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CLINICAL REPORT

Quality of Life and Emotional State in Chronic Skin Disease

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The aim of this study was to evaluate the associations between chronic inflammatory skin conditions and patients' emotional state and quality of life. The following self-rated questionnaires were used: Emotional State Questionnaire, a self-report scale assessing depression and anxiety symptoms; Dermatology Life Quality Index (DLQI); and RAND-36, a measure of health-related quality of life. The study group comprised 40 patients with psoriasis, 40 with eczema, 40 with acne, 15 with seborrhoeic dermatitis and 40 healthy controls. Patients with chronic skin diseases had lower DLQI and lower RAND-36 physical functioning scores, more perceived physical limitations and pain, and lower emotional well-being and general health ratings compared with the control group. In conclusion, chronic skin diseases are associated with symptoms of emotional distress, in particular insomnia and general anxiety. ***Key words: chronic dermatosis; quality of life; emotional distress*****.**

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Chronic inflammatory skin diseases affect physical, material, social and psychological aspects of a person's life, resulting in impairment in health-related quality of life (HRQoL) (1–3). Physical effects depend on the extent of the rash, how active the rash is, its area and associated symptoms, such as itching and flaking. For example, itching has been associated with subjective distress and emotional problems in psoriasis (4) and hand eczema (5). The social impact of the disease is evident in situations that involve closeness and exposure of the skin. Approximately 26% of patients with psoriasis have experienced that others do not want to touch them (6). Acne studies of young persons show that those with worse symptoms, in particular, have difficulties with close relationships and are teased more frequently (7, 8).

There are complex, two-sided connections between psychological factors and dermatological conditions (9), such as psoriasis (10, 11), atopic dermatitis, alopecia areata, vitiligo and acne (6). The most-studied psychological factors are depression, anxiety, shame, helplessness and anger, which can be denoted by the general term emotional distress. The symptoms of emotional distress vary in different skin conditions. Psoriasis has been found to be associated with low self-esteem, depression, suicidal thoughts, worry and stress (12). Psoriasis has a significant comorbidity with psychiatric disorders such as depression, anxiety and substance abuse (13). Depression has been found among 10–62% of patients with psoriasis, which is significantly higher than with other skin conditions (13–15) and in healthy persons (16). Suicidal thoughts have been noted among 3–10% of patients with psoriasis (11, 17). Fewer studies with conflicting results concern anxiety in patients with psoriasis. Kiliç et al. (18) did not find a connection between psoriasis and anxiety, while Kurd et al. (16) stated that patients with psoriasis had a substantially higher risk of anxiety. Psoriasis has been associated with symptoms of pathological worry and social anxiety (13). However, there are surprisingly few studies of social anxiety among patients with psoriasis given the significant social influence of the disease.

A study of eczema revealed that 20% of patients had a high anxiety score (19). Anxiety, depression and low self-esteem are present among patients with acne (20, 21). In patients with seborrhoeic dermatitis Peyri et al. (22) showed significant disease-related emotional distress, which was smaller than in psoriasis but comparable to that in acne. Comparative studies of symptoms of emotional distress in different skin conditions have yielded contradictory results. One study showed that patients with acne or psoriasis were more depressed and had more frequent suicidal thoughts compared with those with eczema (6). On the other hand, Mizara et al. (23) did not find any significant difference in levels of depression or anxiety between people with psoriasis and those with eczema. There are also studies in which no significant differences were found in levels of depression and anxiety between people with skin conditions and healthy subjects (24). Until now there have been few studies comparing the differences/importance of psychological factors between different chronic dermatoses; most comparative studies involve other chronic diseases.

The aim of this study was to evaluate the associations between chronic inflammatory skin conditions and patients' emotional state and quality of life (QoL).

