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Evaluation of Social Anxiety Levels and Related Factors in Psoriasis Patients: A Controlled, Cross-Sectional Study

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ABSTRACT

Introduction: Psoriasis patients usually feel shame over their appearance and suffer from poor self-esteem, social anxiety, and avoidance. However, little is known about factors affecting social anxiety levels in these patients. We sought to examine the psychological, as well as disease-related factors which may affect social anxiety levels in psoriasis patients.

Methods: Our study consisted of 50 psoriasis outpatients and a corresponding 50 age and sex-matched healthy control volunteers who filled out the Liebowitz Social Anxiety Scale (LSAS), the Hospital Anxiety and Depression Scale (HADS), Multidimensional Scale of Perceived Social Support (MSPSS), Ways of coping questionnaire (WCQ) and Eysenck Personality Questionnaire Revised: abbreviated form (EPQR-A). The patients also completed the Dermatology Life Quality Index (DLQI). The extensiveness and severity of the disease were examined by employing the Psoriasis Area and Severity Index (PASI).

Results: Compared with our controls, psoriasis patients displayed significantly higher degrees of social anxiety. Both social fear/avoidance subscale scores of LSAS showed a significant correlation to impairment in quality of life (r: 0.373, p: 0.008, r: 0.336, p: 0.018). No appreciable correlation was observable among the PASI and LSAS scores. Regression analysis showed that EPQR-A-extraversion and neuroticism subscale scores had significant influence on LSAS-Social Anxiety scores, accounting for 41.5% of the variance. EPQR-A-extraversion was found to have significant influence on LSAS-Social avoidance scores, accounting for 26.8% of the variance.

Conclusion: Our results indicate that psoriasis causes increased levels of social anxiety which is closely related to impaired quality of life. Personality characteristics might contribute considerably in expressing psychosocial morbidity among individuals living with psoriasis.

Keywords: Psoriasis, social phobia, personality

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INTRODUCTION

Psoriasis is a chronic and immune-mediated inflammatory condition, which impacts negatively both skin and joints, often disfiguring the patient, and affecting quality of life significantly (1). Although psoriasis is not a life-threatening disease, its implications on life quality of a patient are similar to diseases such as arthritis, diabetes, hypertension, heart disease, and cancer (2). Besides its effects on well-being, the disease is associated with numerous psychological constructs such as loss of function, self-stigma, low self-esteem, passive death wishes, ongoing distress and sexual dysfunction. Further, severe psychiatric comorbidities, such as depression, anxiety disorders, substance misuse, may also accompany psoriasis (3, 4).

Conversely, studies have implicated the significance of psychological stress determinants associated with the onset and exacerbations of psoriasis (3–5). Thus a bidirectional interaction exists between psoriasis and psychological factors. As patients may be psychologically affected by the existence of their psoriasis lesions, disease onset and exacerbations might also be affected by psychological stressors.

Social anxiety disorder (SAD) is expressed by feelings of intense fear and avoiding others in social situations to the extent of potential scrutiny of others (6). Owing to their open lesions and physically skin disfigurement, patients affected by psoriasis usually feel shame and face embarrassment over their appearance, thereby suffering from poor self-esteem, social anxiety, and avoidance. Due to their visible skin lesions, they believe others might be prejudicious against them, and thus, they usually try to cope with their social anxiety, avoidance, and feelings of embarrassment by avoiding physical contact with others (7). It is known widely that the extent of psoriatic lesions is not a determining factor of the severity of psychosocial dysfunction and that even after patients' cutaneous lesions have resolved, they continue to be socially anxious and avoidant. Thus factors other than disease severity such as coping mechanisms,

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depression, and personality traits, seem to contribute to the psychological dysfunction (8–10).

There are only a very few clinical studies which have evaluated social anxiety in psoriasis patients; interestingly, these reports revealed variance in social anxiety and social avoidance as significant to contributory factors amongst psoriasis patients (7, 11, 12). Disease related factors such as disease severity; psychological consructs such as feelings of helplessness experiences of stigmatization, sense of self-esteem and perceived social support have been implicated as determining factors for social anxiety in these previous studies (7, 11, 12). However, these previous studies have some limitations, such as not being controlled or having a very small sample size.

