Somatosensory amplification, health anxiety and perceived social support levels in patients scheduled for hysteroscopy

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Abstract

This study examined the anxiety, health anxiety, somatosensory amplification, and social support levels perceived by hysteroscopy patients. This study included 100 women scheduled for diagnostic hysteroscopy and 70 women for control. Hospital Anxiety Depression Scale (HADS), Penn State Anxiety Scale (PSAS), Health Anxiety Scale (HAS), Somatosensory Amplification Scale (SAS), and Multidimensional Perceived Social Support Scale (MPSSS) were applied to all participants. We determined that the scores of the patients for SAS were higher (p<0.001). HAS all subscales were also calculated as higher than the healthy controls in the patients (p values: <0.001; 0.008; <0.001, respectively). It was also determined that MPSSS family support was perceived as adequate, and the subscales of special people and friends were perceived as inadequate. We found that women experienced health anxiety at a significant level before hysteroscopy. In addition, the somatization tendencies of these women increased. We recommended that these patients should be supported psychosocially before surgical procedures.

Keywords: hysteroscopy, anxiety, depression, somatization, health anxiety, social support

1. Introduction

Anxiety is a feeling similar to fear and is a state of worry that is unexplained, as if something negative/bad is going to happen without any actual reason. This clinical condition can be felt as very mild anxiety and intense enough to reach the panic level. During anxiety, autonomic nervous system activation and tension are seen to protect the body against danger. Accelerated breathing, palpitation in the heart, sweating because of body temperature, common body aches, weakness, and fatigue might occur (1). Health anxiety; is an individual's interpreting their body as if it is going to be seriously ill and being extremely concerned about their health (2). These concerns about one's health continue, although the individual is resistant and controls prove that the individual is healthy (3). Previous studies were conducted to report that health anxiety is prevalent in society and clinical settings (4, 5). Individuals with health anxiety feel extreme anxiety about their health, exaggerate bodily sensations or functional changes, and describe these as signs of disease (5). In addition, they also negatively interpret any bodily sensations even if there are no physical diseases (6). The "Somatosensory Amplification" concept emerged to explain the somatization in the distinction of spiritual/physical medicine (7). It is the condition in which a person responds physically to a stress factor, seeks medical attention, and feels their physical sensation as intense and harmful/threatening (8).

Failure, material losses, divorce, assault, accidents, as well as past diseases, hospitalization, and surgical procedures, are also perceived as stress factors in adulthood (9). The support an individual receives from friends and family to cope with stressful life events is defined as social support (10). The social support concept has become multidimensional according to how people perceive and understand events around them. Social support is expressed as an interpersonal relation protecting an individual from stressful settings and as information that makes them believe that they are cared for and are a member of a network of mutual responsibilities (11).

Many studies were conducted in the literature on anxiety and psychosocial problems perceived as stress factors before surgical procedures (12-14). However, no studies were detected in which health anxiety, somatosensory amplification, and perceived social support levels were examined together. In gynecology, hysteroscopy is a minimally invasive surgical intervention used frequently to diagnose and treat abnormal uterine hemorrhages, endometrial polyps, uterine anomalies, and sub-mucous myomas. Making the surgical procedure possible with an endoscope and hand tools that are placed in the endometrial cavity through trans cervical pathway without any incisions in the abdominal skin makes it possible for the discharge from the hospital on the same day with the

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intervention, fast return to social life, providing fast recovery. There is a limited number of studies examining the anxiety levels caused by hysteroscopy, which is seen as a minimally invasive surgical procedure from a surgical point of view with all its advantages (15, 16). The present study's first hypothesis is that women who are scheduled to undergo hysteroscopy have high anxiety levels and feel more intense health anxiety. Secondly, these patients will tend to amplify their bodily sensations because of the stress they experience. Finally, the social support they perceive is also low. Based on these hypotheses, our study aims to examine the anxiety, health anxiety, somatosensory amplification, and social support levels perceived by patients scheduled for hysteroscopy.

