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Research Article

Metabolic Syndrome Prevalence in Chronic Plaque Psoriasis Patients

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ABSTRACT
Background: Chronic plaque psoriasis is now recognized as a systemic inflammatory disorder associated with an increased burden of cardiometabolic comorbidities.
Objective: To estimate the prevalence of metabolic syndrome in chronic plaque psoriasis patients and to compare this with age and sex matched controls.
Materials and Methods: The study was a case-control study conducted in the multi-centre including Department of Dermatology, MTI HMC, Peshawar, Nishtar Hospital Multan and Mukhtar A Sheikh Hospital Multan for 7 months from July 2025 to January 2026. Total 200 subjects were enrolled, 100 patients with chronic plaque psoriasis and 100 age- and sex-matched controls without psoriasis.
Results: The prevalence of metabolic syndrome was significantly higher in psoriasis patients than in controls (46.0% vs 22.0%, $p<0.001$). The individual components were more common in psoriasis patients, with abdominal obesity, elevated triglycerides, and low HDL cholesterol being significantly more prevalent.
Conclusion: Patients with chronic plaque psoriasis have a significantly higher prevalence of metabolic syndrome than the general population, and this worsens with disease severity.

Keywords: Chronic Plaque Psoriasis, Metabolic Syndrome, Pasi, Cardiometabolic Risk, Case-Control Study.

INTRODUCTION

Psoriasis is a chronic immune-mediated inflammatory skin disease affecting around 2–3% of the world's population, which is a major burden on physical, psychological and social health. The most frequent clinical type is chronic plaque psoriasis, which presents as well-circumscribed erythematous patches covered by silvery scales, frequently located on the scalp, elbows, knees, and lumbosacral area (1). However, recent clinicopathological data have revealed that there is a significant metabolic burden in chronic plaque psoriasis patients, highlighting the importance of the clinical assessment of psoriasis beyond the clinical picture itself (2). Ongoing inflammation leads to endothelial dysfunction, oxidative stress, adipokine dyshomeostasis, insulin resistance, and hastens the progression of metabolic abnormalities. Inflammatory markers are often elevated and metabolic syndrome is common among patients with psoriasis prior to starting biologic therapy, highlighting the systemic inflammatory component of the relationship between psoriasis and metabolic syndrome (3, 4).

Psoriasis and metabolic syndrome are now known to have a bidirectional association. This dynamic relationship has a vicious cycle effect on disease severity, treatment response and long-term prognosis. That is why current management strategies increasingly focus on routine screening for metabolic abnormalities, individualized cardiovascular risk assessment,

and multidisciplinary management (dermatologist, physician, endocrinologist and cardiologist) to optimize patient outcome (5). There have been several epidemiological studies that have found a significant association between psoriasis vulgaris and metabolic syndrome. This is because prevalence is different between populations depending on ethnicity, lifestyle, diagnostic criteria, and disease severity; however, the trend is always towards an increased metabolic risk in those with the disease. In addition, hospital-based studies have consistently shown that adult psoriasis patients with psoriasis vulgaris are often obese, have hypertension, dyslipidemia and impaired fasting glucose, underscoring the importance of early detection and prompt treatment to prevent future cardiovascular complications (6).

Shared inflammatory mediators, genetic susceptibility, sedentary lifestyle, unhealthy dietary habits, and increased adiposity have been implicated in this relationship. The findings highlight the need to integrate metabolic evaluation into the standard clinical care of psoriasis patients, especially in countries with an increasing prevalence of non-communicable diseases (7). Increased systemic inflammation is associated with greater involvement of body surface area and disease activity, indicating systemic inflammation may be correlated with the clinical severity of psoriasis and should be monitored more closely in high-risk patients (8). Specific clinical variants of psoriasis have also been linked with metabolic abnormalities. Although the disease is localized, palmoplantar plaque psoriasis has been found to be associated with diabetes mellitus, hypertension, obesity and metabolic syndrome.

