figure 1. Flowchart of the Study

between the intervention and control groups (Table 1).

Before the intervention, there was no significant difference in anxiety levels between the intervention and control groups ($P=0.27$). However, after supportive counseling, 47.2% of women in the intervention group experienced low to moderate anxiety levels, while all women in the control group still had above moderate anxiety levels. Therefore, the difference between the two groups in terms of anxiety level after the intervention was significant ($P=0.001$). The mean (SD) anxiety score in the intervention group changed from 51.8 (9.54) before counseling to 41.88 (10.31) after the intervention and from 48.25 (11.89) to 48.91 (11.51) in the control group. While the intervention group experienced a significant reduction in anxiety score following supportive counseling, the control group experienced even a slight increase in anxiety score (MD: -7.02, 95% CI: -3.46 to -10.58; $P<0.001$) (Table 2).

Most participants in both groups, 19 (52.9%) in the intervention group and 12 (36.3%) in the control group, reported mild pain during the procedure. The two groups had no significant difference regarding pain level ($P=0.28$). The mean (SD) score of colposcopy pain was 4 (3.06) in the counseling group and 4.30 (2.47) in the control group, indicating no statistically significant difference between the two groups (Table 3).

Discussion

The present study investigated the effect of supportive counseling on the anxiety of women undergoing colposcopy. The results indicated that supportive counseling reduces anxiety in these women.

Although, the previous studies reported the positive effect of supportive counseling on pregnancy-related anxiety, anxiety after abortion, and anxiety in mothers of infants admitted to the neonatal intensive care unit (28-30), no study was found about the effect of supportive counseling on anxiety in women undergoing colposcopy in the literature review. Therefore, other interventions used for colposcopy-related anxiety were discussed.

Consistent with the findings of the present study, the results of a study evaluated the effectiveness of an educational film in reducing anxiety in women referred to a colposcopy clinic in a London hospital indicated

Table 1. The Demographic and Obstetric Characteristics of the Participants

Variable	Supportive Counseling Receiving Group (n = 36)	Control Group (n = 33)	*P* Value
Age, Mean (SD)	34.22 (6.44)	36.78 (6.63)	0.06[a]
Age of menarche, Mean (SD)	13.75 (1.33)	13.38 (1.08)	0.22[a]
Age of first intercourse, Mean (SD)	20.38 (4.33)	20.35 (4.75)	0.97[a]
Education, No. (%)			0.16[b]
Secondary	4 (11.11)	10 (27.77)	
High school/diploma	14 (38.88)	9 (25)	
University	18 (50)	17 (47.22)	
Occupation, No. (%)			0.72[b]
Not employed	25 (69.44)	27 (75)	
Employed	11 (30.56)	9 (25)	
Income level, No. (%)			0.42[b]
Not enough	10 (27.77)	13 (36.11)	
Somewhat enough	20 (55.55)	14 (38.88)	
Enough	6 (16.66)	9 (25)	
Insurance coverage, No. (%)			1.000[b]
Yes	35 (97.22)	35 (97.22)	
No	1 (2.77)	1 (2.77)	
Number of children, No. (%)			0.27[b]
0	7 (19.44)	6 (16.66)	
1	17 (47.22)	13 (36.11)	
2	9 (25)	8 (22.22)	
3	3 (8.33)	9 (25)	
Menstrual status, No. (%)			0.88[b]
Menopause	-	2 (5.55)	
Not menopause	36 (100)	34 (94.44)	

[a] Independent t-test, [b] Chi-square.

Table 2. The Comparison of Anxiety Between the Two Groups

Variable	Supportive Counseling Receiving Group (n=36) No. (%)	Control group (n=33) No. (%)	MD (95% CI)	*P* Value
Level of anxiety before intervention				0.27[a]
Moderate to high (43-53)	20 (55.6)	23 (69.6)		
Relatively severe (54-64)	12 (33.3)	7 (21.2)		
Severe (65-75)	4 (11.1)	2 (6.06)		
Very severe (above 75)	-	1 (3.03)		
Level of anxiety after intervention				0.001[a]
Mild (20-31)	4 (11.1)	-		
Low to moderate (32-42)	13 (36.1)	-		
Moderate to high (43-53)	14 (38.9)	24 (72.6)		
Relatively severe (54-64)	3 (8.3)	7 (21.2)		
Severe (65-75)	2 (5.6)	2 (6.06)		
Mean (SD) of anxiety score before intervention	51.80 (9.54)	48.25 (11.89)	3.54 (-1.8 to 68.78)	0.18[b]
Mean (SD) of anxiety score after intervention	41.88 (10.31)	48.91 (11.51)	-7.02 (-10.58 to -3.46)[d]	<0.001[c]

MD, Mean difference; CI, confidence interval.
[a] Chi-square; [b] Independent t-test; [c] ANCOVA after adjusting the baseline score.
[d] Adjusted mean difference according to baseline score (95% CI).

