

# The Impact of Inflammatory and Infectious Diseases of Vulvar on Quality of Life

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**Objectives:** This study aimed to evaluate the effects of vulvar dermatoses (VD) and vulvar infections (VE) on anxiety, depression scores, general, and dermatological quality of life (QOL) of women.

**Methods:** We conducted a cross-sectional survey on patients diagnosed with VD and VE. All patients were assessed using a sociodemographic form, Skindex-29 scale, World Health Organization QOL (WHOQOL) BREF scale, Hamilton anxiety rating scale (HAM-A), Hamilton depression rating scale (HAM-D).

**Results:** HAM-A score was significantly higher in the VD group than in the control group. Based on age groups, all subscales of Skindex-29 were found to be higher in women > 50 years. For women with severe pruritus, the symptom subscale was higher in patients with skin involvement and the function and emotion subscales were higher in patients with and emotion subscales were higher in patients with mucosal involvement.

**Conclusions:** We found that VD was particularly significantly associated with decreased QOL. (*J Menopausal Med* 2016;22:131-138)

**Key Words:** Communicable diseases · Inflammation · Quality of life · Vulva · Women's health

## Introduction

The vulva is the external female genital organ which has a complex external morphology comprising skin and mucosa; it is in juxtaposition with the gastrointestinal system.<sup>1</sup> Vulvar diseases need specific attention because vulvar moisture, friction and occlusion can give rise to different appearances of the skin in contrast to other body parts. Complaints related to vulvar disorders are fairly common among women, but the precise prevalence of vulva disorders is largely unknown.<sup>2</sup> Although some of these disorders are specific to the vulva, some can be the resulting symptom of dermatologic conditions in other parts of the body.<sup>1</sup> Vulvar symptoms generally appear as widespread pruritus and/or pain and irritation. The presence and severity of these

symptoms can vary, ranging from mild discomfort to great impairment. Additionally, longer durations of the symptoms may negatively affect mental and sexual health, and quality of life (QOL) in a woman's life cycle (premenarceal, reproductive and menopausal periods).<sup>3</sup>

Vulvar dermatoses (VD) characterized by vulvar epithelial changes which are not infectious or neoplastic, except for vulvodynia.<sup>1,2</sup> The most common infectious vulvar diseases that share similar symptoms are candidiasis, anogenital warts, genital herpes, dermatophytosis, erythrasma, and molluscum contagiosum. Vulvar inflammatory and infectious diseases can restrain the patient's physical activity of daily living, including household chores and social activities as well as the patients' psychosexual and psychological conditions.<sup>4,5</sup> Further, concerns regarding sexually transmitted diseases,

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intimacy of sexual contact, fear of malignancy, together with intense feelings of isolation, shame, anxiety, or depression can delay the diagnosis and thus may cause disease progression.<sup>1,2,6</sup> Current treatments for many vulvar disorders, including pruritus and/or pain and irritation are generally symptomatic. Based on the infectious agent, vulvar infection (VE) is treated with antiviral, antibacterial, or antifungal therapy.

QOL assessment tools are used to compare the effects of dermatological diseases on QOL and to objectively assess the compatibility of patients with treatment and treatment outcomes.<sup>7</sup> There are no standard measurements to evaluate the effects of vulvar diseases on daily life.<sup>4</sup> Although it is known that vulvar diseases affect patients' QOL of people, there is limited information on the subject. Here we intended to evaluate the effect of VD and VE on the general and dermatological QOL of women as well as the effect on their anxiety and depression states. We aimed to compare patients with vulvar disorders with healthy controls.

## Materials and Methods

This was a cross-sectional survey which was conducted on patients diagnosed with VD and VE presenting to the dermatology and gynecology clinics. All participants provided written informed consent before the study. The study included 60 patients with VD and 60 patients with VE together with 60 healthy hospital staff members who were voluntarily and consecutively chosen and age-matched with the experimental (VD + VE) groups. Both experimental and control groups consisted of 180 married women having sexual activity who were between 18 and 60 years. Patients with dermatological disease on other parts of their body, those with psychological or neurological illnesses, women < 18 and > 60 years, pregnant women, nursing mothers, those using systemic or topical medicine, and those who did not provide complete reports were excluded from the study. A detailed medical history was obtained, and all patients underwent dermatologic examination. Demographic data of both experimental and control groups were recorded. Vulvar involvement areas were classified as "mucosa," "skin," and "skin and mucosa." All patients were asked to evaluate the

intensity of their pruritus as "mild," "moderate," or "severe." Patients answered the questions of Skindex-29, Hamilton anxiety rating scale (HAM-A), Hamilton depression rating scale (HAM-D) and World Health Organization QOL (WHOQOL)-BREF in a proper environment with enough time. The questions were meant to refer to the patient's condition during the month prior to the index consultation. The subscale scores in Skindex-29, HAM-A, HAM-D, and WHOQOL-BREF were analyzed according to the direction of the questions.

