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SLEEP DISTURBANCE IN PSORIASIS: PRURITUS, QUALITY OF LIFE AND DAILY FUNCTIONING

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ABSTRACT

Psoriasis is a chronic immune-mediated inflammatory disease traditionally assessed by objective cutaneous severity measures, including Psoriasis Area and Severity Index, body surface area involvement and physician global assessments. However, patient-reported symptoms such as pruritus, pain, fatigue and sleep disturbance often determine the real-world burden of disease more accurately than visible skin involvement alone. Sleep disturbance is increasingly recognized as a clinically relevant comorbidity in psoriasis, with potential effects on quality of life, daily functioning, emotional well-being, work productivity and treatment satisfaction. Current evidence indicates that patients with psoriasis have a higher prevalence of poor sleep quality, insomnia symptoms, shortened sleep duration, obstructive sleep apnoea risk and daytime dysfunction than healthy controls. Pruritus is one of the most consistent symptom-level drivers of impaired sleep, particularly when it intensifies in the evening or at night. However, the relationship between psoriasis and sleep is multidirectional: anxiety, depression, pain, psoriatic arthritis, obesity, systemic inflammation, metabolic dysregulation and lifestyle factors may all contribute to disturbed sleep, while poor sleep may further amplify inflammatory tone and disease burden. Recent prospective and population-based data suggest that sleep should be regarded not only as a consequence of psoriasis but also as a potentially modifiable factor linked to psoriatic disease risk. This review summarizes current evidence on sleep disturbance in psoriasis, with emphasis on pruritus, quality of life, daily functioning, psychological comorbidity, clinical assessment and therapeutic implications.

KEYWORDS

Psoriasis; Sleep Disturbance; Insomnia; DLQI; Fatigue; Daily Functioning; Psychological Distress

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1. Introduction

Psoriasis is a chronic immune-mediated inflammatory disease with cutaneous, systemic and psychosocial dimensions. Although clinical evaluation has traditionally emphasized visible disease activity, including plaque extent, erythema, scaling and induration, the full burden of psoriasis is often determined by subjective symptoms and their consequences for sleep, mood, relationships, work, social participation and daily functioning. Pruritus, pain, fatigue and sleep disturbance may remain clinically important even in patients whose psoriasis is classified as mild or moderate by objective skin scores.

Sleep disturbance has emerged as one of the most relevant but underassessed domains in psoriasis. It is not routinely captured by the most commonly used dermatological quality-of-life instruments, and therefore it may be missed during standard clinical assessment. Dedicated instruments such as the Pittsburgh Sleep Quality Index, Insomnia Severity Index, PROMIS Sleep Disturbance and PROMIS Sleep-Related Impairment are more appropriate for evaluating sleep-specific burden. (Halioua et al., 2022)

The clinical relevance of sleep disturbance in psoriasis is multifactorial. Poor sleep may worsen daytime fatigue, cognitive functioning, emotional regulation and work productivity. It may also interact with anxiety and depression, both of which are overrepresented in psoriatic disease. In parallel, nocturnal pruritus, pain, joint symptoms, restless legs syndrome, obstructive sleep apnoea and metabolic comorbidities may all contribute to impaired sleep continuity. Thus, sleep disturbance should not be considered merely a secondary inconvenience but rather a measurable patient-reported disease burden.

This review summarizes current evidence on sleep disturbance in psoriasis, with particular focus on pruritus, quality of life and daily functioning. The central thesis is that sleep disturbance represents a clinically actionable domain of psoriasis care and should be assessed together with skin severity, pruritus, mental health, pain and comorbidity.

2. Methods

This article is a targeted narrative review based on the predefined corpus of publications selected for the manuscript topic. Priority was given to studies directly addressing psoriasis, sleep disturbance, insomnia, sleep quality, pruritus, pain, quality of life, daily functioning, fatigue, psychological distress and patient-reported outcomes. Cross-sectional studies, case-control studies, prospective cohorts, population-based analyses, systematic reviews, narrative reviews and treatment studies were included when they reported sleep-related outcomes or clinically relevant correlates of sleep impairment.

Studies focused primarily on psoriatic arthritis, obstructive sleep apnoea, atopic dermatitis, chronic pruritus or general psychodermatology were considered only when they helped contextualize mechanisms or comorbidity patterns relevant to psoriasis. Because the included studies differ substantially in design, population, assessment tool, psoriasis severity, treatment status and sleep outcome definitions, no quantitative synthesis was performed. Findings are therefore presented qualitatively.

