

INVESTIGATIVE REPORT

How Do Personality Systems Interact in Patients With Psoriasis, Atopic Dermatitis and Urticaria?

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The aim of this study was to evaluate characteristic personality system interaction in patients with psoriasis, atopic dermatitis and urticaria. The differences between these three disease groups were examined with respect to various psychological variables and deviations from a group of healthy controls. A total of 56 patients with atopic dermatitis ($n=21$), psoriasis ($n=20$) and urticaria ($n=15$) were tested with the “Assessment of Personality Functioning in Therapy” Inventory, which consists of psychometric scales for basic needs (affiliation, achievement, power), enactment of needs-related behaviour, stress, emotional dispositions, cognitive styles and various self-regulation functions. Significant differences with respect to needs and motivational goals, cognitive styles and self-regulation competence were found between the three disease groups, showing considerable overlap between atopic dermatitis and urticaria, but only a little overlap with psoriasis. From a psychological viewpoint, patients with psoriasis seem to carry a higher risk of developing mental disorders. Based on our results, existing prevention programmes for patients with atopic dermatitis seem appropriate, whereas such programmes for patients with psoriasis should focus on self-motivation, prevention of addictive behaviour, and strengthening of self-efficacy. *Key words:* atopic dermatitis; psoriasis; urticaria; personality system interaction; personality styles; self-regulation.

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Emotional factors play a role in the development and course of many chronic skin diseases (1). Over the last few years, evidence increasingly suggests that the human neuroendocrine network might be influenced by emotional stress. It has been shown that emotional stressors, such as life-events or daily stressors, profoundly influence immunological function (2, 3).

Atopic dermatitis, psoriasis and urticaria are common, immunologically mediated skin diseases with complex

pathogenesis. Beside genetic predisposition factors in atopic dermatitis and psoriasis, stress is regarded as an antecedent of the onset and maintenance of these diseases (4–8). Specifically, environmental factors and emotional disturbances can be regarded as stressors. The level of social support and the method of coping play an additional role in the severity and course of chronic skin diseases (9).

Tormenting itch in atopic dermatitis and urticaria as well as disfigurement by visible skin lesions in atopic dermatitis, and especially in psoriasis, lead to a measurably restricted quality of life, and to disturbances in self-worth because of identification with the disease (4, 10).

A growing body of evidence shows that, in patients with chronic skin diseases, psychiatric symptoms appear more frequently than would be expected by chance (6, 11, 12). Not only stress and strain might increase the risk of developing mental illness, but also the frustration of basic psychosocial needs related to achievement, affiliation (need for social relation and support) and power (13). In accordance with the theory of personality system interaction (PSI) this frustration might be the result of a discrepancy between conscious goals and unconscious needs, as well as of fixation on negative affects or of unbalanced cognitive styles (14).

According to this theory, adverse effects of discrepancies between goals and needs can be prevented by self-regulation competence. Self-regulation enables a person to cope with different external and internal stressors by actively down-regulating negative affect or up-regulating positive affect in accordance with the demands of the situation (e.g. in negative mood, self-regulation competences lead to down-regulation of negative feelings). Thus, integrative competence seems to play an important role in maintaining positive emotions, motivation and coping skills.

To assess the psychological variables involved in this network of interacting processes, the inventory for the Assessment of Personality Functioning in Therapy (APFT) has been developed (14, 15). This test system comprises 80 scales for assessing unconscious needs, conscious goals, emotional dispositions, somatic and psychosomatic symptoms, cognitive styles, personality disorders and self-regulatory competence.

To investigate personality differences among patients with psoriasis, atopic dermatitis and urticaria, we administered the APFT in a study using the computer-assisted form of the APFT Inventory.

METHODS

Patients

Patients with psoriasis ($n=20$), atopic dermatitis ($n=21$) or urticaria ($n=15$) participated in the study, which was carried out between December 2000 and February 2002. Four patients were excluded from analysis because of missing variables. The remaining 56 subjects had a mean age of 34 years, age range 17–61 years. Thirty female subjects (53.6%) and 26 males (46.4%) were tested. All were inpatients of the Department for Dermatology at the Klinikum Bremen-Mitte (Bremen, Germany), referred from physicians in private practice due to severity of disease and/or inability to treat them on an ambulatory basis. Thus, the only selection criterion was disease severity. Only patients with a clear-cut diagnosis were included. Tests were carried out after verbal instruction and after obtaining written consent.

