

# Psoriasis - A Clinical Study in a Tertiary Care Centre in South India

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**Abstract:** ***Background:** Psoriasis is found worldwide and its prevalence varies in various ethnic groups. The knowledge of the prevalence of Psoriasis along with other factors will be useful for adequate treatment and care of the patients. **Aims and objectives:** The aim of the study is to determine the prevalence, sex ratio, clinical pattern, nail and joint involvement among Psoriasis patients in our medical college. Along with clinical profile, Comorbidities like Diabetes mellitus, Hypertension, Obesity, Myocardial infarction, hypothyroidism and psychological factors were assessed. **Materials and Methods:** This was a hospital - based prospective study conducted for 6 months in the dermatology outpatient department in our medical college situated in South India. **Results:** Prevalence of Psoriasis was 1.3% with involvement of males more than females. Age group most common was 30 - 40 years. Chronic plaque type psoriasis was the most common with the majority of involvement being trunk and limbs (52.8%) followed by palmoplantar and scalp. linear presentation of psoriasis was least in it. Nail involvement was more common in hands. Arthritis was only in 10%. Comorbidities associated with our patients were mainly Diabetes mellitus, hypertension, hypothyroidism, myocardial infarction, alcoholism and depression. Diabetes mellitus was the most common comorbidity. Majority were obese. Psychological comorbidity associated was depression. **Conclusions:** Psoriasis is found worldwide but the prevalence varies among different ethnic groups. Our data correlates with previous hospital - based prevalence studies of psoriasis. On the basis of evidence from this study, we should proactively look for metabolic syndrome and psychological problems in psoriasis patients. Thereby treating the patient in their physical and psychological aspects.*

**Keywords:** Psoriasis, Prevalence, Chronic plaque Psoriasis, Comorbidities

## 1. Introduction

Psoriasis is a common, non - communicable, chronic relapsing multi - system autoimmune skin disease. It is a lifelong disease associated with a number of morbidities and has an impact on the psychosocial aspects. There are a growing number of population - based studies providing worldwide prevalence estimates of psoriasis. Prevalence of psoriasis varies in different parts of the world. Although the exact causes of psoriasis are not fully understood, several risk factors are recognized, including family history and environmental risk factors, such as smoking, stress, and obesity [20]. According to published reports, Prevalence in different populations varies from 0% to 11.8% [1 - 4]. The exact prevalence of psoriasis in India is not known and we rely on Western data. Although the number of studies conducted locally is increasing, there is still limited information concerning the epidemiological and clinical data pertaining to psoriasis. Informed data prevalence may contribute to a better understanding of the disease burden, updating population research, and advancement of health policies. The information on prevalence would be useful for planning strategies to manage these diseases. This point prevalence study was undertaken to determine the epidemiological pattern of psoriasis. In the above situation this hospital - based study was conducted.

### Aims and Objectives

The aim of the study is to determine the prevalence, sex ratio, clinical pattern, nail and joint involvement along with other comorbidities among Psoriasis patients in our medical college.

## 2. Materials and Methods

The study was conducted in a tertiary care centre situated in

the southern part of India. It was conducted during a period of 6 months from October 1, 2020 to March 31, 2020. Institutional Ethical committee clearance has been taken. Consent was taken from patients.

### Inclusion criteria

- 1) Patient with age above 18 years.
- 2) Patient who are clinically diagnosed to have Psoriasis.

### Exclusion Criteria

- 1) Patients with age above 18 years
- 2) Pregnant and lactating mothers were excluded.

Among the total number of patients attended during this period in the outpatient department of our medical College. The diagnosis of Psoriasis is made based on clinical evaluation. Data were analyzed based on sex, age, clinical pattern, nail, joint involvement and comorbidities.

## 3. Results

### 1) Prevalence

Among the total patients attended our medical college during this period, about 110 patients were diagnosed to have psoriasis. It comes to about 1.3 % of total number of the patients came to the outpatient department

### 2) Age Group

Among the total number of patients, 52 patients were between 30 - 40 yrs. 44 patients were between 40 - 50 years. 8 patients were between 20 - 30 years. Remaining were above 50 years.