3. Epidemiology of Sleep Disturbance in Psoriasis

Sleep disturbance is common in psoriasis, but reported prevalence varies widely depending on the population studied, the instrument used and the threshold defining poor sleep. In a large cross-sectional study including 334 patients with psoriasis and 126 control subjects, sleep disturbance defined by a Pittsburgh Sleep Quality Index score >5 was present in 59% of patients compared with 34% of controls. Patients with psoriasis also slept approximately one hour less than controls, with a median sleep duration of 6 versus 7 hours. (Sahin et al., 2022)

A 2026 case-control study similarly showed worse sleep-related outcomes among patients with psoriasis than controls. In that cohort, the mean PSQI score was higher in psoriasis patients than controls, and the proportion of poor sleepers was 81.5% in the psoriasis group compared with 49.6% in controls. Psoriasis patients also had higher STOP-BANG scores, lower sleep efficiency and greater daytime dysfunction, supporting the concept that sleep impairment in psoriasis includes both subjective and functional domains. (Vlami et al., 2023)

Population-based evidence further supports an association between psoriasis and sleep difficulty. In a US NHANES-based study, psoriasis was significantly associated with trouble sleeping after adjustment for demographic and health-related variables, with an adjusted odds ratio of 1.88. The same study did not find a significant association between psoriasis and sleep quantity, suggesting that subjective sleep quality and sleep disruption may be more relevant than total sleep duration alone. (Smith et al., 2024)

Not all studies report the same prevalence. In a Scientific Reports cross-sectional study of 200 patients with psoriasis, poor sleep quality was found in 16% of patients, while poor sleep was detected in 50% of those with severe psoriasis. This lower overall prevalence likely reflects differences in sample composition, disease severity and exclusion criteria, as most patients in that cohort had mild psoriasis. (Zaky et al., 2023)

The wide prevalence range is therefore not necessarily contradictory. Rather, it indicates that sleep disturbance is not uniformly distributed across all patients with psoriasis. It is more likely in those with more severe disease, pruritus, pain, psychological distress, psoriatic arthritis, obesity, sleep apnoea risk and broader disease burden.

4. Pruritus as a Central Driver of Sleep Disturbance

Pruritus is one of the most consistently reported factors associated with sleep disturbance in psoriasis. It may delay sleep onset, cause nocturnal awakenings, increase scratching behaviour, worsen daytime fatigue and reinforce emotional distress. Its effect is especially important when itch intensifies in the evening or at night.

In the study by Sahin et al., 79% of patients reported current pruritus. Patients with pruritus had more impaired subjective sleep quality, sleep latency, sleep disturbances and daytime dysfunction than those without pruritus. Patients without pruritus had less impaired sleep than patients with strong or very strong pruritus. In multivariable models, anxiety and depression were the strongest predictors of sleep impairment, followed by nocturnal pruritus exacerbation, age, female sex, morning pruritus exacerbation, average pruritus intensity, diagnosed depression and gastroesophageal reflux disease. Anxiety and depression mediated 42% and 37% of the association between pruritus intensity and sleep impairment, respectively. (Sahin et al., 2022)

A separate cross-sectional study of 200 patients found that severe pruritus was associated with higher incidence of sleep disturbance across sleep domains, and global PSQI correlated significantly with pruritus severity. The same study found that pruritus severity and psoriasis disability were significant predictors of poor sleep quality, supporting a model in which itch, quality of life and sleep impairment are interdependent rather than isolated outcomes. (Zaky et al., 2023)

A multicenter study of 295 patients with different clinical variants of psoriasis also identified pruritus as an important determinant of quality of life and sleeping problems. In that study, 39.3% of patients reported occasional difficulty falling asleep and 22.7% reported such difficulties almost every day. Additionally, 20.3% woke during sleep almost every night, and 33.6% reported sporadic nocturnal awakening. The majority of patients reported sleep disturbances caused by pruritus, regardless of psoriasis subtype. (Jaworecka et al., 2022)

These studies support a clinically important conclusion: pruritus reduction should be considered a therapeutic target not only for symptom relief but also for improvement of sleep and daily functioning. The presence of nocturnal itch should therefore be specifically assessed during clinical visits.

5. Quality of Life and Daily Functioning

Sleep disturbance in psoriasis should be interpreted within the broader framework of health-related quality of life. Poor sleep may worsen fatigue, concentration, irritability, work performance, social functioning and perceived treatment burden. Conversely, poor quality of life may amplify sleep disturbance through anxiety, stress, rumination and reduced coping capacity.

