ORIGINAL RESEARCH

DOI: 10.5336/jcog.2023-98485

The Effect of Video Information on Amniocentesis-Related Anxiety Levels: A Case-Control Study

Fatih AKKUŞ[a], Şükran DOĞRU[a], Aslı ALTINORDU ATCI[a], Merve AKKUŞ[b], Kazım GEZGİNÇ[a]

[a]Division of Perinatology, Necmettin Erbakan University Faculty of Medicine, Konya, Türkiye
[b]Department of Psychiatry, Kütahya Health Sciences University, Faculty of Medicine, Kütahya, Türkiye

ABSTRACT Objective: The aim of this study was to investigate whether video information was more effective in reducing pre-amniocentesis anxiety levels compared to verbal information. **Material and Methods:** A total of 94 pregnant women scheduled for amniocentesis were randomly assigned to either a video information group or a verbal information group. Participants completed the State-Trait Anxiety Inventory (STAI I and II) and the Amsterdam Preoperative Anxiety and Information Scale (APAIS) at the time of the first application and immediately before the procedure. The video information group received a video that explained the procedure and answered common questions, while the verbal information group received similar information from a healthcare professional. **Results:** The groups were similar in terms of sociodemographic, medical, and obstetric characteristics. STAI-II scores were similar in both groups (p=0.834). In addition, STAI-I and APAIS scores were similar in both groups (p=0.309 and p=0.694, respectively). Both groups showed a significant reduction in their anxiety levels after receiving information. However, the video information group showed a greater reduction in STAI-I scores (p=0.0001) and APAIS scores (p=0.001) compared to the verbal information group. While there was no change in the information request in the verbal group (p=0.654), it was observed that the information request decreased in the video group (p=0.0001). **Conclusion:** The results suggest that video information may be more effective in reducing pre-amniocentesis anxiety levels compared to verbal information. Healthcare professionals should consider incorporating video materials as part of their pre-procedure education to help reduce patient anxiety.

Keywords: Amniocentesis; anxiety; education; pregnancy

Amniocentesis is an invasive procedure that is frequently used for prenatal diagnosis. It is generally used in the diagnosis of fetal chromosomal anomalies, biochemical diseases, and infectious diseases that can be transmitted from the mother. Rarely, due to the family's extreme anxiety, it can also be done at the request of the family. The potential for procedure-related fetal loss is a major concern for invasive testing during pregnancy.[1] After amniocentesis, the probability of miscarriage in a singleton pregnancy is very low, 0.2% to 0.3%.[2]

One of the most difficult and fragile times for a woman is the period of pregnancy.[3] Maternal stress and anxiety have been reported to be associated with perinatal problems such as preterm birth, low birth weight, fetal growth retardation, and poor child development. Despite this, in daily practice, obstetricians are still little concerned with the detection, significance, and treatment of maternal anxiety and depression.[4,5] Appropriate education and counseling at every stage of pregnancy prepare women for a safe pregnancy, a healthy fetus, and a smooth transition to postpartum neonatal care. Face-to-face training and brochures are generally used to inform patients; the effectiveness of these methods largely depends on the patient's understanding of the physician and the physician's communication skills. Due to migration, which has become one of the biggest problems in the world recently, we need more visual communication than verbal communication. It has been shown that prenatal education with the help of video increases knowledge and decision-making ability, as well as reducing anxiety.[6] However, there are not enough studies investigating the effects of video-assisted information on anxiety for invasive procedures in pregnant women.

Correspondence: Fatih AKKUŞ
Division of Perinatology, Necmettin Erbakan University Faculty of Medicine, Konya, Türkiye
E-mail: fakkus1987@gmail.com

Peer review under responsibility of Journal of Clinical Obstetrics & Gynecology.

Received: 14 Jun 2023 ***Received in revised form:*** 12 Oct 2023 ***Accepted:*** 17 Oct 2023 ***Available online:*** 20 Oct 2023

In the light of the information in the literature, it was stated that the informative video watched before the procedure would have a positive effect on the anxiety levels of patients who underwent amniocentesis. Therefore, in this study, we aimed to evaluate the effect of a training video about amniocentesis on anxiety levels in pregnant women who will undergo amniocentesis.