These findings suggest that even localized psoriasis is a sign of systemic inflammation and that all psoriasis patients should be assessed in full without regard to the extent of skin involvement (9). Inflammatory musculoskeletal manifestations further support the link with metabolic disease, beyond cutaneous psoriasis (10,11). Clinico-epidemiological studies in recent years have also continued to report a significant overlap between psoriasis and metabolic syndrome in various healthcare environments. All of these studies highlight the possible influence of demographic variables, disease duration, and lifestyle factors on the prevalence of metabolic abnormalities, and thus the need for routine metabolic screening as an integral part of psoriasis treatment (12, 13).

Patients with psoriasis have been shown to have higher CIMT, especially when they have metabolic syndrome, suggesting that there is accelerated subclinical atherosclerosis and higher risk of cardiovascular events in the future (14). In addition, hospital-based studies have noted a high prevalence of metabolic syndrome in adults with psoriasis vulgaris, highlighting the importance of early cardiovascular risk stratification and preventive interventions. Moreover, metabolic changes are common in people with psoriatic arthritis, highlighting the systemic nature of psoriatic disease and its metabolic effects (15). Consistent with these findings, regional studies from tertiary healthcare centers have also reported high frequencies of metabolic syndrome in chronic plaque psoriasis patients (16). Furthermore, even in the absence of clinical metabolic syndrome, there was evidence of subclinical atherosclerosis, implying that psoriasis might be an independent risk factor for cardiovascular disease, which further supports the need for comprehensive metabolic assessment in patients with chronic plaque psoriasis (17).

Objective: To determine the prevalence of metabolic syndrome in patients with chronic plaque psoriasis and to compare it with age- and sex-matched controls.

MATERIALS AND METHODS

Study Design: Case-control study.

Setting: The study conducted in the multi-centre including Department of Dermatology, MTI HMC, Peshawar, Nishtar Hospital Multan and Mukhtar A Sheikh Hospital Multan Pakistan.

Study Duration: Seven months, from July 2025 to January 2026.

Sample Size: A sample size of 200 participants (100 cases and 100 controls) was determined using OpenEpi with an estimated prevalence of metabolic syndrome of about 45% in psoriasis patients and 20% in controls (Shah et al.), a 95% confidence interval, and 80% power.

Inclusion Criteria: Adult patients (18 years of age or older) of both sexes with clinically diagnosed chronic plaque psoriasis who gave informed consent were included. Patients who had a duration of the disease of at least 6 months and who visited dermatology OPD during the study period were included.

Exclusion Criteria: Other variants of psoriasis, pregnant women, lactating women and patients taking systemic corticosteroids were excluded.

To minimize potential confounding and reliable assessment of metabolic syndrome components, patients with known endocrine disorders, chronic kidney or liver disease, malignancy, acute infection, and incomplete clinical and laboratory records were excluded.

METHODS

All patients were carefully clinically examined, consisting of medical history, physical examination, and evaluation of psoriasis features. Clinical severity of psoriasis was assessed with standardized clinical parameters and demographic data such as age, gender, disease duration, and relevant lifestyle factors was recorded. Metabolic syndrome was identified by the presence of clinical and biochemical parameters. The data collected from both groups were analysed and compared to find differences in the prevalence of metabolic syndrome and its individual components between chronic plaque psoriasis patients and healthy controls.

RESULTS

There were 200 participants, 100 with psoriasis and 100 controls. There were no significant differences in baseline demographic data between the two groups.