### 3) Sex Ratio

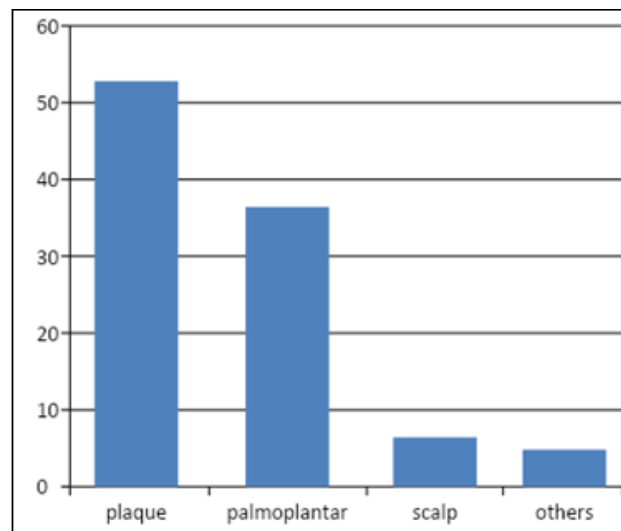
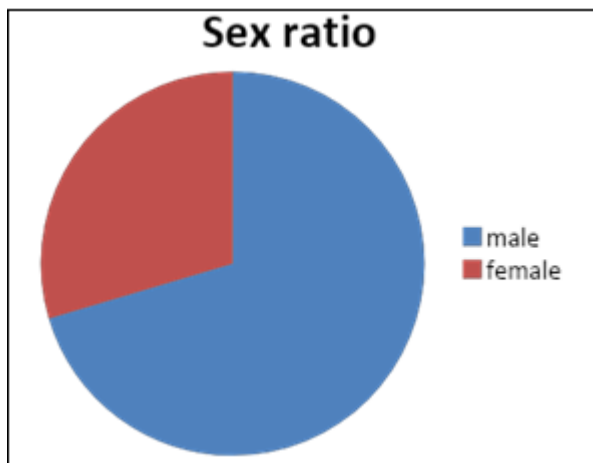
Among the total number of patients, there were 32 females

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and 76 males. So the sex ratio came out to be 3: 1



**4) Clinical Pattern**

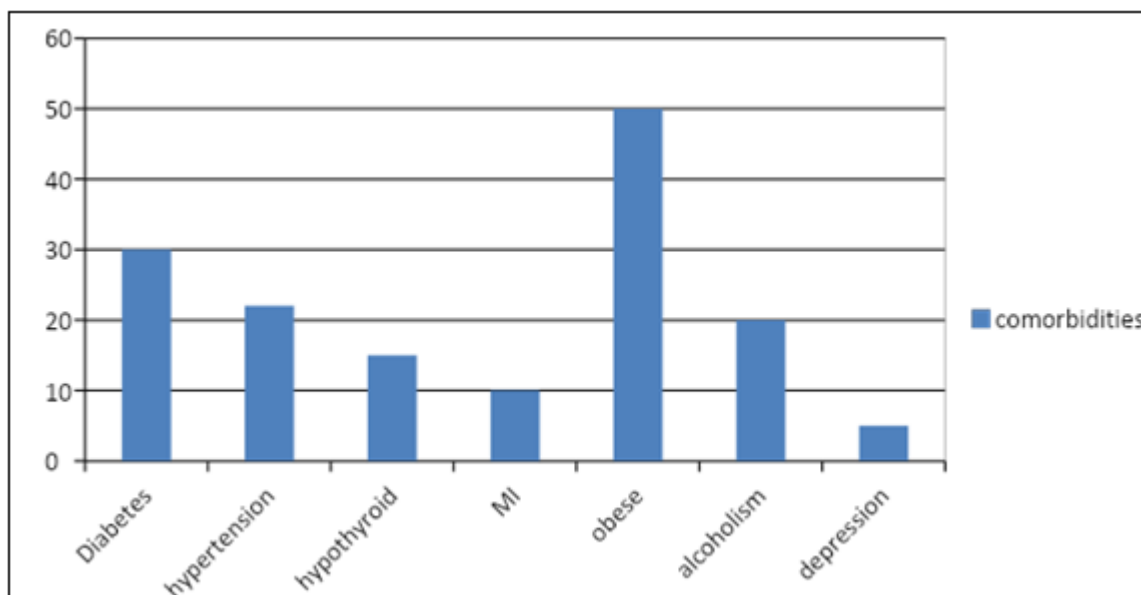
Chronic plaque type psoriasis [figure 1] was the most common type. It involved trunk and limbs in about 58 patients i. e.; about 52.8% of the total patients. The second most common was palmoplantar which constitutes about 40 patients that comes about 36.4 %. Scalp about 6.4%. The remaining flexural, erythrodermic, guttate and pustular constitute less than 5%. Only single case of linear presentation was there [Figure 2]

