

## INVESTIGATIVE REPORT

# Quality of Life, Emotional Wellbeing and Family Repercussions in Dermatological Patients Experiencing Chronic Itching: A Pilot Study

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**A better understanding of the psychosocial impact of chronic itching could lead to improved intervention strategies. The aim of this study is to examine the prevalence and characteristics of chronic itching in dermatological patients. The Itch Severity Scale (ISS) was completed by a sample of 201 patients from a Dermatology Outpatient Clinic in Spain and 61.69% ( $n=124$ ) of participants recorded a positive score (mean=8.89, standard deviation=4.06). The results indicate that chronic itching has significant psychosocial repercussions. The Dermatology Life Quality Index (DLQI) showed that the negative impact on quality of life was significantly greater for the group that experienced chronic itching ( $p<0.001$ ). Scores on the Hospital Anxiety and Depression Scale (HADS) revealed that the group with chronic itching had more symptoms associated with anxiety ( $p=0.001$ ). No statistically significant differences between the groups with regards to repercussions on the family dynamic were found. Key words: quality of life; psychosocial impact; family repercussions; chronic itching; skin conditions.**

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Itching is a common symptom among the general population. At some point in their lives most people experience some level of discomfort associated with itching. In a population study of healthy adolescents aged 18–19 years, Halvorsen et al. (1) noted the presence of itching in 8.8% of participants and identified statistically significant differences between men (6%) and women (11%).

Chronic itching is also a common symptom in the adult population, reaching percentages of between 13.5% and 16.8% (2, 3). In a study of a group of patients with chronic itching, underlying dermatosis was identified in 41.8% of cases (4). However, epidemiological data on itching is limited.

Weisshaar & Dalgard (5) discussed the difficulties involved in the measurement of the severity of itching. The severity of itching depends on a number of factors, such

as age, ethnicity, the inherent characteristics of the health services and the study population. Moreover, the fact that pruritus is a subjective experience must also be taken into account. More research is needed in order to increase the body of knowledge on the perception, characteristics and distribution of itching among dermatology patients. A further complication in the study of itching is the fact that its evaluation may be influenced by sociocultural factors (6) or even a particular moment in the life of the patient (7–9). The results of studies that analyse the prevalence of the problem among both the general population and dermatology patients must therefore be considered in the light of these possible limitations (4, 6, 10).

The International Forum for the Study of Itch (IFSI) (11) defines chronic itching as a disorder that is present for 6 months or more. Some studies have analysed itching and cutaneous conditions (4, 12). Weisshaar et al. (13) found that 57% of patients in their study experienced itching due to dermatosis. Other authors have linked itching with specific cutaneous conditions, such as atopic eczema (14) and psoriasis, in which the incidence of itching is as high as 80% (15). A recent study in a Madrid tertiary hospital, based on a cohort of 861 dermatology patients who attended the accident and emergency service, found that in 38.1% of cases severe itching was the reason given for the need for immediate attention (16).

Another issue is the effect that chronic itching has on the quality of life (QoL) and emotional wellbeing of the individual. With regards to QoL, it seems clear that itching has negative consequences (13, 17). A number of studies have examined the possible relationship between chronic itching and anxiety, depression and other psychopathological problems (10, 18–20). Verhoeven et al. (21) undertook a review of the bio-psychosocial mechanisms of itching, analysing personality traits, stressors and cognitive, behavioural and social mediating factors in patients who experienced chronic itching.

The present paper aims to examine the impact of itching on family relationships and the family dynamic. The specific objectives of this work are: (i) to determine the prevalence and characteristics of itching in a sample of Spanish dermatology patients; (ii) to assess the impact of itching on the QoL of the participants; (iii) to evaluate the emotional wellbeing of the patients; (iv) to explore the consequences of itching on family interaction.

## MATERIALS AND METHODS (For complete details see Appendix S1<sup>1</sup>)

### Participants

The study population comprised 201 consecutive patients who met the inclusion criteria for participation, presenting between 12 December 2011 and 10 February 2012, at the Dermatology Outpatient Clinic of the Public Health Service Hospital, Alcañiz, Spain.