Herein we performed a controlled study, aimed to investigate the effect of psoriasis on the degree of social anxiety in patients living with psoriasis and to define the potential determinants of social anxiety in an outpatient clinic setting. We hypothesized that psoriasis patients would have higher social anxiety and avoidance compared to individuals in the control group.

Secondly, we hypothesized that psoriasis patients having maladaptive coping strategies, certain personality traits and perception of low social support would experience higher social anxiety and avoidance. Up to now, this is the first controlled study investigating social anxiety and related factors in psoriasis patients in English literature.

METHODS

Study Setting and Design

Patients (n=50) attending the İzmir Katip Çelebi University Hospital Dermatology Outpatient Clinic between May 2012 and March 2014 were recruited for a controlled study. Also, healthy control subjects among hospital employess, matched for age, sex, and education with the patients (n=50) among hospital employees were recruited. This study received approval from the Ethics Committee of İzmir Katip Çelebi University, Turkey.

Inclusion criteria for patients were as follows: 1) Existence of psoriasis symptoms for at least 1 year prior to the study. 2) At least 18 years of age. 3) At least 5 years of education 4) No history of another substantial physical or psychiatric illness such as psychosis and mental retardation likely to interfere with our proposed psychological tests.

After the dermatological examination, the study was introduced to the patients and the severity of the symptoms of the patients who agreed to participate was evaluated by a dermatologist using PASI. Then, sociodemographic data form and psychological tests were applied to these patients by a psychiatrist. The average duration time of each interview was 40 min.

Assessment Tools

The total study participants (Patients, n=50; Controls, n=50), were admitted into the hospital. After interviewing each of them, they were asked to complete a series of the following questionnaires: 1) Liebowitz Social Anxiety Scale (LSAS) used to assess social anxiety levels. 2) The Hospital Anxiety and Depression Scale (HADS), used to assess depression and anxiety levels. 3) The Multidimensional Scale of Perceived Social Support (MSPSS), used to assess social support. 4) Ways of coping questionnaire (WCQ) questionnaires, used to assess coping strategies. Additionally, the psoriasis patients were asked to complete the Dermatology Life Quality Index (DLQI), used to measure disease-related life quality.

We collected sociodemographic data of patients' and healthy controls' (age, sex, occupation, marital and educational status), as well as information concerning patients' disease onset age, disease duration, visible skin part (s) affected, possible genital region (s) affected, the patient's perception of typical treatment efficacy, and the treatment prescribed during inclusion. The extent and severity of the condition were assessed by employing the Psoriasis Area and Severity Index (PASI).

The Hospital Anxiety and Depression Scale (HADS): We utilized HADS, a 14 item self-report questionnaires, to assess anxiety symptoms (7 items) and depressive symptoms (7 items) over two weeks period. HADS has been validated previously in the Turkish population (13, 14).

Liebowitz Social Anxiety Scale (LSAS): LSAS is a Likert-type self-evaluation test composed of 24 questions, developed by Liebowitz (1987) and the validity and reliability were established in Turkey by Soykan et al. (15). It measures anxiety and avoidance/withdrawal that appear in various social situations. It consists of 2 subscales; the first measured the level of anxiety arising at social settings. The second measures the intensity of behavior relative to avoidance/withdrawal.

Multidimensional Scale of Perceived Social Support (MSPSS): Social support was assessed through MSPSS, which was a self-report set of questions comprising of 12 items, each scored on a Likert scale of 7-points. This instrument allows the assessment of individual's perception of the adequacy of support from family, friends, and significant others. The MSPSS offers 3-subscale scores (family support, friends support, other supports), which amounts to the Total Social Support score. The Turkish version of the MSPSS was established by Eker and Arkar which demonstrated reliability (16).

Ways of coping questionnaire (WCQ): The WCQ was developed earlier by Folkman and Lazarus is patients' inventory; its Turkish version was adopted by Sahin and Durak, which demonstrated reliability (17). The scale comprises 30 questions and five subscales, as follows: trustful approach (TA), optimistic approach (OA), submissiveness (S), distrustful approach (DA) and approach for seeking social support (SSS).