Table 3. The Comparison of Pain Between the Two Groups

Variable	Supportive Counseling Receiving Group (n = 36)	Control Group (n = 33)	*P* Value
Level of pain			0.28[a]
Painless	3 (8.3)	3 (9.09)	
Mild pain (score 1-3)	19 (52.9)	12 (36.3)	
Moderate pain (score 4-6)	5 (41)	10 (30.3)	
Score Severe pain (score 7-10)	9 (52)	8 (24.2)	
Mean (SD) of pain score	4 (3.06)	4.30 (2.47)	0.38[b]

[a] Chi-square; [b] Mann-Whitney U test.

that introduction of visual information in the form of an explanatory video in the intervention group significantly reduced anxiety level compared to receiving the educational booklet in the control group (31). However, in a study by Byroom et al (32), a pre-colposcopy group session held by an experienced colposcopy nurse in response to the concerns of women undergoing colposcopy, along with showing a short video about the colposcopy clinic and its staff and providing a brochure for women in the intervention group could not significantly reduce anxiety of women in intervention group compared to those control group that received only the brochure, probably due to fewer sessions than the present study.

Inconsistent with the findings of the present study, the results of a study by Chan et al (22) failed to reduce the anxiety in the intervention group compared with the control group, after providing written information and showing a video for women before colposcopy and subsequently, giving further explanations by an experienced colposcopy nurse. In another study conducted by De Bie et al (21) on women with abnormal Pap smear results, after providing information regarding Pap smear results, precancerous lesions, along with diagnostic, and treatment options by telephone or post, there was no significant difference in anxiety score in the intervention group compared with the control group, which is inconsistent with the present study's findings. The difference between these research findings and the studies above was probably attributed to the different types and nature of the intervention, since the intervention in the studies above was solely based on educational methods.

Based on the present study's findings, supportive counseling could not reduce the pain intensity during colposcopy. In line with our research, Danhauer et al (33) examined the effect of music versus a control group on women's pain during colposcopy. They reported that there was no significant difference between the groups. Also, a systematic review showed that music therapy during colposcopy did not reduce pain (20).

Inconsistent with the present study's findings, Walsh et al

(34) found that video colposcopy and guided visualization significantly reduced pain intensity in the intervention group compared to the control group without seeing real images of the cervix through a monitor during colposcopy. This effect was likely due to the nature of the intervention by distracting patients.

In a study in China, 112 individuals who listened to music during colposcopy were compared to 108 individuals in a control group. Slow-rhythm music was played during the colposcopy in the intervention group. Immediately after the colposcopy, the intensity of pain experienced during the procedure was measured using a visual pain scale. Women in the intervention group reported less pain compared to the control group (35). The discrepancy observed in the results of the present study compared to the two studies above is likely related to the type and timing of the intervention.

Strengths and Limitations

The study design, block randomization, and allocation concealment were among the strengths of the present study. The results of the present study should be considered in light of some limitations, including self-reported data for outcomes, single-site limitation (generalizability), potential Hawthorne effect (counseling attention vs. pamphlet), and the impossibility of blinding the participants.

Conclusion

The present study indicated that although supportive counseling is effective in reducing the anxiety of women undergoing colposcopy through client support in resolving ambiguities and teaching coping strategies, it did not affect the perception of pain during the procedure. Other interventions for relieving colposcopy pain are recommended.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

The study was approved by the ethics committee of Tabriz University of Medical Sciences, Iran (IR.TBZMED.REC.1399.789). The study adheres to the ethical principles outlined in the World Medical Association's Helsinki Declaration concerning research involving human subjects. Written informed consent was obtained from each participant. The principles of anonymity and confidentiality were applied, and the participants were provided with the results upon their request.

Financial Support

This study was supported by Tabriz University of Medical Sciences (ID: IR.TBZMED.REC. 1399.789).