2. Subject and Methods
2.1. Sample
The study groups admitted to the hospital for diagnostic hysteroscopy because of menstrual irregularity were evaluated by the same psychiatric physician in the Obstetrics and Gynecology Service. The illiterate volunteers who could give written consent and fill out the forms were included in the present study. The individuals with poor general condition, chronic liver disease, chronic renal failure, chronic heart disease, mental retardation, and people who had any psychiatric disorders, who required treatment, who did not want to participate in the study, and those with alcohol-substance use disorders were excluded from the study. People who matched the Patient Group regarding sociodemographic data and those with no diagnosis of psychiatric diseases were also included as healthy.

2.2. Data collection tools
All participants signed the consent form. Then, Sociodemographic Data Form, Hospital Anxiety Depression Scale (HADS), Penn State Anxiety Scale (PSAS), Health Anxiety Scale (HAS), Somatosensory Amplification Scale (SAS), and Multidimensional Perceived Social Support Scale (MPSSS) were applied to the participants.

Sociodemographic Data Form: This form contained demographic data like age, marital status, educational status, residence, working status, and economic status. In addition to these data, it also included clinical evaluation questions like whether there was a psychiatric treatment before and during the study, whether the participant had a psychiatric disease, whether they had prior surgery, and whether they had an additional medical disease.

Hospital Anxiety Depression Scale (HADS): A 14-point self-notification scale applied to measure the symptoms of depression and anxiety the patient experiences. It was developed by Zigmond and Snaith and developed in Turkish form by Aydemir (17, 18).

Penn State Anxiety Scale (PSAS): This scale evaluates persistent, excessive, and uncontrollable anxiety levels. It is a Likert-type scale consisting of 16 items and is scored between 1-5 (19, 20).

Health Anxiety Scale-Short Form (HAS): This form is used to evaluate the level of anxiety a person experiences about their health. The first 14 items of the scale question the feelings and thoughts about health, and the last four items consist of questions on how the participant will feel and react if they have a severe illness. High scores on the scale indicate higher health anxiety levels. It was developed by Salkovskis et al. (4,6).

Somatosensory Amplification Scale (SAS): A Likert-type scale comprising ten questions evaluating the exaggeration of a person's common and usual bodily symptoms. A total exaggeration/somatization score is achieved by collecting the scores received (7, 8).

Multidimensional Perceived Social Support Scale (MPSSS): A 12-item scale that evaluates the adequacy of support from three different social support sources in a subjective manner. It is assessed in "family," "friend," and "a special person" sub-scales by assigning 4 points each. A high score indicates high perceived support (21, 22).

2.3. Statistical Analysis:
The Statistical Software SPSS for Windows 19 (Statistical Package for Social Sciences for Windows 19) was employed in the calculations. The qualitative variables of the study are demographic data like age, marital status, educational level, working status, and socioeconomic level, as well as having psychiatric treatment history in the participant or their family and any additional medical disease. The cross-table and Chi-Square Tests were used to evaluate whether there was a relation between the qualitative variables. The quantitative variables of the study are the scores from HADS, SAS, MPSSS, PSAS, and HAS. The Significance of the Difference Between Two Averages and the Pearson Correlation Coefficient were used to evaluate the association between quantitative variables. P values less than 0.05 were considered statistically significant.

3. Results
3.1. Sample characteristics
One hundred sixty patients scheduled for hysteroscopy were interviewed. Since 20 of the patients who were evaluated refused to participate in the study, ten people continued their regular follow-ups and treatments in the psychiatry unit, eight people were illiterate, 15 people did not fill the forms, or the forms were incomplete, they were not included in the study. The remaining patients were excluded from the study because they met the exclusion criteria. One hundred patients scheduled for hysteroscopy were included as the study group, while 70 people who met the inclusion criteria were taken as the healthy control group (Fig. 1.)
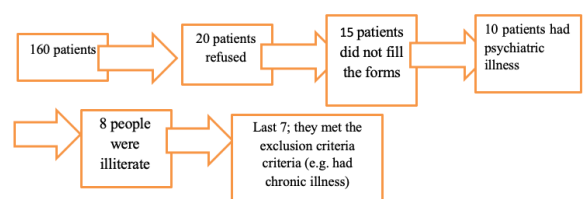

Fig. 1. Flowchart

All the participants were female. Three people in the patient group and five in the control group were single. No differences were detected between the participants' educational levels, working status, and socioeconomic status (p>0.05). There were no psychiatric disorders that required to receive treatment in any participants. None of the participants had any additional medical diseases. Thirty-seven people in the patient group had a previous operation, and for 63 people, it was the first operation. Thirty-nine people in the control group had previously undergone an operation, while 31 had not before (Table 1).