Eysenck Personality Questionnaire Revised: abbreviated form (EPQR-A): This is an assessment consisting of 24 questionnaires with 'yes' or 'no' responses (18); it evaluates personality traits in three different dimensions, neuroticism, extraversion, and psychoticism. Individuals with the highest score of the neuroticism assessment experience emotional instability and distressed. Regarding the extraversion dimension, individuals' with the highest scores are socially active, open, and engage in useful communications. The Turkish version of this scale is similar to the original, revealing the same personality dimensions with satisfactory validity and reliability (19).

Dermatology Life Quality Index (DLQI): The DLQI is a dermatology-specific, quality-of-life instrument developed by Finlay and Khan in 1994 (20) to assess the impacts of skin disease on psychosocial performance and self-awareness. The scoring provides ranges from 0–30. The Highest score denotes the most impairment in life quality, while the lowest score represents the least. The Turkish version established successfully with validity and reliability (21).

Statistical Analysis

Comparative demographic and univariate analyses of psychological outcomes between the patients and the control subjects were estimated using chi-square analysis (Fisher's exact test was utilized for small group assessment where using chi-square analysis was not ideal) to determine the categorical variables. Student's t-test or one-way ANOVA was employed to estimate continuous data, except for data requiring non-parametric analysis in which Mann-Whitney U or Kruskal-Wallis test was

applied. Before performing regression analysis, first univariate analyses were performed to determine possible factors affecting Liebowitz scales. Pearson correlation analysis was performed between two numerical variables, and Student t-test or ANOVA were used to compare levels of categorical variables in conformity with scale points. Variables with p-values <0.10 were incorporated in the final model. Furthermore, to avoid multi-collinearity, one of the highly correlated independent variables was dismissed from the model. We employed multiple linear regression analysis to obtain a significance level of factors on Liebowitz scales. We used Windows version 24.0 of SPSS to perform all of our analyses. A p-value <0.05 was regarded as statistically significant.

RESULTS

Our study enrolled 50 psoriasis patients and 50 age and sex-matched controls. The psoriasis group comprised 31 males and 19 females, while the control group comprised 27 males and 23 females. The mean (± standard deviation) ages in psoriasis and control groups were 46±16 and 40±15, respectively. Both patient and control groups displayed comparable age, sex, marital status, and occupation (Table 1). The clinical characteristics of psoriasis patients are shown in Table 2.

Table 3 presents the mean, and the standard deviations of the continuous variables of the psoriasis patients, the controls, and the comparison between the two groups. We observed significant differences between the two groups regarding LSAS/Social Anxiety, HADS/Depression, WCQ-DA, WCQ-S, MSPSS-Other and EPQR-A-Neuroticism scores. Significantly higher degrees of social anxiety, depression, distrustful approach, submissiveness, and neuroticism were noticeable among psoriasis patients. Besides, perception of social support from others was significantly lower in psoriasis patients than controls.

Table 1. Sociodemographic characteristics of the participants. Data are expressed as mean ± standard deviation and as number (percentage)

	Psoriasis (n=50)	Control (n=50)
	n (%)	n (%)
Age (mean ± SD), years	46±16	40±15
Sex		
Male	31 (% 62)	27 (% 54)
Female	19 (% 38)	23 (% 46)
Marital status		
Single	34 (% 68)	23 (% 46)
Married	14 (% 28)	21 (% 42)
Other	2 (% 4)	6 (% 12)
Educational Status		
Primary	20 (% 40)	12 (% 24)
Secondary	8 (% 16)	5 (% 10)
High school	14 (% 28)	13 (% 26)
University	8 (% 16)	10 (% 20)
Employment Status		
Employed	31 (% 62)	38 (% 76)
Unemployed	19 (% 38)	12 (% 24)
Living		
Alone	3 (% 6)	4 (% 8)
Spouse or partner	47 (% 94)	49 (% 92)

Table 2. Characteristics of psoriasis patients

Psoriasis outpatients (n=50)	Mean ± SD or n (%)
PASI	12.8±10.6
Psoriasis duration	13.3±9.9 years
DLQI	12±8
How many months of psoriasis symptoms during the last year?	9±3 months
Topical treatment	17 (34%)
Classical systemic drugs	25 (50%)
Phototherapy	8 (16%)
Visible skin affected	48 (96%)
Genital region affected	18 (36%)

PASI, psoriasis area and severity index; DLQI, dermatology life quality index.