In this study, we applied the Skindex-29 scale, developed by Chren<sup>7</sup> in 1997. The Skindex-29 scale consists of 30 questions and three subscales. Ten of these questions refer to emotions, 7 of them to symptoms, and 12 of them functions. Question 18 was not assessed and last question of the questionnaire open-ended.<sup>8</sup> The emotion subscale assesses whether the disease is serious, if it will leave a scar on the patient, anxiety caused by potential disease progression as well as feelings of depression, shame, anger, and unhappiness. The symptom subscale measures the physical effects of the disease, such as pain, irritation, stinging pain, pruritus, sensitivity, and bleeding. The function subscale consists of questions related to daily life, such as sleep, work, hobbies, social life, staying at home, intimacy issues, between the individual and their partners, sexual dysfunction, living alone, and fatigue. The participants' answers were converted into linear scale scores between 0 (ineffective) and 100 (maximum effect).<sup>7,9</sup> The higher the scale score (from 0 to 100) indicated a lower QOL.<sup>7</sup>

For the assessment of anxiety and depression, HAM-A and HAM-D was used. This scale was developed by Zigmond and Snaith<sup>10</sup> to determine the risk of anxiety and depression in patients and to measure the level and intensity of change. Seven out of 14 questions (1,3,5,7,9,11,13) assess anxiety and the other seven (2,4,6,8,10,12,14) assess depression. Answers are scored with a 0–3 Likert-type scale. As a result of receiver operating characteristic (ROC) analysis, it was found that the cutoff of HAM-A and HAM-D for the Turkish version of the scale is 10/11 for the HAM-A subscale and 7/8 for HAM-D scale. For both scales, the lowest score that a patients can achieve is 0 and the highest is 21.<sup>11</sup> Patients with scores over this cutoff are considered to

be at risk.

A QOL scale was developed by the WHO and it is aimed at evaluating the sociodemographic and health status of people in different cultures. The long form of the WHOQOL-100 scale consists of six fields and 24 parts. WHOQOL-BREF short form is a self-assessment questionnaire consisting of four areas and a total of 26 questions. Twenty-four questions are related to physical health, psychological health, social relationships, and environment, and the remaining two key questions are related to the overall well-being status.<sup>9,12,13</sup> The participants' responses range between 1 (never) and 5 (extremely). Points are calculated based on the WHOQOL-BREF guidelines. The score for each area is between 4 and 20. The higher the score, the higher QOL.<sup>9,14</sup>

### Statistical analysis

MANOVA was used to analyze the data of the patient and control groups. Shapiro Wilk and Levene's tests were used to investigate the ages of normal distribution and homogeneous exchange of patients between the groups; duration of the disease; and the Skindex-29, WHOQOL-BREF, HAM-A, and HAM-D variables. Bonferroni correction was used to determine the differences between groups when there was a significant difference in the multivariate analysis of variance (MANOVA) test. Chi-square and Z-tests were used

to investigate the correlation between groups. Correlations between parameters were assessed with the Pearson's correlation test. A  $P < 0,05$  was accepted as the limit of significance. All data obtained in this study were evaluated on SPSS software, version 20.0 (SPSS Inc., Chicago, IL, USA).

