

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20183292>

## Original Research Article

# Level of anxiety, depression, self-esteem and quality of life among the women with vaginitis

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**Received:** 17 May 2018

**Accepted:** 23 June 2018

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## ABSTRACT

**Background:** Present aim is to evaluate anxiety, depression, quality of life and self-esteem in patients with vaginitis (not only specific to candidiasis) and also to determine factors affecting vaginitis such as demographic, cultural and psychological causes.

**Methods:** Each patient completed a self-administered questionnaire (Rosenberg' Self-Esteem Scale, Short-Form 36, Quality of Life Scale, Beck Anxiety Inventory, and Beck Depression Inventory, Body Image Scale) and underwent a careful examination of the vulva and vagina. The cross-sectional study was carried out with two groups. The first group consisted of 107 women between the ages 18 and 45 years and had no physical disease but recurrent vulvovaginitis ( $\geq 4$  in a year). The comparison control group consisted of 94 healthy (no vaginitis symptoms in 12 months) age matched volunteer participants.

**Results:** Women with vaginitis had significantly higher anxiety and depression scores. There was no statistically significant difference in body image scale. Regarding type of marriage, arranged type was statistically significantly higher in vaginitis group while flirting type was statistically higher in control group. University school degree and income was statistically significantly lower in vaginitis group. Living residence as rent and vaginal douch was statistically significantly higher in vaginitis group.

**Conclusions:** A better detailed history should be taken into consideration for personal stress sources and treatment support should be provided for patients with vaginitis. Not only gynecologists but also a multidisciplinary team should take part in the treatment and follow up of the patients to cope with recurrency even in non-specific vaginitis.

**Keywords:** Anxiety, Body image scale, Depression, Rosenberg' self-esteem scale, Short-form 36, Vaginitis

## INTRODUCTION

Vaginitis is a general term of inflammation of the vaginal wall usually caused by yeast infections, bacterial vaginosis and trichomoniasis.<sup>1</sup> Vulvovaginal itching,

irritation, pain and noticeable changes in vaginal discharge are also diagnosed as vaginitis.<sup>2</sup> Some predisposing factors are pregnancy, oral contraceptives, activity deficiency, high intake of sugar, diabetes mellitus, oral sex and vaginal douching.<sup>3,4</sup> Vaginal discharge is a very common problem and vaginitis is the

most prevalent infection of low genital track.<sup>1,2</sup> This infection alone is accounted for >10 % of outpatient clinics especially in women of reproductive age.<sup>3</sup> Moreover, it is also an important public health problem affecting men, families and communities.<sup>1</sup>

It was shown that patients with recurrent vaginal candidiasis (RVVC) were significantly vulnerable to clinical depression and less satisfied with life and had poorer self-esteem.<sup>5</sup> Therefore, patients with vaginal candidiasis had problems with their sexual and emotional relationships.<sup>5</sup> Ehrström et al. also evaluated the association between recurrent vulvovaginal candida and chronic stress.<sup>6</sup> They examined morning rise of salivary cortisol level to indicate signs of chronic stress. The results of their study showed that chronic stress may play a role in the pathogenesis of RVVC.<sup>6</sup>

Our aim is to evaluate anxiety, depression, quality of life and self-esteem in patients with vaginitis (not only specific to candidiasis) and also to determine factors affecting vaginitis such as demographic, cultural and psychological causes.

## METHODS

This study was conducted at Kayseri Education and Research Hospital of Medicine between years of 2015-2016. The study was approved by the Ethical Committee of University Hospital, and written informed consent was obtained from all the participants.

The cross sectional study was carried out with two groups. The first group consisted of 107 women between the ages 18 and 45 years and had no physical disease but recurrent vulvovaginitis ( $\geq 4$  in a year). The comparison control group consisted of 94 healthy (no vaginitis symptoms in 12 months) age matched volunteer participants. Those who had chronic diseases, had other gynecological complaints such as abnormal bleeding etc., positive malignancy, psychotic disorders and used antidepressants and mood stabilizers (Li, Valproic acid, etc.) were excluded from the study. Hysterectomized, pregnant, those who reported receiving antibiotics, corticosteroids or immunosuppressive drugs were also excluded. All participants had at least primary school degree.

