Survey on clinical characteristics of pruritus according to itch severity score and quality of life of psoriasis patients

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Summary

Objective: To investigate the prevalence of skin itching and the severity of itching symptom according to the Itch Severity Score (ISS) in psoriasis patients and determine the relationship between itching symptom and epidemiological, clinical and quality of life features. *Subject and method:* Cross-sectional study on 50 psoriasis patients who visited the Dermatology Clinic, Hue University of Medicine and Pharmacy Hospital from March 2024 to October 2024. Psoriasis severity was assessed by BSA and PASI scores, quality of life was assessed by DLQI scores and pruritus severity was assessed by ISS scores. *Result:* 86% of psoriasis patients had itching symptom and 100% had chronic itching. The average ISS score was 5.32 ± 4.21, of which moderate to severe itching accounted for 64%. There was a positive correlation between ISS score and BSA, PASI and DLQI scores ($p<0.01$). *Conclusion:* Itching is a common symptom and affects the quality of life of psoriasis patients.

Keywords: Psoriasis, pruritus, ISS.

1. Background

Psoriasis is a chronic immune-mediated inflammatory disease with diverse clinial manifestations, characterized by erythematous and scaly skin plaques.[1] It commonly affects individuals of all ages, both men and women and impacts approximately 2% of the global population, with prevalence rates differing across countries and regions[2]. According to medical literature, psoriasis has not traditionally been classified as an itchy skin disease, with an itch prevalence of 20 - 25%[3]. However, in recent years, the role of itch in psoriasis has received increased attention and is now recognized as a symptom frequently reported by patients, significantly affecting their quality of life. Addressing and evaluating itching symptom contributes to a more comprehensive approach to diagnosis and treatment of the disease.

Assessing itch severity is often challenging because it is a subjective symptom influenced by various factors. In this study, we used the Itch Severity Scale (ISS) due to its simplicity, ease of implementation and standardized nature. This scale consists of a brief questionnaire based on seven items designed to comprehensively evaluate itch severity and treatment effectiveness in patients with psoriasis [2]. Evaluating the reduction of itching during psoriasis treatment and its association with improvements in patients' quality of life is essential for formulating personalized therapeutic approaches. Currently, there is a lack of research on skin itching symptom and their impact on the quality of life in psoriasis patients. This study was conducted to investigate the characteristics of pruritus and related factors in patients with psoriasis.

Objectives:

To determine the prevalence of skin itching and the severity of itching symptoms according to the Itch Severity Score.

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To identify the relationship between itching symptom and epidemiological, clinical characteristics and quality of life in psoriasis patients.

II. SUBJECT AND METHOD

2.1. Subject

Patients aged 18 years and older, diagnosed with psoriasis at the Dermatology Clinic of Hue University of Medicine and Pharmacy Hospital, from March 2024 to October 2024.

Inclusion criteria:

Patients aged 18 years and older, diagnosed with psoriasis and who consent to participate in the study.

Exclusion criteria:

Patients with other itchy skin conditions, such as atopic dermatitis, urticaria, or scabies,...

Patients with other itchy-related diseases such as Basedow's disease, Hashimoto's thyroiditis, diabetes, chronic kidney disease,…

Pregnant or breastfeeding women.

Patients with malignant, acute or chronic infection or immunodeficiency disorders.

2.2. Study method

Study Design: Cross-sectional study

Sampling Method: Convenient random sampling

Procedure:

Patients visiting the clinic and diagnosed with psoriasis will be informed about the objectives and procedures of the study. If they meet the inclusion criteria and agree to participate, data collection will be conducted and recorded using a standardized data collection form.

Information will be collected regarding medical history (age of onset, disease duration, personal and family history, risk factors, etc.), characteristics of pruritus (location, duration, intensity, type of itch, aggravating and relieving factors,...), and patients will be interviewed and assessed for quality of life using the DLQI (Dermatology Life Quality Index) questionnaire[4].

