

# Pruritus in Psoriasis and Its Impact on the Quality of Life

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## ABSTRACT

**Background:** Pruritus is a common and distressing symptom in patients with psoriasis, yet it is often overlooked and inadequately treated. This can lead to substantial physical, emotional, and social difficulties, negatively impacting patients' quality of life (QoL). The study's objectives were to evaluate the clinical and demographic profile of patients with psoriatic pruritus, assess its severity, and determine its impact on the QoL.

**Methods:** A prospective study was conducted among 112 patients presenting with psoriatic pruritus to the dermatology department of a tertiary care teaching hospital over a one-year period. Pruritus intensity was measured using a horizontal 10-point Visual Analog Scale (VAS). The impact of pruritus on the QoL was assessed using the validated 5-D Itch Scale (range 5 to 25). Descriptive statistical tools were employed to summarize and interpret the data.

**Results:** The mean age of the enrolled patients was  $36 \pm 13$  years. The cohort represented patients from 19 districts of Nepal. The mean duration of psoriasis was  $8.9 \pm 7.3$  years. The mean VAS score was  $4.1 \pm 1.64$  (categorized as "moderate" intensity), with the highest recorded score of 8. The mean 5-D Itch Scale score was  $13.01 \pm 3.86$  (categorized as "moderate" impact on the QoL), with individual scores ranging from 5 to 23.

**Conclusions:** Pruritus in patients with psoriasis was of moderate intensity, with a moderate impact on the quality of life. Dermatologists should be aware of the clinical burden of psoriatic pruritus and prioritize its evaluation and management as part of comprehensive psoriasis care.

**Keywords:** Dermatology; pruritus; psoriasis; visual analog scale.

## INTRODUCTION

Psoriasis affects nearly 1-2% of the global population, posing a significant dermatological and public health burden.<sup>1</sup> Pruritus occurs in 60 to 90% of patients with psoriasis and is often the most bothersome and persistent symptom.<sup>2,3</sup> It negatively affects physical, emotional, and social well-being and is linked to sleep disturbances, reduced self-esteem, depressive symptoms, and social stigmatization.<sup>4,5</sup> Even with standard therapy for psoriasis, many patients have suboptimal relief from pruritus.<sup>6,7</sup> Furthermore, the severity of psoriatic lesions may not correlate perfectly with the severity of pruritus.<sup>2</sup>

Data on psoriatic pruritus in the Nepali population are limited. Moreover, international studies have largely

focused on the cutaneous improvement of psoriatic lesions as the primary treatment endpoint, with less emphasis on pruritus and its impact on the quality of life (QoL).

This study aims to evaluate the demographic and clinical profile of patients with psoriatic pruritus, its severity, and its impact on the QoL.

## METHODS

This observational study was conducted in the Department of Dermatology at a tertiary care teaching hospital in Nepal, with data collected prospectively from March 2023 to February 2024. Ethical clearance was obtained from the Institutional Review Committee (Ethical Ref: 10022023/01).

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All consenting individuals aged 16 years or older who presented to the dermatology outpatient clinic with features of psoriatic pruritus were enrolled in the study. The diagnosis of psoriasis was confirmed by consultant dermatologists, with histopathological confirmation when the diagnosis was uncertain. As no hypothesis testing or inferential comparison was intended, a formal power-based sample size calculation was not performed. Patients were recruited using a non-probability convenience sampling method. The exclusion criteria included pregnancy, lactation, known drug allergies, or immunocompromised states.

Pruritus severity was measured using a horizontal 10-point VAS, a widely accepted and validated tool for assessing pruritus in patients with psoriasis.<sup>8,9</sup> Since the VAS does not measure other dimensions of pruritus, such as its impact on the QoL, we also used the 5-D Itch Scale, a multidimensional, validated instrument designed for use in patients with chronic pruritus.<sup>10</sup> It has also been translated and validated in different languages.<sup>11,12</sup> The scale assesses five different domains: duration, degree, direction (progression or regression), disability (impact on daily activities), and distribution (affected body areas). The first three domains - duration, degree, and direction - were assessed through single-item responses scored from 1 to 5. The latter two domains - disability and distribution - consist of multiple items. The disability domain includes four items that assess the impact of itching on daily functioning, with the final score determined by the highest individual item score. For the distribution domain, the number of affected body parts (a maximum of 16) was tallied, and were converted into a 5-point score as follows: 0-2 = score of 1, 3-5 = score of 2, 6-10 = score of 3, 11-13 = score of 4, and 14-16 = score of 5. Finally, the total 5-D Itch Scale score was calculated by summing the scores of the five domains. Details regarding the scoring method have been described elsewhere.<sup>10,13</sup>

Demographic and clinical data were recorded using a structured proforma. Descriptive statistical analyses were performed using Microsoft Excel 2019 and Stata/BE version 17, StataCorp LLC.