MATERIALS AND METHODS

This was a cross-sectional study of adult patients with psoriasis, eczema, seborrhoeic dermatitis or acne who attended the Dermatology Clinic of Tartu University Clinics to see a dermatologist between October 2011 and September 2012. The control group comprised healthy volunteers who had not had the conditions listed above and who presented to the clinic to have benign skin tumours examined or who were medical workers. Consecutive attendees were recruited by a single dermatologist who conducted examinations and interviews. Non-Estonian speakers were excluded from the study. In all disease groups (psoriasis, eczema, acne and seborrhoeic dermatitis) and in the control group only a few (2%) patients/healthy volunteers refused to participate in the study.

The study was approved by Tartu University Hospital and the university's human research ethics committee.

A total of 176 persons participated in the study: 40 with psoriasis; 41 with eczema: 40 with acne: 15 with seborrhoeic dermatitis: and 40 controls. All participants were at least 18 years old and gave informed consent to participate in the study after being informed about the objectives and methods of the study in writing and orally.

The mean ± standard deviation (SD) age of the participants ranged from 19 to 78 years (38.9 ± 14.5; median age 37 years). The mean ± SD age distribution between disease groups was as follows: psoriasis 19–62 years (41.8 ± 12.2, median age 43 years; 22 men, 18 women); eczema 23–78 years (47.4 ± 13.5, median age 46.5 years; 16 men, 25 women); acne 19–39 years (24.5 ± 5.23, median age 22.5 years; 6 men, 34 women); seborrhoeic dermatitis 22–66 years (34.9 ± 14.1, median age 30.5 years; 8 men, 8 women); and control group 21–74 years (42.1 ± 13.9, median age 41 years; 17 men, 23 women).

Of all the participants, 69 (39.2%) were men and 107 (60.8%) were women. The distribution according to the extent and localization of the pathological process was as follows: 11 patients with psoriasis had coverage of up to 10%, 24 patients had 11–50% and 5 patients had 51–90%; 19 eczema patients had coverage of up to 10%, 19 patients had 11–50% and 3 patients had 51–90%. In all cases of acne, it had covered the face; in addition, 14 patients had a rash on their neck, 17 on the neckline and 15 on the back. In all cases of seborrhoeic dermatitis, the scalp and/or face was covered. Sixteen patients in the eczema group, 17 in the psoriasis group, 2 in the acne group and 3 in the seborrhoeic dermatitis group had general comorbidities (diabetes, joint disease, high blood pressure, thyroid disease, asthma). Three persons in the control group had comorbid conditions (thyroid disease, joint disease, bowel disease).

The following questionnaires were used: Emotional State Questionnaire (EST-Q), a self-rating scale to assess symptoms of depression and anxiety, consisting of 28 items and containing 5 subscales: depression, general anxiety, panic-agoraphobia, fatigue and insomnia. Cut-off scores ≥ 12 were used for depression and general anxiety subscales (25). The items of the EST-Q were derived from diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) and International Classification of Diseases, 10th Edition (ICD-10). The subscales demonstrated good internal consistency reliability in an Estonian population sample and good discriminative validity when comparing population sample with patients with mood and anxiety disorder (25).

The Dermatology Life Quality Index (DLQI) comprises 10 questions that reveal the QoL of a dermatology patient (26). Each question evaluates how much the skin problem has affected the person's life in the past week. The items of the DLQI encompass aspects such as symptoms and feelings, daily activities, leisure, work or school, personal relationships and the side-effects of treatment. The Estonian version of the DLQI has been validated for adult dermatology patients aged 16 years and older (27). Internal consistency reliability in this study group was high (Cronbach's $\alpha = 0.91$).

The RAND-36-item HRQoL survey contains 8 subscales: physical functioning (physical condition); everyday physical limitations; everyday emotional limitations; energy/fatigue; emotional well-being; social functioning; pain; and general health (28). Higher total subscale values show better QoL. Psychometric properties of the Estonian version of the RAND-36 have been tested in patients with other chronic disease, and have demonstrated acceptable reliability and validity (29).

