Received: 8 August 2022 | Accepted: 9 November 2022

DOI: 10.1111/jdv.18850

JEADV JOURNAL OF THE EUROPEAN ACADEMY OF DERMATOLOGY & VENEREOLOGY

ORIGINAL ARTICLE

Characteristics of pruritus in various clinical variants of psoriasis: Final report of the binational, multicentre, cross-sectional study

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Abstract

Background: Pruritus, which is the most frequent subjective symptom of psoriasis, may cause significant discomfort, embarrassment and even interfere with patients normal daily activities. However, the perception of itch in various psoriasis subtypes remains unknown.

Objectives: The aim of this study was to investigate and to characterize pruritus in different clinical variants of psoriasis.

Methods: This cross-sectional, binational, multicentre study included 295 subjects suffering from nine different clinical subtypes of psoriasis: large-plaque psoriasis (n = 45), nummular psoriasis (n = 32), guttate psoriasis (n = 31), scalp psoriasis (n = 32), inverse psoriasis (n = 23), erythrodermic psoriasis (n = 33), palmoplantar psoriasis vulgaris (n = 33), palmoplantar pustular psoriasis (n = 42) and generalized pustular psoriasis (n = 23). Measures included sociodemographic and anthropometric data, detailed pruritus characteristics including but not limited to pruritus intensity, frequency and extend, as well as psoriasis severity.

Results: The lifetime prevalence of pruritus in each clinical variant of psoriasis was similar and quite high, reaching up to 100% in some disease subtypes (i.e., nummular psoriasis, scalp psoriasis and generalized pustular psoriasis). Psoriasis severity correlated with pruritus intensity in scalp psoriasis, palmoplantar pustular psoriasis and generalized pustular psoriasis. The age, duration of psoriasis and BMI did not interfere with the intensity of itch.

Conclusions: Pruritus is highly prevalent in each clinical variant of psoriasis. However, the sensation of itch is very individual, difficult to universally describe even in the same subtype.

INTRODUCTION

Psoriasis is one of the most common chronic dermatoses, affecting at least 100,000,000 individuals worldwide, which constitutes about 3% of the general population.[1,2] Based on clinical presentation, psoriasis can be categorized into various subtypes such as plaque-type psoriasis, inverse or flexural psoriasis, nummular psoriasis, guttate psoriasis, scalp psoriasis, palmoplantar psoriasis, erythrodermic psoriasis and pustular psoriasis including palmoplantar pustular psoriasis (PPPP) and generalized pustular psoriasis (GPP). The letter subtypes are characterized by the formation of sterile pustules on an erythematous base resulting from massive epidermal neutrophil infiltration.[3,4]

Irrespectively of clinical variant, skin lesions in psoriasis are often accompanied by subjective symptoms, which may cause significant discomfort and embarrassment and their intensity and constant presence can significantly interfere

Linked article : R. Balestri et al. J Eur Acad Dermatol Venereol 2023; 37:647–648. https://doi.org/10.1111/jdv.18950.

with normal daily activities.[5] However, in the past, according to the classic textbook description, psoriasis did not itch. As recently as the mid-1980s, pruritus was considered an occasional rather than a major complain of psoriatic patients. Nowadays, pruritus, defined as an unpleasant sensation that provokes a desire to scratch, is often found in psoriasis and for many patients it is often the most important, the most frequent and the most bothersome subjective sensation.[6] However, itch sensation may be experienced differently among patients with various skin conditions.[7] Compared with other pruritic dermatoses, it was shown that patients with atopic dermatitis experienced pruritus more frequently and more intensely, while patients with psoriasis reported greater embarrassment associated with itch.[7] Similarly, Chernyshow observed higher itch scoring in atopic dermatitis patients than in psoriasis subjects, and itch in atopic dermatitis resulted in greater negative impact on quality of life.[8] Comparing lichen planus with psoriasis showed that pruritus was highly prevalent in both conditions. Patients with lichen planus experienced significantly more intense pruritus than those with psoriasis but excoriations were more frequently observed in psoriasis.[9] Although pruritus in psoriasis may not be as intense as in other pruritic conditions, it is still considered by many patients to be the most bothersome disease symptom.[10]

However, it is important to be able to effectively control itching to prevent scratching-induced worsening of skin lesions (Koebner's phenomenon[6]) and to improve patients' quality of life and sleep. The molecular basis of this symptom in psoriasis is still not fully elucidated, albeit a complex interaction between the nervous, neuroendocrine, immune and vascular systems is suggested. Histamine and mast cells, substance P and other neuropeptides, nerve growth factor (NGF) and innervation abnormalities, vascular endothelial growth factor (VEGF), interleukins (e.g., IL-2, IL-4, IL-31), endogenous opioids and lipocalin-2 can modulate pruritus associated with psoriasis but to date no single mediator has been proven to be a key one.[11]

While searching the PubMed or other databases, several reports characterizing pruritus in psoriasis can be found. However, most of them only refer to plaque psoriasis. Recently preliminary results of the study on itching in various clinical variants of psoriasis were published by our group.[12] Now, we would like to present the final report of a multinational, cross-sectional study conducted by our group from June 1st, 2020, till November 30th, 2021, in which we describe the characteristics of pruritus in different clinical variants of psoriasis.