Table 3. The mean and standard deviation of continuous variables and the comparison of two groups (Mann-Whitney test)

Variable	Patient (n=50) mean ± SD (range)	Control (n=50) mean ± SD (range)
LSAS/Social Anxiety	41.14±11.86 (27–81)	35.14±8.56* (23–53)
LSAS/Social Avoidance	39.39±12.87 (24–74)	36.86±6.41 (24–49)
LSAS/Sum	80.53±23.93 (54–153)	72.00±13.76 (48–98)
HADS/Anxiety	8.08±4.59 (1–17)	6.92±4.15 (1–19)
HADS/Depression	7.48±4.35 (0–17)	5.46±3.67* (0–15)
WCQ-TA	14.88±3.65 (1–21)	15.40±3.31 (5–21)
WCQ-DA	12.00±4.73 (2–22)	9.12±3.86** (2–21)
WCQ-S	8.32±3.22 (1–16)	5.70±3.35** (0–17)
WCQ-OA	9.44±2.75 (0–15)	9.86±2.26 (3–15)
WCQ-SSS	7.34±2.72 (0–12)	7.76±1.94 (3–11)
MSPSS-Other	19.80±8.19 (4–28)	22.48±7.03* (5–28)
MSPSS-Family	21.46±6.81 (4–28)	22.22±6.08 (5–28)
MSPSS-Friends	19.00±7.60 (4–28)	21.94±6.04 (8–28)
EPQR-A-Neuroticism	3.40±2.02 (0–6)	2.17±1.87** (0–6)
EPQR-A-Extraversion	3.40±1.92 (0–6)	3.98±1.84 (0–6)
EPQR-A-Psychoticism	1.10±1.04 (0–4)	1.25±1.18 (0–4)

*P≤0.05, ** P≤0.01
LSAS, Liebowitz social anxiety scale; HADS, hospital anxiety and depression scale; WCQ, ways of coping questionnaire; OA, optimistic approach; TA, trustful approach; DA, distrustful approach; S, submissiveness; SSS, seeking for social support; MSPSS, multidimensional scale of perceived social support; EPQR-A, Eysenck personality questionnaire revised (abbreviated form).

Both social anxiety/avoidance subscale scores of LSAS showed a significant correlation to impairment in life quality (r: 0.373, p: 0.008/r: 0.336, p: 0.018).

The logistic regression analysis performed to determine the potential contributors of LSAS-Social Anxiety with candidate variables such as psoriasis patients' related variables (age, sex, disease duration, age of onset of disease, PASI, DLQI, visible skin affected and genital skin affected), psychological variables related to mood (HADS/Anxiety and Depression), coping (WCQ/TA-DA-S-OA-SSS), social support (MSPSS/Family-Friends and Others), and personality (EPQR-A-Neuroticism, Extraversion, Psychoticism) showed that EPQR-A-extraversion and neuroticism scores were significant determinants of LSAS-Social Anxiety (Table 4). The strength of the predictors of these two variables was good, granting 41.5% of the LSAS-Social Anxiety variance. The same procedure applied for LSAS-Social Avoidance, revealing that EPQR-A-extraversion was a significant determinant of 26.8% of the LSAS-Social avoidance variance (Table 5).

Table 4. Results of multiple linear regression model to determine important factors on LSAS/social anxiety

Dependent Variable: LSAS/Social Anxiety			
Independent Variables	**Beta**	**Std. Error**	**P**
DLQI	0.038	0.210	0.857
WCQ-TA	-0.717	0.450	0.119
WCQ-DA	-0.208	0.348	0.554
WCQ-SSS	0.308	0.670	0.649
MSPSS-Family	0.176	3.155	0.956
MSPSS-Friends	-0.383	0.218	0.087
EPQR-A-Neuroticism	2.595	1.073	0.020*
EPQR-A-Extraversion	-2.185	0.945	0.026*
HADS/Depression	-0.186	0.452	0.683

Adjusted R^2=% 41.5
One unit increase in EPQR-A-Neuroticism scale results in 2.59 unit increase in LSAS/social anxiety (Beta=2.59, P=0.020) and one unit increase in EPQR-A-extraversion scale results in 2.2 unit decrease in LSAS/social anxiety (Beta=-2.185, P=0.026).
DLQI, dermatology life quality index; LSAS, Liebowitz social anxiety scale; HADS, hospital anxiety and depression scale; WCQ, ways of coping questionnaire; TA, trustful approach; DA, distrustful approach; SSS, seeking for social support; MSPSS, multidimensional scale of perceived social support; EPQR-A, Eysenck personality questionnaire revised (abbreviated form).