## Results

The experimental groups consisted of 60 cases of VD and 60 cases of VE. The control groups consisted of 60 healthy women. Baseline demographics and clinical characteristics of the participants of the study are summarized in Table 1. The distribution of age and education levels for both experimental and the control groups were similar. Table 2 and 3 shows the distribution of vulvar diseases, the mean age of patients, duration of disease, involvement areas, and the distribution of the severity of vulvar pruritus. In the VD group, 50% of patients ( $n = 30$ ) had a disease duration  $> 12$  months. In the VE group, 45% ( $n = 27$ ) had a disease duration between 1 and 6 months. There was no significant difference between inflammatory and infectious diseases considering the gap between skin involvement regions. According to their assessments, vulvar pruritus was mild in 27,3%, moderate

**Table 1.** The demographic characteristics of the patients and the control group

Parameters	Vulvar dermatose (n = 60)	Vulvar infection (n = 60)	Control group (n = 60)	P value
Age (years)	42.13 ± 11.4	33.63 ± 9.14	33.57 ± 7.31	≥ 0.05
Duration of disease (months)				
≤ 1	5 (8.3%)	6 (10.0%)	-	≥ 0.05
1-6	12 (20.0%)	27 (45.0%)	-	≥ 0.05
6-12	13 (21.7%)	7 (11.7%)	-	≥ 0.05
≥ 12	30 (50.0%)	20 (33.3%)	-	≥ 0.05
Education status				
Primary school	26 (43.3%)	17 (28.3%)	2 (3.3%)	≥ 0.05
Middle school	8 (13.3%)	9 (15.0%)	3 (5.0%)	≥ 0.05
High school	14 (23.3%)	20 (33.3%)	18 (30.0%)	≥ 0.05
University	12 (20.0%)	14 (23.3%)	37 (61.7%)	≥ 0.05

The data is presented as mean ± standard deviation or number (%)

**Table 2.** The distribution of patient with vulvar dermatose

	CD	LSC	LP	LS
No. of patients (%)	26 (14.4%)	19 (10.6%)	2 (1.1%)	13 (7.2%)
Age (years)	36 ± 8.47	43.05 ± 11.58	35.5 ± 4.95	54.08 ± 6.44
Duration of disease (months)	13.6 ± 15.89	18.69 ± 13.86	8.5 ± 4.95	8.67 ± 11.58
Severity of itching (0-3)	1.58 ± 0.64	2.21 ± 0.78	2.5 ± 0.7	2 ± 0.4
Held area	Skin	Skin + mucosa	Skin + mucosa	Mucosa

The data is presented as mean ± standard deviation or number (%)  
 CD: contact dermatitis, LSC: lichen simpleks chronicus, LP: lichen planus, LS: lichen sclerosus

**Table 3.** The distribution of patient with vulvar infectious disease

	Furoncle	Candidiasis	Warts	HG	Syphilis	TI
No. of patients (%)	2 (1.1%)	43 (23.9%)	10 (5.6%)	1 (0.6%)	1 (0.6%)	3 (1.7%)
Age (years)	33 ± 8.48	31.77 ± 7.83	43.8 ± 9.1	25	18	34.67 ± 4.5
Duration of disease (months)	21 ± 21.21	8.67 ± 11.58	13.66 ± 19.34	0.25	3	13.6 ± 19.3
Severity of itching (0-3)	1.5 ± 0.7	1.88 ± 0.62	1.3 ± 0.67	2	2	1.6 ± 0.5
Held area	Skin	Skin + mucosa	Skin + mucosa	Skin + mucosa	Mucosa	Skin

The data is presented as mean ± standard deviation or number (%)  
 HG: herpes genitalis, TI: tinea inguinalis

in 27,3%, and severe in 45,4% patients. Irritation and stinging pain were referred by nine patients with VD and two patients with VE. Eleven patients complained of vaginal discharge in addition to pruritus. Regarding the education level, most of the patients in the VD and VE groups had elementary school education, whereas most patients in the control group were university graduates (Table 1).

**Skindex-29, HAM-A, HAM-D and WHOQOL-BREF**

Table 4 shows the mean scores of Skindex-29, HAM-A, HAM-D, and WHOQOL-BREF comparatively. The HAM-D scores of the control and study group were similar in terms of physical, psychological, social, and environmental domain subscale scores. However, the HAM-A score of the VD group was significantly higher than that of the control group ( $P = 0,035$ ). Skindex-29 scale scores were found to be inversely correlated with age, duration of vulvar disorders, and HAM-A and HAM-D scores. When VD and VE groups were compared, the emotional subscale score was 47,90 in the VD group, whereas the score was 36,58 in the

VE group; the difference between groups was significantly different ( $P = 0,016$ ). The symptom subscale score for the VD group was 56,87 and for the VE group was 44,44, and the difference between groups was significantly different ( $P = 0,002$ ). In terms of function subscale scores, both patient groups had similar scores.