The study was approved by the local ethics committee.

PASI and SCORAD

From the clinical data, we assessed the duration of illness as well as the severity of dermatological symptoms in patients with psoriasis (using the Psoriasis Area and Severity Index, PASI) and with atopic dermatitis (using the Scoring of Atopic Dermatitis, SCORAD). No severity index for chronic urticaria was used, due to lack of an appropriate scoring system. However, only patients with chronic urticaria of at least 3 months' duration with persistent skin lesions and severe itching were included in the study.

The mean PASI-score for patients with psoriasis was 28 (with a range of 9–45 on a scale ranging from 0–72). This corresponds to medium to severe psoriasis. Patients with atopic dermatitis had a SCORAD index of, on average, 58.7. The lowest SCORAD was 22, the highest 98. This corresponds in all cases to severe atopic eczema.

Duration

The mean duration of disease was 268 (standard deviation (SD) 139.24) months for atopic dermatitis, 173 months for psoriasis (SD 101.47) and 33 months for urticaria (SD 48.12).

Subjective strain

We asked the patients for an assessment of their illness-related subjective strain on a Likert-Scale ranged from "not at all" (0) to "extremely severe" (10).

Daily stressors and life events

Patients were asked to name stressful life-events or daily stress factors.

Assessment of Personality Functioning in Therapy

The diagnostic instrument for the assessment of personality functions and their interactions contains the following psychometric instruments (15):

- *Psychological Symptoms Questionnaire (PSQ)*: questionnaire for the recording of intensity and change in general psycho-

somatic symptoms, as well as in emotional state (discontent, negative mood, activity, temperament, compulsiveness).

- *Mood Checklist (MCL)*: basic emotion situations, such as calmness, joy, listlessness, trouble, hindering, nervousness (MCL is an extension of the positive-negative affect-scale PANAS).
- *Motive Enactment Test (MET)*: conscious representation of three basic needs for affiliation, performance and power; way of enacting those motives (spontaneous, creative, strategic or passive).
- *Operant Motive Test (OMT)*: strength of basic needs for affiliation, achievement and power on an unconscious level. Subjects have to invent fantasy stories in response to a set of pictures and answer questions referring to the goals and needs of the heroes in their stories. Contents of the short stories are evaluated with regard to the three basic needs. Another evaluation criterion is, whether there are hints for avoidance or acceptance of the need mentioned in the story.
- *Personality Styles and Disorders Inventory (PSDI)*: evaluation of cognitive schemes and styles as non-pathological analogs of the personality disorders listed in the International Classification Systems (ICD-10 and DSM-IV).

These tests have been shown to possess both high reliability and good validity (15).

Statistical evaluation

Data were evaluated with the statistics program SPSS V10.0 (SPSS Inc., Chicago, Illinois, USA) on a personal computer. In addition to descriptive statistics, two non-parametric tests were applied, the Kruskal-Wallis H test for unconnected samples (16) and the Median Test for comparing the three disease groups, because of the small sample size. In addition, one sample *t*-test was used for the calculation of deviations from an average, validated score ($T=50$). To compare female and male patients, the Mann-Whitney *U* test was used.

RESULTS

Description of sample

The variables age, sex, disease duration and disease severity are listed in Table I.

Subjective strain

The patients in the three illness groups differ significantly regarding their subjective load due to their illness ($p < 0.05$). Patients with atopic dermatitis and urticaria show significantly higher subjective strain than those with psoriasis. Comparison of men and women in the sample showed a higher subjective strain in women, independent of the disease ($p < 0.05$).