**5) Nails Andjoints**

Out of 110 patients, 66 patients were having nail involvement i. e; 60 % had nail involvement. Fingernails were more involved in all patients with nail involvement. But toe nail involvement was there in 15.15% of total nail involvement i. e; 10 patients. The most common changes were pitting and subungual hyperkeratosis. Other nail changes were onycholysis, Beau's lines and onychorrhexis. Nail pitting was more common in patients with arthritis. Arthritis was found in 10% of patients mainly peripheral involvement and it was mostly in patients with chronic plaque type.

**6) Comorbidities**

Among the patients with Psoriasis, about 50 patients were obese i. e; 45.5%. Among obese 25 patients had Diabetes Mellitus, 15 patients were hypertensive, 10 patients were hypothyroid. Among the other 60 patients, 5 patients were diabetic, 5 were hypertensive and 5 were hypothyroid. Out of the Diabetic, 6 had history of Myocardial infarction and 4 hypertensive patients also had history of myocardial infarction. Among this, 20 patients had a habit of alcohol intake. Another 6 patients of total 110 were taking treatment for depression



#### 4. Discussion

Psoriasis is a genetically determined immune - mediated inflammatory disease mediated by T - helper 1 (Th1) /Th17 T cells. With a prevalence of 0.44 - 2.8 per cent in India, it commonly affects individuals in their third or fourth decade with males being affected two times more common than females<sup>[5]</sup>. It is regarded as an autoimmune disease in which genetic and environmental factors have a significant role.

The name of the disease is derived from the Greek word "psora" which means "itch". The skin cells usually mature and shed from the skin's surface every 28 to 30 days<sup>[6]</sup>. When psoriasis develops, the skin cells mature in 3 to 6 days and move to the skin surface. Instead of being shed, the skin cells pile up, causing the visible lesions. It is also found that genes that cause psoriasis can determine how a person's immune system reacts. These genes can cause psoriasis or other immune - mediated conditions such as rheumatoid arthritis and Type 1 Diabetes<sup>[7]</sup>.

At present, the data on the prevalence of psoriasis are from hospital - based studies rather than from well - defined large population - based studies. There is a paucity of data related to genetics, epidemiology, disease types, associations, severity and course amongst Indian patients with psoriasis<sup>[8]</sup>. From the available studies, the prevalence of psoriasis in India ranges from 0.44 to 2.8%<sup>[9]</sup>. The point prevalence in our study was 1.3%. We report a male predominance of psoriasis, similar to another study from North India, Bedi [2] reported the prevalence of psoriasis to be 0.8% among the skin patients but the sample size of the study was very small. Male to female sex ratio was 2.5: 1 other reports. The higher incidence of psoriasis in males may be because of the fact that male patients usually come forward and report the symptoms and lesions while there is hesitancy because of the fear of stigma and social rejection among females. A bimodal age of onset has been recognised in several large studies. The mean age of onset for the first presentation of psoriasis can range from 15 to 20 years of age, with a second peak occurring at 55–60 years.<sup>[21 - 24]</sup>. We report the majority in 30 - 40 yrs age group.