The Scientific Reports study demonstrated that patients with psoriasis exacerbated by pruritus and sleep problems had lower quality of life across domains. Poor sleep was associated with higher Psoriasis Disability Index scores, and PSS and PDI were significant predictors of global sleep score. (Zaky et al., 2023)

In the multicenter study by Jaworecka et al., mean DLQI in the entire cohort was 12.7, indicating a large quality-of-life burden. Most patients had impaired quality of life regardless of psoriasis subtype, with the highest mean DLQI observed in erythrodermic psoriasis. Patients with pruritus had higher DLQI than those without pruritus, and generalized pruritus was associated with particularly high DLQI scores. (Jaworecka et al., 2022)

Sleep and mental health are also tightly linked. In a 2025 cross-sectional study including 487 participants with psoriasis and 69 healthy controls, psoriasis patients had worse PROMIS sleep impairment, PROMIS sleep disturbance and Insomnia Severity Index scores than controls. Within the psoriasis cohort, greater sleep impairment, sleep disturbance and insomnia were significantly associated with anxiety and depression, even after adjustment for demographic variables, comorbidities, psoriasis severity, treatment history and psoriatic arthritis diagnosis. (Leung et al., 2025)

These data suggest that sleep assessment may help identify patients with hidden psychosocial burden. A patient with apparently limited skin involvement but severe nocturnal itch, insomnia, fatigue and depressive symptoms may require escalation or broader multidisciplinary care even when PASI or BSA does not appear high.

6. Objective and Subjective Sleep Assessment

Most studies of psoriasis-associated sleep disturbance use patient-reported instruments, especially PSQI and ISI. These tools are clinically useful and easy to apply, but they may not capture objective sleep architecture. Conversely, objective methods such as actigraphy or polygraphy can detect altered sleep duration, sleep efficiency and sleep architecture, but are less accessible in routine dermatology.

A prospective case-control study evaluated 46 patients with moderate-to-severe psoriasis and 24 matched controls using sleep questionnaires and actigraphy. Among psoriasis patients, 91.3% were poor sleepers by PSQI and 65.2% had insomnia symptoms by Athens Insomnia Scale, compared with 54.2% and 33.3% of controls, respectively. Actigraphy showed shorter total sleep time in psoriasis patients and poor sleep efficiency in 82.6% of patients. Pruritus was negatively correlated with sleep duration, and quality of life was associated with sleep disturbance. (Vlami et al., 2023)

After six months of systemic treatment, subjective sleep measures improved, and insomnia symptoms were no longer significantly different from controls. However, actigraphic sleep patterns did not change significantly, highlighting a potential discrepancy between subjective improvement and objective sleep architecture. This distinction is clinically important: patients may feel better after effective psoriasis treatment, but objective sleep recovery may lag or depend on additional sleep-specific interventions. (Vlami et al., 2023)

A 2024 pilot study using polygraphy in psoriasis and atopic dermatitis demonstrated that intensive topical treatment over two weeks reduced disease activity and pruritus, while improving sleep parameters including insomnia severity, daytime sleepiness, N3 deep sleep and REM sleep. Although the cohort was small and included both psoriasis and atopic dermatitis, the study supports the hypothesis that treatment of cutaneous inflammation and itch can rapidly improve sleep architecture. (Mann et al., 2024)

Together, these findings indicate that both subjective and objective sleep assessment have value. Patient-reported instruments capture lived burden, whereas actigraphy and polygraphy may reveal sleep abnormalities not fully captured by questionnaires.

7. Psoriasis Severity, Pain, Fatigue and Psoriatic Arthritis

The relationship between skin severity and sleep is complex. Some studies show that PASI correlates with sleep disturbance, whereas others suggest that pruritus, pain, depression and anxiety may be stronger predictors than objective skin extent. This discrepancy is expected because sleep is a multidimensional outcome influenced by both inflammatory and non-inflammatory factors.

