Original Paper

Factors Impacting Anxiety Levels During Gynecological Examinations: The Role of Self-esteem, Coping Strategies

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ABSTRACT

Introduction: Gynecological examination is a crucial component of women's gynecological care. However, women usually encounter discomfort and anxiety during these examinations.

Objective: This study aims to evaluate the experiences of women and investigate possible factors related to anxiety in women undergoing gynecological examinations.

Materials and Methods: A cross-sectional study was conducted on 270 women recruited using convenience sampling in 2022. They were referred to our hospital's Obstetric and Gynecological Department and underwent a gynecological examination. Data were collected using demographic information questionnaires, Rosenberg's Self-esteem Scale (RSES), coping strategies, and the Situational Anxiety Scale (SAS). The Pearson correlation was used to test the main hypotheses of the research, and analysis of variance and t-test were used to determine the relationship between demographic and obstetric variables, as well as the main research variables. Bivariate logistic regression with the "enter" method was used to investigate predictors of anxiety.

Results: The Mean±SD age of women was 38.03±9.05 years. About 67.2% had a high education, and the most common reason for referral was bleeding and related problems. Also, 85% of women felt ashamed during the gynecological examination. Their mean SAS score was 50±11.72. There was a significant inverse correlation between self-esteem (r=0.441, P=0.001) and coping strategies (r=-0.357, P=0.001) with situational anxiety. Based on the bivariate logistic regression analysis, self-esteem (OR=0.86, 95% CI, 0.80, 0.93, P=0.001), coping strategies (OR=0.95, 95% CI, 0.94, 0.97, P=0.001), and education levels (OR=0.20, 95% CI, 0.06, 0.60, P=0.001) could explain anxiety changes.

Conclusion: Considering that self-esteem, coping strategies, and educational attainment can affect the anxiety levels experienced during gynecological examinations, healthcare professionals must be aware of this problem. Healthcare workers might need to reevaluate their approach to gynecological and obstetric examinations.

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Highlights

● Most physicians consider pelvic examinations an important part of physical examination in obstetrics and gynecology.

● Besides feelings such as pain and fear during a pelvic examination, women face a sense of anxiety and embarrassment as a result of exposing their genitals, which may prevent women from participating in screening programs.

● The high levels of self-esteem, coping strategies, and education levels are associated with low levels of anxiety during the pelvic examination.

Plain Language Summary

Gynecological examination is crucial to women's gynecological care and is very important for protecting women's health. The pelvic examinations cause reactions such as mild to severe anxiety, which may result in the avoidance of the examinations. Many factors, such as inherited characteristics, gender, personality, and emotional state, play a role in the formation of anxiety in people. Factors such as self-esteem and compromise strategies may be effective on women's anxiety. There are no clear instructions related to factors affecting anxiety during gynecology. The results of this study show that the three variables of educational level, self-esteem, and coping strategies could predict anxiety variations, and an increase in each of them could reduce anxiety.

Introduction

Performing regular gynecological exams for the prognosis of venereal infections, vaginal cancers, and adverse conditions is very important for looking after women's health [1, 2]. Also, gynecological examinations, including the bimanual and speculum exams, are common for periodic control of women [3]. Annual pelvic examinations, especially for cervical cancer screening, have been emphasized by the American Cancer Society (ACS) and the US Preventive Services Task Force (USPSTF) [4].

Most women experience undesirable feelings such as embarrassment and loss of control during sexual organ examinations, and they believe that sexual organs are a private part of their body and must be covered and concealed [5, 6]. Therefore, pelvic examinations might cause reactions such as mild to severe anxiety and embarrassment, which may result in the avoidance of the examinations and referral to physicians for health care services [5, 7]. Hereditary characteristics, gender, personality, emotional state, intelligence, social role and position, creativity, and social interaction contribute to the formation and variation of anxiety in people [8].

Self-esteem is one of the major aspects of adaptation in all life stages, contributing to emotional, social, and psychological adaptation. Low self-esteem can intensify anxiety [9, 10]. High self-esteem in an individual would result in self-confidence, enabling the individual to adapt to difficult conditions [10-12]. A study on girls showed a negative relationship between self-esteem and anxiety [13].