Clinical examination includes documentation of skin, nail and joint lesions; classification of clinical types, assessment of psoriasis severity using the Body Surface Area (BSA): Mild (BSA < 3%), moderate (BSA 3 - 10%), severe (BSA > 10%); and the Psoriasis Area Severity Index (PASI): Mild (PASI < 10), moderate (PASI 10 - 20), and severe (PASI ≥ 20)[5].

Itch severity is assessed using the Itch Severity Scale (ISS), which consists of 7 questions addressing 7 different issues. Each question is scored from 0 to 3, with a total score ranging from 0 to 21. ISS itch severity classification: Mild itch (ISS < 5), moderate to severe itch (ISS ≥ 5)[6]. The assessed issues include:

+ Frequency.

+ Characteristics.

+ Affected body areas.

+ Intensity of itch.

+ Impact on mood.

+ Impact on sexual function.

+ Impact on sleep.

Statistics Analysis:

Data were processed and analyzed using Microsoft Excel 2016 and SPSS Statistics 20.0. p-value < 0.05 was considered statistically significant.

2.3. Research ethics

We adhered to the research ethics regulations of Hue University of Medicine and Pharmacy, ensuring the confidentiality of all information regarding research subjects.

III. RESULT

3.1. General characteristics of study population

There were 50 psoriasis patients who met the selection criteria and visited the Dermatology Clinic of the University of Medicine and Pharmacy Hospital.

Table 1. Characteristics of study population (n = 50)

Characteristics		Number	Percent (%)
Sex	Male	27	54.0
	Female	23	46.0
Age	Mean ± SD	39 ± 4.62	
BMI	Underweight	7	14.0
	Normal	27	54.0
	Obesity class I	16	32.0
Age of onset	< 30	21	42.0
	≥ 30	29	58.0
Type of psoriasis	Plaque	40	80.0
	Pustular	3	6.0
	Erythrodermic psoriasis	5	10.0
	Psoriatic arthritis	2	4.0
PASI	Mean ± SD	7.23 ± 6.8	
Severity of Psoriasis (PASI)	Mild (PASI <10)	34	68.0
	Moderate (PASI 10 - 20)	13	26.0
	Severe (PASI > 20)	3	6.0
BSA score	Mean ± SD	48 ± 10.8	
Severity of Psoriasis (BSA)	Mild	15	30.0
	Moderate	11	22.0
	Severe	24	48.0
DLQI score	Mean ± SD	8.83 ± 2.9	
Quality of Life Impact According to DLQI	Mild	13	30.23
	Moderate	10	23.25
	Severe	20	46.52

Comment: The average age was 39 ± 4.62 years. The male-to-female ratio was approximately equal. 80% of patients had the plaque psoriasis. According to the PASI, the mild psoriasis group accounted for the highest proportion at 68%; however, based on BSA, severe psoriasis was predominant, accounting for 48%. The mean DLQI score was 8.83 ± 2.9, with nearly half of the patients experiencing a significant impact on their quality of life due to psoriasis.

3.2. Characteristics of itching symptom

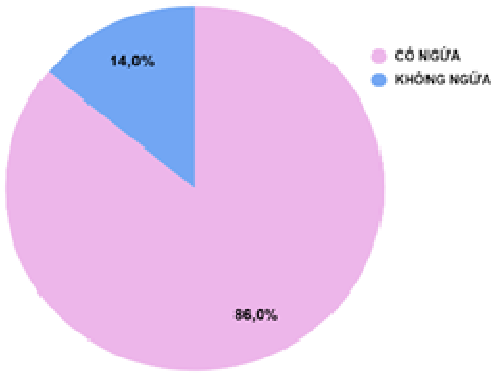

Figure 1. Chart of itching in Psoriasis patients

Comment: The majority of patients in the study experienced itching (86%).

Table 2. Characteristics of itching symptom (n = 43)

Characteristics		Number	Percent (%)
Duration	Chronic (≥ 6 weeks)	0	0
	Acute (< 6 weeks)	43	100.0
Time of itching during the day	Morning	7	16.27
	Noon	6	13.95
	Night	10	23.25
	Anytime	20	46.53
Type of itching	Itching only	30	69.76
	Tingling	7	16.27
	Burning	3	6.97
	Pinprick	3	6.97
Skin dryness		34	68.0
Using emollient		28	65.12

Comment: Patients with psoriasis experienced itching, 100% reported chronic itching symptoms, with 46.53% experiencing itching at any time of the day. The prevalence of dry skin was 68.0% and 65.12% of patients used moisturizing products.