Each patient completed a self administered questionnaire and all women underwent a careful examination of the vulva and vagina. Widely used, reliable and valid clinical psychological health rating scales were used in this study followed below:

- Rosenberg' Self-Esteem Scale (RSES),
- Short-Form 36 (SF- 36) Quality of Life Scale,
- Beck Anxiety Inventory (BAI), and
- Beck Depression Inventory (BDI),
- Body Image Scale (BIS).

These scales and inventories were used and scored by the same psychiatrist. The basic questionnaire form consisted of sociodemographic characteristics such as age, educational level, income status, marital status, type of marriage, living residence, profession, and number of children. Vaginal douch habit and body mass index (BMI) were also asked and recorded.

SF-36 Quality of Life Scale is the most widely used scale in order to measure the quality of life. The scale was designed by Rand Corporation in 1992 and validity and reliability tests of the Turkish version were performed by Kocuyigit et al.<sup>7,8</sup>

Rosenberg' Self-Esteem Scale (RSES) is a Likert-type self-rated scale composed of 10 questions and was designed by Rosenberg.<sup>9</sup> Validity and reliability tests of the Turkish form were performed by Cuhadaroglu.<sup>10</sup> The first ten items of the scale are used to evaluate self-esteem. A total score between 0 and 1 indicates high level of self-esteem, a total score between 2 and 4 indicates moderate level of self-esteem and a total score between 5 and 6 points out low level of self-esteem.<sup>10</sup>

Beck Depression Inventory (BDI) was developed by Beck et al. and measures physical, emotional, and mental symptoms in depression.<sup>11</sup> It is self-rated inventory with 21-symptom category. Higher total scores indicate higher severity of depression. Validity and reliability tests of the Turkish version were performed by Hisli.<sup>12</sup>

Beck Anxiety Inventory (BAI) is a self-rated inventory used to determine the frequency of anxiety symptoms. It is composed of 21 items and is a Likert-type inventory rated from 0 to 3. Higher total scores indicate higher severity of anxiety.<sup>13</sup> Validity and reliability tests of the Turkish version were performed by Ulusoy.<sup>14</sup>

Body Image Scale (BIS) was developed by Secord and Jourand in 1953 and validated and credited by Hovardaoğlu in 1989.<sup>15,16</sup> The scale contains 40 items, each of which relates to an organ or part of the body (arm, leg, face, etc.) or a function (such as sexual activity level). The cut score of the scale was 135, and those with a score below 135 were defined as having a low perception of body image.

## Statistical analysis

The analysis of the data was performed with SPSS 18 software. Shapiro-Wilk test was used in order to determine whether or not the data followed a normal distribution. The data were presented as frequency and percentages, means  $\pm$  SD or median (25th and 75th). For the qualitative data, chi-square analysis was performed for intergroup comparisons while for the quantitative data oneway variance analysis. For all analyses, statistical significance was defined by a probability level of  $P < 0.05$ .

## RESULTS

The main characteristics of the study groups were described in Table 1. No significant difference was found between age, marital status, body mass index (BMI) and number of children and number of coitus (weekly). Regarding type of marriage, arranged type was statistically significantly higher in vaginitis group while flirting type was statistically higher in control group. University school degree and income was statistically significantly lower in vaginitis group. Living residence as rent and vaginal douch was statistically significantly higher in vaginitis group.

**Table 1: Basic characteristics of study and control groups.**

	Group 1 (vaginitis)	Group 2 (healthy controls)	p
Age	33.7±6.0	34.6±5.4	0.20
Marital status			
Married	103 (96.3%)	91 (96.8%)	0.88
Divorced	2 (1.9 %)	2 (2.1 %)	
Widow	2 (1.9 %)	1 (1.1%)	
Type of marriage			
Arranged	71 (66.4%)	36 (38.3%)	<0.01
Flirting	36 (33.6%)	58 (61.7 %)	
Education			
Primary school	59 (55.1%)	8 (8.5%)	<0.01
High school	39 (36.4%)	29 (30.9%)	
University	9 (8.4%)	57 (60.6%)	
BMI (kg/m <sup>2</sup> )	26.5±4.8	25.8±4.0	0.30
Living residence			
Rent	56 (52.3%)	32 (34%)	<0.01
Lanlord	50 (46.7%)	62 (66%)	
Number of children	2 (0-6)	2 (0-5)	0.33
Income (tl)*	1200 (0-5000)	2500 (900-10000)	<0.01
Vaginal douch yes/no	57/50	19/75	<0.01
Number of Coitus (weekly)	3 (0-4)	2 (0-4)	0.17