MATERIALS AND METHODS

Study design

This research was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee by Subcarpathian Physician Chamber in Rzeszow and by Gazi University Ethics Committee. All subjects or their legal representatives signed an informed consent form before initiation of the study. Participants did not receive any financial compensation for study participation.

A total of 338 participants with psoriasis diagnosed based on the clinical manifestation and/or histopathological assessment of skin biopsies were enrolled into this study. A total of six dermatology centres were involved in the patients' recruitment – five from Poland: Bydgoszcz (n = 52), Łódź (n = 39), Olsztyn (n = 20), Rzeszów (n = 102), Wrocław (n = 43) and one from Ankara in Turkey (n = 82). Patients undergoing antipsoriatic treatment and those who had been treated for psoriasis with systemic agents or phototherapy within the prior 4 weeks or with topical antipsoriatic treatment within 2 weeks before the assessment were considered as not eligible. Other concomitant dermatological or systemic disorders that might cause pruritus such as, for example urticaria, chronic uraemia or cholestasis, and use of medications that could influence the sensation of itch were also exclusive. Thus, 43 individuals were excluded from further analysis due to above mentioned exclusion criteria. Two hundred ninety-five remaining patients were divided into nine groups according to the dominant subtype of psoriasis: large-plaque psoriasis (n = 45), nummular psoriasis (n = 32), guttate psoriasis (n = 31), palmoplantar psoriasis (n = 33), psoriasis of the scalp (n = 32), inverse psoriasis (n = 23), erythrodermic psoriasis (n = 33), PPPP (n = 42) and GPP (n = 23). Detailed characteristics of the study participants was presented in Table 1.

In each site the same standardized questionnaire was used.[12] The first part of the survey included demographic data (gender, age), anthropometric measurements (weight, growth), history and dominant subtype of psoriasis, as well as comorbidities and concurrent treatment. The second part was focused on psoriatic pruritus and the disease severity. Participants were asked to answer short questions about lifetime prevalence of pruritus as well as questions about its duration, localization (within lesional skin, within non-lesional skin or involving all of the body) and frequency of itching. Patients were also requested to choose from the predefined list of terms that best described their feelings of pruritus. Individuals who experienced pruritus within the last 3 days before the examination evaluated its maximal and average intensity with the 11-point Numerous Rating Scale (NRS_{max} and $NRS_{average}$, respectively) from 0 (no pruritus) to 10 (worst imaginable pruritus).[13] The 10-item Pruritus Severity Scale (10-PSS) was used as another method of pruritus intensity measurement in order to make this study more objective and reliable.[14]

Disease severity was assessed in all patients according to the Body Surface Area (BSA) and Static Physician Global Assessment (sPGA).[15] Severity of large-plaque psoriasis, nummular psoriasis, guttate psoriasis, palmoplantar psoriasis, psoriasis of the scalp, inverse psoriasis and erythrodermic psoriasis was measured with Psoriasis Area and Severity Index (PASI).[16] Patients with PPPP were assessed according to Palmoplantar Pustulosis Severity Index (PPSI),[17] while

TABLE 1 Comparison of demographic, anthropometric and clinical data in patients with various clinical subtypes of psoriasis

	Plaque-type psoriasis	Nummular psoriasis	Guttate psoriasis	Palmoplantar psoriasis	Scalp psoriasis	Inverse psoriasis	Erythrodermic psoriasis	Palmoplantar pustular psoriasis	Generalized pustular psoriasis	*p*
Number of patients (%)	45 (15.3)	32 (10.8)	31 (10.5)	33 (11.2)	32 (10.8)	23 (7.8)	33 (11.2)	43 (14.6)	23 (7.8)	-
Female (%)	15 (33.3)	11 (34.4)	14 (45.2)	18 (54.6)	19 (59.4)	12 (52.2)	9 (27.3)	37 (86.1)	13 (56.5)	<0.001
Male (%)	30 (66.7)	21 (65.6)	17 (54.8)	15 (45.4)	13 (40.6)	11 (47.8)	24 (72.7)	6 (13.9)	10 (43.5)	
Age (mean ± SD)	46.7 ± 15.9	40.6 ± 13.6	37.5 ± 11.6	45.3 ± 14.9	34.9 ± 12.4	41.5 ± 14.0	47.5 ± 16.6	53.8 ± 12.6	54.9 ± 14.3	<0.001
Min–Max (years)	17–77	16–69	17–73	16–71	16–61	18–67	18–71	28–77	28–76	
BMI (mean ± SD)	30.2 ± 5.5	26.4 ± 5.3	27.5 ± 6.4	28.3 ± 5.7	24.2 ± 4.4	29.3 ± 5.6	27.8 ± 6.4	26.4 ± 4.5	27.0 ± 4.8	<0.001
Min–Max (kg/m^2)	21.4–42.8	14.5–37.6	19.5–46.0	18.1–43.4	15.4–34.1	18.8–41.5	17.6–44.5	18.8–37.2	17.2–39.3	
Age at disease onset (mean ± SD)	30.3 ± 17.5	27.3 ± 15.1	24.0 ± 12.1	36.1 ± 16.5	23.7 ± 11.7	30.7 ± 14.2	31.9 ± 16.7	45.7 ± 12.1	45.5 ± 19.1	<0.001
Min–Max (years)	6–72	3–58	7–53	10–69	6–50	13–60	3–60	16–69	2–76	
Coexisting psoriatic arthritis (%)	5 (11.1)	2 (6.3)	4 (12.9)	2 (6.1)	2 (6.3)	2 (8.7)	5 (15.2)	1 (2.3)	4 (17.4)	0.49
PASI/GPPSI/PPSI* (mean ± SD)	14.1 ± 10.0	13.8 ± 8.4	11.4 ± 5.5	4.3 ± 2.2	2.5 ± 1.8	6.5 ± 4.3	35.3 ± 10.2	7.0 ± 1.9	4.8 ± 1.7	-
Min–Max	0.6–37.6	1.6–45.2	3.2–22.2	0.6–10.0	0.3–8.0	0.9–14.6	17.8–55.6	4–11	1–8	
BSA (mean ± SD)	28.7 ± 21.4	21.5 ± 10.4	20.1 ± 10.3	4.7 ± 2.3	4.8 ± 4.2	6.7 ± 4.2	86.7 ± 7.4	2.8 ± 1.2	29.8 ± 18.4	-
Min–Max	2–89	4–50.5	7–41	1–9	1–21	0.9–20	70–100	0.5–5	2–70	
sPGA (mean ± SD)	3.3 ± 1.2	3.1 ± 0.9	3.1 ± 0.7	2.8 ± 0.8	2.9 ± 0.8	2.7 ± 0.9	4.2 ± 0.8	3.3 ± 0.9	3.6 ± 1.0	-
Min–Max	1–5	2–5	2–5	2–4	2–4	1–4	3–5	2–5	1–5	