In the Scientific Reports study, poor sleep was detected in 50% of patients with severe psoriasis, 25% with moderate psoriasis and 11.8% with mild psoriasis. PASI correlated with global PSQI and several sleep domains, including sleep quality, duration and sleep disturbance. (Zaky et al., 2023)

Pain and fatigue may also contribute to sleep impairment. Psoriatic arthritis introduces additional mechanisms, including inflammatory joint pain, enthesitis, stiffness and reduced mobility. Reviews of psoriatic arthritis consistently identify sleep disturbance, fatigue and pain as major domains of reduced quality of life, and studies of sleep in inflammatory arthritis emphasize the need to differentiate inflammatory pain from non-inflammatory pain, central sensitization and fibromyalgia-like symptom amplification. (James et al., 2024)

In the actigraphy study, patients with psoriatic arthritis had higher PSQI and Athens Insomnia Scale scores and shorter total sleep time than patients without psoriatic arthritis, suggesting that joint involvement may intensify sleep burden in psoriatic disease. (Vlami et al., 2023)

These data support a practical approach: in a psoriasis patient reporting sleep disturbance, clinicians should ask not only about itch but also about joint pain, morning stiffness, fatigue, restless legs symptoms, snoring, obesity, mood and medication effects.

8. Sleep Apnoea, Restless Legs Syndrome and Comorbid Sleep Disorders

Psoriasis is associated with cardiometabolic comorbidities, including obesity, hypertension, metabolic syndrome and cardiovascular disease. These conditions overlap with obstructive sleep apnoea risk. Sleep apnoea may worsen daytime fatigue, cardiovascular risk and systemic inflammation, thereby potentially amplifying psoriatic disease burden.

A review on sleep disorders and psoriasis reported that obstructive sleep apnoea prevalence among psoriasis patients varies substantially across studies and may be much higher than in the general population. It also noted that recurrent nocturnal arousals and intermittent hypoxia may activate sympathetic and inflammatory pathways, potentially worsening psoriasis symptoms such as itch and pain. (Hazarika et al., 2025)

The 2026 case-control study found higher STOP-BANG scores among psoriasis patients than controls and a higher frequency of high OSA risk, together with worse PSQI scores and reduced sleep efficiency. (Sami et al., 2026)

Restless legs syndrome is another relevant comorbidity. It may interfere with sleep onset and sleep maintenance. The same review summarized that restless legs syndrome has been reported more frequently in psoriasis than in control populations, although estimates vary and confounding by inflammation, iron status, medication and psoriatic arthritis remains possible. (Halioua et al., 2022) Screening for sleep apnoea and restless legs syndrome is especially important in patients with obesity, resistant fatigue, daytime sleepiness, snoring, non-restorative sleep or persistent sleep impairment despite good skin control.

9. Bidirectional and Mechanistic Links Between Sleep and Psoriatic Disease

Historically, sleep disturbance in psoriasis was viewed mainly as a consequence of itch, pain and psychosocial distress. Newer evidence suggests a more bidirectional model. Poor sleep may contribute to immune dysregulation, oxidative stress, metabolic disruption and systemic inflammation, all of which are relevant to psoriatic disease.

A large UK Biobank prospective cohort study of 399,912 participants without psoriatic disease examined whether baseline sleep patterns predicted incident psoriatic disease. During a mean follow-up of 14.7 years, 4001 new cases were identified. Compared with participants with low sleep scores, those with moderate and high sleep scores had lower risks of incident psoriatic disease, and each one-point increase in sleep score was associated with lower risk. Participants with low polygenic risk and high sleep scores had the lowest risk compared with those with high genetic risk and low sleep scores. Mediation analyses identified glycoprotein acetylation, the ratio of polyunsaturated to monounsaturated fatty acids and alkaline phosphatase as partial mediators of the sleep-psoriatic disease association. (Guo et al., 2026)

The graphical abstract of this study is particularly useful conceptually: it frames sleep patterns, genetic predisposition and serum metabolites as interacting domains in psoriatic disease risk, rather than treating sleep only as a downstream quality-of-life complaint. (Guo et al., 2026)

These findings do not prove that sleep optimization prevents psoriasis in an individual patient. However, they provide epidemiological support for sleep as a modifiable lifestyle factor potentially relevant to psoriatic disease risk and inflammatory-metabolic biology. This is especially important because sleep is clinically tractable through behavioural, medical and lifestyle interventions.

10. Paediatric and Family-Level Sleep Burden

Although this review focuses primarily on adults with psoriasis, paediatric psoriasis also affects sleep and family functioning. In a cross-sectional study of 301 parents, including 151 parents of 83 children with psoriasis and 150 parents of healthy controls, parents of children with psoriasis reported significantly longer sleep latency, worse subjective sleep quality and greater use of sleep medications. Differences between parents of children with mild versus moderate-to-severe psoriasis were not statistically significant, and differences between mothers and fathers also did not reach statistical significance. (Horev et al., 2023)

This study broadens the concept of psoriasis-associated sleep disturbance. The burden may extend beyond the patient to caregivers, particularly when children require treatment supervision, experience visible lesions, itch, discomfort or psychosocial distress. Family-level sleep effects should be considered in paediatric dermatology and in studies evaluating the total burden of psoriasis.