MATERIAL AND METHODS

DESIGN

For this study, the decision numbered 2021/3558 (date: December 17, 2021), was taken from the Clinical Research Ethics Committee of Necmettin Erbakan University. The study was carried out between December 2021 and December 2022 in the Meram Medical Faculty, The Obstetrics and Gynecology Department, and the Perinatology Department. The pregnant women were asked to voluntarily participate in the study. Pregnant women who agreed to participate in the study signed informed consent forms. The study was completed in accordance with the principles written in the Declaration of Helsinki. Except for amniocentesis, pregnant women who underwent invasive diagnostic tests such as chorionic villus sampling (CVS) and cordocentesis were excluded from the study.

MEASURES

State-Trait Anxiety Inventory (STAI): It is a 40-item self-assessment form consisting of two separate subscales and short understandable questions. STAI was developed by Spielberger in 1970. Öner and Le Compte carried out its validity and reliability study by adapting it into Turkish in 1983.[7,8] The items in the form are "never" (1), "sometimes" (2), "often" (3), and "always" (4). The State Anxiety subscale measures how anxious participants feel at the moment, while the Trait Anxiety subscale measures how anxious they tend to feel overall. There are two types of statements in STAI: direct statements indicate negative emotions, and reversed statements indicate positive emotions. Reversed statements in STAI-I are the items 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20, and reversed statements in STAI-II are 21, 26, 27, 30, 33, 36, and 39. The total weighting score for the reverse statements is subtracted from the total weight score obtained for the direct statements. A total of 20-80 points can be obtained from both scales. Higher scores indicate higher levels of anxiety.

The Amsterdam Preoperative Anxiety and Information Scale (APAIS) was developed by the Moermann group in the Netherlands in 1996.[9] It is one of the tests used in the evaluation of preoperative anxiety. The source of concern in this test is divided into three categories: anxiety arising from surgery, anesthesia, or lack of information. It includes six statements for each of these three sources to assess anxiety. In order to objectify the questionnaire, each statement is given a numerical value based on a 5-point Likert scale according to severity; these values range from 1-5: 1=none, 2=mild, 3=moderate, 4=severe, and 5=extreme severity. Anesthesia anxiety scores for questions 1 and 2, surgical anxiety for questions 4 and 5, and the total anxiety score are calculated by summing both. The statements expressing the desire to obtain information about anesthesia and surgery are questions 3 and 6. The lowest score is 6, and the highest score is 30. Aykent et al. translated it into Turkish for the first time in our country.[10]

PROCEDURE

All pregnant women were examined in the perinatology clinic. All pregnant women scheduled for amniocentesis were asked whether they could participate in the study. A consent form was obtained from pregnant women who agreed to participate in the study. First of all, STAI I-II and APAIS forms were given to all participants. Afterwards, the video was shown to the group. Standard information was given to the group without video. After the information and video watching, the STAI-I and APAIS questionnaires were repeated to the pregnant women approximately 15 minutes later.

VIDEO INFORMATION CONTENT

The presenter was a perinatologist. The video lasted 4 minutes, 48 seconds. The amniocentesis procedure and the maternal and fetal risks involved, fetal loss due to the procedure, the introduction of the needle used, the room to be operated on, the operating table,

the instruments, and finally the video recording of the previous procedure were watched.

VERBAL INFORMATION CONTENT

In the verbal information group of our study, participants received a detailed information about the amniocentesis procedure through an oral presentation by a qualified healthcare professional (2-year perinatology fellowship). Participants were informed about the potential risks of amniocentesis for both the mother and the developing foetus. These risks include infection, bleeding and the possibility of miscarriage. He explained the process of amniocentesis in detail, including how a small sample of amniotic fluid is taken from the amniotic sac using a fine needle. The importance of this procedure in diagnosing possible fetal abnormalities was emphasized. A clear and concise explanation of the insertion of the needle used in the procedure was given. Participants were informed about the environment in which amniocentesis is performed. This included details of room preparation and the importance of maintaining a clean and safe environment.