### Study design and hypotheses

The analysis was descriptive, observational and transversal. We advanced 3 hypotheses: (i) patients with chronic itching would show more symptoms of anxiety-depression than patients who did not experience pruritus; (ii) the QoL of the study population (patients with a dermatological condition and chronic itching) would be worse than that of the control group (patients with a dermatological condition but no itching); (iii) patients with chronic itching experience deterioration in their family relationships, in comparison with patients who do not experience pruritus.

### Assessment instruments

The Hospital Anxiety and Depression Scale (HADS) (22); Itch Severity Scale (ISS) (26); Dermatology Life Quality Index (DLQI) (28); and Family APGAR (Adaptability, Partnership, Growth, Affection, and Resolve) (31) (N.B.: not to be confused with Apgar score in newborns.)

## RESULTS

### Clinical characteristics

Of the participants, 61.69% ( $n=124$ ) had a positive score on the ISS scale (Group  $X_1$ ) and 38.31% ( $n=77$ ) experienced no itching (control group  $X_2$ ). The mean age was 44.55 years (range 18–77 years) ( $X_1=45.41$ ;  $X_2=43.16$  years). The main sociodemographic characteristics and the distribution of the skin diseases are shown in Table S1<sup>1</sup>.

No statistically significant differences were identified with regards to the sociodemographic variables of the 2 groups, they were therefore comparable. In the “itch” group ( $X_1$ ), statistically significant differences were identified with regards to the distribution of skin diseases. The percentage of itch in each of skin diseases is as follows: eczema (100%), hand eczema (100%), psoriasis (82.69%), atopic eczema (81.82%), infectious skin (78.57%), non-melanoma skin cancer (58.33%), alopecia (56.25%), benign skin tumours (42.46%), naevus (73.62%) and acne (28.57%). Fig. 1 shows the frequency distribution of the total ISS scores.

Table I gives the results for each of the items of the Itch Severity Scale (ISS) for the “itch” group ( $X_1$ ). With the exception of item ISS4-Intensity ( $p=0.042$ ), there were no statistically significant differences between men and women. In item ISS4, the mean intensity per-

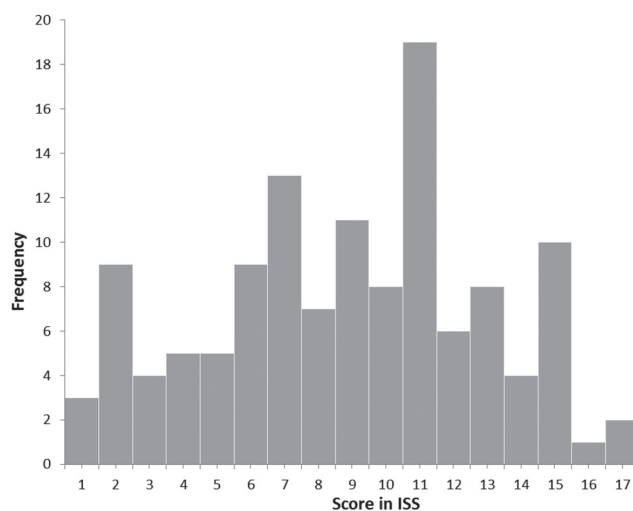


Fig. 1. Distribution of frequency of the Itch Severity Scale (ISS) (range 1–17).

ceived by men (0.65) was higher than that perceived by women (0.51).

Finally, Fig. 2 indicates the body areas affected (in percentages) by itching for both men and women (the head, neck, torso, arms, legs).

### Psychological data

The main results of the HADS can be seen in Table II. There were statistically significant differences for the Emotional Wellbeing scale ( $p=0.001$ ) and the Anxiety subscale ( $p=0.001$ ), but this was not the case with the Depression subscale.

### Quality of life and Family APGAR

The results of the Dermatology Life Quality Index (DLQI) showed statistically significant differences between the study group ( $X_1$ ) and the control group ( $X_2$ ). The differences were observed both in the items on the scale and in the total score ( $X_1=4.48$ ;  $X_2=0.56$ ) ( $p<0.001$ ). The mean values obtained from the Family

Table I. Mean scores and standard deviations (SD) of the Itch Severity Scale (ISS) and ISS total scores for patients with different skin diseases