In addition, the most important factors affecting mental health include the manner of coping with stressful situations and life challenges. Some individuals lose their capability to cope with problems and challenging conditions very soon and experience anxiety [14]. Coping and adaptation to anxiety and stress are very important in women undergoing pelvic examinations [15, 16]. In a study on adolescents undergoing pelvic examination for the first time, results indicate a reverse relationship between the anxiety level and the self-confidence approach and optimistic coping strategy. Also, there is a direct relationship between anxiety, obedience, and a hopeless approach [8].

Due to various reasons such as religious and cultural differences, it is highly important to investigate the level of anxiety, self-esteem, and strategies of coping with and adaptation to stressful situations that may be created [3]. So, we conducted a study to investigate the role of self-esteem and coping strategies in pelvic examination-induced anxiety.

Materials and Methods

This cross-sectional study was conducted on 270 women attending obstetrics and gynecology clinics in one of the teaching and treatment centers in Tabriz City, Iran, during the first 6 months of 2022. They were selected using a convenience sampling method. The inclusion criteria were as follows: Women aged 18 and above, ability to read and write in Persian, absence of taking antidepressants, absence of chronic disease such as diabetes, having a genital examination during the visit, and willingness to participate in the study. The exclusion criterion was failure to complete the questionnaire.

The sample size was estimated at 243 cases based on the prevalence of anxiety reported by Yilmaz and Demirel's study in Turkey; P=28.9% [17]. However, considering an increase in the study's accuracy by 10%, the final sample size was calculated as 270 cases. Other parameters used were α=0.05, power=0.80, and d=20%.

The following four questionnaires were used to collect the data. The sociodemographic and obstetrics characteristics checklist consists of the sociodemographic variables of age, educational level, occupational status of women, self-assessment of household economic status, as well as obstetrics characteristics, including the number of pregnancies, the reason for the application to the gynecology clinic, duration of gynecological examination, and experienced emotion during gynecological examination.

The Rosenberg Self-esteem Scale (RSES) was developed by Rosenberg [18]. The scale consists of 10 items, five positive and five negative statements, and 12 categories to measure self-esteem. RSES is scored on a 4-point scale with response options ranging from 1=not at all true of me to 4=very true of me. Five items are inversely scored. Items 1, 2, 4, 6, and 7 investigate one's positive self-evaluation and are scored from 3 to 0. Items 3, 5, 8, 9, and 10 investigate one's negative self-evaluation and are scored from 0 to 3. Satisfactory self-esteem is defined as higher than or equal to 30 on the Rosenberg scale [19]. Joshanloo and Ghaedi assessed the validity and reliability of this scale in Iran [20].

Lazarus and Folkman compiled the Coping Strategies Inventory (CSI) in 1985 [21]. It comprises 66 items divided into 8 subscales: Confrontation, distancing, self-control, social support, accepting responsibility, escape-avoidance, problem-solving, and positive reappraisal. The respondents must indicate what they did in a given situation according to the classification, ranging from 0- a strategy not used; 1- used somewhat; 2- used quite a bit; to 3- used a great deal [22, 23]. This tool was used in many Iranian studies [24, 25].

Zung et al. designed the Situational Anxiety Scores (SAS) [26]. This scale included 20 questions about psychotic emotional symptoms, psychomotor disturbance, somatic disorder, and mental disorders of anxiety or depression. To answer each question, volunteers select the option that best describes their mental state. Each question is scored on a Likert-type scale of 1 to 4 or reverse scoring ("a little of the time", "some of the time," "a good part of the time", and "most of the time"). On this scale, the maximum score is 80. The raw total scores were obtained by summarizing the total scores of the 20 questions and were converted to percentile standard scores. A final score of more than 50 was considered an anxiety symptom. Scores of 50–59, 60–69, and 70 or more are classified as mild, moderate, and severe anxiety, respectively [27]. In Iran, this tool was used in a study [28].