References

1. Shrestha AD, Neupane D, Vedsted P, Kallestrup P. Cervical cancer prevalence, incidence and mortality in low- and middle-income countries: a systematic review. Asian Pac J Cancer Prev. 2018;19(2):319-324. doi:10.22034/apjcp.2018.19.2.319
2. Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021;71(3):209-249. doi:10.3322/caac.21660
3. Lei J, Ploner A, Elfström KM, et al. HPV vaccination and the risk of invasive cervical cancer. N Engl J Med. 2020;383(14):1340-1348. doi:10.1056/NEJMoa1917338
4. de Martel C, Plummer M, Vignat J, Franceschi S. Worldwide burden of cancer attributable to HPV by site, country and HPV type. Int J Cancer. 2017;141(4):664-670. doi:10.1002/ijc.30716
5. Cecilia NC, Rosliza AM, Suriani I. Global burden of cervical cancer: a literature review. Int J Public Health Clin Sci. 2017;4(2):10-18.
6. Limpvanuspong B, Tangjitgamol S, Manusirivithaya S, Khunnarong J, Thavaramara T, Leelahakorn S. Prevalence of high grade squamous intraepithelial lesions (HSIL) and invasive cervical cancer in patients with atypical squamous cells of undetermined significance (ASCUS) from cervical pap smears. Southeast Asian J Trop Med Public Health. 2008;39(4):737-744.
7. Pourebrahim-Alamdari P, Mehrabi E, Nourizadeh R, Esmaeilpour K, Mousavi S, Hakimi S. The effect of face-to-face and phone call motivational interviewing on cervical cancer screening. Cancer Nurs. 2022;45(6):E897-E902. doi:10.1097/ncc.0000000000001089
8. Partridge EE, Abu-Rustum NR, Campos SM, et al. Cervical cancer screening. J Natl Compr Canc Netw. 2010;8(12):1358-1386. doi:10.6004/jnccn.2010.0103
9. Petrova D, Garcia-Retamero R, Catena A, van der Pligt J. To screen or not to screen: what factors influence complex screening decisions? J Exp Psychol Appl. 2016;22(2):247-260. doi:10.1037/xap0000086
10. Egemen D, Cheung LC, Chen X, et al. Risk estimates supporting the 2019 ASCCP risk-based management consensus guidelines. J Low Genit Tract Dis. 2020;24(2):132-143. doi:10.1097/lgt.0000000000000529
11. Pourebrahim-Alamdari P, Mehrabi E, Nikkhesal N, Nourizadeh R, Esmaeilpour K, Mousavi S. Effectiveness of motivationally tailored interventions on cervical cancer screening: a systematic review and meta-analysis. Int J Womens Health Reprod Sci. 2021;9(2):86-90. doi:10.15296/ijwhr.2021.16
12. Khan MJ, Werner CL, Darragh TM, et al. ASCCP colposcopy standards: role of colposcopy, benefits, potential harms, and terminology for colposcopic practice. J Low Genit Tract Dis. 2017;21(4):223-229. doi:10.1097/lgt.0000000000000338
13. Barut MU, Kale A, Kuyumcuoğlu U, et al. Analysis of sensitivity, specificity, and positive and negative predictive values of smear and colposcopy in diagnosis of premalignant and malignant cervical lesions. Med Sci Monit. 2015;21:3860-3867. doi:10.12659/msm.895227
14. O'Connor M, Gallagher P, Waller J, Martin CM, O'Leary JJ, Sharp L. Adverse psychological outcomes following colposcopy and related procedures: a systematic review. BJOG. 2016;123(1):24-38. doi:10.1111/1471-0528.13462
15. Pakseresht S, Jafarzadeh-Kenarsari F, Rafat F, Rahebi SM. Exploration of women's perspective on cervical cancer: a qualitative study. J Holist Nurs Midwifery. 2016;26(4):43-51.
16. Galaal K, Bryant A, Deane KH, Al-Khaduri M, Lopes AD. Interventions for reducing anxiety in women undergoing colposcopy. Cochrane Database Syst Rev. 2011;2011(12):CD006013. doi:10.1002/14651858.CD006013.pub3
17. Buckley LA, Maayan N, Soares-Weiser K, Adams CE. Supportive therapy for schizophrenia. Cochrane Database Syst Rev. 2015;2015(4):CD004716. doi:10.1002/14651858.CD004716.pub4
18. Winston A, Rosenthal RN, Pinsker H. Learning Supportive Psychotherapy: An Illustrated Guide (Core Competencies in Psychotherapy). 1st ed. American Psychiatric Publication; 2011.
19. Abdelhakim AM, Samy A, Abbas AM. Effect of music in reducing patient anxiety during colposcopy: a systematic review and meta-analysis of randomized controlled trials. J Gynecol Obstet Hum Reprod. 2019;48(10):855-861. doi:10.1016/j.jogoh.2019.07.007
20. Wouters T, Soomers J, Smink M, et al. The effect of an animation video on consultation time, anxiety and satisfaction in women