Table 1. Sociodemographic characteristics of the groups

	Control Group (n=70)(%)	The patient group scheduled for hysteroscopy (n=100)(%)	P
Mean Age (Mean±SD)	37.24±7.72	36.49±9.02	0.571
Marital status (married/single)	62.9/7.1	97/3	0.209
Educational status			
Primary school graduate	38.6	49	
High school graduate	34.3	25	0.324
University graduate	27.1	26	
Working status			
Part-time job	35.7	26	
Full-time job	7.1	2	0.070
Housewife	57.1	72	
Socioeconomic Status			
Low Level	14.3	12	
Moderate Level	81.4	75	0.157
High Level	4.3	13	
Residence			
City Center	72.9	50	
District	34.3	40	0.012
Village	5.7	10	
Past Surgery (Yes/No)	**55.7/44.3**	**63/37**	**0.340**

No psychiatric treatment in the family, no additional disease, none of the participants has psychiatric treatment. The Chi-Square Test was applied, the values in the table were calculated with %.

3.2. Scale scores

The participants' quantitative variables revealed no differences between the people scheduled for hysteroscopy and the control in any subscales of HADS (p>0.005). The Somatosensory Amplification Scale score in the patients scheduled for hysteroscopy was calculated as 31.37±8.14; and 25.07±8.87 in the control (p<0.001). The Health Anxiety Scale Body scores, negative results, and total scores were statistically and significantly higher in patients scheduled for hysteroscopy (p values: <0.001; 0.008; <0.001, respectively). The Multidimensional Perceived Social Support Scale scores were significant in specific subscales, and the Penn State Anxiety Scale did not differ at statistically significant levels (Table 2).

Table 2. Quantitative distributions of the groups

	Control Group (n=70) (Mean±SD)	Patient Group to Undergo hysteroscopy (n=100) (Mean±SD)	P
HADS			
Anxiety scale	6.63±2.39	6.56±3.88	0.896
Depression scale	5.14±3.23	5.55±3.61	0.451
Total Score	11.77±4.85	12.11±6.6	0.715
PSAS	41.47±11.34	44.07±11.07	0.138
SAS	25.07±8.87	31.37±8.14*	<0.001
MPSSS			
Special person	22.17±7.1	19.48±8.13*	0.027
Family Support	21.74±6.11	21.04±5.84	0.450
Friend Support	20.59±6.88	18.23±7.31*	0.036
Total score	64.64±18.77	58.18±18.45*	0.027
HAS			
Body Score	9.29±4.45	13.84±5.62*	<0.001
Negative Results	2.77±1.87	3.63±2.18*	0.008
Total score	**12.06±5.46**	**17.47±6.73***	**<0.001**

The abbreviations in the table: HADS: Hospital Anxiety Depression Scale, PSAS: Penn State Anxiety Scale, SAS: Somatosensory Amplification Scale, MPSSS: Multidimensional Perceived Social Support Scale, HAS: Health Anxiety Scale, (Mean±SD): Mean±Standard Deviation. The Significance of the Two Mean Values Test was applied. The values given in the table are presented as Mean±Standard Deviation.

3.3. The Pearson Correlation Analysis results

These results are presented as tables (Table 3 and Table 4). It was determined that there was a positive relation between SAS and PSAS (r=0.227; p=0.023). It was also determined that there was a positive relation between the total score, the Body Score, and the SAS and HAS (*r* values=0.197; 0.190, respectively). No significant relations were detected between the Multidimensional Perceived Social Support Scale, SAS, HAS and PSAS (p>0.05).