## RESULTS

A total of 112 patients with psoriatic pruritus were enrolled in the study. The cohort demonstrated a male predominance, with 77 (68.8%) males and 35 (31.2%) females. The mean age of the patients was 36±13 years. Regarding educational status, 28 (25%) were college graduates, 76 (67.9%) had completed high school, and

8 (7.1%) had not completed high school. The most represented ethnic groups were Brahmin (Hill), followed by Chhetri and Newar communities. The majority of patients were from Kathmandu and Bhaktapur districts, although the sample included individuals from a total of 19 districts across Nepal. The demographic characteristics are presented in Table 1.

**Table 1. Patient demographics. (n=112)**

Description	n (%)
Gender	
Male	77 (68.8%)
Female	35 (31.2%)
Age (mean±standard deviation)	36±13 years
Education level	
College graduate	28 (25%)
High school graduate	76 (67.9%)
Not completed school	8 (7.1%)
Ethnic distribution	
Brahmin (Hill)	41 (36.6%)
Chhetri	24 (21.4%)
Newar	22 (19.6%)
Tamang	10 (8.9%)
Others	15 (13.4%)
Geographic distribution	
Kathmandu	59 (53%)
Bhaktapur	18 (16%)
Lalitpur	13 (11%)
Others	22 (20%)

A total of 18 (16.1%) patients reported a family history of psoriasis. The mean duration of psoriasis among all participants was 8.9 ± 7.3 years. The extensor surfaces were the most affected anatomical sites. Isolated scalp involvement was observed in 10 (8.9%) patients.

Most of the patients reported a VAS score of 3, 4 and 5 as a measure of their pruritus severity. The mean VAS score was 4.1±1.64 (range 1-8). The highest reported VAS score was 8 (range: 1-8) (Figure 1).