	Men ( $n=53$ ) Mean $\pm$ SD	Women ( $n=71$ ) Mean $\pm$ SD	Total ( $n=124$ ) Mean $\pm$ SD	$p^*$
ISS1. Frequency	0.50 $\pm$ 0.05	0.48 $\pm$ 0.04	0.48 $\pm$ 0.35	0.800
ISS2. Characteristics of itch				
Global	0.43 $\pm$ 0.04	0.44 $\pm$ 0.04	0.44 $\pm$ 0.30	0.858
Sensitivity	0.23 $\pm$ 0.03	0.27 $\pm$ 0.03	0.25 $\pm$ 0.23	0.576
Affective	0.27 $\pm$ 0.03	0.33 $\pm$ 0.03	0.30 $\pm$ 0.26	0.460
ISS3. Affected area	0.61 $\pm$ 0.03	0.56 $\pm$ 0.04	0.58 $\pm$ 0.27	0.438
ISS4. Intensity	0.65 $\pm$ 0.04	0.51 $\pm$ 0.04	0.57 $\pm$ 0.33	0.042
ISS5. Mood	0.31 $\pm$ 0.05	0.32 $\pm$ 0.04	0.32 $\pm$ 0.36	0.760
ISS6. Effect on sexuality	0.25 $\pm$ 0.05	0.20 $\pm$ 0.04	0.22 $\pm$ 0.37	0.492
ISS7. Sleep disruption	0.28 $\pm$ 0.04	0.39 $\pm$ 0.04	0.34 $\pm$ 0.35	0.066
ISS. Totals	9.11 $\pm$ 0.53	8.72 $\pm$ 0.50	8.89 $\pm$ 4.06	0.657

\* $p$ -value of the Mann–Whitney test.

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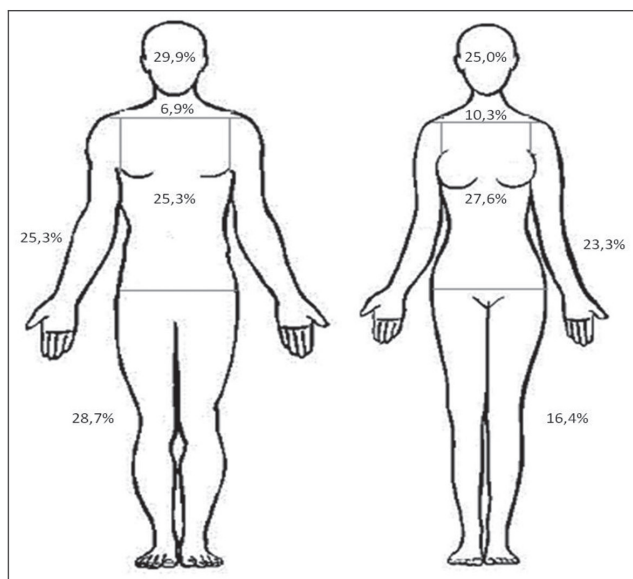


Fig. 2. Distribution of the affected body areas (%) according to the Itch Severity Scale (ISS) in men and women.

APGAR revealed no statistically significant differences between the groups ( $X_1 = 8.38$ ;  $X_2 = 8.80$ ) or between any of the items on the scale. The results are shown in Table III.

DISCUSSION

The skin plays a vital role in the human socialization process; it responds to emotional stimuli and its appearance has a fundamental influence on an individual’s body image and self-esteem (33).

It is often the case that cutaneous disorders are provoked, maintained or aggravated as a consequence of factors related to psychological processes (34–36). Given that itching is a common symptom in dermatology patients, the study of its psychosocial repercussions is of significant importance. Research on the issues involved could lead to improvement in treatment and to a better understanding of how the patient feels and copes (37–40).

This work has examined the characteristics of pruritus in a sample of Spanish dermatology patients in an attempt to estimate the prevalence of the condition. Furthermore, this study explored the impact of itching on QoL, anxiety and/or depression and its effect on family functioning. Previous studies have considered

Table II. Mean scores and standard deviations (SD) of the Hospital Anxiety and Depression Scale (HADS) in the “itch” and “no itch” dermatological patients

	$X_1$ “itch” ( $n = 124$ )	$X_2$ “no itch” ( $n = 77$ )	
	Mean $\pm$ SD	Mean $\pm$ SD	$p$
Anxiety	7.19 $\pm$ 3.53	4.71 $\pm$ 3.31	0.001
Depression	3.70 $\pm$ 3.30	2.94 $\pm$ 2.69	0.088
Emotional wellbeing	10.89 $\pm$ 6.22	7.65 $\pm$ 5.24	0.001