Table 3. Pearson Correlation Analysis results of the patients scheduled for hysteroscopy - I

	Hospital Anxiety Depression Scale		
	Anxiety subscale	Depression subscale	Total score
MPSSS			
Special person	-.010	-.100	-.060
Family Support	-.114	-.222*	-.189
Friend Support	-.085	-.102	-.106
Total score	-.049	-.138	-.104
PSAS	.419*	.236*	.376*
SAS	.095	.057	.087
HAS		11	
Body Score	.316*	.162	.275*
Negative Results	.363*	.312*	.384*
Total score	**.382***	**.236***	**.354***

The abbreviations in the table: PSAS: Penn State Anxiety Scale, SAS: Somatosensory Amplification Scale, MPSSS: Multidimensional Perceived Social Support Scale, HAS: Health Anxiety Scale. The values given in the table are the R values. The calculations were made with Pearson Correlation Analysis. *p<0.05

Table 4. Pearson Correlation Analysis results of the patients scheduled for hysteroscopy - II

	MPSSS-1	MPSSS-2	MPSSS-3	MPSSS-4	PSAS
SAS	.142	.140	.130	.142	.227*
Health Anxiety Scale					
Body Score	.055	-.093	-.053	-.014	.342*
Negative Result	.006	-.195	-.078	-.062	.360*
Total Score	**.048**	**-.141**	**-.069**	**-.032**	**.402***

The abbreviations in the table: MPSSS: Multidimensional Perceived Social Support Scale; 1: Special person; 2: Family Support; 3: Friend Support; 4: Total score; PSAS: Penn State Anxiety Scale, SAS: Somatosensory Amplification Scale. The values given in the table are the R values. The calculations were made with Pearson Correlation Analysis. *p<0.05

4. Discussion

We used HADS and PSAS in our research and detected no significant differences between the groups for HADS. Gambadauro et. al. showed that the anxiety levels of patients before hysteroscopy with HADS, patients received an average score of 6.8±4.2. Although this result was below the cut-off points, it was higher than the group scheduled for laparoscopic tubal ligation (15). Similar to this study, the anxiety scores of women scheduled for hysteroscopy were calculated as 6.56±3.88 on average in the present study. This score was below the cut-off points for the anxiety subscale. However, 16 (16%) of the participants who were scheduled for hysteroscopy exceeded the cut-off score for the anxiety subscale, and only one person exceeded the cut-off score in the control (1.42%). Although hysteroscopy is a minimally invasive procedure, it is a condition in which patients can be expected to worry before the procedure because it is a surgical procedure. In a study that examined the anxiety levels in patients who waited for hysteroscopy, it was reported that 65% experienced anxiety. However, an evaluation tool was not used in this study; instead, the participants were asked whether they had anxiety (23). The Spielberger State-Trait Anxiety Inventory (STAI) was used to evaluate anxiety levels before hysteroscopy in most of the studies conducted previously in the literature (24-26). STAI is an anxiety evaluation scale for measuring "state and trait anxiety" levels. The anxiety in specific situations is interpreted as "state anxiety," and the tendency towards continuous anxiety and the future is interpreted as "trait anxiety" (27). In a study that examined the anxiety of people with this evaluation tool before hysteroscopy, the STAI score of the women before the procedure was reported as 45.7. This result was found to be higher than the patients who were admitted to the general gynecology clinic and lower than the patients who were evaluated for chronic pelvic pain (24). In a study conducted with STAI, the anxiety level was calculated as 41.50. This result was reported as a moderate anxiety level for the STAI scale in which 20 and 80 scores may be received (25).

Another study evaluated 18 women who underwent hysteroscopy for diagnosis in the postmenopausal period with STAI-short form. As a result, the anxiety scores were calculated as high compared to the control (26). The results in the literature showed changes per the measurement tools used to evaluate anxiety levels. Our study evaluated the anxiety levels of people with PSAS and HADS. The Penn Anxiety Scale STAI evaluates persistent, excessive, and uncontrollable anxiety. Scores can be between 16 and 80; the higher the score, the higher the anxiety levels are (19, 20). No significant differences were detected between the participants for PSAS in our results. However, although no participants received 80 maximum points in the control, two people (2%) received maximum points in the patient. In addition, 30 people (30%) scored 50 or more in the patient, and this rate was calculated as 14 (20%) in the control. Scores of 50 or more are considered moderate anxiety levels for an anxiety evaluation tool with ratings between 16 and 80.