The reliability of questionnaires was assessed using the Cronbach α method in 20 women who had a pelvic examination. Thus, the reliability of self-esteem, coping strategies, and anxiety tools were found to be 0.82, 0.74, and 0.89, respectively.

The sampling was performed by acquiring the ethics permit from the Islamic Azad University of Tabriz Medical Sciences Ethics Committee and obtaining permission from the hospital authorities. All participants completed the questionnaires using the self-report method. Before recruiting the participants, they were informed about the study's aims and their voluntary participation. If participants had problems understanding the questionnaire items while completing it, the author would answer them immediately.

The quantitative data were analyzed using SPSS software, version 24. First, frequency, percentage, and Mean±SD were determined using descriptive statistics. The normal distribution of the data was evaluated using the Kolmogorov-Smirnov test, skewness, and kurtosis. The Pearson correlation, Analysis of Variance (ANOVA), and t-test were used to determine the relationship between demographic and obstetric variables with the main research variables. Bivariate logistic regression with the "enter" method was used to investigate predictors of anxiety. The two-dimensional variable of anxiety (below 50 and above 50 scores) and the independent variables of coping strategies, self-esteem, and demographic variables with a significant level were entered into the model. The level of significance in this study was set at $P<0.05$.

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Results

A total of 270 women who underwent gynecological examination participated in the study. In the present study, the Mean±SD age of the women was 38.03±9.05 years (range: 18-61 years). Most participants (67.2%) had high educational levels (high school diplomas and academic degrees). Nearly 79% of them had no job. Among the participants, 236(87.4%) were married and 34(12.6%) were divorced. Most of these women were multiparous, and only 23.3% were experiencing their first gynecological examination. The major cause of referral was bleeding and related problems. Also, the problem's duration was specified until referral and examination duration. Nearly 85% of them reported a sense of embarrassment during the gynecological examination. Feelings such as stress, pain, and fear were reported in 66%, 62%, and 36% of the cases, respectively.

The examination of anxiety in different age groups showed that anxiety in the age group of 30-40 years was higher than in other groups; however, no statistical difference was observed between different age groups. The results indicate that the difference between the SAS in terms of educational level, job status, and income level was statistically significant. Hence, women with academic degrees experienced lower anxiety than other educational groups (P=0.001). These results were shown in Table 1.

The Mean±SD of the SAS score of the participant women was 50±11.72 (range: 26-83.75). Based on the obtained results, 45.2% of the women experienced different levels of anxiety, including mild, medium, and severe levels. Their Mean±SD self-esteem score was equal to 33.59±4.05. So, based on the classification, almost 82% of the women had a satisfactory level of self-esteem. The coping strategies investigation showed that the Mean±SD total score on this scale was 69.72±16.74 (Table 2).

Based on the Pearson correlation coefficient results, there were significant reverse correlations between self-esteem (r=-0.441, P=0.001) and coping strategies (r=-0.357, P=0.001) with SAS. All subscales of coping strategies, except distancing and avoidance, had a reverse correlation with anxiety. Although the distancing subscale had a positive relationship with anxiety, this relationship was not significant. However, the avoidance subscale showed a significant positive relationship (r=0.267, P=0.001) with anxiety (Table 3).

The results of the logistic regression test showed that the five independent variables (self-esteem, coping strategies, educational level, job status, and income level) could explain 22.8% to 30.4% of the anxiety variations in women. Based on the obtained results, the self-esteem (OR=0.86, 95% CI, 0.80, 0.93, P=0.001), coping strategies (OR=0.95, 95% CI, 0.94, 0.97, P=0.001), and education levels (OR=0.20, 95% CI, 0.06, 0.60, P=0.001) were significantly capable of explaining the variations of the dependent variable.