BMI: Body Mass Index tl: turkish liras \*values expressed as median (minimum -maximum)

Women with vaginitis had significantly higher anxiety scores. Table 2 included anxiety and avoidance scores of BDI, BAI, and BIS. All SF-36 domains were lower in vaginitis group. The domains related to physical functioning (PF), physical role function (PRF), pain, general health (GH), vitality, social functioning (SF), emotional role function (ERF), and emotional well-being (EWB) were also showed in Table 2. Although there were statistically significant differences in all of these parameters, there were no statistically significant difference in body image scale (BIS) compared to the healthy group.

**Table 2: Evaluation of BDI, BAI, BIS and SF -36 scale among groups.**

	Group 1 (vaginitis)	Group 2 (healthy controls)	P
BDI	14.5 (1-48)	10 (0-41)	<0.01
BAI	17 (1-53)	10 (0-48)	<0.01
BIS			
>135	7 (6.5%)	7 (7.4%)	0.91
<135	100 (93.5%)	87 (92.6%)	
PF	75.5±7.4	81.1±7.4	<0.01
PRF	78.9±7.4	81.6±11.2	<0.01
Pain	78.6±12.2	83.2±7.0	<0.01
GH	71.1±5.6	73.9±4.3	<0.01
Vitality	65.8±5.9	70.0±5.3	<0.01
SF	85.3±9.7	88.3±5.8	<0.01
ERF	85.2±6.2	88.7±4.8	<0.01
EWB	69.6±6.1	73.8±4.4	<0.01

BDI: Beck Depression Inventory, BAI: Beck Anxiety Inventory, BIS: Body Image Scale Data related to Short Form 36 Quality of life scale: SF-36 PF: physical functioning; PRF: physical role function; GH: general health; SF: social functioning; ERF: emotional role function and EWB: emotional well-being.

Table 3 included the data related to self-esteem (SE), continuity in self-concepts (CSC), trust in people (TIP), sensitiveness to criticism (SC), depressive affect (DA), day dreaming (DD), psychosomatic symptoms (PSS), feeling threat in interpersonal relations (FTIR), intensity of discussion (ID), parental interest (PI), father-relation (FR), and psychic isolation (PsI). Except TIP, PI and PsI, all parts of Rosenberg self-esteem scale were significantly different between groups.

## DISCUSSION

The result of this study indicated that women with recurrent vaginitis show more signs of stress, depression and anxiety and low quality of life compared with healthy, age matched control subjects. The lower income and lower education level accompanying with arranged type of marriage were significantly higher in vaginitis group. This is the first published study evaluating social causes and impacts leading to vaginitis and specifically examining self-esteem, anxiety, depression levels and quality of life of women with nonspecific recurrent vaginitis.

In a study, they revealed higher degree of perceived stress in women with RVVC compared with healthy controls and mentioned that lifestyle factors and chronic stress may contribute to the development of RVVC.<sup>17</sup> Moreover, women with RVVC had more lifestyle related stress symptoms including long term stress, work-related stress and burnout.<sup>17</sup>

**Table 3: Evaluation of Rosenberg self-esteem scale among groups.**

	Group1 (vaginitsis)	Group 2 (healthy controls)	P
<b>Self-esteem</b>			
Low	11	1	
Medium	55	22	<0.01
High	41	71	
<b>CSC</b>			
Low	6	0	
Medium	86	62	<0.01
High	15	32	
<b>TIP</b>			
Low	0	2	
Medium	55	55	0.15
High	52	37	
<b>SC</b>			
Low	0	0	
Medium	95	61	<0.01
High	12	33	
<b>DA</b>			
Low	7	3	
Medium	71	50	0.04
High	29	41	
<b>DD</b>			
Low	0	0	
Medium	32	47	<0.01
High	75	47	
<b>PSS</b>			
Low	42	13	
Medium	51	54	<0.01
High	14	27	
<b>FTIR</b>			
Low	0	0	
Medium	77	44	<0.01
High	30	50	
<b>ID</b>			
Low	0	0	
Medium	11	19	0.04
High	96	75	
<b>PI</b>			
Low	13	8	
Medium	51	40	0.4
High	43	46	
<b>FR</b>			
Low	5	27	
Medium	43	43	<0.01
High	59	24	
<b>PsI</b>			
Low	0	0	
Medium	38	36	0.6
High	69	58	