Abbreviations: BMI, body mass index; BSA, body surface area; GPPSI, generalized pustular psoriasis severity index; Max, maximum; Min, minimum; PASI, psoriasis area and severity index; PPSI, palmoplantar pustulosis severity index; SD, standard deviation.

*Disease severity was assessed with GPPSI in case of generalized pustular psoriasis, with PPSI in palmoplantar pustular psoriasis, and with PASI in all other types of psoriasis.

GPP involvement was evaluated according to Generalized Pustular Psoriasis Severity Index (GPPSI).[18]

Statistical analysis

Statistical analysis was performed using Statistica® 13.0 (Statsoft). Means, standard deviations (SD), median values and frequencies were calculated. The differences between the groups of patients were analysed using the Student's *t*-test for independent variables, Mann–Whitney *U*-test and analysis of variance (ANOVA), where appropriate. Spearman's rank correlation test was used to verify correlations between analysed parameters. To determine whether there was a significant difference between the expected and observed frequencies in one or more categories X^2 test was used. p-values < 0.05 were considered significant.

RESULTS

Prevalence, severity, localization and factors influencing pruritus

Our study showed that in various psoriasis subtypes the lifetime prevalence of pruritus was high and ranged between 86.1% and 100% ($p = 0.12$). The point prevalence of pruritus (the presence of this symptom within the 3 days preceding the examination) was also high (74.4%–93.8%). The intensity of pruritus ranged from no pruritus (0 points) to the worst imaginable pruritus (10 points) and was lowest in inverse and nummular psoriasis and highest in erythrodermic psoriasis. Interestingly, the intensity of pruritus did not significantly differ between various psoriasis subtypes. Moreover, both the age of the patients and duration of psoriasis did not interfere with the acuteness of the itch. Similarly, there was a lack of relationship between BMI and NRS average or NRS max, or 10-PSS. The sensation of itch was generally limited to the skin lesions. Only some individuals experienced pruritus also in non-lesional skin or suffered from generalized pruritus. The one exception was erythrodermic psoriasis where majority of patients reported itching of the entire body (Figure 1).

Individual itching sensation

The most common terms used to describe pruritus in all investigated subtypes of psoriasis were burning, pinching and tingling. Interestingly, patients with both papulosquamous and pustular forms of palmoplantar psoriasis significantly more often reported their itch as deep (21.2% and 2.6%, respectively), stinging (21.2% and 18.6%, respectively) and painful (36.4% and 34.9%, respectively) ($p < 0.05$ for all comparisons). Painful and stinging pruritus was more frequently noted by patients suffering from generalized pustular psoriasis (34.8% and 26.1%, respectively). These patients alike those with erythrodermic psoriasis stated their itch also as biting (26.1% and 18.2%) ($p < 0.05$). More than 20% of patients suffering from large-plaque psoriasis characterized itch as painful while the same number of participants with inverse psoriasis named their itch as point itch. Patients with scalp and erythrodermic psoriasis quite often reported pruritus like walking ants. A unique observation in both pustular variants of this disease was the sensation of warming feeling present in more than one-fifth of patients.