Data analysis

GraphPad Prism 4 software (GraphPad Software, San Diego, CA, USA) was used to test normal distribution and differences between the groups. Normal distribution was tested according to the Kolmogorov-Smirnov test. To test differences between groups in cases of normal distribution single-factor dispersion analysis of variance (ANOVA) was used. When the results did not correspond with Gauss distribution, the Mann-Whitney *U* test and Kruskal-Wallis test were used. Spearman's correlation analysis was used to evaluate associations of the disease duration with EST-Q, DLQI and RAND 36.

RESULTS

The EST-Q revealed that 10 patients with psoriasis (25%) had higher than cut-off point values on the depression scale and 14 (35%) on the general anxiety scale. Five (33.3%) patients with seborrhoeic dermatitis higher than cut-off point values on the general anxiety scale. 26% of eczema patients had problems with depression and general anxiety symptoms. Both depression (16 patients, 40%) and general anxiety (12 patients, 30%) symptoms were found in patients with acne. Table

Table I. *Emotional State Questionnaire (EST-Q) in research groups and results of analysis of variance*

EST-Q scales	Psoriasis Mean ± SD	Eczema Mean ± SD	Acne Mean ± SD	Seborrhoeic dermatitis Mean ± SD	Control Mean ± SD	F/H (DF)	*p*
Depression	8.1 ± 6.5	7.6 ± 5.8	9.5 ± 5.4	7.9 ± 6.8	5.8 ± 5.1	1.99 (4.170)	0.098
General anxiety	9.1 ± 4.9	8.0 ± 5.4	9.4 ± 4.6	9.3 ± 5.2	5.7 ± 39	3.91 (4.171)	0.005
Social anxiety	1.3 ± 1.6	1.5 ± 1.6	1.8 ± 1.9	1.7 ± 2.4	0.8 ± 1.1	7.24 (4.171)	0.12
Panic-agoraphobia	1.5 ± 3.0	0.7 ± 1.8	1.2 ± 2.4	1.6 ± 3.4	0.2 ± 0.6	9.40 (4.171)	0.052
Fatigue	6.2 ± 4.2	6.3 ± 4.1	6.9 ± 3.9	6.0 ± 4.1	4.5 ± 3.3	2.16 (4.171)	0.075
Insomnia	5.9 ± 3.7	5.3 ± 3.5	4.1 ± 3.0	4.2 ± 3.2	2.5 ± 2.9	22.16 (4.171)	<0.001

F: analysis of variance (ANOVA) F-statistic; H: Kruskal-Wallis test H-statistic, used for social anxiety, panic-agoraphobia and insomnia subscales; DF: degrees of freedom; SD: standard deviation.

I shows the comparison of the EST-Q subscales in study groups. There were significant inter-group differences in general anxiety and insomnia results.

Compared with the control group patients with acne had considerably more general anxiety ($p = 0.006$), patients with psoriasis had significantly more general anxiety ($p = 0.018$) and insomnia ($p < 0.001$) symptoms, and patients with eczema had more insomnia symptoms ($p = 0.002$). Comparison between the whole group of patients and the control group revealed that patients had considerably higher scores on subscales of depression ($F(1.173) = 5.89$, $p = 0.016$), general anxiety ($F(1.174) = 14.05$, $p < 0.001$), social anxiety ($Z(174) = 6.25$, $p = 0.018$), panic-agoraphobia ($Z(174) = 2.29$, $p = 0.022$), fatigue ($F(1.174) = 8.02$, $p = 0.005$) as well as insomnia ($Z(174) = 4.10$, $p < 0.001$). None of the EST-Q subscales had significant correlations with the duration of the skin disease (data not shown). Analysis of the DLQI scores showed that skin diseases affected the QoL of 117 patients out of 136, i.e. 86%. An effect on QoL in the control group was found in 5 patients, i.e. 12.5%. 23% of skin disease patients were influenced by their condition to a great or exceedingly great extent. Four control group patients showed a small and one showed a great effect on QoL. Significant differences appeared between groups' dermatology life quality ($H = 86.99$, $p < 0.0001$). Statistically considerably higher values appeared among eczema ($M = 9.6$; $p < 0.001$), psoriasis ($M = 7.8$, $p < 0.001$) and acne ($M = 5.1$, $p < 0.001$) patients compared with the control group ($M = 0.6$). In patients, significantly higher values occurred in the eczema group compared with the seborrhoeic dermatitis group ($M = 2.7$, $p < 0.01$) and acne group ($p < 0.01$). DLQI score had no significant correlation with disease duration.