Table III. Chi-square and p-value of the Dermatology Life Quality Index (DLQI) and the Family APGAR

	$\chi^2$	$p^*$
DLQI		
Presence of symptoms	67.360	0.000
Discomfort/ self-consciousness	24.678	0.000
Discomfort in domestic/garden activities	15.181	0.002
Choice of clothing	14.537	0.002
Social/recreational activities	21.167	0.000
Sport	10.706	0.013
Work/studies	32.285	0.000
Problems with partner/close friends or family members	15.181	0.002
Sex life	9.776	0.021
Problems as a consequence of skin treatment	19.368	0.000
Total	72.623	0.000
APGAR		
Family support	1.431	0.489
Discuss problems at home	3.410	0.182
Joint taking of decisions	0.996	0.608
Satisfaction with time spent with family	3.198	0.202
Feeling of family love	1.073	0.585

\*p-value associated to the  $\chi^2$  test of independence.

the relationship between itching and QoL (29, 30) and anxiety/depression (24, 25), but we have been unable to find any references to studies that deal with the effect of chronic itching on family life and affectivity.

In the study group ( $X_1$ , “itch”), 57.26% were women; this figure is similar to previous studies (2–4) and slightly higher than the original ISS validation study (26). The mean age was 44.55 years, which is lower than that in the study by Mazeh et al. (18) with psychiatric patients, in which the mean age was 48 years. The educational level was lower than the sample used by Mazeh et al. (18) and Majeski et al. (26), in which the proportion of participants with university studies was 47% and 54%, respectively. This may be explained by the fact that our sample was drawn from a hospital located in a primarily rural environment. In our study, the number of participants who were married was higher than in a number of other works, for example, Mazeh et al. (18), although broadly similar to the figure reported by Majeski et al. (26).

Of the sample, 61.69% experienced itching, a result that was similar to the findings of Weisshaar et al. (13) and Gupta et al. (41), higher than figures published by Verhoeven et al. (12) in a primary care study, and lower than that of Szepietowski et al. (15) for a sample of patients with psoriasis.

The mean ISS results (8.89, standard deviation (SD) 4.06), were in line with those of other studies, although lower than those published by Zachariae et al. (17) (mean 9.7; SD 3.9). The explanation for this may reside in the sample composition; the aforementioned work included 5 pathologies (psoriasis, atopic dermatitis, chronic urticaria, genital itch, uraemic pruritus) that commonly involve intense and persistent itching. The mean ISS results obtained by Majeski et al. (26) (7.4  $\pm$  3.6) were lower than ours. As Weisshaar & Dalgard (5) and Dalgard et al. (6) commented, the comparison of

results in this field must be approached with caution as they may be conditioned by the sociodemographic characteristics of the participants and the community in which the study is undertaken.

Four of the scores for the 7 main components of the ISS were similar to results obtained by Zachariae et al. (17); in our study the scores for the 2 components (mood and effect on sexuality) were lower, and the last (affected area) were higher.

The most common body locations for pruritus in men were the head (29.9%) and the legs (28.7%), and for women the torso (27.6%) and head (25%). These results are lower than those of Szepietowski et al. (15): head (35%); torso (49.7%); arms 50%; and legs (48.7%). Ferm et al. (19) evaluated itching in patients with systematic illnesses, psychiatric disorders and patients experiencing pruritus of unknown origin, and reported that 16.7% of psychiatric patients and 10.01% of non-psychiatric patients indicated that the head was the main area of itching.

Our first hypothesis (that patients with chronic itching would show more symptoms of anxiety-depression than those who did not experience pruritus) was proven with regards to Anxiety ( $p < 0.001$ ) and the overall score for Emotional Wellbeing ( $p = 0.001$ ), but not for Depression. In a sample of patients with chronic urticaria, Staubach et al. (42), found that 30% revealed symptoms of anxiety and 17% had symptoms of depression (measured using the HADS). The same authors further noted a significant increase in emotional distress. Pujol et al. (43) also used HADS with a sample of 64 patients with psoriasis and obtained differing scores for anxiety (mean 7.85; SD 4.54) and depression (mean 4.72; SD 4.12).