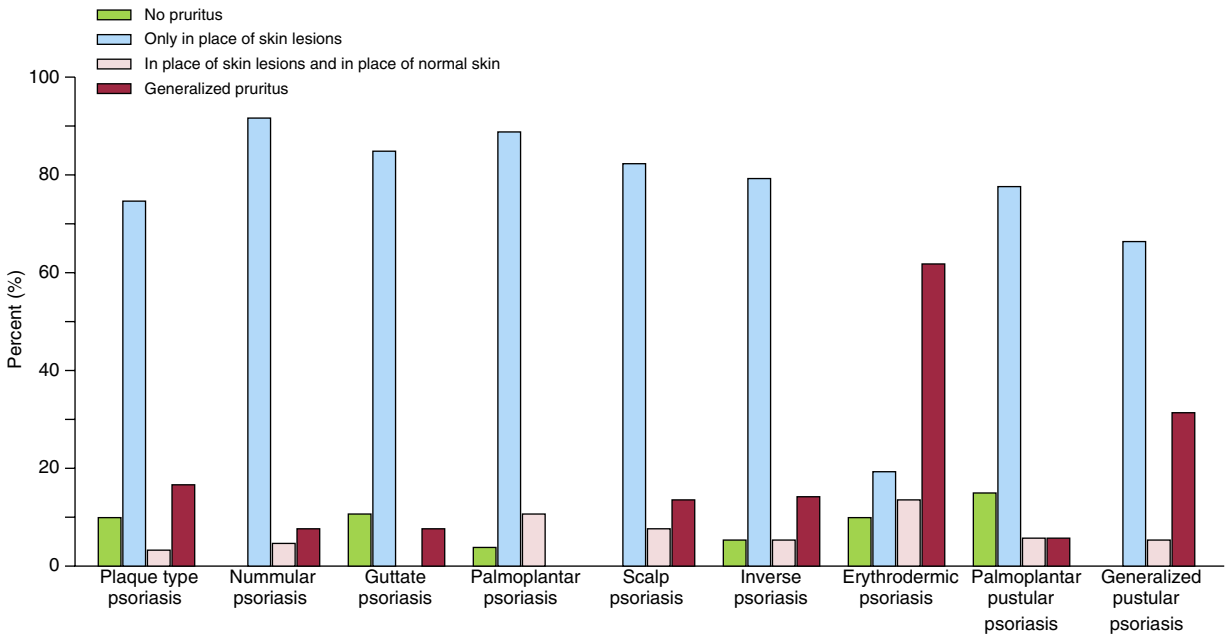

FIGURE 1 Localization of pruritus in various psoriasis subtypes.

Frequency of terms describing pruritus, used by the subjects, according to each subtype of psoriasis was presented on Figure 2.

Nummular, guttate, palmoplantar, inverse, erythrodermic psoriasis, psoriasis of the scalp and palmoplantar pustular psoriasis mainly described pruritus as 'disturbing' and 'irritating'. In generalized pustular psoriasis, patients equally often used the adjective 'distressing' and 'annoying'. In large-plaque psoriasis, subjects also choose the term 'disturbing'. Nevertheless, one-fourth of them defined pruritus