Chronic plaque type psoriasis involving trunks and limbs were the most common type of psoriasis in our study. It was similar to another study carried out by Bedi [2] analyzed data of 530 psoriasis patients seen over a period of five years. Chronic plaque type psoriasis was the most common (90%) clinical phenotype. The most common sites of involvement in descending order of frequency were trunk, limbs, scalp, face, palms - soles and flexures. The second most common clinical phenotype was palmoplantar psoriasis followed by flexural psoriasis. He found guttate psoriasis, mucosal involvement and psoriatic erythroderma to be uncommon. For our study, scalp was the second common site in contrast to the study by Kaur et al. [12] reported scalp (25%) as the most common first site of involvement followed by legs (20.6%) and arms (11.7%). Other areas of involvement, erythroderma, guttate and pustular were less than 5% as similar to Kaur et al where Palmoplantar pustulosis, guttate and erythrodermic variants accounted for less than 2% of cases each. Generalized pustular, isolated nail, flexural and arthropathic forms were very uncommon.

Nail involvement is common in psoriasis and can be the initial and the only site of involvement in some patients. Morphology of nail changes depends on whether the nail matrix, nail bed or hyponychium has been affected. Nail involvement is more common in those who have concurrent psoriatic arthritis. Our study showed nail changes in 60% and concurrent associated arthritis. Bedi noted nail changes in 74% of total patients<sup>[2]</sup>. This finding is similar to the findings observed by Farber et al and ELZawahry. [27, 28] Some reports indicate that nail psoriasis is associated with a few predisposing factors. It was proven that nail changes are more frequently observed in patients with a long history of psoriasis vulgaris, early onset of psoriasis, higher score of Psoriasis Area and Severity Index (PASI) and with concomitant PsA [37].

Three different clinical patterns of psoriatic arthritis can be recognized, namely, oligoarticular ( $\leq 4$  involved joints) or polyarticular ( $\geq 5$  involved joints), peripheral disease, and axial disease with or without peripheral arthritis. Various studies have shown peripheral psoriatic arthritis to be the most frequent pattern with asymmetric knee involvement to be the most common presentation in 40% of the patients. [12] The DIP arthritis has been reported to account for 1–59% of cases in various studies, although it is not very specific for psoriatic arthritis and may be seen in other spondyloarthropathies. It is often associated with dactylitis and nail dystrophy. [13]

Our patients have multiple comorbidities like hypertension, diabetes, ischemic heart disease, obesity and hypothyroidism. Psoriasis increases the risk of obesity. Our study also showed higher percentage of patients with Diabetes mellitus. In a cross - sectional study by Shapiro et al,<sup>[29]</sup> on 46, 095 patients with psoriasis (case patients) and 1, 579, 037 subjects without psoriasis (control patients), it was revealed that diabetes was significantly higher in psoriasis patients as compared with the control group (odds ratio [OR]: 1.27, 95% confidence interval [CI]: 1.1–1.48). A study from UK showed higher adjusted odds of obesity in patients with severe psoriasis (OR=1.8) than in patients with mild psoriasis (OR=1.3) compared with patients without psoriasis. Vice versa, obesity is linked to psoriasis due to its chronic proinflammatory state as postulated by Basko - Pluska JL et al<sup>[10]</sup>. In recent years, there has been an enormous interest on the association of psoriasis with conventional cardiovascular risk factors (e. g., metabolic syndrome, obesity, low physical activity, smoking, alcohol, lipid abnormalities, hypertension), nonconventional cardiovascular risk factors such as deranged homocysteine metabolism, cardiovascular comorbidities, and increased risk of myocardial infarction. [14], [15] However, the data supporting the occurrence of such an association is not consistent. The prevalence of metabolic syndrome in the developed countries varies from 15 to 35%. [16] Two Indian studies that differed in their definition of obesity reported the prevalence of 13 and 41% in general population. [17], [18] The third Indian study reported a prevalence of 11.2% for metabolic syndrome<sup>[19]</sup>. A study conducted by Thomas et al reported that obesity was seen in 6.6% and another study by Kaye et al also reported 6.3% among patients with psoriasis [25, 26] A recent prospective study indicated that obesity and high abdominal fat mass

doubled the risk of psoriasis (38). These studies suggest that preventing weight gain, promoting maintenance of a normal body weight, and reduction of body mass may reduce incidence of psoriasis. Indeed, several studies showed a positive impact of weight loss on the severity of psoriasis (38). Thus, dietary weight reduction with a hypocaloric diet is recommended in overweight and obese patients with psoriasis.

