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Personality differences between patients with lichen simplex chronicus and normal population: A study of pruritus

Itching is common to many skin disorders. The relationship between skin disease and psychological variables has been widely documented in the literature. The association between the exacerbation of skin lesions and increased levels of psychopathological conditions in response to stressful events has also been described. Lichen Simplex Chronicus (LSC) is a skin disorder characterized by itching, which seems to have a marked psychological component. However, examples of empirical evidence linking this skin disorder to personality variables, as measured by standardized personality questionnaires, are relatively few so far. The objective of this research was to investigate the involvement of certain personality variables in the development of LSC. The personality profiles of 60 patients with LSC were compared to a normative sample of the normal Spanish population, who were free of any kind of skin disease. The personality variables for the LSC group were obtained by administering the Millon Index of Personality Styles (MIPS). Participants with LSC presented personality characteristics that differed from the control group. The most significant variables were as follows: greater tendency to pain-avoidance, greater dependency on other peoples' desires, and more conforming and dutiful compared to the control group. Results are discussed in the light of other dermatological pathologies that might share some characteristics with LSC subjects. Lichen simplex chronicus patients may present differential personality characteristics that could be related to triggering and exacerbating skin lesions. Therefore, it is relevant to evaluate the personality profiles of these people to increase treatment efficiency.

Key words: personality, psychosomatic, Lichen Simplex Chronicus

Skin disease can reduce the quality of life in dermatology patients [1]. Psychological factors have often been associated with the triggering, development and persistence of skin disease [2]. Recent evidence, for example, has indicated that psychological stress is associated with the exacerbation of different skin conditions [3]. It has also been shown that psychopathological disorders are more acute in dermatology patients suffering from pruritus [4]. In fact, one study [5] has investigated the extent to which itching is caused and mediated by psychological disorders such as depression or stress.

Depression and anxiety are commonly associated with itching, which worsens in response to negative emotions [6], while negative emotions associated with depression and anger can provoke itching [7]. These studies suggest that these kinds of psychological disorders act as vulnerability factors, i.e. factors that have an impact on skin disease.

Although recent studies have established a relationship between personality variables and skin disease [8-14] – *i.e.* they report personality as a risk factor for developing skin disease – other studies have not found any difference between the personalities of patients with skin disease and those without skin disease [15]. For example, a study [16] conducted in a Spanish population using the Eysenck Personality Questionnaire found no significant correlations between skin disease and personality, but the results of other studies have been less conclusive [9]. Overall, research has failed to demonstrate that patients with skin diseases have distinct personality profiles [10]. Therefore, more research is needed in this area.

In the particular case of LSC, there is little research comparing patients with this disorder to a normal population among which there has been no kind of itching disorder. This supports the need for further research studies on the role of personality in skin disorders, and which use LSC as an example.

Lichen Simplex Chronicus

Lichen Simplex Chronicus (LSC), also known as circumscribed neurodermatitis, is a common skin disorder characterized by lichenification of the skin as a result of exces-

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sive scratching [17]. LSC is distributed worldwide and affects adults with a mild preference for females.

Itching is the most predominant symptom of this medical condition and provokes a compulsive desire to scratch. Repetitive scratching may result in skin lesions that develop into thick lichenified plaques which provoke further itching, giving rise to a chronic skin condition caused by this itching-scratching cycle.

Clinical findings are gray, brownish-red or flesh colored, round or polygonal plaques with an accentuation of skin markings, often occurring on the neck, extensor aspects of the legs and forearms, scalp and anogenital region. LSC usually remains limited to a single area, but two to three lesions may be observed.

LSC must be distinguished from atopic eczema, also called disseminated neurodermatitis in certain countries, because it often presents with lichenified lesions, but the lesions show marked polymorphism and are usually symmetrical in typical sites. Other chronic cutaneous itchy conditions that may show lichenification, such as contact dermatitis, psoriasis, lichen planus, etc, must be also excluded, but the clinical diagnosis of LSC is usually easily made from characteristic lesions. In more difficult cases histopathological study is useful.

Itching can be triggered by emotional stress [18], however, the underlying pruritogenic stimuli in many LSC cases often remain undetermined [19].