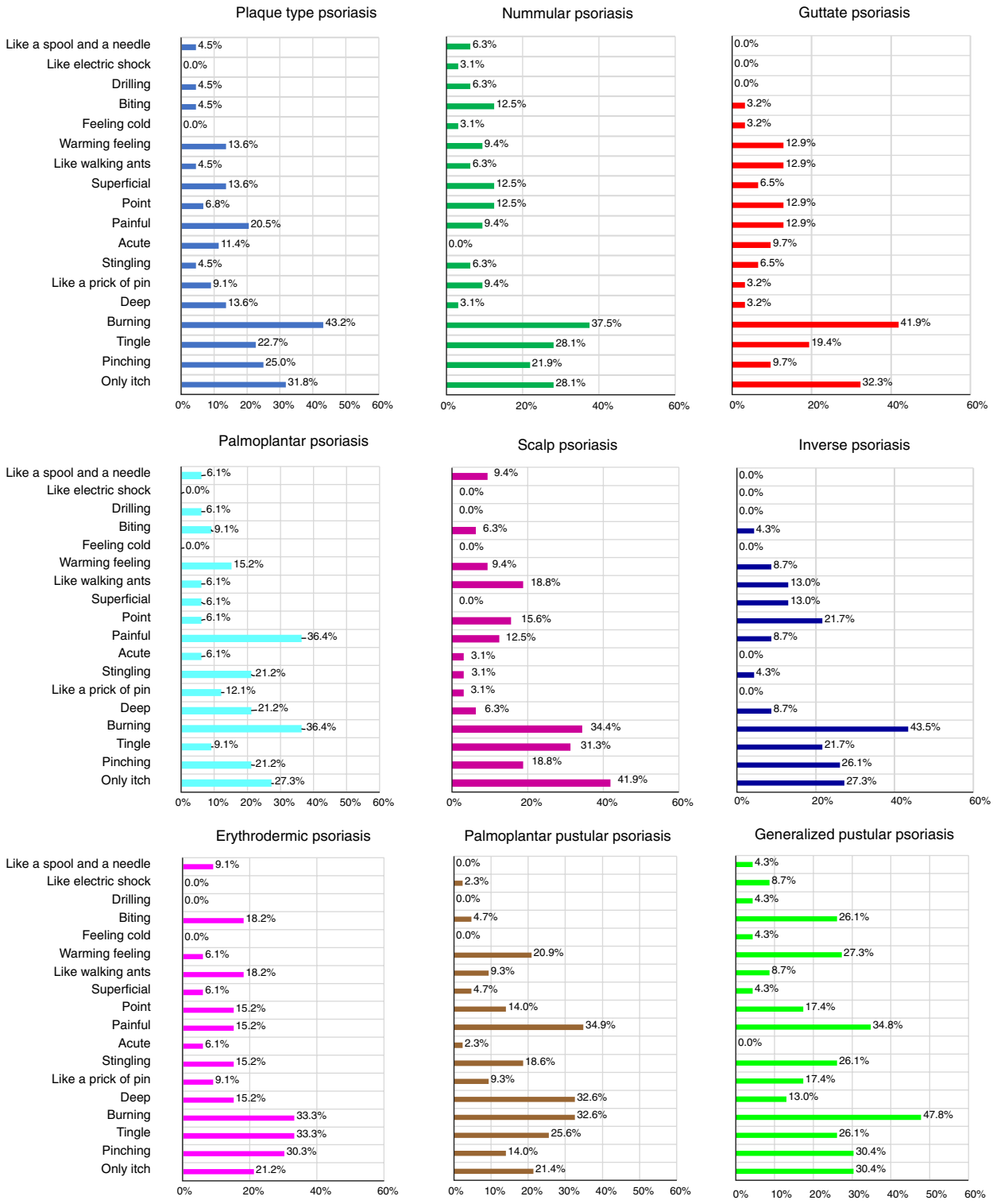

FIGURE 2 Terms describing pruritus in various subtypes of psoriasis.

as 'irritating' and 'annoying'. However, only regarding the term 'irritating', the differences between the studied groups were statistically significant (Figure 3).

Frequency, appearance and relief of pruritus

Great majority of patients reported pruritus every day (45.5%–78.8%) or a few times a week (21%–36.4%) in each subpopulation ($p = 0.42$). However, in erythrodermic psoriasis, 78.8% of responders complained of everyday itch, which was the highest prevalence in our study. Contrarily, within the group of inverse psoriasis, only 45.5% of patients suffer from everyday pruritus. Participants were also asked when the sensation of pruritus is the most intense. Possible answers were during the evolution of skin lesions, when skin lesions are fully developed, when skin lesion extend their size, or they could answer that the severity of itch has nothing to do with the appearance of skin lesions. Some differences were observed across all the groups; however, they were not statistically significant. Patients usually answered that the most intense itch accompanies appearance of new skin lesions or occurs when they are fully developed. It is worth noting that half of the patients with scalp psoriasis felt itch during the formation of psoriatic lesions. In palmoplantar psoriasis, more than half of responders (54.5%) reported the greatest pruritus when skin lesions were fully developed. The only one exception, where the most intense pruritus was most often associated with the extension of skin lesions, stated the group of generalized pustular psoriasis (45.5%). Apart from scalp psoriasis, pruritus discontinued predominantly after significant clinical improvement of skin lesions in each clinical variant of psoriasis. Interestingly, 34.4% of patients with scalp psoriasis declared that the itch stopes when the skin lesions disappear entirely and this was the most common answer in this population. An intriguing fact was the persistence of pruritus despite vanishing skin lesions in 18.2% cases with erythrodermic psoriasis. Differences in relief of pruritus were also not statistically significant ($p = 0.35$).

Correlations between intensity of pruritus and disease severity

In psoriasis of the scalp, palmoplantar pustular psoriasis and generalized pustular psoriasis, a statically significant, positive correlation between disease severity and pruritus intensity was observed. In nummular psoriasis and palmoplantar psoriasis, such correlation was noted when pruritus was measured according to the 10-PSS index. Surprisingly, in large plaque, guttate, inverse and erythrodermic psoriasis, there was no correlation between pruritus and disease severity. The detailed analysis conducted by our group was presented in Table 2.

DISCUSSION

The current study aims to show the differences in perception of pruritus between each subtype of psoriasis. That is why we focused on the analysis of each group and the investigation of disparities between them. The subtypes of psoriasis were distinguished according to the specific distribution and type of skin lesions. From the definition, surface of affected area