In terms of disease duration and Skindex-29 symptom, function and emotional subscales, the highest score was observed among patients with disease duration shorter than a month and the lowest scores were observed among those with disease duration between 1 and 6 months. When Skindex-29 was analyzed according to age groups, all subscales were higher for women > 50 years. Skindex-29 symptom subscale scores for women between 40 and 49 years, function subscale for women < 30 years, and the emotion subscale for women between 40 and 49 years were found to be the lowest. For women with severe pruritus, symptom subscale was higher in patients with skin involvement while function and emotion subscales were higher in patients with mucosal involvement. Based on

**Table 4.** The average of the study group and control group Skindex-29, Hamilton anxiety rating scale, Hamilton depression rating scale, and World Health Organization Quality of Life-brief version

Score	Vulvar dermatose (n = 60)	Vulva infection (n = 60)	Control group (n = 60)	P value
Symptoms	56.87	44.44	-	0.002*
Function	38.27	33.38	-	≥ 0.05
Emotional	47.90	36.58	-	0.016 <sup>†</sup>
HAM-A	10.06	9.083	7.933	0.035 <sup>‡</sup>
HAM-D	8.200	7.383	6.633	≥ 0.05
Physical domain	12.88	13.15	12.88	≥ 0.05
Psychological domain	13.32	14.12	14.07	≥ 0.05
Social domain	14.28	14.18	14.00	≥ 0.05
Enviromental domain	13.32	13.73	13.38	≥ 0.05

\*Vulvar dermatose vs. vulva infection,  $P = 0.002$

<sup>†</sup>Vulvar dermatose vs. vulva infection,  $P = 0.016$

<sup>‡</sup>Vulvar dermatose vs. control group,  $P = 0.035$

HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale

HAM-A and HAM-D subscales, in the VD groups 33.3% (n = 20) and 50% (n = 30) of patients presented higher than the anxiety and depression cutoff scores, respectively. In the VE group, 25% (n = 15) and 31.7% (n = 19) of patients presented higher scores than the anxiety and depression cutoff scores, respectively. In the control group 15% (n = 9) and 10% (n = 6) presented higher scores than the anxiety and depression cutoff scores, HAM-D scores of all patients participating in the study were significantly higher in elementary school graduates than in high school graduates ( $P = 0.013$ ).

## Discussion

Women with vulvar disease are often reluctant to seek medical care. However, vulvar skin diseases can negatively affect their daily lives and impair their QOL not only because of its symptoms but also by causing psychological problems, such as shame, fear, demoralization, obsessive compulsive disorders, sleep disorders, and issues with intimate relationships. There is currently a lack of studies assessing the effects of vulvar diseases on women's QOL. Vulvar diseases can also be related to the cultural drawbacks

of the environment that women live in, social pressure, inaccurate perceptions, and the role of the vulva in sexual relations unlike other parts of the body.

For skin diseases, QOL measurements make it possible to gather information about the curiosity and anxiety of patients, and such assessments can occasionally help improve treatment.<sup>15</sup> It is not only important to make general and specific evaluations of the skin but also perform QOL evaluations of patients with skin diseases. In dermatology, general instruments for QOL research are the Short form-36 health survey and WHOQOL-BREF, whereas the Skindex-29 is considered a specific instrument that is appropriate for the comparisons of skin diseases.<sup>8</sup> While investigating QOL in women with vulvar disease, WHOQOL-BREF was preferred for the present study because it included the assessment of several aspects related to sexual function. As a result of the WHOQOL-BREF scale questionnaire we applied to our patients, we did not find any significant differences between our patient groups and scores in the general Turkish population. However, according to the Skindex-29 symptom and emotion subscales, which are specifically aimed to assess skin related issues, we found that QOL of the patients with VDs was significantly impaired compared with that of those with VEs. There

was a significant difference between the anxiety scores of patients with VE compared with that of the control group as well as those with VD based on the HAM–A scale. The older age of VD group concomitant with the menopausal period could have a negative effect on the QOL.