Table II shows the results of the 8 subscales of the RAND-36 in patient groups and control group. Intergroup differences emerged in physical functioning, physical restrictions, energy/fatigue, emotional well-being and pain subcomponents. Patients with acne showed significantly higher values of physical functioning ($p < 0.001$) and physical restrictions ($p < 0.05$) and lower values of emotional well-being ($p < 0.05$) subcomponents compared with the control group. Patients with eczema showed lower values of energy/fatigue ($p < 0.05$) and pain ($p < 0.01$) subcomponents compared with the control group. Patients with psoriasis showed lower values of energy/fatigue ($p < 0.01$) and emotional well-being ($p < 0.01$) compared with the control group. A comparison between patient groups showed that patients with eczema had significantly lower values of physical functioning (physical condition) ($p < 0.001$), everyday physical restrictions ($p < 0.05$) and pain subcomponents ($p < 0.01$) compared with patients with acne. Compared with the patients with seborrhoeic dermatitis, patients with eczema had lower physical functioning ($p < 0.05$). Patients with psoriasis had significantly greater trouble with physical functioning compared with patients with acne ($p < 0.001$) and those with seborrhoeic dermatitis ($p < 0.05$). Patients with psoriasis considered their general health condition significantly worse compared with those with acne ($p < 0.05$). There was also greater emotional well-being affliction among patients with psoriasis ($p < 0.05$). The emotional well-being of patients with acne was affected more than that of patients with seborrhoeic dermatitis ($p < 0.05$). The duration of the disease correlated significantly with energy/fatigue (Spearman's rho =–0.18, $p < 0.05$) and emotional well-being (Spearman's rho = –0.23, <0.01). The other parts of the RAND subscales revealed no significant correlations.

DISCUSSION

This is the first major study of the relationship between chronic inflammatory skin conditions and patients' emotional state and QoL in Estonia. The primary aim of the study was to determine whether people with chronic skin conditions experience greater emotional distress than healthy people. Comparison of the whole patient group with healthy people showed that chronic skin diseases co-occurred with higher levels of depressive symptoms, general anxiety and social anxiety. This result is in agreement with those of previous studies showing a connection between different skin diseases and depression, anxiety and social anxiety (19, 21). This is probably due to an emotional reaction

Table II. *RAND subscales and results of analysis of variance*

	Control Mean ± SD	Acne Mean ± SD	Eczema Mean ± SD	Seborrhoeic dermatitis Mean ± SD	Psoriasis Mean ± SD	H	*p*
Physical functioning	82.0 ± 25.8	95.8 ± 5.4	77.6 ± 23.2	80.0 ± 41.4	77.9 ± 27.3	22.47	<0.001
Everyday physical limitations	78.8 ± 34.7	91.3 ± 17.5	66.5 ± 38.6	71.1 ± 41.5	66.9 ± 42.9	9.63	0.022
Everyday emotional limitations	74.2 ± 35.9	65.0 ± 36.2	64.2 ± 44.4	48.7 ± 21.2	60.0 ± 46.7	3.79	0.285
Energy/fatigue	59.1 ± 21.5	48.6 ± 19.2	47.8 ± 21.9	61.6 ± 23.0	47.4 ± 21.7	6.61	0.085
Emotional well-being	73.5 ± 21.2	64.4 ± 13.8	64.1 ± 20.5	79.3 ± 29.3	61.2 ± 22.5	8.97	0.030
Social functioning	84.0 ± 25.2	75.0 ± 20.5	70.6 ± 26.9	82.2 ± 27.9	70.7 ± 30.4	4.46	0.216
Pain	76.2 ± 26.5	80.6 ± 20.4	60.7 ± 29.5	62.0 ± 26.8	65.5 ± 29.1	11.89	0.008
General health	61.9 ± 24.5	68.0 ± 19.7	56.3 ± 22.1	62.0 ± 26.8	53.2 ± 22.1	10.71	0.013