Data related to Rosenberg' Self Esteem Scale: SE: self-esteem; CSC: continuity in self-concepts; TIP: trust in people; SC:sensitiveness to criticism; DA:depressive affect; DD: daydreaming; PSS: psychosomatic symptoms; FTIR: feeling threat in interpersonal relations; ID: intensity of discussion; PI: parental interest; FR: father-relation and PsI: psychic isolation

Meyer et al. concluded that psychosocial factors, particularly stress, were the primary causes of *Candida albicans* vulvovaginitis.<sup>18</sup> They also said that traditional antimycotic treatment influences only the symptoms of the illness, not its causes, and had no effect on the probability of a relapse.<sup>18</sup> Besides treatment of vaginitis, stress should be coped with for recurrence. As expected, significant differences were seen between patients and controls regarding vaginal douch habit. Vaginitis is more frequent in the patients with this habit because the vaginal douch breaks the vaginal flora and makes vagina more vulnerable to infection and inflammation.<sup>5</sup> Although discomfort of having repeated vaginitis, which also may have a negative influence on the sexual relationship, there were no differences in the number of weekly intercourse between patients and control subjects. Arranged marriage was also higher in vaginitis group. This result may be explained with the culture of the population.

Due to personal habits lower education may affect vaginal flora and this may be an additive factor for vaginitis. On the other hand, lower income in itself was a risk for anxiety and vaginitis. According to this study inventories including psychosomatic symptoms (PSS) and depressive affect (DA), the anxiety and depression level were higher in patients with vaginitis. In fact, the anxiety or depression affecting the entire body makes vagina susceptible for infections like low human immunity. Moreover, chronic stress has been shown to be an effect on the immune system.<sup>18</sup> The signs of chronic stress in vaginitis and treatment responses related to stress were also evaluated.<sup>6,19</sup> Eström et al. showed morning rise of salivary cortisol level which was related to long-term perceived stress.<sup>6</sup> They thought that the stress factor might contribute to a reactivation of candida vulvovaginitis, which was similar with the accepted association between stress and reactivation of herpes genitalis.<sup>6</sup> This stress may be an additive index to level of anxiety and depression.

Zhu et al showed that the mean SF-36 dimension scores for physical function, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health were significantly lower in the patients with RVVC than in the controls.<sup>20</sup> They also mentioned that the mental health domains were the most affected. Similarly, in another study, subjective health status and quality of life during and in between acute inflammatory episodes in women with RVVC were significantly worse than in the general population, despite the use of antifungal therapy.<sup>21</sup> 68 % of the participants reported depression/anxiety problems during acute episodes and 54 % reported depression/anxiety when they were not experiencing episodes, compared with less than 20 % for the general population.<sup>21</sup>

Current study results were consistent with Zhu and Aballea et al confirmed lower physical, social functioning and emotional well-being not only in candidiasis but also in nonspecific vaginitis.<sup>20,21</sup> Vaginitis was found to be



affected by stress factors, but it may also be related to education and income level which in turn may trigger stress, which may be caused by vaginitis. Study had several limitations. Firstly, the vaginal discharges were not cultured. Secondly, the small sample sizes of participants. Larger numbers would be desirable for detection of particular differences in ethnicity which may influence women's psychological perspectives and strategies or willingness to answer the questionnaire. We think that this is the first published data investigating the multifactorial aetiology of non-specific vaginitis in women in a developing country. Anxiety, depression, self-esteem and quality of life among the women with vaginitis should be examined entirely. We suggest that not only gynecologists but also a multidisciplinary team should take part in the treatment and follow up of the patients to cope with recurrence even in nonspecific vaginitis.

## CONCLUSION

In conclusion, a better detailed history should be taken into consideration for personal stress sources and treatment support should be provided for patients with vaginitis.

## ACKNOWLEDGMENTS

The authors thank Onur Kadir Uysal for his contribution to this research.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Ethical Committee of University Hospital (2014/342)*

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**Cite this article as:** Uysal G, Arlier S, Cagli F, Akkaya H, Soyak M, Cingillioglu B. Level of anxiety, depression, self-esteem and quality of life among the women with vaginitis. *Int J Reprod Contracept Obstet Gynecol* 2018;7:3009-13.