PATIENT SELECTION

A total of 156 pregnant women underwent amniocentesis during the study. All pregnant women were invited to the study, 47 pregnant women refused to participate in the study. An equal number of letters A and B were thrown into a box. A letter was drawn each time a patient came. When A came, the video was watched, and when B came, it was included in the control group. Fifteen pregnant women with psychiatric disorders using anxiolytic and antidepressant drugs, who were illiterate and hearing impaired, were excluded from the study. Ninety four pregnant women were found suitable for the study.

STATISTICAL ANALYSIS

The normality of continuous data was examined using the Kolmogorov-Smirnov or Shapiro-Wilk tests. In the comparison of continuous data, data showing normal distribution was given as the $\bar{X}$±SD and an independent t test was used. The median (minimum-maximum) was given for data that did not fit the normal distribution, and the Mann-Whitney U test was used in the analysis of categorical data, and values were given as n (%). Paired t-test was used for comparison of dependent groups and values were $\bar{X}$±SD. p values of 0.05 were considered significant. Statistical analysis was performed using SPSS 20.0 (IBM Corp., Armonk, NY, USA).

RESULTS

The mean ages of the study and control groups were 31.7±7.0 and 31.5±6.1, respectively, there was no difference between the groups (p=0.898). The weeks of gestation at which amniocentesis was performed were determined as 19.0±2.2 and 18.3±1.7 in the study and control groups, respectively (p=0.105). The income status of both groups was not different from each other (p=0.466). In pregnant women, body mass index, gravida, parity, number of abortions, babies with anomalies, acetylsalicylic acid use, folic acid use, *in vitro* fertilization pregnancy rates, and low-molecular weight heparin use were similar in both groups. Therefore, all demographic and social data examined between the study and control groups were similar. The triple test rates were observed at 10.9% and 16.7%, the groups were similar in both tests (p=0.416). There was no difference between the two groups in terms of asthma, hypothyroidism, hypertension, diabetes, ulcerative colitis, and cancer diseases (Table 1). In the group that received video information and the groups that received classical verbal information, mean STAI-II scores showing trait anxiety were detected as 43.9±7.7 and 44.3±8.5, respectively (p=0.834) (Table 2).

STAI-I, which measures state anxiety, and APAIS, which measures anxiety before procedures, were evaluated before and after informing the pregnant women. STAI-I scale scores were (52.8±10.7 and 52.9±5.6), respectively, before the video and verbal information (p=0.309). After the information, the STAI-I scale scores in the video and verbal information groups were 46.1±10.9 and 50.2±6.0, respectively (p=0.016). A lower score was observed in the video information group compared to the verbal information group. APAIS scores before video and verbal information were (21.6±3.4 and 21.9±3.5), respectively (p=0.694). After the information, the APAIS scale scores in the video and verbal informa-

TABLE 1: Comparison of data of video and verbal groups.