Table 5. Results of multiple linear regression model to determine important factors on LSAS/social avoidance

Dependent Variable: LSAS/Social Avoidance			
Independent variables	**Beta**	**Std. Error**	**P**
DLQI	0.130	0.246	0.601
WCQ-TA	-0.273	0.546	0.620
WCQ-DA	-0.549	0.423	0.202
EPQR-A-Neuroticism	1.489	1.273	0.249
EPQR-A-Extraversion	-2.906	1.123	0.013*
MSPSS-Family	-0.016	0.330	0.962
MSPSS-Friends	-0.200	0.258	0.442
HADS Depresyon	0.200	0.533	0.710

Adjusted R^2=26.8%
One unit increase in EPQR-A-extraversion scale results in 2.91 unit decrease in LSAS/social avoidance (Beta=-2.906, P=0.013).
DLQI, dermatology life quality index; WCQ, ways of coping questionnaire; TA, trustful approach; DA, distrustful approach; MSPSS, multidimensional scale of perceived social support; EPQR-A, Eysenck personality questionnaire revised (abbreviated form); HADS, hospital anxiety and depression scale.

DISCUSSION

Numerous dermatological diseases might associate with psychiatric morbidity beside their physical signs. Although considerable investigations have been carried out on psychiatric morbidity in psoriasis patients, only a few controlled studies concerning the social anxiety levels of psoriasis patients have been published. To date, only a few studies have been conducted on the quality of life in psoriasis with particular emphasis on social anxiety.

First, our study revealed a significant difference in the LSAS social anxiety subscale of psoriasis patients, compared with the healthy controls. Likewise, the patients have more anxiety in social situations involving potential scrutiny by others, compared with our controls. A previous study by Schneider et al. (7) used a different questionnaire in order to evaluate social anxiety in psoriasis patients. This questionnaire contained statements relating specifically to skin diseases, which was not applicable to population samples without skin diseases, and therefore, comparison between patients and healthy controls was not possible in their study.

Second, social anxiety/avoidance correlated with impairment in life quality in our study, and a previous study has also reported this trend (7). Social anxiety, therefore, seems to contribute to a diminution in the quality of life in psoriasis patients. Thus our results and others indicate that dermatologists should consider embodying the awareness of a negative impact of social anxiety on patients living with psoriasis welfare. The assessment of the degree of social anxiety and its impact on life quality is vital for proper management of the condition, as demonstrated that negative effect of psoriasis on well-being could be alleviated by a combination of psychological interventions with the available dermatological treatments.

Third, our study found no correlation between disease severity and LSAS scores, which might be attributable to the fact that the extent of the psoriatic lesions might not predict severity of psychosocial morbidity, in particular, since it is a known fact that patients with psoriasis often sustain distress even after their cutaneous lesions had restored (8–10). Schneider et al. revealed three variables that determined social anxiety in their study: physically disease severity, psychologically feelings of inadequacy and patients' degree of perception of social support (7). Another study by Özgüven, N Kudakçi revealed that individuals living with psoriasis who bear skin lesions at exposed areas exhibited a high degree of social anxiety, which correlated with clinical severity of the condition (11). A recent study which also evaluated social anxiety in psoriasis patients found a relationship between disease severity and social anxiety in only pre-adult onset patients but not the adult-onset (≥18 years of age) group. Additionally, their study revealed that in adult-onset patients, self-worth was the major contributor to social anxiety, while in the pre-adult onset patients, the degree of social anxiety linked strongly with encounters with stigmatization (12). The discordance between previous studies and our study might be in part explained by the location of lesions. Almost all of our patients had lesions on visible areas of the skin. Since being scrutinized is a contributory factor to social anxiety disorder, the expectation is that patients with lesions on visible areas would suffer most from social anxiety, apart from disease severity. We reckon that Schneider et al. study group consisted of only 17 patients with visible lesions on exposed areas, out of the 49 among the study population (7). Therefore, since majority of their study population had lesions in obscure areas of the body, it might account for the difference between their study outcome and ours. In Lakutas and coworkers study, the locations of lesions were not defined, and they used body surface area for defining psoriasis severity, not PASI (12); as a result, they found no correlation between disease severity and negative body image emotions. The study by Özgüven's group comprised only 32 patients (11). Overall, the discordance between our study and