Table 1: Baseline Demographic Characteristics of Cases and Controls (N = 200)

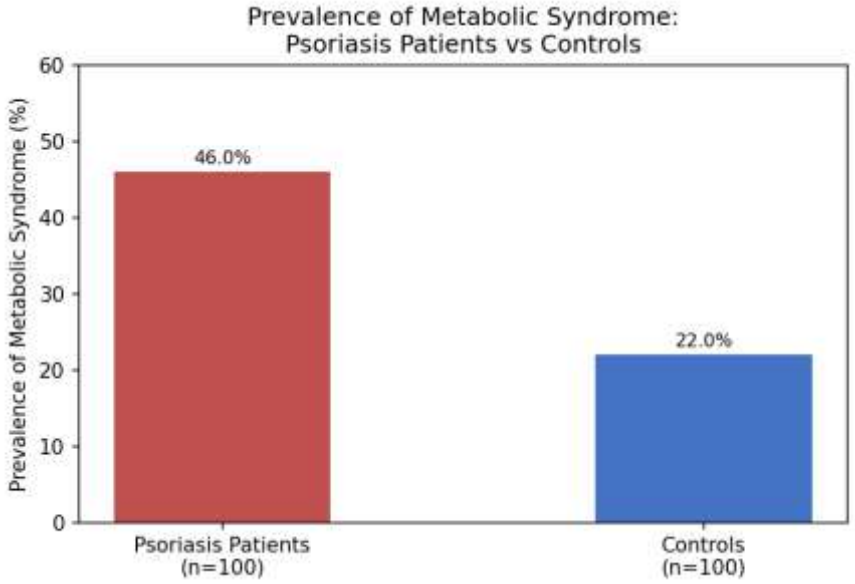
Variable	Psoriasis (N=100)	Controls (N=100)
Mean Age (Years)	42.6 ± 11.4	41.9 ± 10.8
Male	56 (56.0%)	54 (54.0%)
Female	44 (44.0%)	46 (46.0%)
Mean Disease Duration (Years)	8.3 ± 5.6	-

Metabolic syndrome was significantly more prevalent among psoriasis patients than among controls.

Table 2: Prevalence of Metabolic Syndrome in Cases and Controls

Group	Metabolic Syndrome Present	Metabolic Syndrome Absent
Psoriasis (N=100)	46 (46.0%)	54 (54.0%)
Controls (N=100)	22 (22.0%)	78 (78.0%)

$p<0.001$ (chi-square test).



Graph (Bar Chart): Prevalence of Metabolic Syndrome in Psoriasis Patients versus Controls

The graphic representation clearly demonstrates that the prevalence of metabolic syndrome was more than twice as high in the psoriasis patients as in the controls.

Table 3: Comparison of Individual Metabolic Syndrome Components between Groups

Component	Psoriasis (N=100)	Controls (N=100)

Abdominal Obesity	58 (58.0%)	34 (34.0%)
Elevated Triglycerides	51 (51.0%)	29 (29.0%)
Low HDL-Cholesterol	47 (47.0%)	26 (26.0%)
Raised Blood Pressure	42 (42.0%)	33 (33.0%)
Raised Fasting Glucose	39 (39.0%)	28 (28.0%)

$p<0.05$ for abdominal obesity, elevated triglycerides, and low HDL-cholesterol (chi-square test).

Table 4: Association of Metabolic Syndrome Prevalence with PASI Severity Category

Pasi Severity Category	**Metabolic Syndrome N (%)**	**No Metabolic Syndrome N (%)**
Mild (Pasi <10, N=39)	11 (28.2%)	28 (71.8%)
Moderate (Pasi 10–20, N=44)	18 (40.9%)	26 (59.1%)
Severe (Pasi >20, N=17)	11 (64.7%)	6 (35.3%)

Overall p-value = 0.001 (chi-square test for trend).

DISCUSSION

Thr results have shown a high metabolic burden in individuals with chronic plaque psoriasis, which highlights the need to assess metabolic complications associated with chronic plaque psoriasis as part of a standard clinical care plan (1). In the past, prospective studies have demonstrated that metabolic disturbances and chronic inflammation frequently occur in psoriasis patients prior to the initiation of biological therapy, indicating that inflammatory activity is an important factor in the pathogenesis of metabolic disturbances in psoriasis (2). These mechanisms create a vicious cycle, as psoriasis can lead to metabolic dysfunction, which in turn increases systemic inflammation and exacerbates psoriasis severity. Thus, metabolic monitoring should be integrated into the care of psoriasis patients as part of their routine care to prevent long-term complications (3).