The second hypothesis (that the QoL of the study population would be worse than that of the control group) was proved. There was a statistically significant relationship between itching and quality of life (DLQI) ( $X_1 = 4.48$ ;  $X_2 = 0.56$ ). Susel et al. (44) reported a mean of  $3.6 \pm 3.4$ , in patients with uraemic pruritus, whilst Sanchez-Perez et al. (45) obtained mean DLQI scores of  $7.8 \pm 5.3$  in a sample of 172 Spanish psoriasis patients. In the latter study, given that the sample only comprised patients with psoriasis (mainly moderate to severe) it is logical that the scores were rather higher than those for our population.

The final hypothesis (that patients with chronic itching experience a deterioration in their family relationships, in comparison with patients who do not have pruritus) was not proved. This could in part be due to the instrument used to measure family dysfunction, the Family APGAR. Psychosomatic patients have difficulties in being disloyal to their family; this includes describing their families as unloving or admitting they have problems. On the contrary, there is often the need to protect the family cohesion and tend to describe their family as ideal (46). The Family APGAR is thus not the

most suitable test to use in this context and qualitative methods, such as the genogram, should be considered.

However, the impact of chronic illness on the family dynamic and QoL is an emerging issue of medical research interest that has been explored by a few recent studies (46–49).

The main limitation of our study was the difficulty involved in evaluating family life through a self-administered questionnaire.

There was further complication that the surveys were completed in the hospital waiting room, often in the presence of a family member, which may have influenced the responses. Future research should ensure greater privacy and consider the use of qualitative methods to complement the self-administered scales.

Although this work failed to verify the impact of itching on family function, it clearly establishes that the condition has significant psychosocial repercussions on QoL, levels of anxiety and the emotional wellbeing of the patients.

## REFERENCES

- Halvorsen JA, Dalgard F, Thoresen M, Bjertness E, Lien L. Itch and mental distress: a cross-sectional study among late adolescents. *Acta Derm Venereol* 2009; 89: 39–44.
- Matterne U, Apfelbacher CJ, Loerbroks A, Schwarzer T, Büttner M, Ofenloch R, et al. Prevalence, correlates and characteristics of chronic pruritus: a population-based cross-sectional study. *Acta Derm Venereol* 2011; 91: 674–679.
- Ständer S, Schäfer I, Phan NQ, Blome C, Herberger K, Heigel H, Augustin M. Prevalence of chronic pruritus in Germany: results of a cross-sectional study in a sample working population of 11,730. *Dermatology* 2010; 221: 229–235.
- Sommer F, Henser P, Böckenholt B, Metzke D, Luger TA, Ständer S. Underlying diseases and co-factors in patients with severe chronic pruritus: a 3-year retrospective study. *Acta Derm Venereol* 2007; 87: 510–516.
- Weisshaar E, Dalgard F. Epidemiology of itch: adding to the burden of skin morbidity. *Acta Derm Venereol* 2009; 89: 339–350.
- Dalgard F, Dawn AG, Yosipovich G. Are itch and chronic pain associated in adults? Results of a large population survey in Norway. *Dermatology* 2007; 214: 305–309.
- Thaipisuttikul Y. Pruritic skin diseases in the elderly. *J Dermatol* 1998; 25: 153–157.
- Beauregard S, Gilchrist BA. A survey of skin problems and skin care regimens in the elderly. *Arch Dermatol* 1987; 123: 1638–1643.
- Yalçın B, Tamer E, Toy GG, Oztas P, Hayran M, Alli N. The prevalence of skin diseases in the elderly: analysis of 4099 geriatric patients. *Int J Dermatol* 2006; 45: 672–676.
- Ständer S. Chronischer Pruritus Prinzipien der Diagnostik und therapie. *Hautarzt* 2007; 58: 627–636.
- Ständer S, Weisshaar E, Mettang T, Szepietowski JC, Carstens E, Ikoma A, et al. Clinical classification of itch: a position paper of the International Forum for the Study of Itch. *Acta Derm Venereol* 2007; 87: 291–294.
- Verhoeven EW, Kraaijmaat FW, van de Kerkhof PC, van Weel C, Duller P, van der Valk PG, et al. Prevalence of physical symptoms of itch, pain and fatigue in patients with skin diseases in general practice. *Br J Dermatol* 2007;