Parameters		Verbal (n=48)	Video (n=46)	p value
Maternal age*		31.5±6.1	31.7±7.0	0.898
Paternal age*		34.8±6.9	34.4±7.6	0.781
Income (USD)*		374.98±195.57	328.84±389.31	0.466
Gravida**		3 (1-9)	3 (0-9)	0.851
Parity**		1 (0-6)	2 (0-6)	0.765
Abortion**		0 (0-4)	0 (0-2)	0.233
Body mass index*		25.7±3.6	27.0±5.0	0.157
Gestational week*		18.3±1.7	19.0±2.2	0.105
History of baby with anomalies***		4 (8.3%)	0 (0.0%)	0.117[a]
Use of acetylsalicylic acid***		3 (6.3%)	1 (2.2%)	0.328
Use of folic acid***		36 (75.0%)	38 (82.6%)	0.368
Use of low-molecular weight heparin***		2 (4.2%)	1 (2.2%)	0.583
In vitro fertilization ***		1 (2.1%)	0 (0.0%)	0.325
Indication	Prenatal test abnormality	27 (56.2%)	21 (45.7%)	0.284
	Ultrasound	20 (41.7%)	21 (45.7%)	
	Sucpected infection	1 (2.1%)	4 (8.7%)	
Combined screening test***		25 (52.1%)	20 (43.5%)	0.404
Triple screening test***		8 (16.7%)	5 (10.9%)	0.416
History of chronic disease***	None	40 (83.3%)	42 (91.3%)	0.185
	Asthma	2 (4.2%)	0 (0.0%)	
	Hypothyroidism	4 (8.3%)	1 (2.2%)	
	Hypertension	0 (0.0%)	1 (2.2%)	
	Diabetes	1 (2.1%)	0 (0.0%)	
	Ulcerative colitis	0 (0.0%)	2 (4.3%)	
	Cancer	1 (2.1%)	0 (0.0%)	

*Independent t-test ($\bar{X}$±SD); **Mann-Whitney U test [median (minimum-maximum)]; ***Chi-square test n (%); [a]Fisher exact test; SD: Standard deviation.

tion groups were 13.5±2.5 vs. 19.1±2.7 (p=0.0001) (Table 2).

APAIS scale are examined separately; anesthesia, surgery, and information request scores were similar in both groups before information (p=0.416, p=0.682, and p=0.654, respectively). After the information, a statistically significant difference was observed between the scores of anesthesia and request for information from the APAIS subscales in the video and verbal information groups (p=0.038 and p=0.0001, respectively) (Table 2).

In the comparisons before and after the information, scores in the anesthesia and surgery subscales of the STAI-I and APAIS subscales showed statistically significant decreases with both methods (video group; p=0.0001, p=0.0001, p=0.0001, and p=0.0001, respectively and verbal group; p=0.0001, p=0.0001, p=0.001, and p=0.027, respectively) (Table 3).

In the video group, the request for information score decreased from 7.1±1.7 before the information to 4.1±1.2 after the information (p=0.0001); while it was 6.9±1.9 in the verbal information group, it remained at 6.6±1.7 and no statistically significant decrease was observed (p=0.159) (Table 3).

DISCUSSION

In this prospective study, we compared the anxiety levels of pregnant women who underwent amniocentesis with classical verbal and video-assisted information. We found that the group that was informed by video had lower state anxiety scores than the group that was informed verbally. The effects of antenatal diagnostic invasive procedures on maternal mood are still a neglected area of research. It has been shown in many studies that patient state anxiety increases due to amniocentesis.[11,12] There are many

TABLE 2: Comparison of STAI-I, STAI-II, and APAIS scores by groups.

Parameters		Verbal (n=48)	Video (n=46)	p value
STAI-II		44.3±8.5	43.9±7.7	0.834
STAI-I	Pre-information	52.9±5.6	52.8±10.7	0.309
	Post-information	50.2±6.0	46.1±10.9	**0.016**
APAIS total	Pre-information	21.9±3.5	21.6±3.4	0.694
	Post-information	19.1±2.7	13.5±2.5	**0.0001**
APAIS anesthesia	Pre-information	7.6±1.6	7.3±1.8	0.416
	Post-information	6.6±1.2	6.0±1.4	**0.038**
APAIS surgery	Pre-information	7.3±1.9	7.2±1.7	0.682
	Post-information	6.5±1.6	6.0±1.3	0.136
APAIS request for information	Pre-information	6.9±1.9	7.1±1.7	0.654
	Post-information	6.6±1.7	4.1±1.2	**0.0001**

Independent t-test ($\bar{X}$±SD); STAI: State-Trait Anxiety Inventory; APAIS: Amsterdam Preoperative Anxiety and Information Scale; SD: Standard deviation.

TABLE 3: Comparison of the APAI and STAI-I scores of the groups before and after providing information.