Table 3. ISS score and the severity of itching (n = 43)

ISS score	Mean ± SD	5.32 ± 4.21
	Lowest	0
	Highest	15.5
The severity of itching according to ISS	Number	Percent (%)
Mild (ISS < 5)	28	64.0
Moderate - severe (ISS ≥ 5)	15	36.0

Comment: The mean ISS score was 5.32 ± 4.21, with a maximum score of 15.5. Approximately two-thirds of patients had mild itching (ISS < 5), while the remaining one-third experienced moderate to severe itching (ISS ≥ 5).

3.3. The association between itching symptoms and clinical characteristics, dermatology quality of life

3.3.1. The association between the clinical characteristics and ISS score

Table 4. Association between the clinical characteristics and ISS score

Characteristics		Mild		Moderate-severe		p - value
		Number (n)	Percent (%)	Number (n)	Percent (%)	
Sex	Male	13	50.0	10	58.82	0.448
	Female	13	50.0	7	41.18	
Smoking		22	78.57	11	73.33	0.119
Alcohol		21	75.0	9	60.0	0.198

Characteristics		Mild		Moderate-severe		p - value
		Number (n)	Percent (%)	Number (n)	Percent (%)	
Stress		9	32.14	8	53.33	0.022
Skin dryness		23	46.0	11	22.0	0.103
Using emollient		17	63.0	10	37.0	0.404
Duration (year)	< 30	12	40.0	6	46.15	0.391
	≥ 30	18	60.0	7	53.85	

Comment: There were no significant differences in sex, age of onset, smoking, alcohol consumption, dry skin or using emollient between the mild and the moderate to severe itching group ($p > 0.05$). Among patients with mild and moderate - severe itching, the proportion experiencing stress was 45.0% and 55.0%, respectively; this difference was statistically significant ($p < 0.05$).

3.3.2. The correlation between clinical characteristics of psoriasis (PASI, BSA), DLQI and ISS score

Table 5. The correlation between ISS and BSA, PASI, DLQI

Characteristics	ISS score	
	r	P
BSA score	0.595	<0.01
PASI score	0.805	<0.01
DLQI score	0.532	<0.01

Comment: There was a strong positive correlation between the ISS score and the BSA, PASI, and DLQI scores, with correlation coefficients of $r = 0.595$, $r = 0.805$ and $r = 0.532$**,** respectively ($p < 0.01$).

IV. DISCUSSION

Pruritus is an unpleasant skin sensation that triggers the urge to scratch. It is a characteristic feature of dermatologic diseases and may also be a symptom of certain systemic conditions[1]. In our study, 86% of psoriasis patients reported experiencing itching. This result is fairly consistent with other studies, where the prevalence of itchy ranged from 89.2% to 92.9%[7,8]. The variation may be attributed to differences in geographic location, clinical features of psoriasis patients, living environments, exposure to itch-inducing factors, itch management, and criteria for selecting study participants. Currently, with an improved quality of life, patients are paying more attention to itching symptoms. Therefore, itchy has become one of the most common and distressing symptoms that patients complain about.

The results of the study showed that 64.0% of psoriasis patients had mild itching, while 36.0% experienced moderate to severe. There was a difference in the distribution of itch severity in our psoriasis patients compared to similar studies conducted nationally and internationally. This variation may be due to differences in the sampled populations and the assessment tools and classification methods used. For instance, the study by Sommer et al. used the Numerical Rating Scale (NRS) to classify itch severity, while Yosipovitch et al. employed the Visual Analogue Scale (VAS) in combination with a questionnaire, which may account for the differences in reported outcomes[9,10]. Additionally, discrepancies could arise from differences in disease severity, age of onset, and disease duration, as well as from the subjective nature of patient-reported assessments.