Previously, it has been suggested that dermatologists believe that psychiatric disorders are substantially less frequent than they actually are in many skin conditions (30). Moreover, depressive symptoms can influence psoriasis and CVD risk factor management, e. g. patients with concurrent psoriasis and depression may be less likely to adhere to antipsoriatic treatment and use healthcare resources (31). Consequently, depression is likely to be under diagnosed and may contribute considerably to undertreatment of psoriasis, and underdiagnosis and undertreatment of CVD risk factors in patients with psoriasis, respectively (32 - 34). While the vast impact of psoriasis on quality of life has been proposed to be a mechanism for development of depression, inflammatory cytokine production may be a contributory factor (35). Other comorbidities is alcoholism which can aggravate Psoriasis.

Alcohol may affect psoriasis through several mechanisms, such as increased susceptibility to infections, stimulation of lymphocyte and keratinocyte proliferation, and production of proinflammatory cytokines. (36)

It has been pointed out in the WHO's recent Global Report [11] on Psoriasis that there are many unmet research gaps in psoriasis addressing various aspects such as epidemiology, aetiology, association with comorbidities, treatment and ways to improve healthcare services. It has been recommended that therapeutic researches should focus on options which can be applicable globally, on a large scale.

The Indian Association of Dermatologists, Venereologists and Leprologists (IADVL), the national association of Dermatologists has constituted a Special Interest Group (SIG) [12] in psoriasis comprising 11 members. The SIG will work towards updating knowledge by conducting continuing medical education (CME) and publishing symposia on various aspects of psoriasis and undertaking research in psoriasis. Thus, considerable nation - wide progress is being made to improve the awareness, knowledge and research on psoriasis in India [12].

## 5. Conclusion

Our cohort of patients showed a similar clinical profile and outcome as our Indian psoriasis population. More research and detailed prospective studies need to be done to delineate the natural course of the disease which varies in different individuals and also according to the clinical pattern of the disease. Clinical data are limited in nail psoriasis and evaluation of treatment is not standardized. It is necessary to adjust the method of therapy to the extent of skin diseases, psoriatic arthritis, severity of nail changes and impairment of quality of life. Even when skin psoriasis and psoriasis arthritis are controlled, nail lesions can be still present. Prevention of psoriasis has barely been studied. A

prerequisite would be that risk factors are identified in a consistent and reliable way. Studies on risk factors that would aid in identifying preventive strategies which are crucial for chronic non - communicable diseases which lack definitive curative therapy, are barely conducted. Also Future therapies for alcohol and psoriasis might thus be targeted at neurotransmitter networks involved with both alcohol intake and the inflammatory processes. Also there is a need for a more effective targeted therapy for a better outcome.

Dermatologist should be aware of these comorbidities and the current study strongly recommends screening of all patients with psoriasis, irrespective of their age, sex, duration of disease, severity and type of psoriasis. Even if the patients are devoid of co - morbidities at screening, they should be advised to lead a healthy lifestyle practices so as to prevent the future development of co - morbidities and to maintain a good quality of life. This study also emphasise the importance of unified management by dermatologist and other specialists in this present era to prevent these comorbidities.

Psoriasis cannot currently be cured, but management should aim to minimise physical and psychological harm by treating patients early in the disease process, identifying and preventing associated multimorbidity, instilling lifestyle modifications, and employing a personalised approach to treatment.

## 6. Limitations

Only 110 clinically diagnosed subjects with psoriasis could be enrolled in the current study as the duration of study was only for 6 months. A larger number of subjects or increased duration of study period would have further substantiated the findings of the above study.



Figure 1





Figure 2

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