Alexander [2], considered Lichen Simplex Chronicus, also known as neurodermatitis or neurodermatitis circumscripta, to be a psychosomatic illness. In this regard, psychiatric symptoms have been reported as relatively frequent among LSC patients [19]. This study explores the possible relationship between personality styles and the development and exacerbation of LSC.

Materials and method

Population under study

60 adult patients diagnosed with LSC at the Dermatology Service at the Hospital General Universitario Reina Sofía, in Murcia (Spain), between January 2006 and December 2008. Lichen Simplex Chronicus was diagnosed by experienced dermatologists in patients who presented the following inclusion criteria: one or more lichen plaques, highly pruritic, with accentuation of normal skin lines and often a peripheral zone of closely set lichenoid papules and hyperpigmentation and/or frequent excoriation, localized in easily accessible areas, due to repeated scratching, and in the absence of any other visible dermatological disease to justify the itchiness on the LSC site.

Patients with pruritic skin disease that might present secondary lichenification, such as psoriasis or atopic dermatitis, were excluded, as well as patients with psychiatric disorders, except for anxiety or depression. In most cases, diagnosis was based on clinical data, but in 8 cases the diagnosis was confirmed by skin biopsy.

In order to identify any significant differences, the results from LSC patients were compared to a sample of normative Spanish population with different educational levels and occupations. This sample consisted of 1184 adults, of whom 643 were women (54.31%) and 542 men (45.69%), with a mean age of 37.60 years (range 18-65 years). Both samples were matched for sex and age. The control group was taken from a non-hospitalized general population representative of the general Spanish population. Therefore, control subjects were healthy individuals with no dermatological or mental disorders. *Table 1* shows the basic characteristics of this population. These comparative procedures have been applied in other research dealing with health problems [20].

Table 1. Demographic Characteristic (Sex, Age) of LSC and Control Samples

Characteristic	Mean or Percent LSC N = 60	Mean or Percent Control Group N = 1.184
Gender, female; n (%)	50 (83.3%)	634 (54.31%)
Mean Age/Range (years)	46.77/(18-84)	37.60/(18-65)

Materials

The Millon Index Personality Styles (MIPS) [21] was used to measure the personality dimensions. This instrument provides data on personality styles, arranged according to three main dimensions: *Motivating styles, Thinking styles*, *and Behaving styles*. It includes a total of 24 scales, plus three validity control indexes. The scales are arranged according to bipolar criteria, i.e. 12 pairs of items/scales that define opposite styles from a theoretical viewpoint, but not in psychometric terms, because each scale was constructed such that it can be measured independently from its opposite. This version of MIPS also includes an adjustment index created by Millon, known as the *Clinical Index*, which measures a person's adaptability to his or her reference group. This index is obtained by using items from other MIPS scales, which are independent from the thinking styles scales, thus avoiding potential communality effects between different variables. This MIPS version assesses the dimensions of normal personality in adults aged between 18 and 65 years, and is made up of 180 elements with a True/False response format. The test-retest reliability indexes show that the Spanish version can be applied to the Spanish population.

Procedure

After obtaining oral informed consent, personality questionnaires were given out to patients by their dermatologist during consultation and instructions on how to fill them in. The patients were asked to fill-in the questionnaires at home. Completed questionnaires were returned at the next visit.

Statistical analysis

Mean comparison between LSC group and a normative sample. Data analyses were carried out using SPSS (v 16.0) statistical software. The Student *t*-test was used to analyze differences between LSC patients and the population sample. A P-value of ≤ 0.05 (two-tailed) was used as a cutoff for statistical significance. The mean scores of each personality scale for the Spanish population were used in the statistical analysis.

Results

The LSC group consisted of 10 males (16.7%) and 50 females (83.3%). Mean age was 46.77 years (SD = 15.47) with an age range of 18-84 years. A total of 43 patients presented a single neurodermatitis plaque. Two plaques were present in 17 patients and another 4 had three plaques each. Lesions were located on the lower limbs in 40 cases (23 on the legs, 8 on the ankles, 6 on the thighs, and 3 on the feet), and on the upper body in 12 cases (10 on the neck, 9 on the thorax, 8 on the genital area, 1 on the face, and 1 on the ear). At the time of diagnosis, the lesions had been present between 1 month and 180 months (mean 32.1 months).