11. Treatment Effects on Sleep

Effective psoriasis treatment may improve sleep by reducing pruritus, pain, inflammation and psychological burden. However, treatment effects on sleep vary by study design, baseline severity, intervention, instrument and follow-up duration.

The actigraphy study showed that after six months of systemic therapy, PASI, DLQI and pruritus improved, and subjective sleep measures improved. Insomnia symptoms were no longer significantly different from controls, although objective actigraphic sleep parameters did not change significantly. (Vlami et al., 2023)

A prospective study in a resource-poor setting evaluated 59 patients with chronic plaque psoriasis receiving standard non-biological treatment. Poor sleep quality and clinical insomnia were noted in 10% and 25.4% of participants, respectively, at baseline. Sleep quality was associated with BMI and pruritus, while insomnia was associated with PASI. With treatment, poor sleep quality decreased to 5% at week 12, and insomnia decreased to 3.4%. Improvement in sleep quality correlated with reduction in pruritus at weeks 4 and 12. (Hazarika et al., 2025)

The TRIBUTE study of tildrakizumab in moderate-to-severe plaque psoriasis evaluated patient-reported outcomes including pruritus, pain, scaling, sleep, work productivity and quality of life. After 24 weeks, high proportions of patients achieved PASI response and DLQI 0/1, and the study reported improvement in impaired sleep and high-burden skin symptoms under conditions closer to clinical practice. (Costanzo et al., 2023)

These findings support an important principle: sleep improvement may be a clinically meaningful treatment outcome. However, sleep should be measured directly rather than inferred from PASI or DLQI improvement alone.

12. Future Directions

Future research should prioritize longitudinal and interventional designs. Studies should determine whether baseline sleep disturbance predicts psoriasis severity, flare frequency, treatment response, biologic persistence, cardiovascular risk or transition to psoriatic arthritis.

Sleep outcomes should be standardized. A recommended core sleep assessment in psoriasis research could include PSQI or PROMIS Sleep Disturbance, ISI, itch NRS/VAS with nocturnal itch item, fatigue score, DLQI, PHQ-9 or PHQ-8, GAD-7 and screening for OSA risk. Objective measures such as actigraphy or polygraphy should be incorporated into selected studies.

Future trials should also evaluate whether specific interventions improve sleep independently of skin clearance. Potential interventions include intensified anti-inflammatory therapy, targeted antipruritic treatment, cognitive behavioural therapy for insomnia, sleep hygiene interventions, treatment of obstructive sleep apnoea, weight reduction and integrated psychodermatology care.

Finally, mechanistic studies should examine inflammatory and metabolic mediators linking sleep and psoriatic disease, including glycoprotein acetylation, lipid metabolites, CRP, cytokine pathways, circadian immune regulation and neuroimmune itch mediators.

13. Conclusions

Sleep disturbance is a clinically important and underrecognized component of psoriasis burden. It is strongly associated with pruritus, quality-of-life impairment, anxiety, depression, fatigue, daytime dysfunction and comorbid sleep disorders. The available evidence indicates that psoriasis patients experience higher rates of poor sleep quality, insomnia symptoms, shortened sleep duration and reduced sleep efficiency than healthy controls. Pruritus, particularly nocturnal pruritus, is one of the most consistent symptom-level drivers of sleep impairment.

However, the relationship between psoriasis and sleep is not unidirectional. Sleep disturbance may reflect active cutaneous inflammation, pain, psoriatic arthritis, obesity, sleep apnoea, psychological distress or systemic inflammatory-metabolic dysregulation. Emerging prospective evidence also suggests that unfavourable sleep patterns may increase the risk of incident psoriatic disease, especially in genetically susceptible individuals.

In routine practice, sleep should be assessed alongside skin severity, pruritus, pain, mood and quality of life. Effective psoriasis treatment may improve sleep, but persistent sleep disturbance should prompt evaluation for nocturnal itch, mental health comorbidity, psoriatic arthritis, obstructive sleep apnoea and other sleep disorders. Future psoriasis trials should incorporate sleep as a prespecified patient-reported outcome and evaluate whether sleep optimization can modify disease burden and long-term outcomes.

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