Daily stressors (hassles) and life events

Patients were asked to assess the impact of daily stressors and life events on the onset or course of their disease. The most frequent categories of stressful events mentioned are: Stress in school or profession ($n=13$); Problems in social environment ($n=4$); Disease

Table I. Description of sample

Disease	Age (range (mean) (years))	Duration (mean)	Severity	Subjective strain
Psoriasis	19–49 (34.4)	6–396 (163.8)	16–45 (26.7) ^a	4–9 (6.0)
Atopic dermatitis	17–40 (26.2)	30–372 (212.4)	60–98 (76.7) ^b	5–10 (8.4)
Urticaria	17–57 (34.9)	3–180 (41.1)	–	6–10 (8.1)
Total	17–57 (31.7)	3–396 (142.5)	–	4–10 (7.5)

^aPASI.^bSCORAD.

of another family member ($n=3$); Separation or Divorce ($n=2$); Daily hassles ($n=2$); Economic problems (debts) ($n=1$); Disfiguration, Stigmatization ($n=1$).

Interestingly, only one person spontaneously mentioned disfiguration and stigmatization as an important stressor.

The remaining 28 of the 56 patients believed that there were no meaningful events and stressors in their lives that could function as perpetuating factors for their disease.

Psychosomatic Symptoms Questionnaire

The results of the Kruskal-Wallis H test for the comparison of the three disease groups are listed in Table II.

Patients with urticaria and atopic dermatitis show higher values of general dissatisfaction than patients with psoriasis ($p < 0.05$). We also found higher negative affect on a conscious level in patients with atopic dermatitis and urticaria. These patients show a higher dissatisfaction with life in general and a significantly higher level of negative mood in this test. In comparison with validation sample of healthy controls, only patients with urticaria show higher dissatisfaction ($p < 0.01$).

Mean values obtained for activation (behavioural facilitation) in patients with psoriasis, urticaria and atopic dermatitis in comparison with the validation sample are depicted in Table III.

This pattern shows that all the patients in our sample seem to have sufficient energy to facilitate their inten-

ded behaviour. There was no statistically significant difference between the three groups with regard to the activation scale.

In addition, we found a striking tendency toward compulsion in patients with urticaria ($p < 0.01$). This means that these patients tend toward compulsive behaviour (collecting, cleaning) as well as toward compulsive thoughts (counting). A gender comparison points to a stronger compulsiveness in women.

The amount of general psychosomatic symptoms, such as headache, insomnia, paranoid thoughts and fears, is higher in patients with urticaria than in those with atopic dermatitis or psoriasis. Altogether, only the patients with urticaria have significantly more psychosomatic symptoms than the population average.

Mood Adjective Checklist

A non-specific, amplified degree of sadness has been found in all patients across disease groups. Patients with psoriasis show a particularly high degree of listlessness and sadness (Table IV). Patients in all three disease groups are below average in calmness-scores. Standard deviation was very high in this scale especially for patients with psoriasis, pointing towards a wide range of calmness scores. A comparison between men and women shows, that females were calmer than men, independent of their diseases ($p < 0.00$). Sex-specific differences were also found with regard to the anger felt about the disease. In all disease groups, women show significantly higher anger than men ($p < 0.00$).

Table II. Psychological factors and psychosomatic symptoms: differences between the disease groups

Item	Atopic			Kruskal-Wallis H test
	Psoriasis	Urticaria	dermatitis	
	Mean rank score			
Dissatisfaction	9.30	20.28	15.95	0.018*
Negative affect	7.95	21.50	16.20	0.002**
Impulsiveness	16.85	17.00	11.35	0.245
Satisfaction with personal relations	18.70	13.83	12.35	0.220
Compulsiveness	14.80	21.78	9.10	0.005**
General psychosomatic symptoms	10.60	21.17	13.85	0.022*

* $p \leq 0.05$.** $p \leq 0.01$.Table III. Psychological factors and psychosomatic symptoms: deviation from reference t -score 50 from standardized sample

	Item	Atopic		
		Psoriasis	Urticaria	dermatitis
PSQ – Psychological Symptoms Questionnaire	Dissatisfaction	46.28*	55.58**	52.21
	Negative affect	44.18*	58.87**	52.51
	Impulsiveness	62.88**	63.18**	55.63
	Satisfaction with personal relations	49.03	44.37	41.92*
	Compulsiveness	41.82**	43.84**	37.87**
	General psychosomatic symptoms	48.39	60.13**	52.37

* $p \leq 0.05$ (one-tailed t -test).** $p \leq 0.01$ (two-tailed t -test).