Fifty-eight percent of the psoriasis patients had abdominal obesity, 51.0 percent had elevated triglycerides, and 47.0 percent had low HDL cholesterol, whereas 34.0 percent, 29.0 percent and 26.0 percent of the controls, respectively, had abdominal obesity, elevated triglycerides and low HDL cholesterol. These results are similar to the previous studies that showed a greater prevalence of metabolic syndrome in adults with psoriasis vulgaris, with obesity, dyslipidemia, hypertension, and impaired glucose metabolism being commonly noted (4). These associations have been seen in other South Asian populations, with psoriasis patients having higher metabolic risk than the general population in India.

The findings reinforce the importance of early metabolic screening, particularly in the populations of high burden of non-communicable diseases (5). This is similar to the results of previous studies which reported that the metabolic syndrome is more common in patients with severe or difficult-to-treat psoriasis, which is related to higher systemic inflammation and disease activity (6). Psoriasis is a disease of the skin, but some types of psoriasis, including palmoplantar plaque psoriasis, have also been linked to metabolic abnormalities. Previous case-control studies have shown that there are strong associations between palmoplantar psoriasis and diabetes mellitus, hypertension, obesity and metabolic syndrome. Based on these observations, it is proposed that metabolic evaluation should be done in patients with psoriasis, irrespective of the extent and localization of the skin lesions (7).

Evidence from psoriatic arthritis also supports the link between inflammatory burden and metabolic abnormalities. Psoriatic arthritis patients have a higher prevalence of metabolic syndrome than both people with cutaneous psoriasis and the general population. This implies that elevated systemic inflammation levels could be a risk factor for patients with more extensive inflammatory disease (8). Recent clinical and epidemiological studies still support the high prevalence of psoriasis among patients with metabolic syndrome. These investigations have shed light on the role of the demographic, disease duration and lifestyle factors in metabolic abnormalities. Thus, routine checks of metabolic parameters should be part of the comprehensive management of psoriasis (9). This relationship has been further supported by large-scale evidence (10).

The present study findings corroborate the results of the aforementioned study and highlight the urgency of early diagnosis of metabolic abnormalities to minimize subsequent cardiovascular complications (12). Patients with psoriatic arthritis often have metabolic abnormalities as well, further

evidence of the systemic nature of psoriatic disease. Inflammatory joint disease is a disease with metabolic syndrome components, which underlines the importance of multidisciplinary management approaches, that include dermatologists, rheumatologists and physicians (13). There is emerging evidence that metabolic dysfunction in psoriasis may be related to alterations in the intestinal metabolism. Patients with psoriasis and metabolic syndrome have higher serum levels of intestinal metabolites, indicating that gut-related metabolic alterations may play a role in inflammatory and metabolic interactions in these patients (14). The results of this study are in line with the current study and this suggests that routine metabolic screening should be performed in psoriasis patients (15). Recent reviews have highlighted the importance of managing systemic inflammation and recognising comorbidities in the management of psoriasis for the best long-term outcomes (16Thus, full metabolic and cardiovascular assessment should be taken into account as an essential part of chronic plaque psoriasis treatment (17).

CONCLUSION

This study showed that the prevalence of metabolic syndrome is significantly higher in patients with chronic plaque psoriasis than in age- and sex-matched healthy controls. There was an increasing prevalence of metabolic syndrome with the severity of psoriasis, suggesting a potential association between systemic inflammatory burden and metabolic complications. The results highlight the need to view chronic plaque psoriasis as a systemic inflammatory condition, with significant cardiometabolic risk factors, instead of a purely dermatological disease. Obesity, BP, glucose and lipid parameters should be routinely screened in all psoriasis patients for the early detection, prevention and better long-term outcome of metabolic syndrome.

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