Table 1. Demographic and gynecological characteristics of the participants (n=270)

Variables		No(%)/Mean±SD	Mean±SD	P
			SAS Score	
Age (y) (38.03±9.05)	>20	5(1.9)	43.75±2.79	0.683*
	20-29	44(16.3)	48.77±13.73	
	30-39	103(38.1)	50.41±12.25	
	40-49	89(33.0)	50.61±11.76	
	≥50	29(10.7)	49.61±5.98	
Education level	Primary school	26(9.6)	53.89±10.66	0.001*
	Secondary school	64(23.7)	54.23±11.69	
	Diploma	88(32.6)	50.96±10.34	
	University	92(34.6)	45.03±11.62	

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Variables		No(%)/Mean±SD	Mean±SD	P
			SAS Score	
Employment status	Housewife	213(78.9)	50.99±11.21	0.007**
	Employed	57(21.1)	46.30±12.90	
Income status	Less than expenses	97(35.9)	54.57±11.36	0.001*
	Equal to expenses	168(62.2)	47.36±11.26	
	More than expenses	5(1.9)	49.75±11.21	
Number of pregnancies	0	30(11.1)	49.07±12.93	0.704*
	1	66(24.4)	49.25±12.76	
	≥2	174(64.4)	50.44±11.12	
The reason for the application to the Gynecology Clinic	Discharge	60(22.2)	48.48±14.59	0.053*
	Obstetric reasons	64(23.7)	51.34±10.64	
	Bleeding	91(33.7)	51.96±10.87	
	Pain	37(13.7)	45.81±10.72	
	Itching	18(6.7)	48.95±8.36	
The time between the start of the complaint and the application to the Gynecology Clinic(d)	≤7	29(10.7)	49.78±11.25	0.916**
	>7	241(89.3)	50.02±11.79	
Number of gynecological examinations	1	63(23.3)	51.58±12.03	0.349*
	2-5	107(39.6)	48.90±11.53	
	≥6	100(37.0)	50.18±11.71	
The duration of gynecological examination (m)	<5	172(63.7)	49.39±11.88	0.443*
	5-10	83(39.7)	51.37±11.68	
	10	15(5.6)	49.41±9.96	
The experienced emotion during gynecological examination	Shame Yes	228(84.4)	51.15±11.71	0.001**
	Shame No	42(43.76)	43.76±9.74	
	Stress Yes	179(66.3)	51.56±12.64	0.002**
	Stress No	91(33.7)	46.91±9.93	
	Pain Yes	168(62.2)	52.23±11.81	0.001**
	Pain No	102(37.8)	46.31±10.63	
	Fear Yes	96(35.6)	51.54±12.29	0.099**
	Fear No	173(64.4)	49.08±11.34	

*Analysis of variance, **The t-test.

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Table 2. Mean±SD scores of Rosenberg's self-esteem, situational anxiety, coping strategies and level of anxiety

Variables		Mean±SD	Min	Max
Rosenberg's self-esteem		33.59±4.05	20	40
Situational anxiety		50±11.72	26	83.75
Coping strategies		69.72±16.74	33	149
Subscales of coping strategies	Confrontation	6.79±3.11	1	18
	Distancing	7.74±2.91	2	18
	Self-control	10.01±3.56	3	24
	Social support	10.27±3.16	2	18
	Acceptance of responsibility	5.82±2.08	1	12
	Escape	8.55±3.51	1	24
	Problem-solving	8.48±3.15	1	18
	Positive reevaluation	11.53±7.25	1	21

Variables		No. (%)
Level of anxiety	Normal (>50)	148(54.8)
	Mild (50-59)	66(24.4)
	Moderate (60-69)	32(11.9)
	Severe (>70)	24(8.9)
Level of self-esteem	Satisfactory (≥30)	230(85.2)
	Dissatisfactory (<30)	40(14.8)

According to the result, with one unit increase in self-esteem and coping strategies, the anxiety level decreases by 13.2% and 7.5%, respectively. Also, an increase in the educational level was associated with a rise of 79.8% in the anxiety level (Table 4).

Discussion

Our study results found a significant inverse relationship between the independent variables (self-esteem and coping strategies) and the dependent variable (anxiety). Additionally, these independent variables, along with women's education levels, could significantly explain the anxiety variable.