- 156: 1346–1349.
13. Weisshaar E, Apfelbacher C, Jäger G, Zimmermann E, Bruckner T, Diepgen TL, et al. Pruritus as a leading symptom: clinical characteristics and quality of life in German and Ugandan patients. *Br J Dermatol* 2006; 155: 957–964.
  14. Brenaut E, Garlantezec R, Talour K, Misery L. Itch characteristics in five dermatoses: non-atopic eczema, atopic dermatitis, urticaria, psoriasis and scabies. *Acta Derm Venereol* 2013; 93: 573–574.
  15. Szepietowski JC, Reich A, Wiśnicka B. Itching in patients suffering from psoriasis. *Acta Dermatovenereol Croat* 2002; 10: 221–226.
  16. Grillo E, Vaño-Galvan S, Jimenez-Gomez N, Ballester A; Muñoz-Zato E, Jaen P. [Dermatologic Emergencies: Descriptive Analysis of 861 Patients in a Tertiary Care Teaching Hospital.] *Actas Dermosifiliograf* 2013; 104: 316–324 (in Spanish).
  17. Zachariae R, Lei U, Haedersdal M, Zachariae C. Itch severity and quality of life in patients with pruritus: preliminary validity of a Danish adaptation of the Itch Severity Scale. *Acta Derm Venereol* 2012; 92: 508–514.
  18. Mazeh D, Melamed Y, Cholostoy A, Aharonovitch V, Weizman A, Yosipovitch G. Itching in the psychiatric ward. *Acta Derm Venereol* 2008; 88: 128–131.
  19. Ferm I, Sterner M, Wallengren J. Somatic and psychiatric comorbidity in patients with chronic pruritus. *Acta Derm Venereol* 2010; 90: 395–400.
  20. Schneider G, Driesch G, Heuft G, Evers S, Luger TA, Ständer S. Psychosomatic cofactors and psychiatric comorbidity in patients with chronic itch. *Clin Exp Dermatol* 2006; 31: 762–767.
  21. Verhoeven EW, de Klerk S, Kraaimaat FW, van de Kerkhof PCM, de Jong EM, Evers AW. Biopsychosocial mechanism of chronic itch in patients with skin diseases: A review. *Acta Derm Venereol* 2008; 88: 211–218.
  22. Zigmund AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatr Scand* 1983; 67: 361–370.
  23. Caro I, Ibáñez E. [The Hospital Anxiety and Depression Scale.] *Boletín de Psicología* 1992; 36: 43–69 (in Spanish).
  24. Lye WC, Chan PS, Leong SO, van der Straaten JC. Psychosocial and psychiatric morbidity in patients on CAPD. *Adv Perit Dial* 1977; 13: 134–136.
  25. Hawro T, Miniszewska J, Chodkiewicz J, Sysa-Jedzejowska A, Zalewska A. Anxiety, depression and social support in patients with psoriasis. *Przegl Lek* 2007; 64: 568–571.
  26. Majeski CJ, Johnson JA, Davison SN, Lauzon CJ. Itch Severity Scale: a self-report instrument for the measurement of pruritus severity. *Br J Dermatol* 2007; 156: 667–673.
  27. Daudén E, Sánchez-Pérez J, Prieto M, Roset M. [Validation of the Spanish Version of the Itch Severity Scale: The PSEDA Study.] *Actas Dermosifiliogr* 2011; 102: 527–536 (in Spanish).
  28. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI): a simple practical measure for routine clinical use. *Clin Exp Dermatol* 1994; 19: 210–216.
  29. Ucak H, Demir B, Cicek D, Dertioglu SB, Akkurt ZM, Ucmak D, et al. Efficacy of tropical tacrolimus for the treatment of persistent pruritus ani in patients with atopic dermatitis. *J Dermatolog Treat* 2013; 24: 454–457.
  30. Samrao A, Berry TM, Goshi R, Simpson EL. A pilot study of an oral phosphodiesterase inhibitor (apremilast) for atopic dermatitis in adults. *Arch Dermatol* 2012; 148: 890–897.
  31. Smilkstein G, Ashworth C, Montano D. Validity and reliability of the Family APGAR as a test of family function. *J Fam Pract* 1982; 15: 303–311.
  32. Bellón JA, Delgado A, Luna JD, Lardelli P. [Validity and reliability of the family Apgar family function test.] *Aten Primaria* 1996; 18: 289–295 (in Spanish).