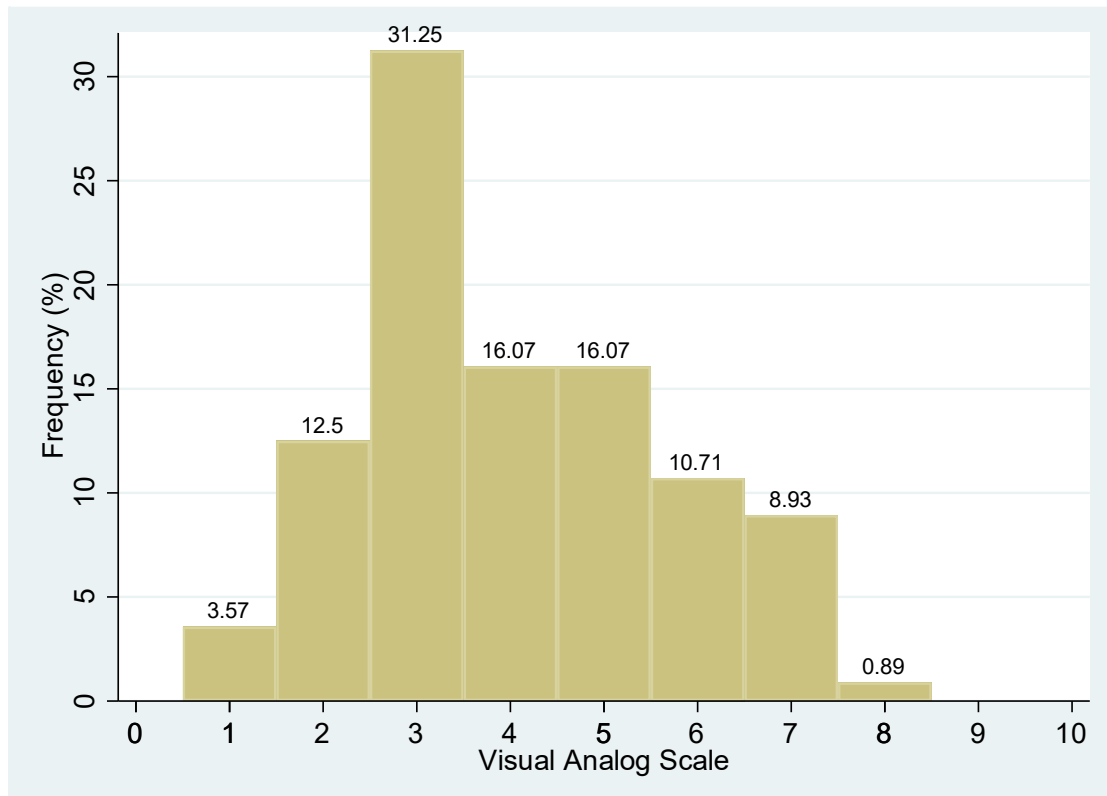


Figure 1. Frequency distribution of the visual analog scale scores. (in percentage)

The five separate domains of the 5-D Itch Scale were tabulated to obtain the total 5-D Itch Scale score. In the duration domain, 36 (50%) patients reported itching for 6-12 hours a day. No patient had itching that lasted the entire day (Table 2).

Table 2. 5-D Itch Scale: duration domain. (n=112)

Duration domain	Score obtained	Frequency	Percentage
Less than 6 hours per day	1	31	27.68
6-12 hours per day	2	56	50
12-18 hours per day	3	16	14.29
18-23 hours per day	4	9	8.04
All day	5	0	0

In the degree domain, which assessed the intensity of itching over the past two weeks, 54 (48.2%) patients reported a mild degree of itching. When grouped, over half of the participants (58, 51.8%) reported moderate to severe degree of itching, which highlights the severity of the clinical problem (Table 3).

Table 3. 5-D Itch Scale: degree domain. (n=112)

Degree domain	Score obtained	Frequency	Percentage
Not present	1	0	0
Mild	2	54	48.21
Moderate	3	19	16.96
Severe	4	39	34.82
Unbearable	5	0	0

The direction domain examined whether the patients' pruritus had improved or worsened compared to the previous month (Table 4). A total of 107 (95.5%) patients reported that their pruritus had either improved slightly, or remained unchanged from the previous month.

Table 4. 5-D Itch Scale: direction domain. (n=112)

Direction domain	Score obtained	Frequency	Percentage
Completely resolved	1	0	0
Much better, but still present	2	17	15.18
Little bit better, but still present	3	54	48.21
Unchanged	4	36	32.14
Getting worse	5	5	4.46

The disability domain rated the impact of itching over the last two weeks in four different categories - sleep, leisure/ social activities, household work, and work/school (Table 5). The score for the disability domain was obtained by taking the highest score noted on any of the four categories. Scores were nearly evenly distributed across "rarely affects this activity" (score 2), "occasionally affects this activity" (score 3), and "frequently" affects this activity (score 4).

Table 5. 5-D Itch Scale: cumulative summary of the disability domain. (n=112)

	Highest score	Frequency	Percentage
Disability domain	1	8	7.14
	2	31	27.68
	3	43	38.39
	4	25	22.32
	5	5	4.46

In the final domain of the 5-D Itch scale, we examined the number of body parts affected by itching (a total of 16 body parts listed). In this domain, 48 (42.8%) patients reported that up to two body parts were affected by the pruritus. This represented the single largest group. In 39 (34.8%) respondents, 3 to 5 body parts were affected. Finally, 8 (7.14%) participants reported that 14 to 16 body parts were affected by their pruritus.

Table 6. 5-D Itch Scale: distribution domain. (n=112)

Distribution domain (Affected body parts)	Score obtained	Frequency	Percentage
0 to 2	1	48	42.86
3 to 5	2	39	34.82
6 to 10	3	13	11.61
11 to 13	4	4	3.57
14 to 16	5	8	7.14

The cumulative mean of the scores of the five domains (i.e., 5-D Itch Scale score) was  $13.01 \pm 3.86$ , with individual scores ranging from 5 to 23.

## DISCUSSION

Pruritus is an unpleasant sensation that provokes a desire to rub, itch, or scratch the skin to relieve discomfort. It is a significant problem and has been found to be a mediator between disease severity and quality of life in patients with psoriasis.<sup>14</sup> However, pruritus is often underappreciated and overlooked in clinical practice.<sup>15,16</sup>

The severity of pruritus cannot be easily measured as it is a subjective sensation. Numerous patient-reported

pruritus severity scales are described in the literature. Visual analog scale, numeric rating scale, and verbal rating scale are most commonly used in clinical settings.<sup>17</sup> All three scales demonstrate high reliability and concurrent validity in assessing pruritus.<sup>18</sup> We selected the VAS to assess pruritus severity as it is very easy to use. In addition to pruritus, the VAS has also been used to quantify other clinical parameters, like pain, panic state, depression, and fatigue. The VAS can be administered either horizontally or vertically, with both formats considered interchangeable and producing

comparable results.<sup>8</sup> We chose to use the horizontal VAS, as it is more commonly used.