previous studies regarding social anxiety could also be explained partly by the differences in questionnaires employed in measuring social anxiety, ages of the population, and the number of the psoriasis population in a study who had lesions localized in exposed or hidden areas of the skin.

Fourth, our study found that EPQR-A-extraversion and neuroticism subscale scores have significant influence on LSAS-Social Anxiety scores. Also, we showed that the neuroticism scores were significantly higher for our patients, but their extraversion scores were much lower than the controls, consistent with previous psoriasis studies (22, 23). According to the Eysenck and Eysenck personality theory, extraversion and introversion represent opposing traits among specific personality attributes (24). While extraversion characterized by individuals who are talkative, outgoing, energetic, risk-taking, and assertive, introversion portrays individuals who are reserved, solitary, self-conscious, and inward-looking. Personality traits have been shown to considerable impact on the manifestation of psychological morbidity in psoriasis (23), as revealed by our results. Social anxiety traits also seem to be more reliably genetically related to personality traits, as demonstrated by a previous study on genetic modulation of personality (25).

Fifth, our results revealed that a significant percentage of psoriasis patients perceived having less support from their social network, as compared with our controls. This finding is a critical health concern, as a vast body of research reports indicate that social support provides protection for the psychological and physical well-being of people (26, 27).

Sixth, studies demonstrating coping strategies of psoriatic patients are very limited, regarding planning, acceptance, and active coping as the most frequently used coping strategies among psoriasis patients (8, 28). In conformity with these previous findings, we observed significant statistical increase in scores when compared the psoriasis patients with controls in terms of DA and S coping mechanisms, which are emotion-focused/passive coping strategies. Contrarily, our psoriasis group displayed low scores in OA and TA, which are active ways of coping with stress among most common ways of coping. These findings are also in line with previous studies which revealed significant application of less active coping strategies such as planning inadequacy, lack of positive reinterpretation, and poor humor, among individuals living with psoriasis, in general, compared with healthy controls (29). Nonetheless, these latter passive coping mechanisms were not significant determinants of social anxiety in our patients.

Our current research is the first controlled study that examined social anxiety levels under psoriasis condition among the Turkish population. However, it does not preclude the following limitations: (I) We performed a cross-sectional study which enrolled prevalent psoriasis cases and so we were unable to confirm the causative hypotheses. (II) The patients' selection was not randomized, and the controls were healthy volunteers who might have other undiagnosed conditions that could indirectly affect outcome, and hence, increase the likelihood of selection bias. (III) Since our investigation was exploratory, the sample size was small which might affect the statistical power of the study. Thus a broader investigation with incidental psoriasis cases is necessary for gaining a better insight.

Our results indicate that psoriasis causes increased levels of social anxiety which is closely related to impaired quality of life. We also found that the most important factor affecting social anxiety is personality trait. Accordingly, it is critical to assess individuals living with psoriasis for psychiatric morbidity, in particular, social anxiety disorder. This psychiatric evaluation might support the prevention of psychiatric comorbidities such as SAD and their impact on impairment of functioning, as well as life quality.

Ethics Committee Approval: This study received approval from the Ethics Committee of İzmir Katip Çelebi University.

Informed Consent: Written informed consent was obtained from the participants.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - FEY; Design - FEY, SŞ; Supervision - FŞA, İY, Eİ; Resource - FEY, SŞ; Data Collection and/ or Processing - FEY, SŞ; Analysis and/or Interpretation - FEY, İY; Literature Search - FEY, SŞ; Writing - FEY, SŞ; Critical Reviews - İY.

Conflict of Interest: None

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