H: Kruskal-Wallis statistic; SD: standard deviation.

to chronic conditions requiring long-term treatment. Visible skin symptoms and treatment needs can lead to avoidance of social activities. Consequently, everyday relationships with friends and close relationships may be affected, which can have an effect on self-esteem and increase distress. In addition, patients had more symptoms of panic-agoraphobia and insomnia, which have not been investigated extensively in previous studies. The EST-Q panic-agoraphobia scale contains several items related to fear in public places, thus higher values on this subscale may reflect a fear of social embarrassment among skin-diseased persons, rather than classical agoraphobic concerns. In some treatment studies worse sleep quality has been found in the case of atopic eczema as a secondary outcome; the sleep disorders of other disease groups viewed in this study have not been researched (30). The results of the current study confirm the significance of insomnia symptoms among eczema patients, as well as in persons with psoriasis and acne. Given that in this study, sleep disorder symptoms were the most important form of distress, further research is required into the sleep problems of people with chronic skin conditions.

Comparison between the disease groups in this study confirmed the assumption that patients with acne have more pronounced symptoms of anxiety. In contrast to previous studies (13), we did not find that patients with psoriasis were more depressed; depression symptoms were in fact most common among patients with acne. However, the higher social anxiety among patients with acne was not confirmed.

As expected, patients with chronic skin diseases have a lower skin-disorder-specific and general HRQoL. This confirms the results of previous studies (2, 19). Patients with eczema or psoriasis were similarly disturbed by their skin disorder (3). Concerning general HRQoL, patients with acne had better physical functioning and fewer everyday physical restrictions, i.e. they did not feel that their physical health limited their actions. This is probably related to age: patients with acne were between the ages of 19 and 25 years, which is when people are more physically active. In other groups, patients were between the ages of 30 and 60 years. Despite good physical functioning, patients with acne showed lowering of emotional well-being that was similar to other skin conditions. This confirms that acne causes considerable emotional problems (20, 31). Overall the present study shows that people with different chronic skin conditions are significantly emotionally impaired and therefore could also tire faster. Emotional impairment and fatigue can be connected with the long-time/chronic disease process and new relapses despite regular treatment. This is confirmed by the present result that longer duration of skin disease was associated with poorer emotional functioning and lower energy. Among the skin conditions studied, seborrhoeic dermatitis had the lowest correlation between disease and QoL. This is probably because the rash is localized to a limited area on the face and scalp, even though these are visible areas. The fact that there were not many subjects in the seborrhoeic dermatitis group could have had an effect on the results. Patients with eczema and those with psoriasis reported more disturbances in HRQoL across several areas than did those with other skin diseases. Other studies support the detrimental effect of these 2 disorders on general HRQoL (3). Notably, psoriasis was associated with the lowest ratings of general health and emotional well-being in the present study.

Conclusion

Significant disruptions in QoL found in this study should be addressed during treatment to ensure optimal results and better coping of patients with a chronic disease. The finding that patients with chronic skin diseases have higher levels of depression and anxiety indicates the necessity for assessment of these emotional problems on a regular basis. More attentions should be paid to sleep-related problems in chronic skin conditions and these should be dealt with as part of the treatment of these patients.

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