We were able to obtain data on related disorders in 41 of the 60 patients (68.3%). Nine of them had no other related disease and 32 had a history of one or more disorders. They were grouped as follows: Sixteen patients had LSC-unrelated dermatological diseases (6 malignancies, 4 benign tumors, 2 acne, 2 mycosis, 1 intertrigo and 1 rosacea); 15 patients had dermatological disorders that could be stress-related, such as LSC (11 had "sine materia" pruritus, 6 neurotic excoriations, 4 dyshidrosis); 7 patients had depression and/or anxiety and were under psychoactive drug treatment, 9 patients had other diseases without apparent relationship to LSC (4 arterial hypertension, 2 diabetes, 1 stroke, 1 sarcoidosis, and 1 Sjögren's syndrome).

Regarding personality variables, differences were found between the LSC group and control group, as shown in *table 2*. These differences were based on a set of personality dimensions: Pleasure-Enhancing, Pain-Avoiding, Passively Accommodating, Other-Nurturing, Thought-Guided, Feeling-Guided, Innovation-Seeking, Dutiful/Conforming, Dominant/Controlling, and Cooperative/Agreeing. We found lower scores in the "Pleasure-Enhancing" scale and higher "Pain-Avoiding" scores compared to the control population. According to Millon, these opposite tendencies show a pain avoidance style. The subjects also showed a greater tendency to be accommodating regarding life situations (Passively Accommodating in the scale), and to prioritizing the needs of others over their own (higher Other-Nurturing scores). The LSC group also had a greater tendency to follow their feelings rather than reason (higher Feeling-guided score and lower Thought-guided score) and scored lower in Innovation-seeking. On the other hand, their scores were quite high on the Dutiful/Conforming scale. Finally, their lower Dominant/Controlling scores and higher Cooperative/Agreeing scores indicated that they were highly collaborative people.

The 5.08 clinical index corresponds to a score of 41.43. This places LSC patients within the 10 to 20 percentile points range, which corresponds to a low level of adaptation to their milieu. *Table 1* shows the demographic characteristics of the LSC patients and the sample population.

Discussion

Using the MIPS, the present study provides evidence of differences in scores between LSC patients and the sample population on the 10 scales mentioned above.

Table 2. Comparison of Means Between the LSC group and population samples (Student *t*-test)

Personality trait	LSC Mean (SD)	Population Sample Mean (SD)	Student *t*-test	*P* value
1. (1A) - Pleasure-Enhancing*	55.38 (24.01)	62.05 (20.78)	– 2.150	.036
2. (1B) - Pain-Avoiding***	51.07 (25.44)	39.86 (22.59)	3.412	.001
3. (2A) - Actively Modifying	46.43 (27.46)	50.52 (25.25)	– 1.153	.254
4. (2B) - Passively Accommodating*	59.15 (24.15)	51.18 (25.18)	2.412	.019
5. (3A) - Self-Indulging	46.43 (24.11)	52.14 (24.89)	– 1.833	.072
6. (3B) - Other-Nurturing***	64.9 (23.03)	51.64 (26.28)	4.460	.000
7. (4A) - Externally Focused	50.51 (25.00)	48.59 (24.63)	0.597	.553
8. (4B) - Internally Focused	51.32 (25.33)	51.45 (25.20)	– 0.041	.968
9. (5A) - Realistic/Sensing	59.75 (24.12)	58.30 (26.39)	0.466	.643
10. (5B) - Imaginative/Intuiting	41.98 (22.62)	42.82 (25.86)	– 0.287	.775
11. (6A) - Thought-Guided*	42.91 (22.89)	49.46 (26.76)	– 2.214	.031
12. (6B) - Feeling-Guided***	63.70 (21.49)	51.36 (27.01)	4.448	.000
13. (7A) - Conservation-Seeking	51.18 (23.54)	50.30 (25.63)	0.291	.772
14. (7B) - Innovation-Seeking*	35.23 (23.36)	42.67 (26.38)	– 2.465	.017
15. (8A) - Asocial/Withdrawing	53.32 (25.42)	50.60 (24.79)	0.828	.441
16. (8B) - Gregarious/Outgoing	49.75 (26.34)	51.04 (24.86)	– 0.379	.706
17. (9A) - Anxious/Hesitating	50.57 (24.33)	46.32 (24.89)	1.352	.182
18. (9B) - Confident/Asserting	48.50 (27.28)	50.89 (25.77)	– 0.679	.500
19. (10A) - Unconventional/Dissenting	39.21 (23.64)	43.62 (25.09)	– 1.443	.154
20. (10B) - Dutiful/Conforming***	66 (25.33)	51.93 (24.80)	4.303	.000
21. (11A) - Submissive/Yielding	49.92 (26.55)	45.33 (23.86)	1.338	.186
22. (11B) - Dominant/Controlling**	37.12 (23.81)	44.65 (26.80)	– 2.450	.017
23. (12A) - Dissatisfied/Complaining	47.33 (30.20)	44.62 (26.12)	0.696	.489
24. (12B) - Cooperative/Agreeing**	68.17(21.59)	59.18(26.46)	3.224	.002