No significant differences were detected in our results in terms of the subscale of depression of the participants. Studies on depression levels before surgical or diagnostic interventions are limited in the literature (28-30). A previous study determined that the depression and anxiety scores of people before interventional procedures for diagnostic purposes were high (28). Another study showed that the diagnosis of preoperative depressive disorder adversely affects the recovery times after the surgery (29, 30). Studies on anxiety and depressive disorders report higher incidence in the female gender. Factors like the psychosocial role, pregnancy, and childbirth, and biological differences related to premenstrual periods of women within the society were held responsible for this (31, 32). Although there were no differences in our results in terms of depression scores between the patient and the control, 20 people (20%) exceeded the cut-off score for the depression subscale in the group that was scheduled for hysteroscopy. This rate was calculated as eight people in the control (11.40%). Since the menstrual cycle is irregular, it was interpreted as an expected condition that there were increases in the depression scores of people who were scheduled for hysteroscopy for diagnostic purposes.

Although the participants did not have any differences in terms of both anxiety evaluation tools and the depression subscale, their Health Anxiety and Somatosensory Amplification levels were calculated to be higher than the control that was scheduled to undergo hysteroscopy. Health anxiety occurs when a person interprets existing physical symptoms as a severe disease even if they do not have any physical illness diagnosed, and when they over-worry the negative results of the condition they believe to exist (6, 21). Somatosensory amplification is the tendency to perceive normal bodily sensations in an extreme, harmful, disturbing, and depressing way (7, 8). Previous studies revealed that somatization is associated with psychiatric disorders like depressive disorder, panic disorder, and hypochondriasis, as well as other medical diseases like fibromyalgia and chronic pain syndrome (8). There are studies in the literature arguing that there is a difference between genders and that women are

more prone to somatization (33, 34), as well as studies reporting the opposite, namely, men are more prone to somatization (35). Some studies reported that there is no gender difference for somatization (4, 7, 8). No other studies in the literature examined health anxiety and somatization before hysteroscopy. In a study examining somatization and health anxiety levels before invasive intervention/angiography for diagnostic purposes, the somatization and health anxiety levels of the group scheduled for angiography were higher than the control (28). A study conducted on pregnant women found that the somatosensory amplification levels of pregnant women were higher than the non-pregnant group (36). Although some studies reported a relation between anxiety and depression scores and somatization (28, 36), the results of some studies were similar to ours (7, 8); namely, no relations were detected between anxiety, depression, and somatization scores. Although the surgery is minimally invasive, the thought of surgery in the patient's consciousness and the possibility of being diagnosed with a postoperative malignancy might lead individuals to consider bodily sensations more seriously.

Finally, the perceived social support levels were also examined in the study. Significant differences were detected in the group scheduled to undergo hysteroscopy compared to the control in specific subscales. No previously conducted studies were found in the literature examining the perceived social support levels of patients scheduled for hysteroscopy. However, studies were conducted to examine the perceived social support levels before surgical procedures or diagnostic interventions. These studies emphasized that the recovery times of patients with good support were shortened in addition to the importance of preoperative social support, especially family support (37-39). In addition, these studies showed that the family support perceived by patients was adequate before the operation, similar to our results (37-39). Our results revealed insufficient perceived social support - special human and friend subscales. This result may stem from patients who underwent hysteroscopy, a minimally invasive surgery with fast discharge from the hospital, not notifying people other than their families.

Our results should be considered with some limitations in mind. The first one of these limitations is the number of patients. Other limitations are the inclusion of only women in the study, the random selection of the universe, the lack of SCID-5-CV (Structured Clinical Interview for DSM-5), and the failure to conduct long-term interviews after the hysteroscopy. These limitations prevent our findings from being generalized. Further studies are needed with a much larger number of participants in larger sampling groups.

Our results evinced that although the anxiety and depression levels of women did not increase before hysteroscopy, they experienced significant health anxiety. In addition, we also determined that the somatization tendencies of these women increased, and the social support levels they perceived decreased, especially for the "friends" subscale. In light of these results, we recommend psychosocially supporting such patients to help them more in diagnostic procedures before surgery, tolerating possible postoperative malignancy diagnosis, and facilitating compliance with treatment.

Ethical Statement

Approval was obtained from Gaziosmanpaşa University Clinical Research Ethics Committee, the study started. The ethics committee decision date is 19/02/2019 and the number of ethical committee decisions is 2019/02.

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