Table IV. Mood-Adjective Checklist: deviation from reference *t*-score 50

Item	Psoriasis	Urticaria	Atopic dermatitis
Calmness	41.47	43.75**	45.94
Activation (general, motoric)	44.20	51.63	46.79
Happiness	50.29	50.37	49.04
Sadness	61.69*	56.03*	56.69*
Excitement	56.35	53.66	50.69
Listlessness	61.98*	54.50	51.10
Anger	55.30	57.23*	56.16*

p* < 0.05 (one-tailed *t*-test).*p* < 0.01 (one-tailed *t*-test).

Motive Enactment Test

Motive assessment seems to be important since many emotional and psychosomatic disorders are based on a frustration of social motives related to needs for relatedness (affiliation), achievement, power, etc.

Self-reported need for affiliation, which presumably reflects conscious affiliative goals rather than implicit motives, signifies interest in close and satisfying interpersonal relationships and in extraverted social interaction. Average values for affiliation motive were below the mean average value of the standardization sample in patients with atopic dermatitis and psoriasis (Fig. 1).

Need for power implies the capacity to influence and manipulate other persons. Positively connotated power motivation relates to social support, education and responsibility-taking, whereas power-motivation connected with negative affect can lead to punitive or power-avoidant behaviour. The mean average value for self-reported (explicit) power-related goals of patients with psoriasis lies considerably below the values for patients with urticaria, atopic dermatitis and below the mean value in the standardization sample (Fig. 1).

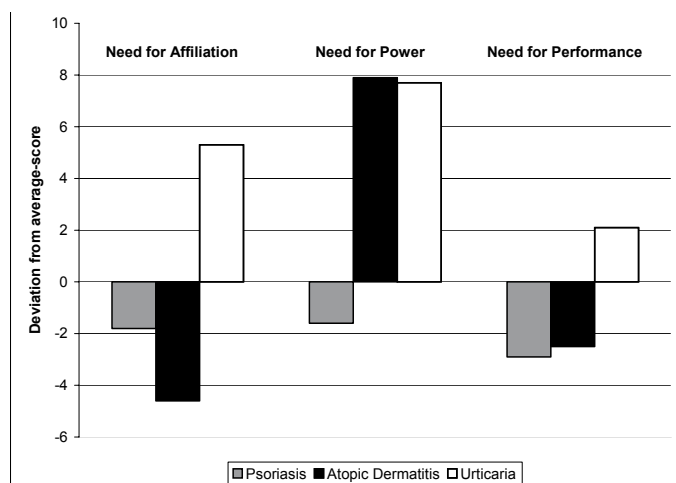


Fig. 1. Deviation from general average-score in the strength of basic needs of patients with psoriasis, atopic dermatitis and urticaria.

We found very low scores in self-reported need for achievement in all of our disease groups. Whereas patients with psoriasis and atopic dermatitis are below average, those with urticaria are a little above average. In general, the need for performance is low in our patients, which means that they are not seeking challenges or tasks in which they can prove their knowledge or performance.

Operant Motive Test (OMT)

In order to research further into unconscious sources of needs and motives, we carried out a non-reactive, operant instrument for the evaluation of implicit needs and motives, the OMT.

Patients in all disease groups wrote considerably more stories on themes related to themes of "power" than either "achievement" or "affiliation" (Fig. 2).

This finding is especially interesting in patients with psoriasis, who estimated their power motivation as rather low in the self-report instrument (Fig. 1). This is to say that a discrepancy between unconscious and conscious power motivation seems to be a unique feature of patients with psoriasis. Apparently, these patients underestimate their true power motivation. Compared with the power motive, the implicit motives for achievement and affiliation are rather weak across all patient groups (Table II). A comparison between explicit (psychometric tests) and implicit, operant measures for basic needs (affiliation, achievement, power) and personal life goals (motives) reveals a discrepancy between explicit affiliation goals (e.g. intimate love, friendship, social contact and implicit need for social affiliation in patient with urticaria. Patients with urticaria reported rather strong needs for affiliation, whereas their spontaneous thoughts about affiliation in their OMT stories were about as low as in the other two groups. The patients therefore overestimate their need for affiliation.