In the study by Prinsen et al.<sup>16</sup>, it was observed that the cutoffs for symptoms, function, and emotion subscales of QOL assessment tests in terms of severity were  $\geq 52$ ,  $\geq 37$ , and  $\geq 39$ , respectively. In our study, symptoms, function, and emotion subscales were 56.87, 38.27, and 47.9, respectively, in the VD group and 44.44, 33.38, and 36.58, respectively, in the VE group. The values of these scores are over the cutoff scores described previously. We found that the emotional condition of patients with VD and VE was negatively affected. In some of the studies that evaluated the emotional subscales of the Skindex–29, mean emotional scores are reported as 10.7 for striae,<sup>8</sup> 12.3 for ectodermal dysplasia,<sup>17</sup> 29.5<sup>18</sup> and 30.7<sup>19</sup> for vitiligo, 40 for idiopathic pruritus,<sup>20</sup> and 48 for discoid lupus erythematosus (DLE).<sup>21</sup> The mean emotional scores in the VD group were found to be close to those previously reported for DLE. The mean emotional score in the VE group was higher than that for striae, ectodermal dysplasia, and vitiligo and lower than that for idiopathic pruritus and DLE. Further, there was a significant difference between VD and VE. However, it was expected that VEs may cause lower emotional scores than VD and other diseases. Two patients with VD answered the following to the open–ended question of the Skindex–29, “What do you think is the most uncomfortable thing about your skin problem?”, “When I experience the itch, I feel ashamed, I have lost my self–esteem” and “Because of the itch and bleeding due to my illness, I think the appearance of my sexual organ is getting worse.” A patient with VE revealed that her emotional state was affected negatively: “I’m afraid of infecting someone else who might eventually get cancer because of this infection.” When the symptom mean scores of the patients with VD (56.87) and VE (44.44) were compared with other skin diseases, striae 18.6,<sup>8</sup> 16.3 vitiligo,<sup>18</sup> ectodermal dysplasia 25.3,<sup>17</sup> and idiopathic pruritus 42.86<sup>20</sup> were found to be rather high. This result may be attributable to the symptoms of vulvar diseases, such as pain, burning/stinging, pruritus, discharge, and bleeding. A patient with VD answered to the open–ended question of

the Skindex–29 as follows: “Because of my disease, I suffer from sleeping disorder, pruritus, bleeding and frequent urination.” A VE patient said that “This disease affects my sexual life.” It is understood from these quotes that the patients were also negatively affected with respect to sexual function. However, in terms of sexual function, sleep, work, social life, and becoming intimate with a loved one, there does not seem to be a difference in the sex life issues that arise from VD and VE.

Regarding the disease duration, the Skindex–29 scale symptom, function, and emotional subscales were higher for patients with disease duration shorter than a month than for those with disease duration between 1 and 6 months. We consider that the explanation for this result is that patients were more or less able to get used to the discomfort of the disease with time. According to age groups, all subscales of the Skindex–29 scale were higher in women  $> 50$  years. The older the patient, the higher was the score for symptom and emotional status. This can be explained as the patients’ having more time for themselves and communication in the media about the disease as well as being aware of themselves. When comparing our research to that of Ertürk et al.<sup>20</sup> who performed a study of dermatological disorders that cause pruritus elsewhere in the body, we found that our patients with vulvar disorders experienced a more severe QOL. In our study, according to the location of the lesion, symptom scores were the highest when there was skin involvement. Complaints, such as pain, pruritus, and stinging pain, affected QOL the most when the lesion affected the skin, but the place of lesion did not make any difference in terms of emotion.

Hickey and Bell<sup>22</sup> showed that 23 patients who underwent the Dermatology life Quality Index questionnaire in vulvar clinic were affected slightly, moderately, or severely. Also, in this pilot study, according to HAM–A and HAM–D scores, 52% and 26% of patients with vulvar conditions had scores of eight and higher. Anxiety scores were the highest for vulvodynia, whereas the depression scores were the highest in erosive lichen planus and eczema.<sup>22</sup> In our study, HAM–A scores were significantly higher in the VD group than in the control group. The reason for this finding may be that VD diseases are observed at later stages of life and it is hard to treat these conditions.

The limitations of this study were evaluated data to be gathered at only one point in time. Moreover, the psychological influence of vulvar disorders on women may vary with cultural difference, within-individual change, and the direction of causality. It is noteworthy that, as a vulva-related questionnaire, Skindex-29 does not specifically address vulvar symptoms. Nonetheless, the sample is large and response rate was high. This analysis indicates that the dermatological QOL of patients with vulvar inflammatory and infectious conditions is considerably impaired. Further, these patients experience anxiety and depression regardless of the type of vulvar disease. Thus, the management of these patients should not only include dermatological examinations and treatment but also psychological support. Suitable interventions aimed at behavior modification and education for these patients may increase compliance with treatment and contribute to the improvement of their QOL. In clinical practice, the use of QOL assessment tools can help to objectively evaluate the physical, social, and psychological aspects of patients. However, there needs to be further research to develop specific tests and strategies for patients with vulvar disorders.