		Pre-information	Post-information	p value
STAI-I	Verbal (n=48)	52.9±5.6	50.2±6.0	**0.0001**
	Video (n=46)	52.1±107	46.1±10.9	**0.0001**
APAIS total	Verbal (n=48)	21.9±3.5	19.1±2.7	**0.0001**
	Video (n=46)	21.6±3.4	13.5±2.5	**0.0001**
APAIS anesthesia	Verbal (n=48)	7.6±1.6	6.6±1.2	**0.001**
	Video (n=46)	7.3±1.8	6.0±1.4	**0.0001**
APAIS surgery	Verbal (n=48)	7.3±1.9	6.5±1.6	**0.027**
	Video (n=46)	7.2±1.7	6.0±1.3	**0.0001**
APAIS request for information	Verbal (n=48)	6.9±1.9	6.6±1.7	0.159
	Video (n=46)	7.1±1.7	4.1±1.2	**0.0001**

Paired t-test ($\bar{X}$±SD); APAIS: Amsterdam Preoperative Anxiety and Information Scale; STAI: State-Trait Anxiety Inventory; SD: Standard deviation.

questionnaires available to assess people's anxiety. In this study, we used the STAI-I and II questionnaires, which are frequently used in medical research. STAI-I indicates state anxiety. The clinically significant score for the anxiety level is stated to be 39-40.[13] In this study, we found that the anxiety scores in both groups were above 40 before the procedure and before the information. Pregnancy is a critical period in terms of triggering anxiety or exacerbating existing anxiety.[14] There is accumulating evidence of the adverse effects of maternal anxiety on fetal development, obstetric complications, pregnancy outcomes such as low birth weight, and subsequent child development.[15] Therefore, we think that attempts to reduce maternal anxiety are valuable.

Patient education before amniocentesis has been shown to reduce pre-procedural anxiety.[16] We also found that the anxiety scores decreased in both groups that received verbal and video information. Various methods, such as music and aromatherapy, have been described to reduce anxiety about the amniocentesis procedure, and these studies have shown that anxiety is reduced.[17,18] To the best of our knowledge, this is the first study in the literature to evaluate anxiety with pre-amniocentesis video information. Patient education with video has been studied before.[19,20] Goodman et al., found that video training had a positive effect on influenza vaccination during pregnancy.[19] In this study, video instruction positively changed negative health beliefs about vaccination without changing

vaccination rates. Erkılınç et al. who provided video information before hysterosalphingography (HSG), stated that pre-procedural video training can be a useful tool for the management of anxiety related to HSG.[20] Similarly, our findings show that lower anxiety levels occur after watching an informative video before the procedure. Of course, anxiolytics can be used to reduce anxiety, but the mother and the physician may also have reservations about the use of anxiolytics during pregnancy.

What should a training video include to reduce anxiety? Although there is no clear answer to this question, the main reason for anxiety before invasive procedures or operations stems from uncertainty and ambiguity. It has been shown that the display of the room where the procedure will be performed and the knowledge of the doctor and assistant health personnel who will perform the procedure reduce anxiety.[21] In this study, the video content included the introduction of the procedure, the risks associated with the procedure, the physician who performed the procedure, the assistant health personnel, and the place where the procedure would be performed. Unlike other informational videos in the literature, we showed the video of a patient who underwent amniocentesis (by paying attention to patient privacy).

Many people experience anxiety when faced with unusual situations or issues. This is often due to a lack of knowledge or understanding of the subject, which leads to feelings of uncertainty and fear. When we don't know what to expect or how to deal with a situation, our natural reaction is to feel anxious. In addition, the fact that the group that watched the video had less desire to get information compared to the group that was given verbal information suggests that the uncertainties and question marks about the process were eliminated more in the group that watched the video. We have not re-evaluated which factors were effective in reducing post-procedure anxiety, but we believe that showing a sample video of the procedure also significantly reduced anxiety. Many invasive procedures are performed during pregnancy. Some of them are in the diagnostic group, and some of them are in the treatment group. Among the diagnostic procedures, chorionic villus biopsy and cordocentesis are also performed. There is no convincing evidence as to whether anxiety levels are higher in patients awaiting CVS and amniocentesis. However, we studied in the amniocentesis group, which is the most frequently performed diagnostic procedure. This is the limiting aspect of our study. We think that the sample size is good for the procedure but limited for external validity.