A striking result is the number of stories related to avoidance behaviour. Across all disease groups approximately 40% of all stories had an avoidance component, meaning that the need-content is associated with negative affect. Need-avoidance leads to a defensive attitude toward all situations in which a special need is activated. Our results show, that all patients tend to avoid need-relevant behaviour in approximately half of all situations.

Apart from the avoidance-component, the strongest need is the need for power in all of our disease groups. This is congruent with our finding from the MET. Nevertheless, there is a discrepancy between conscious and unconscious achievement motives. In the MET patients assume that their need for achievement is lower than their need for affiliation; a suggestion that is not supported by the results of the operant instrument. Here,

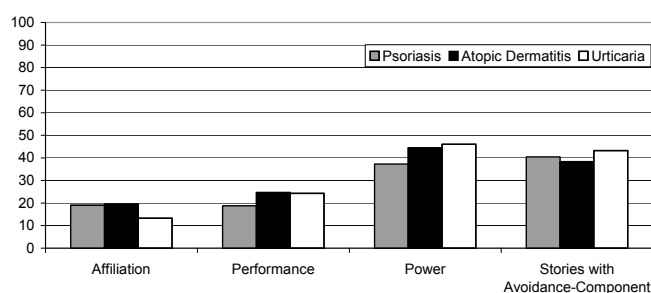


Fig. 2. Percentage of stories written on the three basic need aspects in the Operant Motive Test for patients with psoriasis, atopic dermatitis and urticaria.

the need for achievement seems to be more important than the need for affiliation.

Personality styles and disorders – inventory

There are characteristic pattern of cognitive and emotional personality styles for each patient group (Fig. 3). Striking differences were found between the three patient groups and between each group and the mean score from the reference sample.

Psoriasis

Patients with psoriasis show a low score for the ambitious and narcissistic personality style (mean $T=42.9$).

This score differs significantly from reference-score obtained in a standardization sample ($p < 0.001$). In patients with psoriasis the probability for ambitious behaviour is low: these patients will rarely get angry in response to criticism (which is one of the characteristics of narcissistic personality). In addition, they tend to undervalue their skills and abilities. Less narcissistic persons do not have frequent fantasies of wealth, glory or fame. In addition, they can perceive the needs and feelings of others better than narcissistic persons can. Correspondingly, patients with psoriasis show a tendency toward an altruistic personality. In addition to low scores for the narcissistic style, patients with psoriasis had below average scores in the optimistic and spontaneous styles.

Atopic dermatitis

In patients with atopic dermatitis a significantly lowered self-critical personality style in comparison with the mean in the reference sample ($p < 0.05$) was found. Low self-criticism facilitates social life, because it reduces the risk of avoiding social situations, which are associated with high self-criticism. In addition, the atopic patient group showed a significantly lowered score (compared with the normative sample) in the scale for superstition and wishfulness as non-pathological analogue for schizotypal personality disorder ($p < 0.01$).