  33. Koblenzeer CS. Psychosomatic concept in dermatology. A dermatologist-psychoanalyst's viewpoint. *Arch Dermatol* 1983; 119: 501–512.
  34. Naldi L, Peli L, Parazzini F, Carrek CF. Family history of psoriasis, stressful life events, and recent infectious disease are risk factors for a first episode of acute guttate psoriasis: results of a case-control study. *J Am Dermatol* 2001; 44: 433–438.
  35. Picardi A, Abeni D. Stressful life events and skin diseases: disentangling evidence from myth. *Psychoter Psychosom* 2001; 70: 118–136.
  36. Picardi A, Pasquini P, Cattaruzza MS, Gaetano P, Baliva G, Melchi CF et al. Psychosomatic factors in first-onset alopecia areata. *Psychosomatics* 2003; 44: 374–381.
  37. Tey HL, Wallengren J, Yosipovitch G. Psychosomatic factors in pruritus. *Clin Dermatol* 2013; 31: 31–40.
  38. Verhoeven L, Kraaimaat F, Duller P, van de Kerkhof P, Evers A. Cognitive, behavioral, and physiological reactivity to chronic itching: analogies to chronic pain. In *J Behav Med* 2006; 13: 237–243.
  39. Erturk IE, Arican O, Omurlu IK, Sut N. Effect of the pruritus on the quality of life: a preliminary study. *Ann Dermatol* 2012; 24: 406–412.
  40. Reich A, Hrehorow E, Szepietowski JC. Pruritus is an important factor negatively influencing the well-being of psoriatic patients. *Acta Derm Venereol* 2010; 90: 257–263.
  41. Gupta MA, Gupta AK, Kirkby S, Weiner HK, Mace TM, Schork NJ, et al. Pruritus in psoriasis. A prospective study of some psychiatric and dermatologic correlates. *Arch Dermatol* 1988; 124: 1052–1057.
  42. Staubach P, Dechene M, Metz M, Magerl M, Siebenhaar F, Weller, et al. High prevalence of mental disorders and emotional distress in patients with chronic spontaneous urticaria. *Acta Derm Venereol* 2011; 91: 557–561.
  43. Pujol RM, Puig L, Dauden E, Sanchez-Carazo JL, Toribio J, Vanaclocha F, et al. Mental health self-assessment in patients with moderate to severe psoriasis: an observational, multicenter study of 1164 patients in Spain (The VACAP Study). *Actas Dermosifiliogr* 2013; 104: 897–903.
  44. Susel J, Batorycka-Baran A, Reich A, Szepietowski JC. Uraemic pruritus markedly affects the quality of life and depressive symptoms in haemodialysis patients with end-stage renal disease. *Acta Derm Venereol* 2014; 94: 276–281.
  45. Sanchez-Perez J, Dauden-Tello E, Mora AM, Lara Surinyac N. Impact of atopic dermatitis on health-related quality of life in Spanish children and adults: the PSEDA Study. *Actas Dermosifiliogr* 2013; 104: 44–52.
  46. Poot F, Antoine E, Gravellier M, Hirt J, Alfani J, Forchetti G, et al. A case-control study on family dysfunction in patients with alopecia areata, psoriasis and atopic dermatitis. *Acta Derm Venereol* 2011; 91: 415–421.
  47. Golics CJ, Basra MK, Salek MS, Finlay AY. The impact of patients' chronic disease on family quality of life: an experience from 26 specialities. *Int J Gen Med* 2013; 6: 787–798.
  48. Beattie PE, Lewis-Jones MS. An audit of the impact of a consultation with a paediatric dermatology team on quality of life in infant with atopic eczema and their families: further validation of the infants' dermatitis quality of life index and dermatitis family impact score. *Br J Dermatol* 2006; 155: 1249–1255.
  49. Basra MK, Sue-Ho R, Finlay AY. The family dermatology life quality index: measuring the secondary impact of skin disease. *Br J Dermatol* 2007; 156: 528–538.