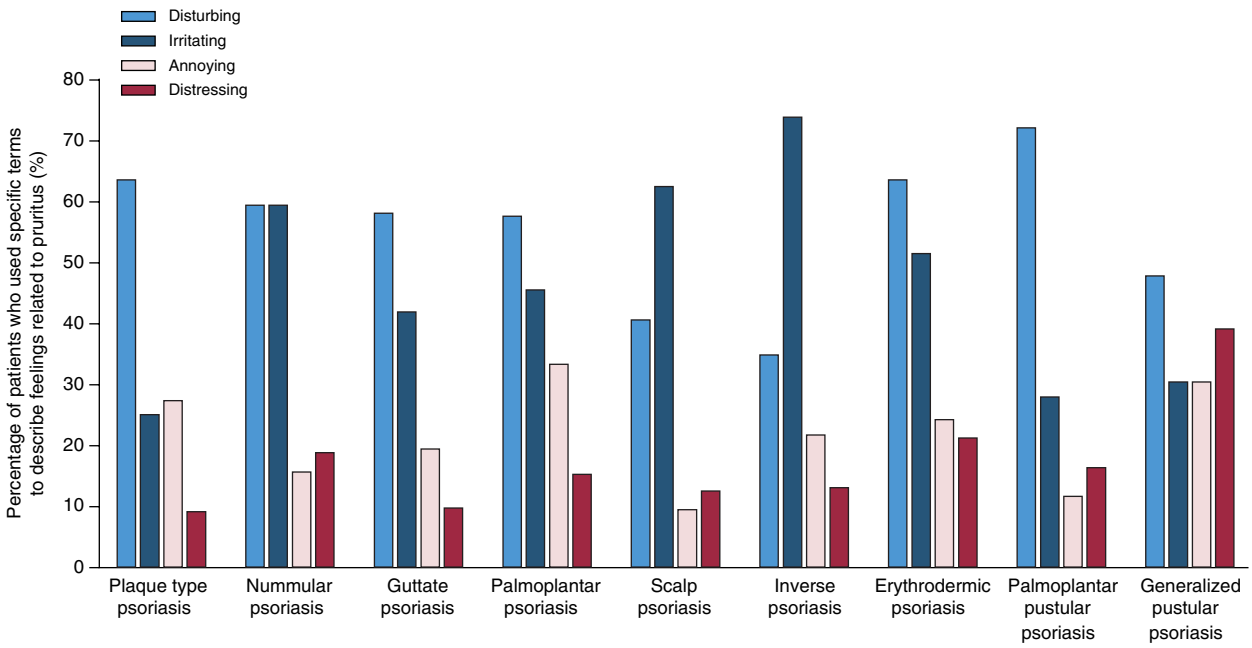

FIGURE 3 Feelings related to pruritus in patients suffering from various psoriasis subtypes.

TABLE 2 Correlations between pruritus intensity and disease severity according to the Spearman rank correlation test

	Large-plaque psoriasis	Nummular psoriasis	Guttate psoriasis	Palmoplantar psoriasis	Psoriasis of the scalp	Inverse psoriasis	Erythrodermic psoriasis	Palmoplantar pustular psoriasis	Generalized pustular psoriasis
PASI versus									
$NRS_{average}$	$\rho = 0.2$	$\rho = 0.35$	$\rho = 0.35$	$\rho = 0.19$	$\rho = 0.6$	$\rho = 0.19$	$\rho = 0.14$	-	-
	$p = 0.25$	$p = 0.06$	$p = 0.06$	$p = 0.3$	$p < 0.001$	$p = 0.4$	$p = 0.44$		
NRS_{max}	$\rho = 0.22$	$\rho = 0.3$	$\rho = 0.27$	$\rho = 0.18$	$\rho = 0.7$	$\rho = 0.24$	$\rho = 0.08$	-	-
	$p = 0.21$	$p = 0.11$	$p = 0.16$	$p = 0.32$	$p < 0.001$	$p = 0.3$	$p = 0.66$		
10-PSS	$\rho = -0.1$	$\rho = 0.69$	$\rho = 0.05$	$\rho = 0.53$	$\rho = 0.61$	$\rho = 0.09$	$\rho = 0.19$	-	-
	$p = 0.58$	$p < 0.001$	$p = 0.78$	$p = 0.002$	$p < 0.001$	$p = 0.71$	$p = 0.3$		
BSA versus									
$NRS_{average}$	$\rho = 0.15$	$\rho = 0.33$	$\rho = 0.28$	$\rho = -0.07$	$\rho = 0.69$	$\rho = 0.33$	$\rho = -0.18$	$\rho = 0.36$	$\rho = 0.6$
	$p = 0.33$	$p = 0.07$	$p = 0.12$	$p = 0.68$	$p < 0.001$	$p = 0.12$	$p = 0.31$	$p < 0.05$	$p = 0.004$
NRS_{max}	$\rho = 0.17$	$\rho = 0.3$	$\rho = 0.19$	$\rho = -0.11$	$\rho = 0.72$	$\rho = 0.36$	$\rho = -0.29$	$\rho = 0.37$	$\rho = 0.68$
	$p = 0.28$	$p = 0.1$	$p = 0.3$	$p = 0.55$	$p < 0.001$	$p = 0.09$	$p = 0.1$	$p = 0.03$	$p = 0.001$
10-PSS	$\rho = -0.12$	$\rho = 0.51$	$\rho = 0.12$	$\rho = 0.45$	$\rho = 0.46$	$\rho = 0.32$	$\rho = -0.11$	$\rho = 0.21$	$\rho = 0.73$
	$p = 0.42$	$p = 0.003$	$p = 0.52$	$p < 0.01$	$p < 0.01$	$p = 0.13$	$p = 0.55$	$p = 0.24$	$p < 0.001$
sPGA versus									
$NRS_{average}$	$\rho = 0.27$	$\rho = 0.29$	$\rho = 0.27$	$\rho = 0.59$	$\rho = 0.6$	$\rho = 0.37$	$\rho = 0.3$	$\rho = 0.44$	$\rho = 0.5$
	$p = 0.08$	$p = 0.11$	$p = 0.14$	$p < 0.001$	$p < 0.001$	$p = 0.22$	$p = 0.1$	$p = 0.003$	$p = 0.01$
NRS_{max}	$\rho = 0.31$	$\rho = 0.37$	$\rho = 0.27$	$\rho = 0.57$	$\rho = 0.54$	$\rho = 0.29$	$\rho = 0.27$	$\rho = 0.53$	$\rho = 0.61$
	$p = 0.04$	$p = 0.04$	$p = 0.13$	$p < 0.001$	$p = 0.001$	$p = 0.19$	$p = 0.13$	$p < 0.001$	$p = 0.002$
10-PSS	$\rho = 0.01$	$\rho = 0.58$	$\rho = 0.11$	$\rho = 0.56$	$\rho = 0.5$	$\rho = 0.03$	$\rho = 0.17$	$\rho = 0.65$	$\rho = 0.47$
	$p = 0.94$	$p < 0.001$	$p = 0.55$	$p < 0.001$	$p = 0.004$	$p = 0.88$	$p = 0.34$	$p < 0.001$	$p = 0.02$
PPSI versus									
$NRS_{average}$	-	-	-	-	-	-	-	$\rho = 0.46$	-
								$p = 0.002$	
NRS_{max}	-	-	-	-	-	-	-	$\rho = 0.53$	-
								$p < 0.001$	
10-PSS	-	-	-	-	-	-	-	$\rho = 0.6$	-
								$p < 0.001$	
GPPSI versus									
$NRS_{average}$	-	-	-	-	-	-	-	-	$\rho = 0.54$
									$p < 0.01$
NRS_{max}	-	-	-	-	-	-	-	-	$\rho = 0.65$
									$p < 0.001$
10-PSS	-	-	-	-	-	-	-	-	$\rho = 0.56$
									$p = 0.006$