In the context of pruritus, quality of life represents the overall functional impact of pruritus and its treatment, as perceived by the patient.<sup>19</sup> It is a composite measure influenced by many constructs, including pruritus severity. Measuring QoL is important in chronic disease states as it provides a comprehensive understanding of the patient's well-being. It is also used as an important endpoint in different research designs.<sup>20</sup> Several outcome measures and assessment tools have been described to measure QoL.<sup>21</sup> However, many of them are lengthy, cumbersome, inadequate, not validated, not pruritus-specific, or not suitable to measure healthcare-related QoL. Therefore, we used the two-week 5-D Itch Scale, a multidimensional and easy-to-administer tool with demonstrated effectiveness across diverse patient populations with chronic pruritus.<sup>10</sup> The 5-D Itch Scale is also useful to assess the progression of the symptoms or response to treatment, as it evaluates symptoms over the preceding two weeks only. Even though a validated Nepali language translation of the 5-D Itch Scale does not exist, this tool has been previously used in a similar study from Nepal.<sup>22</sup>

In our study, most patients reported pruritus localized to the psoriatic lesions. Similarly, many patients used over-the-counter medications for pruritus that provided temporary relief without an actual cure. A disproportionately higher number of males (68.7%) were represented in our cohort, which is probably because of the relatively small sample size of the study. In many other studies, the prevalence is similar between males and females, even though gender-related differences in disease expression, such as pruritus intensity, have been reported.<sup>23,24</sup> In most studies, females report severe pruritus disproportionately more than males.<sup>25,26</sup> In our study, 8 out of 12 patients who reported a VAS score of 7 or higher were females.

Most of our patients were from the urban areas of Kathmandu, Bhaktapur, and Lalitpur, which aligns with the hospital's location in urban Kathmandu. Nonetheless, patients from 19 districts and all seven provinces of the country were represented, reflecting a degree of geographic diversity. Ethnically, most patients belonged to the Brahmin (Hill), Chhetri, and Newar communities, which is consistent with the typical ethnic composition of Kathmandu Valley. Nearly 93% of our patients had completed at least a high school level of education. While these socio-demographic factors are known to influence the presentation of psoriatic

pruritus, our study lacked sufficient power to conduct subgroup analyses based on these variables.

The mean VAS score for pruritus in our patients was  $4.1 \pm 1.64$ . Although slightly lower than values reported in some previous studies,<sup>2,27,28</sup> this still represents a significant clinical burden. According to established cut-offs in the literature, a VAS score of approximately 4 corresponds to "moderate pruritus" severity. The mean 5-D Itch Scale score in our cohort was slightly lower than that reported in the only other published Nepali study on psoriasis using this instrument ( $13.01 \pm 3.86$  vs.  $17.06 \pm 2.69$ ).<sup>22</sup> Because the 5-D Itch Scale is a continuous measure ranging from 5 to 25, categorizing individual scores into discrete severity levels is challenging. However, based on existing literature, the score of 13.01 indicates a 'moderate' impact of pruritus on patients' quality of life.<sup>29</sup>

As an observational, descriptive study, our findings have inherent limitations. We did not stratify pruritus based on psoriasis subtypes, lesion location, body habitus, or the presence of comorbid illnesses. A major challenge in dermatological research is the lack of a gold standard, universally accepted instrument to assess pruritus severity or quality of life. This makes cross-study comparisons difficult as different types of measurement tools are used in different studies. It was beyond the scope of our study to evaluate the validity of the Nepali language translated 5-D Itch Scale. Lastly, our data were collected from a single center, limiting the generalizability of our findings to broader clinical settings.

## CONCLUSIONS

The study highlights that pruritus is a prevalent symptom among our patients with psoriasis, with a moderate severity (mean VAS score 4.1) and a moderate impact on the quality of life (mean 5-D Itch Scale score 13.01). As the clinical burden of pruritus in psoriasis is high, clinicians should incorporate structured assessment tools in the routine evaluation of psoriasis. Larger multicentric studies are necessary to further characterize this condition and guide the development of tailored interventions in our settings.

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