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

In patients suffering from LSC, negative emotional states are the main personality component indicated by the preservation dimension. This is not the case in the normal population group. Patients with LSC tend to behave in a more pessimistic way, are more focused on their problems and more preoccupied than the normal population. This finding could be related to the fact that there seems to be a high prevalence of negative affect as a psychological component in people with other skin disorders, such as psoriasis, chronic urticaria and atopic dermatitis [10, 11, 14, 22].

The preservation scale is related to the Harm-Avoidance trait. This means that people with high scores in this variable, such as the LSC group under study, often avoid risky or difficult situations and do not enjoy life much. This finding is consistent with reports on other skin conditions, such as psoriasis [11]. This scale can also help to account for the levels of stress found in this sample, as avoidance may become a risk factor for the development of a psychopathological condition.

Although depression could modulate perceptions regarding pruritus [5], the differences found in terms of personality suggest a stable tendency towards experiencing negative emotions on the part of the patients. This might lead to viewing the personality trait as a possible cause that could, in turn, affect the level of depression. It could then be argued that personality traits could act as a predisposing or modulating factor for psychological disorders [23] as well as a trigger for LSC, as suggested in relation to other skin diseases [8, 24-26]. Several studies support this view, as they endorse the mediating role of subjective perception or anxiety and worry in skin disease [13, 27]. This kind of emotional processing is based on worry. This has been shown to act as a psychopathological vulnerability risk factor which, in turn, could increase stress levels [23]. Given that other studies have found differences in personality between groups, it seems reasonable to conjecture that harm avoidance and negativity could be common personality traits in many patients with skin disorders.

The LSC patients in this study had a low clinical index and were very poorly adapted to their environment (10-20 percentile points). This fact is supported by other research studies showing that patients with LSC tend to have poor social skills or interpersonal resources and a lack of flexibility, which makes them more vulnerable to life difficulties, increased physiological stress levels and, thus, they are at a high risk of suffering psychopathological disorders [19, 28].

Stress is thought to trigger or aggravate skin disorders or, at least, to delay recovery [29-31] and certain personality traits can modulate the impact of stress [32, 33]. Thus, the study of personality as a potential predictor, or risk factor, in the development of skin disease is of relevance; LSC and its correlation with personality traits provides an example of this approach.

Conclusion

Psychological differences were found between LSC patients and those with no skin disorder. However, no causal relationship can yet be definitively established between personality traits and LSC. This should be investigated by future research studies with a larger sample of patients and using a prospective design.

Moreover, further studies are needed with a larger number of patients with different skin diseases. This would enable clearer comparisons between the various types of skin disease.

The results of this study support the idea of a link between personality characteristics and skin disease. This correlation may contribute to the treatment of patients with such disorders. On the other hand, the clinical index shows how LSC patients require psychological help, as manifested by their physical expression. We hope this study will encourage psycho-dermatologists to take personality variables into account when making decisions on the type of therapy to use for patients with pruritus. ■

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