Abbreviations: 10-PSS, 10-item Pruritus Severity Scale; BSA, body surface area; DLQI, dermatology life quality index; GPPSI, generalized pustular psoriasis severity index; NRS, Numerous Rating Scale; PASI, psoriasis area and severity index; PPSI, palmoplantar pustulosis severity index; sPGA, static physician global assessment.

in psoriasis of the scalp cannot be more than 9% or 10%, so the severity of psoriasis of the scalp may be high; however, its severity would not be reflected in PASI score. That's why also comparison of the severity between the subtypes would be pointless and was not presented in the article.

Across the literature, the pruritus in psoriatic patients was found to be frequent phenomenon, which is consistent with our results.[19,20] However, there is minority of studies describing the exact prevalence of pruritus in different subtypes and the investigated groups, except plaque-type psoriasis, were not abundant. In our study, all patients with nummular psoriasis, scalp psoriasis and generalized pustular psoriasis suffered from pruritus, whereas in other groups the prevalence ranged between 86.1% and 97.0%. While in case of scalp psoriasis, it can be explained by the high concentration of free nerve endings in the scalp, in the remaining groups there is a need of further investigation to confirm it.

Most subjects with erythrodermic psoriasis complained about generalized pruritus. In the study conducted by André et al., the cowhage-induced pruritus was more intensive in inflamed skin than non-inflamed skin.[21] In case of erythrodermic psoriasis extensiveness of skin lesions may even lead to elevation of systemic inflammatory factors, which may explain distribution of pruritus in this cohort. Furthermore, involvement of the entire body surface area may also be crucial.

Interestingly, while being asked about occurrence of pruritus within the last 3 days before the survey, it was found that part of responders answered negatively. The discrepancies between the studied cohorts were not statistically significant; however, the group of palmoplantar pustular psoriasis was conspicuous and reported life and point pruritus slightly less frequent than other population.

LIMITATIONS

The most significant limitation of this study was the relatively small sample size, which may not fully reflect the correlation between pruritus and the specific subtype of psoriasis. Although the project was a multicentre one, the studied population was predominantly uniform in the race. The great majority of patients required hospitalization and systemic treatment due to the severity of psoriasis. That is why the results of this study mainly refer to moderate or severe psoriasis.

CONCLUSIONS

In conclusion, there is a lack of exact and comprehensive description of the sensation of pruritus in particular clinical variants of psoriasis. The current study provides first hints about prevalence, intensity and clinical presentation of pruritus in various variants of psoriasis. Our study showed that the sensation of pruritus is individual, and it is difficult to distinguish the most pruritogenic psoriasis subtype. However, some important observations were demonstrated above. Unfortunately, it is difficult to compare our results to other studies because such a detailed analysis of this topic was not performed before. There is a great need of continuation of investigation on this topic. A better understanding of pruritus in specific clinical subtypes of psoriasis will help to personalize treatment and better manage this phenomenon, which is often the most troublesome symptom of psoriasis.

ACKNOWLEDGEMENTS

We would like to thank all patients for participation in this study.

FUNDING INFORMATION

This research received no external funding.

CONFLICT OF INTEREST

K.J. has been a subinvestigator in clinical trials sponsored by AbbVie, Corbus, Kymab Limited, Leo Pharma, Novartis, Galderma, Pfizer and VielaBio. A.R. has been a consultant or speaker for AbbVie, Bioderma, Bristol-Myers Squibb, Celgene, Chema Elektromet, Eli Lilly, Galderma, Janssen, Leo Pharma, Medac, Menlo Therapeutics, Novartis, Pierre-Fabre, Sandoz and Trevi; principal investigator or subinvestigator in clinical trials sponsored by AbbVie, Argenx, Corbus, Drug Delivery Solutions Ltd, Eli Lilly, Galderma, Genentech, Janssen, Kymab Limited, Leo Pharma, Menlo Therapeutics, MetrioPharm, MSD, Novartis, Pfizer, Trevi and VielaBio. The other authors have no disclosures.