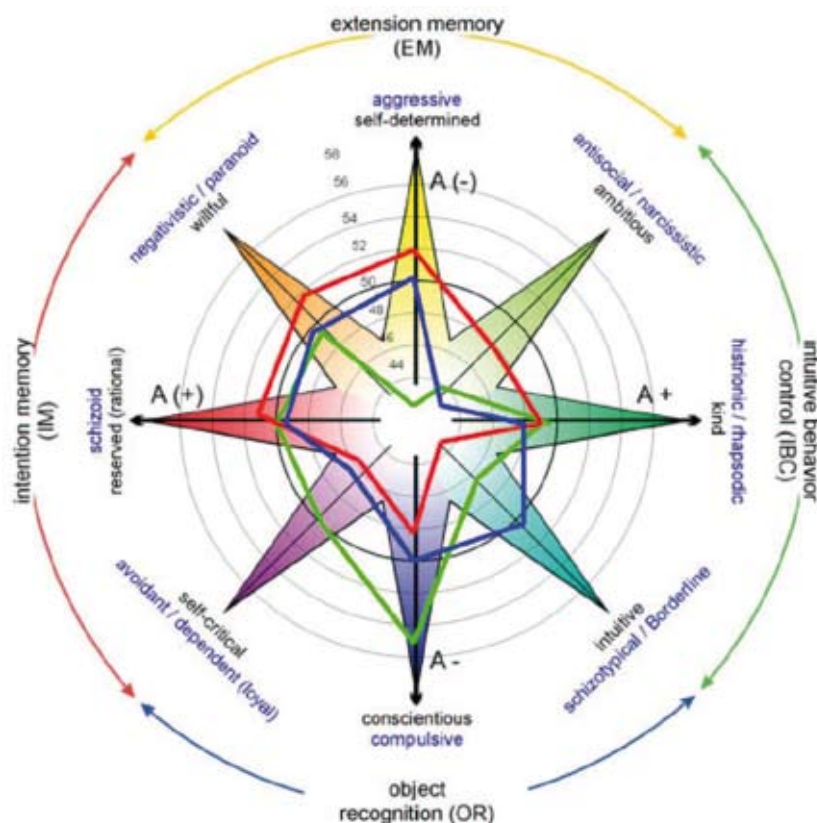


Fig. 3. Functional expression of cognitive styles as non-pathological analogues to personality disorders listed in DSM-IV in psoriasis (blue polygon), atopic dermatitis (red polygon) and urticaria (green polygon).

According to our findings, self-assertiveness (with some antisocial components) is a dominant personality style in patients with atopic dermatitis. This style is characterized by a low sensitivity to punishment and negative affect.

Urticaria

We found that patients with urticaria are significantly more conscientious than subjects in the normative sample ($p < 0.002$). Conscientiousness can be considered a non-pathological analogue to the compulsive personality disorder. Characteristics are perfectionism, rigid rules for behaviour, compulsive behaviour (e.g. cleaning) as well as compulsive thoughts (e.g. counting). A positive aspect of this style is the inclination toward work and achievement. Because this personality type is very sensitive to punishment, the focus of attention lies on discrepancies between the actual situation and one's own needs, standards or expectations. This aspect of conscientiousness suggests that patients with urticaria are focused on goals and on details that are discrepant to their expectation. Because of the attention focus on negative aspects and cues that are discrepant from their expectations, they may have difficulties in appreciate their own successes.

Another characteristic pattern in this group is indicated by a low score in the ambitious and narcissistic style.

We also found a tendency toward a selfless (self-sacrificing) style in patients with urticaria. Selflessness and conscientiousness are both characterized by a high sensitivity for discrepancies. In selfless persons, attention focus is on the needs and communication signals of relevant others. They can feel needs of others intuitively. This can render adequate perception of one's own needs difficult.

Volitional components inventory

It is worth mentioning that patients with psoriasis show a tendency towards reduced activation control. Activation control relates to a person's ability to relax under anxiety-arousing or painful conditions.

Self-regulatory components are necessary coping with daily stressors and other sources of stress. In our sample we found a significantly increased level of stress across all groups (atopic dermatitis, psoriasis $p < 0.05$; urticaria $p < 0.01$).

Action-control scale

Patients with atopic dermatitis ($p < 0.05$) showed increased scores for state-orientation, defined as the inability to down-regulate negative affect (e.g. after failure), or up-regulate positive affect such as self-motivation when confronted with difficulties ($p < 0.005$).

DISCUSSION

The results of an elaborate psychometric study on 56 inpatients with atopic dermatitis, psoriasis and urticaria are presented. Although the results have to be interpreted with caution because of the selection of the patient groups and a small sample size, taken together our findings suggest that patients with psoriasis differ from the two other patient groups with respect to several psychometric aspects. Compared with patients with atopic dermatitis or urticaria, patients with psoriasis report lower intensities of subjective stress in their daily lives, less general dissatisfaction and negative affect. They also show low intensities in personal styles that are related to positive affect (i.e. narcissistic, optimistic and spontaneous style). In addition, patients with psoriasis express a lower explicit interest in power than they actually have on the level of unconscious power needs.

Compared with the other two groups, patients with urticaria report more compulsive and general symptoms, are more dissatisfied with their lives and have higher scores in personality styles, representing helpful, selfless and self-sacrificing behaviour. In addition, patients with urticaria show a discrepancy between their strong explicit perception of their needs for affiliation and the rather low intensity of that need on the level of unconscious emotions that motivate spontaneous behaviour.

In patients with atopic dermatitis, need for power and social influence is above average, whereas needs for affiliation and achievement are below average. Power and influence seem to be central life themes in patients with atopic dermatitis.