This study has several limitations including relatively small sample size of pregnant women undergoing amniocentesis at a single university hospital. This study focused specifically on anxiety levels associated with amniocentesis, a common prenatal diagnostic procedure. Therefore, the results may not apply to other invasive prenatal tests that may cause different levels of anxiety, such as CVS or cordocentesis. The study primarily assessed anxiety levels immediately before and after receiving the information, and long-term follow-up was not done to determine whether the reduction in anxiety persisted over time. Although the study showed that video-assisted debriefing was effective in reducing anxiety, it did not investigate which specific elements of the video contributed most to this reduction. Future research could investigate the optimal content and format of educational videos to further increase their effectiveness in reducing anxiety for different medical procedures.

CONCLUSION

Our findings suggest that pre-procedural training videos are an easy intervention that can be used as a useful tool to reduce anxiety about amniocentesis. Further studies could investigate the long-term effects of using video materials on patient anxiety and satisfaction with care.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Fatih Akkuş, Merve Akkuş;* ***Design:*** *Fatih Akkuş;* ***Control/Supervision:*** *Şükran Doğru;* ***Data Collection and/or Processing:*** *Fatih Akkuş, Şükran Doğru, Aslı Altunordu Atcı;* ***Analysis and/or Interpretation:*** *Merve Akkuş;* ***Literature Review:*** *Fatih Akkuş, Şükran Doğru;* ***Writing the Article:*** *Fatih Akkuş, Merve Akkuş;* ***Critical Review:*** *Kazım Gezginç;* ***Materials:*** *Fatih Akkuş.*