In our study, skin dryness and the habit of using moisturizers, as well as the time of disease onset did not affect the severity of itching in psoriasis patients. A study conducted in Poland on 143 patients found

that psoriasis patients with dry skin experienced more severe itching compared to those without dry skin.[11] The use of moisturizers in psoriasis patients was shown to help reduce itch severity. Similarly, the study by Yosipovitch et al. reported that dry skin in psoriasis patients exacerbated itching symptoms[10]. However, our findings differed from those of previous studies. This discrepancy may be explained by the fact that patients in our region live in a hot and humid climate, which may reduce skin dryness. Additionally, there is a general reluctance to use moisturizers due to the sticky feeling they leave on the skin. Furthermore, most of our study participants were manual laborers who may pay less attention to skin care and dryness. Therefore, it is important to provide patient education on the benefits of moisturizers in supporting treatment, improving therapeutic outcomes, raising awareness and promoting healthy skincare habits.

The proportion of stress in the moderate - severe psoriasis group was 55%, which was significantly higher than in the mild psoriasis group (p=0.022). The study by Reich et al. also found that patients with itching reported higher levels of depression compared to those without itching, and there was a correlation between itch intensity and the Beck Depression Inventory (BDI) score[7]. Our results are quite consistent with previous studies. This suggests that in order to manage itching effectively, attention must also be paid to stress and emotional pressures, aiming for a comprehensive and effective treatment approach.

Our study showed that patients with mild psoriasis based on PASI scores accounted for the highest proportion. Furthermore, we observed a strong positive correlation between the ISS score and the total PASI score ($p<0.001$, $r = 0.805$). In the study by Reich et al, a strong correlation was also observed between PASI and itch intensity measured by the Visual Analogue Scale (VAS), with a reported p-value of 0.62[7]. In that study, itch severity was also assessed using the 4IIQ, yielding a p-value of 0.11. Meanwhile, the study by Jalorecka et al, using the Numerical Rating Scale (NRS) for itch severity, found a correlation coefficient of $r = 0.22$[12]. This correlation can be explained by the fact that the ISS score is based on multiple factors, including itch location and affected skin area, while the PASI score is also based on several criteria for evaluating disease severity. Therefore, patients with more extensive lesions tend to have higher PASI and ISS scores. Patients with severe psoriasis according to the BSA (Body Surface Area) score accounted for the highest proportion. There was a strong positive correlation between BSA and ISS, with $p<0.01$ and $r = 0.595$. In the study conducted by Jalorecka et al on 254 patients, itch severity assessed using the Numerical Rating Scale (NRS) showed a correlation coefficient of $r = 0.17$ with $p<0.01$[12]. The severity level according to BSA was mildly correlated with itch intensity on the NRS scale. This correlation may be explained by the fact that the ISS score is based on multiple factors, including the location of the itch and the extent of the affected area. Similarly, the BSA score also evaluates severity based on the area of skin lesions. Therefore, patients with more extensive lesions tend to have higher BSA and ISS scores. However, the BSA score focuses on only one factor and is therefore less comprehensive than the PASI score. As a result, both scoring systems should be evaluated together to provide a more accurate assessment of the patient's condition.

Itching significantly affects quality of life including health, education and daily activities, with the highest proportion of patients reporting severe impact[6]. The study found a strong positive correlation between the ISS score and the total DLQI score ($p<0.01$; $r = 0.532$). Patients with more severe itching experience a greater decline in quality of life. In a study by Reich et al, using the 4-Item Itch Questionnaire (4IIQ), a moderate positive correlation with DLQI was observed ($r = 0.4$)[7]. Our findings are fairly consistent with other global studies using the 4IIQ and NRS scales, showing that psoriasis patients with severe itching are significantly impacted in terms of quality of life. The variation in correlation coefficients between DLQI and different itch severity scales may be attributed to the different

characteristics of these scales. The ISS provides a more comprehensive assessment by considering multiple factors that influence the patient's itching symptoms.

V. CONCLUSION

Psoriasis is a chronic inflammatory skin disease with diverse clinical minifestation. According to our study, itching is a common symptom reported by patients and significantly impacts their quality of life.

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