Compared with approach-oriented motives, all patients showed a strikingly increased level of avoidance motivation across all three need domains.

In accordance with our hypothesis, patients show some discrepancies between their conscious descriptions and actual need scores: power motivation is denied on a conscious level, whereas a strong implicit power motivation was observed with the OMT method which does not rely on conscious self-report. These findings are consistent with our hypothesis that discrepancies between implicit needs and explicit motives and goals might constitute a general source of emotional stress in these patient groups. In particular, patients with urticaria reported an increased amount of subjective life stress. In contrast, patients with psoriasis reported a rather low level of subjective life stress.

Patients with urticaria and atopic dermatitis show elevated negative affect in comparison with patients with psoriasis. According to another finding (17) patients with psoriasis had low scores for positive affect and elevated scores for impulsive behaviour. This finding is consistent with the fact that alcohol abuse is an important co-morbidity in patients with psoriasis (18).

Our study offers an explanation for alcohol consumption in this group: because of a lack of positive affect, alcohol intake may function as a source of positive affect. The high score for listlessness and sadness suggest a strong dissatisfaction in patients with psoriasis. This finding may result from the deep impact psoriasis has on patients' quality of life, according to previous findings (19).

Patients with psoriasis also showed a considerable level of helplessness. This finding is consistent with the hypothesis that there is a link between psoriasis and depression (7). According to the learned helplessness paradigm, people become helpless when they are confronted with a situation in which they are not able to avoid a negative outcome. This feeling of not being able to manage the situation by action-oriented behaviour leads to feelings of helplessness (20).

A lack of motivation found in the psoriasis group might be a direct result of earlier unpleasant experiences associated with the disease. While disease onset for atopic dermatitis occurs in early childhood, for psoriasis it often occurs in early adulthood. This late onset may render it more difficult to develop coping strategies along with developing one's own personality. Early adulthood is characterized by multiple changes in psychological and physical constitution and is therefore a period of unstable self. This could be one reason why patients with psoriasis develop less positive affect and a less action-orientated personality structure than patients with atopic dermatitis or urticaria.

In patients with urticaria we found indications of compulsive thoughts and behaviour. This finding matches results from other investigations, showing that there is a compulsive tendency in patients with urticaria (21).

In this patient group, we also found a personality style characterized by carefulness. Carefulness is our non-pathological-analogue of the compulsive personality disorder. Characteristics are: rigid perfectionism, rigid rules for behaviour, compulsive behaviour and compulsive thoughts. These patients often show an excessive working behaviour without leisure-time or relaxation. Because this personality type is very sensitive to punishment, the focus of attention often lies on discrepancies between the actual situation and the real need status. Compulsive behaviour can be one way of avoiding negative feelings or fear (22).

Comparing men and women in the complete sample, we found differences with regard to listlessness, sadness, calmness, excitement and with regard to emotions such as anger and joy. Independent of their disease, males show less calmness, less anger and less sadness than females.

One explanation could be that females are likely to explain their feelings more expressively and more explicitly than males or that their threshold for answering such personal questions is lower.

In summary, each disease group might be characterized by a specific interaction of personality variables, rendering these diseases as distinct entities on a psychological level.

Until now, patients with atopic dermatitis and psoriasis have been trained within the same psycho-dermatological prevention programme setting (23). Based on the important psychological differences we found concerning affect, needs, goals and personality structure, a global and common prevention programme for both skin diseases alike is probably not effective. No specific intervention or prevention concept based on a psycho-diagnostic instrument of assessing personality aspects exists thus far for patients with psoriasis. Furthermore, existing programmes are based solely on knowledge transfer, dietary advice and reduction of stress using different relaxation techniques or hypnosis (23, 24).

We believe that such programmes should take personality variables into consideration because there is little information about the causes of the blatantly reduced quality of life or the higher level of depression and addiction in patients with chronic skin diseases, especially psoriasis. To improve self-efficacy (25) and coping behaviour in patients with psoriasis, programmes tailored to the needs of this large patient group are necessary. One suitable concept could be motivational counselling (26), because it helps patients to overcome state-orientation, learned helplessness, depression and non-adaptive ways of coping.

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