This study observed that the self-esteem levels were satisfactory, and most women reported high self-esteem. In the study in Turkey, the self-esteem level of the women undergoing gynecological examination was reported to be good [13]. Studies have shown that self-esteem af-

fects fertility and women's health and can also be effective in making fertility health-related decisions [29-31]. In this study, the mean total score of coping strategies was medium. People exhibit unique coping mechanisms when confronting events in their lives; nevertheless, the coping strategies are trainable and can be helpful for individuals when facing stressful and anxiety-creating factors [14, 32]. Furthermore, studies have shown that younger women, especially adolescents, cannot cope with problems appropriately, and in stressful situations such as gynecological examinations, not being alone before and during the examination, and also being with a supportive relative can help the adolescents to cope with the anxiety-creating situation [8, 33]. Therefore, it seems that social support, especially by health care givers and family, can be helpful because this component is one of the strategies that has been used even by the women participating in the present study.

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Table 3. Correlations between the main study variables

Variables	1 r	1 P*	2 r	2 P*	3 r	3 P*	4 r	4 P*	5 r	5 P*
1-RSES	1	-	-0.441	0.001	0.263	0.001	0.164	0.007	0.122	0.044
2- SAS			1	-	-0.357	0.001	-0.125	0.041	0.08	0.188
3- CSI total					1	-	0.557	0.001	0.267	0.001
4- Confrontation							1	-	0.212	0.001
5- Distancing									1	-
6- Self-control										
7- Social support										
8- Acceptance of responsibility										
9- Escape										
10- Problem-solving										
11- Positive re evaluation										

Variables	6 r	6 P*	7 r	7 P*	8 r	8 P*	9 r	9 P*	10 r	10 P*	11 r	11 P*
1-RSES	0.165	0.006	0.168	0.007	0.1	0.102	-0.293	0.001	0.172	0.005	0.239	0.001
2- SAS	-0.149	0.014	-0.180	0.003	-0.182	0.003	0.267	0.001	-0.164	0.007	-0.211	0.001
3- CSI total	0.607	0.001	0.635	0.001	0.691	0.001	0.205	0.001	0.675	0.001	0.690	0.001
4- Confrontation	0.532	0.001	0.265	0.001	0.466	0.001	0.180	0.003	0.538	0.001	0.357	0.001
5- Distancing	0.112	0.067	0.163	0.007	0.159	0.009	0.280	0.001	0.202	0.001	0.124	0.043
6- Self-control	1	-	0.394	0.001	0.481	0.001	0.077	0.222	0.455	0.001	0.409	0.006
7- Social support			1	-	0.603	0.001	0.141	0.021	0.523	0.001	0.528	0.001
8- Acceptance of responsibility					1	-	0.189	0.003	0.549	0.001	0.528	0.005
9- Escape							1	-	0.025	0.443	0.647	0.001
10- Problem-solving									1	-	0.578	0.001
11- Positive re evaluation											1	-

Abbreviations: RSES: Rosenberg's Self-esteem Scale; SAS: Self-rating Anxiety Scale; CSI: Coping Strategies Inventory.

*The Pearson correlation test.

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Table 4. Factors related to anxiety based on regression model

Variables		Coefficient B	Wald	Adjusted Odds Ratio	95% CI Lower-Upper	P*
RSES		- 0.141	0.736	0.868	0.805 - 0.937	0.001
CSI Total		-0.042	18.402	0.959	0.941 - 0.977	0.001
Education level	Primary school		10.473	Ref		0.015
	Secondary school	-0.542	1.020	0.582	0.203 -1.665	0.313
	Diploma	-0.724	1.896	0.485	0.173 - 1.359	0.169
	University	-1.601	8.139	0.202	0.067 - 0.606	0.004
Employment status	Housewife			Ref		
	Employed	-0.332	0.736	0.717	0.336 - 1.532	0.391
Income status	Less than expenses			Ref		
	Equal to expenses	0.251	1.115	1.285	0.674 - 2.448	0.446
	More than expenses	1.08	0.581	2.957	0.395 - 22.124	0.221

RSES: Rosenberg's self-esteem scale; CSI: Coping strategies inventory.