with abnormal cervical cytology: animation video reduces colposcopy time. Prev Med Rep. 2019;13:238-243. doi:10.1016/j.pmedr.2019.01.005
21. de Bie RP, Massuger LF, Lenselink CH, Derksen YH, Prins JB, Bekkers RL. The role of individually targeted information to reduce anxiety before colposcopy: a randomised controlled trial. Bjog. 2011;118(8):945-950. doi:10.1111/j.1471-0528.2011.02996.x
22. Chan YM, Lee PW, Ng TY, Ngan HY. Could precolposcopy information and counseling reduce women's anxiety and improve knowledge and compliance to follow-up? Gynecol Oncol. 2004;95(2):341-346. doi:10.1016/j.ygyno.2004.07.002
23. Althubaiti A. Sample size determination: a practical guide for health researchers. J Gen Fam Med. 2023;24(2):72-78. doi:10.1002/jgf2.600
24. Spielberger CD, Gorsuch R, Lushene R, Vagg P, Jacobs G. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1983.
25. Gholami Booreng F, Mahram B, Kareshki H. Construction and validation of a scale of research anxiety for students. Iran J Psychiatry Clin Psychol. 2017;23(1):78-93. doi:10.18869/nirp.ijpcp.23.1.78
26. Franchignoni F, Salaffi F, Tesio L. How should we use the visual analogue scale (VAS) in rehabilitation outcomes? I: how much of what? The seductive VAS numbers are not true measures. J Rehabil Med. 2012;44(9):798-799. doi:10.2340/16501977-1030
27. Bijur PE, Silver W, Gallagher EJ. Reliability of the visual analog scale for measurement of acute pain. Acad Emerg Med. 2001;8(12):1153-1157. doi:10.1111/j.1553-2712.2001.tb01132.x
28. Esfandiari M, Faramarzi M, Nasiri-Amiri F, et al. Effect of supportive counseling on pregnancy-specific stress, general stress, and prenatal health behaviors: a multicenter randomized controlled trial. Patient Educ Couns. 2020;103(11):2297-2304. doi:10.1016/j.pec.2020.04.024
29. Barat S, Yazdani S, Faramarzi M, et al. The effect of brief supportive psychotherapy on prevention of psychiatric morbidity in women with miscarriage: a randomized controlled trial about the first 24-hours of hospitalization. Oman Med J. 2020;35(3):e130. doi:10.5001/omj.2020.48
30. Seyedrasooli A, Malakouti J, Jabraeili M, Heykalabadi S, Ghogazadeh M. The effect of the supportive program on the anxiety of mothers of infants with gastrointestinal anomalies. Nurs Pract Today. 2020;7(2):106-113. doi:10.18502/npt.v7i2.2732
31. Freeman-Wang T, Walker P, Linehan J, Coffey C, Glasser B, Sherr L. Anxiety levels in women attending colposcopy clinics for treatment for cervical intraepithelial neoplasia: a randomised trial of written and video information. BJOG. 2001;108(5):482-484. doi:10.1111/j.1471-0528.2001.00121.x
32. Byrom J, Clarke T, Neale J, et al. Can pre-colposcopy sessions reduce anxiety at the time of colposcopy? A prospective randomised study. J Obstet Gynaecol. 2002;22(4):415-420. doi:10.1080/01443610220141407
33. Danhauer SC, Marler B, Rutherford CA, et al. Music or guided imagery for women undergoing colposcopy: a randomized controlled study of effects on anxiety, perceived pain, and patient satisfaction. J Low Genit Tract Dis. 2007;11(1):39-45. doi:10.1097/01.lgt.0000230206.50495.4c
34. Walsh JC, Curtis R, Mylotte M. Anxiety levels in women attending a colposcopy clinic: a randomised trial of an educational intervention using video colposcopy. Patient Educ Couns. 2004;55(2):247-251. doi:10.1016/j.pec.2003.09.012
35. Chan YM, Lee PW, Ng TY, Ngan HY, Wong LC. The use of music to reduce anxiety for patients undergoing colposcopy: a randomized trial. Gynecol Oncol. 2003;91(1):213-217. doi:10.1016/s0090-8258(03)00412-8