REFERENCES

1. Ghi T, Sotiriadis A, Calda P, Da Silva Costa F, Raine-Fenning N, Alfirevic Z, et al; International Society of Ultrasound in Obstetrics and Gynecology (ISUOG). ISUOG Practice Guidelines: invasive procedures for prenatal diagnosis. Ultrasound Obstet Gynecol. 2016;48(2):256-68. [Crossref] [PubMed]
2. Di Mascio D, Khalil A, Rizzo G, Buca D, Liberati M, Martellucci CA, et al. Risk of fetal loss following amniocentesis or chorionic villus sampling in twin pregnancy: systematic review and meta-analysis. Ultrasound Obstet Gynecol. 2020;56(5):647-55. [Crossref] [PubMed]
3. Verreault N, Da Costa D, Marchand A, Ireland K, Dritsa M, Khalifé S. Rates and risk factors associated with depressive symptoms during pregnancy and with postpartum onset. J Psychosom Obstet Gynaecol. 2014;35(3):84-91. [Crossref] [PubMed]
4. Latendresse G. The interaction between chronic stress and pregnancy: preterm birth from a biobehavioral perspective. J Midwifery Womens Health. 2009;54(1):8-17. [Crossref] [PubMed] [PMC]
5. Sanhal CY, Mendilcioglu I, Ozekinci M, Simsek M, Bozkurt S. Comparison of pre-procedural anxiety and depression scores for patients undergoing chorion villus sampling and amniocentesis: an alternative perspective on prenatal invasive techniques. Pak J Med Sci. 2015;31(5):1038-42. [Crossref] [PubMed] [PMC]
6. Schnitman G, Wang T, Kundu S, Turkdogan S, Gotlieb R, How J, et al. The role of digital patient education in maternal health: a systematic review. Patient Educ Couns. 2022;105(3):586-93. [Crossref] [PubMed]
7. Spielberger C. State-Trait Anxiety Inventory: Bibliography. 2nd ed. Palo Alto. CA: Consulting Psychologists Press; 1989.
8. Öner N, Le Compte A. Süreksiz Durumluk/Sürekli Kaygı Envanteri El Kitabı. 1. Baskı. İstanbul: Boğaziçi Üniversitesi Yayınları; 1983.
9. Moerman N, van Dam FS, Muller MJ, Oosting H. The Amsterdam Preoperative Anxiety and Information Scale (APAIS). Anesth Analg. 1996;82(3):445-51. [Crossref] [PubMed]
10. Aykent R, Kocamanoğlu S, Üstün E, Tür A, Şahinoğlu H. Preoperatif anksiyete nedenleri ve değerlendirilmesi: APAIS ve STAI skorlarının karşılaştırılması [The reasons and evaluation of preoperative anxiety: a comparison of APAIS and STAI scores]. Türkiye Klinikleri Anesteziyoloji ve Reanimasyon Dergisi. 2007;5(1):7-13. [Link]
11. Calışkan E, Ozkan S, Cakıroğlu Y, Yalçınkaya O, Polat A, Corakçı A. The effects of maternal anxiety prior to amniocentesis on uterine and fetal umbilical blood flow. J Turk Ger Gynecol Assoc. 2009;10(3):162-7. [PubMed] [PMC]
12. Nakić Radoš S, Košec V, Gall V. The psychological effects of prenatal diagnostic procedures: maternal anxiety before and after invasive and noninvasive procedures. Prenat Diagn. 2013;33(12):1194-200. [Crossref] [PubMed]
13. Karadağ Arlı Ş. Ameliyat öncesi anksiyetenin APAIS ve STAI-I ölçekleri ile değerlendirilmesi [Evaluation of the preoperative anxiety with APAIS and STAI-I scales]. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi. 2017;4(3):38-47. [Link]
14. Grigoriadis S, de Camps Meschino D, Barrons E, Bradley L, Eady A, Fishell A, et al. Mood and anxiety disorders in a sample of Canadian perinatal women referred for psychiatric care. Arch Womens Ment Health. 2011;14(4):325-33. [Crossref] [PubMed]
15. Zelkowitz P, Papageorgiou A. Easing maternal anxiety: an update. Womens Health (Lond). 2012;8(2):205-13. [Crossref] [PubMed]
16. Mojahed S, Reyhanizadeh F, Tabatabaei RS, Dehghani A. Evaluation of the effect of education on perceived stress of mother candidates for amniocentesis. J Educ Health Promot. 2021;10:267. [Crossref] [PubMed] [PMC]
17. Hanprasertpong T, Kor-anantakul O, Leetanaporn R, Suwanrath C, Suntharasaj T, Pruksanusak N, et al. Reducing pain and anxiety during second trimester genetic amniocentesis using aromatic therapy: a randomized trial. J Med Assoc Thai. 2015;98(8):734-8. [PubMed]
18. Carolan M, Barry M, Gamble M, Turner K, Mascareñas O. The Limerick Lullaby project: an intervention to relieve prenatal stress. Midwifery. 2012;28(2):173-80. [Crossref] [PubMed]
19. Goodman K, Mossad SB, Taksler GB, Emery J, Schramm S, Rothberg MB. Impact of video education on influenza vaccination in pregnancy. J Reprod Med. 2015;60(11-12):471-9. [PubMed] [PMC]
20. Erkılınç S, Aksoy Kala N, Kuru Pekcan M, Güzel Aİ, Çınar M, Yılmaz N. The effect of a pre-procedure information video on anxiety levels in patients undergoing hysterosalpingography: a prospective case-control study. J Turk Ger Gynecol Assoc. 2018;19(3):137-41. [Crossref] [PubMed] [PMC]
21. Cheng JYJ, Wong BWZ, Chin YH, Ong ZH, Ng CH, Tham HY, et al. Preoperative concerns of patients undergoing general surgery. Patient Educ Couns. 2021;104(6):1467-73. [Crossref] [PubMed]