*Logistic regression analysis.

Based on the present study's findings, self-esteem has a direct and significant relationship with the total score of coping strategies and their components, except avoidance. The results indicate that individuals with high self-esteem use the "reassessment" component more than others and the "avoidance" strategy less. It has been shown that the preferential coping strategies of the individuals can affect the interventional strategy for improving the disliked aspects of the gynecological examination. Some individuals usually seek information as the main strategy for coping with their existing conditions. Most seek kindness and respect from the caregiver and examiner to overcome the stress of receiving information [13, 34]. It seems that individuals with high self-esteem can use more coping strategies, both of which affect the reduction of anxiety levels.

Another important finding of this study was that the mean total score of anxiety was at a medium level, and most women had experienced mild levels of anxiety. The review of the literature shows that women undergoing gynecological examination report medium levels of anxiety [8, 17, 35]. In the present study, the obtained results indicated no statistically significant difference between age, number of pregnancies, cause of referral for health care, duration of the problem, and the number of anxiety-associated examinations. However, the women with high educational levels, job status, and income lev-

els experienced significantly lower levels of anxiety compared to those with low educational levels, job status, and income sufficiency levels. The study conducted by Timur et al. in Turkey shows no significant relations between the age, marital status, and employment status of women and their anxiety level, which is consistent with the findings of the present work [5]. Moreover, in Hilden et al.'s study in Denmark [36], younger women report higher levels of anxiety. Some studies have shown a significant relationship between age [8, 37] and job [1] with anxiety. However, other studies have shown no significant relationship between age [7, 38], job status [5], and marital status [1] with anxiety. The discrepancy between the results of different studies can be attributed to the study time since some studies have been conducted before the examination. Also, some studies have been web-based and conducted a long while after the exam, which might have affected the recall of the experiences. Using different instruments to assess anxiety might be another reason for the difference in results. However, it seems that higher education and income levels, which are associated with more access to information about gynecological examinations, can affect anxiety levels.

In the present study, the majority of women had a sense of embarrassment. Also, most of them felt stress, pain, and fear. All of these feelings had a significant relationship with anxiety levels. In Timur et al.'s study [5],

most women report a sense of embarrassment and express feeling upset for showing their sexual organs. Kartal et al. found that 60% of the women felt embarrassed before the gynecological examination [39]. As reported by researchers, women often prefer to be examined by female physicians, and a reason for such a choice is the respectful behavior of the female caregivers during the examination [7, 39].

Finally, the regression analysis showed that the five variables "entered" into the model could explain the variations of the dependent variable, anxiety. Also, the three variables of educational level, self-esteem, and coping strategies could significantly predict the anxiety variations, and an increase in each of them could contribute to the reduction of anxiety. As mentioned in earlier studies, factors such as self-efficacy and self-esteem can contribute to the reaction induced by stressful situations. If we accept that self-esteem is an important and effective variable in individuals' coping strategies against stressful situations, promoting self-esteem can play a major role in managing and controlling stress and anxiety.

In general, the findings of the present study provided evidence-based information about the self-esteem status, the applied coping strategies, and the anxiety levels among Iranian women undergoing gynecological examinations. Although the self-esteem among the women was at a satisfactory level, and these women used different strategies for coping with the anxiety-creating situations, most women had experienced various levels of anxiety. Finally, it must be noted that having positive experiences in clinical examinations can encourage women to make timely referrals. Also, it is better to design interventions based on the demands of the under-gynecological examination women, and designing such interventions necessitates exact investigations for a better understanding of the women's needs and other effective factors. Using a questionnaire to examine purely subjective variables was one of the limitations of the present study.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by Ethics Committee of Tabriz Medical Sciences Branch, Islamic Azad University, Tabriz, Iran (Code: IR.IAU.TABRIZ.REC.1401.011). Relevant guidelines and regulations were available in all methods. Ethical considerations were followed throughout the data collection and analysis. Written informed consent was obtained from the participants before data collection.

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