## Conflict of Interest

No potential conflict of interest relevant to this article was reported.

## References

- Barchino-Ortiz L, Suárez-Fernández R, Lázaro-Ochaita P. Vulvar inflammatory dermatoses. *Actas Dermosifiliogr* 2012; 103: 260–75.
- Stewart KAM. Vulvar dermatoses: A practical approach to evaluation and management. *J Clin Outcomes Manag* 2012; 19: 205–20.
- Nappi RE, Palacios S. Impact of vulvovaginal atrophy on sexual health and quality of life at postmenopause. *Climacteric* 2014; 17: 3–9.
- Simpson RC, Thomas KS, Murphy R. Outcome measures for vulval skin conditions: a systematic review of randomized controlled trials. *Br J Dermatol* 2013; 169: 494–501.
- Hussain SH, Sterling J. Skin diseases affecting the vulva. *Obstet Gynecol Reprod Med* 2014; 24: 141–7.
- Krapf JM, Goldstein A. The vulvar dermatoses: Part of the differential diagnosis for sexual dysfunction. *The Female Patient* 2012; 37: 28–30, 32–4.
- Chren MM. The Skindex instruments to measure the effects of skin disease on quality of life. *Dermatol Clin* 2012; 30: 231–6, xiii.
- Both H, Essink-Bot ML, Busschbach J, Nijsten T. Critical review of generic and dermatology-specific health-related quality of life instruments. *J Invest Dermatol* 2007; 127: 2726–39.
- Yamaguchi K, Suganuma N, Ohashi K. Quality of life evaluation in Japanese pregnant women with striae gravidarum: a cross-sectional study. *BMC Res Notes* 2012; 5: 450.
- Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983; 67: 361–70.
- Aydemir Ö, Güvenir T, Küey L, Kültür S. Validity and reliability of Turkish version of hospital anxiety and depression scale. *Turk J Psychiatry* 1997; 8: 280–7.
- Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual Life Res* 2004; 13: 299–310.
- Blay SL, Marchesoni MS. Association among physical, psychiatric and socioeconomic conditions and WHOQOL-Bref scores. *Cad Saude Publica* 2011; 27: 677–86.
- Hsiung PC, Fang CT, Chang YY, Chen MY, Wang JD. Comparison of WHOQOL-bREF and SF-36 in patients with HIV infection. *Qual Life Res* 2005; 14: 141–50.
- Finlay AY. Quality of life assessments in dermatology. *Semin Cutan Med Surg* 1998; 17: 291–6.
- Prinsen CA, Lindeboom R, de Korte J. Interpretation of Skindex-29 scores: cutoffs for mild, moderate, and severe impairment of health-related quality of life. *J Invest Dermatol* 2011; 131: 1945–7.
- Pavlis MB, Rice ZP, Veledar E, Bradley BR, Spraker MK, Chen SC. Quality of life of cutaneous disease in the ectodermal dysplasias. *Pediatr Dermatol* 2010; 27: 260–5.
- Choi S, Kim DY, Whang SH, Lee JH, Hann SK, Shin YJ. Quality of life and psychological adaptation of Korean adolescents with vitiligo. *J Eur Acad Dermatol Venereol* 2010; 24: 524–9.
- Kim DY, Lee JW, Whang SH, Park YK, Hann SK, Shin YJ. Quality of life for Korean patients with vitiligo: Skindex-29

- and its correlation with clinical profiles. *J Dermatol* 2009; 36: 317-22.
20. Ertürk IE, Arıcan Ö, Ömürlü IK, Süt N. Effect of the pruritus on the quality of life: a preliminary study. *Ann Dermatol* 2012; 24: 406-12.
21. Klein R, Moghadam-Kia S, Taylor L, Coley C, Okawa J, LoMonico J, et al. Quality of life in cutaneous lupus erythematosus. *J Am Acad Dermatol* 2011; 64: 849-58.
22. Hickey S, Bell H. Quality of life in the vulvar clinic: a pilot study. *J Low Genit Tract Dis* 2010; 14: 225-9.