DATA AVAILABILITY STATEMENT

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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REFERENCES

1. Word Health Organization. Global report on psoriasis 2016. https://www.who.int/publications/i/item/9789241565189
2. Szepietowski JC, Reich A. Pruritus in psoriasis: an update. Eur J Pain. 2016;20:41–6.

3. Samotij D, Nedoszytko B, Bartosińska J, Batycka-Baran A, Czajkowski R, Dobrucki IT, et al. Pathogenesis of psoriasis in the "omic" era. Part I. Epidemiology, clinical manifestation, immunological and neuroendocrine disturbances. Postepy Dermatol Alergol. 2020;37:135–53.
4. Raychaudhuri SK, Maverakis E, Raychaudhuri SP. Diagnosis and classification of psoriasis. Autoimmun Rev. 2014;13:490–5.
5. Reich A, Welz-Kubiak K, Rams L. Apprehension of the disease by patients suffering from psoriasis. Postepy Dermatol Alergol. 2014;31:289–93.
6. Reich A, Wisnicka B, Szepietowski JC. Itching in psoriasis. Kosmet Med. 2004;25:77–82.
7. O'Neill JL, Chan YH, Rapp SR, Yosipovitch G. Differences in itch characteristics between psoriasis and atopic dermatitis patients: results of a web-based questionnaire. Acta Derm Venereol. 2011;91:537–40.
8. Chernyshov PV. Health-related quality of life in adult atopic dermatitis and psoriatic patients matched by disease severity. G Ital Dermatol Venereol. 2016;151:37–43.
9. Reich A, Welz-Kubiak K, Szepietowski JC. Pruritus differences between psoriasis and lichen planus. Acta Derm Venereol. 2011;91:605–6.
10. Lebwohl MG, Bachelez H, Barker J, Girolomoni G, Kavanaugh A, Langley RG, et al. Patient perspectives in the management of psoriasis: results from the population-based multinational assessment of psoriasis and psoriatic arthritis survey. J Am Acad Dermatol. 2014;70:871–81.e1–30.
11. Jaworecka K, Muda-Urban J, Rzepko M, Reich A. Molecular aspects of pruritus pathogenesis in psoriasis. Int J Mol Sci. 2021;22:858.
12. Jaworecka K, Kwiatkowska D, Marek L, Tamer F, Stefaniak A, Szczegielniak M, et al. Characteristics of pruritus in various clinical variants of psoriasis: results of the multinational, multicenter, cross-sectional study. Life. 2021;11:623.
13. Kimball AB, Naegeli AN, Edson-Heredia E, Lin CY, Gaich C, Nikaï E, et al. Psychometric properties of the itch numeric rating scale in patients with moderate-to-severe plaque psoriasis. Br J Dermatol. 2016;175:157–62.
14. Bożek A, Reich A. Validity assessment of the 10-item Pruritus Severity Scale. Forum Dermatol. 2018;4:91–5.
15. Bożek A, Reich A. How to reliably evaluate the severity of psoriasis? Forum Dermatol. 2016;2:6–11.
16. Bożek A, Reich A. The reliability of three psoriasis assessment tools: psoriasis area and severity index, body surface area and physician global assessment. Adv Clin Exp Med. 2017;26:851–6.
17. Bhushan M, Burden AD, McElhone K, James R, Vanhoutte FP, Griffiths CEM. Oral liarozole in the treatment of palmoplantar pustular psoriasis: a randomized, double-blind, placebo-controlled study. Br J Dermatol. 2001;145:546–53.
18. Morita A, Yamazaki F, Matsuyama T, Takahashi K, Arai S, Asahina A, et al. Adalimumab treatment in Japanese patients with generalized pustular psoriasis: results of an open-label phase 3 study. J Dermatol. 2018;45:1371–80.
19. Sampogna F, Gisondi P, Melchi CF, Amerio P, Girolomoni G, Abeni D. Prevalence of symptoms experienced by patients with different clinical types of psoriasis. Br J Dermatol. 2004;151:594–9.
20. Yosipovitch G, Goon A, Wee J, Chan YH, Goh CL. The prevalence and clinical characteristics of pruritus among patients with extensive psoriasis. Br J Dermatol. 2000;143:969–73.
21. André F, Fluhr JW, Hawro T, Church MK, Maurer M, Metz M. Characterization of cowhage-induced pruritus in inflamed and non-inflamed skin. J Eur Acad Dermatol Venereol. 2020;34:202–6.

How to cite this article: Jaworecka K, Kwiatkowska D, Marek L, Tamer F, Stefaniak A, Szczegielniak M, et al. Characteristics of pruritus in various clinical variants of psoriasis: Final report of the binational, multicentre, cross-sectional study. J Eur Acad Dermatol Venereol. 2023;37:787–795. https://doi.org/10.1111/jdv.18850