

MEDICATION ADHERENCE AND FACTORS AFFECTING MEDICATION ADHERENCE AMONG PATIENTS WITH PSORIASIS AT A TERTIARY CARE HOSPITAL

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Abstract

Background Psoriasis, an incurable chronic immune-mediated inflammatory skin condition, necessitates prolonged treatment to yield positive results. Globally, the challenge of poor treatment adherence in chronic diseases like psoriasis is of substantial significance. This issue contributes to treatment failures, escalates societal and economic burdens, raises psychiatric morbidity rates, ultimately compromising patients' quality of life. Analysing the determinants of medication adherence is pivotal for formulating strategies to enhance clinical outcomes. This study's primary aim is to gauge medication adherence in patients with psoriasis using the 14-item Medication Adherence Scale and to examine the factors influencing medication adherence in this patient population. **Materials and Methods:** This cross-sectional study enrolled 100 participants diagnosed with psoriasis who met the inclusion criteria and provided informed consent. Data on patients' demographics, clinical parameters, and prescribed medications were collected to assess medication adherence using 14-item Medication Adherence Scale. Logistic regression analysis was done to assess the predictors associated with adherence to psoriasis medication. **Result:** In the study involving 100 subjects with psoriasis, 53% demonstrated medication adherence, whereas 47% displayed non-adherence. The median adherence score was 48 out of 70. Notably, individuals using mometasone cream and methotrexate were more prone to non-adherence. Predictors of better adherence encompassed being female, abstaining from alcohol, and having a reduced number of psoriatic medications. **Conclusion:** Understanding the factors that sway both adherence and nonadherence to treatment can facilitate the implementation of effective preventive measures. By bolstering adherence through these measures, we can alleviate the strain on the healthcare system substantially, leading to improved treatment outcomes.

INTRODUCTION

Psoriasis is a chronic, immune-mediated inflammatory skin disorder recognized by painful lesions appearing on the elbows, knees, scalp, hands, and feet. These symptoms often lead to destructive arthritis and cardiovascular complications, significantly deteriorating patients' quality of life [1]. Globally, the prevalence of psoriasis ranges from 0.09% to 11.4%, with a rate of 2% in India [2,3].

The World Health Organization (WHO) recommends various treatment approaches for psoriasis, depending on the severity of the condition, including topical therapy, phototherapy, and systemic therapy [2]. Because psoriasis is a chronic condition, adhering

to prescribed medications is crucial for optimizing therapeutic effectiveness. Poor adherence to medication regimens has been linked to treatment failures, heightened social and economic burdens, increased psychiatric morbidity, and a subsequent decline in the quality of life. Therefore, it is essential to evaluate the factors influencing medication adherence to develop effective strategies for enhancing clinical outcomes [2].

In the context of chronic diseases such as psoriasis, poor adherence to treatment is a significant global challenge [4]. Studies have indicated that approximately 50% of patients diagnosed with chronic skin conditions like psoriasis do not adhere to the treatment regimens recommended by

dermatologists [5]. This issue of poor adherence extends to both topical therapies and systemic biologic agents commonly used in the treatment of psoriasis. Previous research has identified several factors contributing to poor adherence, including concerns related to treatment costs, inadequate information about medication usage, unrealistic expectations of rapid improvements, perceptions of treatment ineffectiveness, and misconceptions about potential adverse events [2].

Due to its chronic and incurable nature, psoriasis often demands long-term treatment for observable positive effects. Consequently, healthcare professionals play a crucial role in addressing patient concerns and dispelling treatment misconceptions to enhance adherence. With this objective in mind, our study was conducted to assess medication adherence among psoriasis patients and identify influential factors. This research aims to provide insights into mitigating these barriers and optimizing treatment outcomes.

Objectives of the Study

- To assess medication adherence among patients with Psoriasis using Medication Adherence Scale 14-item Version.
- To evaluate the factors affecting medication adherence among patients with Psoriasis.

MATERIALS AND METHODS

The sample size for the present study was calculated using the prevalence of Psoriasis in India which is about 2%. (3) which was 84.37, with missing data of about 10%, the sample size was calculated to be 93 and rounded off to 100.

Inclusion Criteria

- Patients clinically diagnosed with psoriasis.
- Patients willing to give written informed consent (Annexure-1)
- Patients of either sex aged 18 – 60 years.
- Patients on medications for psoriasis for minimum of 6 months.

Exclusion Criteria

- Patient not willing to give written informed consent.
- Patients unable to comprehend the Medication Adherence Scale 14-item version.

After obtaining approval and clearance from the institutional ethics committee, the subjects fulfilling the inclusion criteria were enrolled. Medication adherence was assessed using a Medication Adherence Scale 14-item Version (Annexure-1). The scale consists of 4 categories each consisting of questions to measure factors associated with medication adherence. The first category has 3 questions which measures the patients' collaboration with healthcare provider, second has 5 questions which measures willingness to access and use information about treatment, third has 3 questions which measures the patients' ideas and attitude towards medications and fourth has 3 questions

which measures treatment compliance. A five-point Likert-type scale is used to rate each item from 1= never, 2= rarely, 3= sometimes, 4= often, 5= always. The overall medication adherence score is calculated out of 70, after summing the scores for each item. Higher scores indicate higher medication adherence.

RESULTS

Baseline Characteristics

The baseline characteristics of subjects with psoriasis being assessed for medication adherence is depicted in table 1. The subjects recruited in the present study belong to the age ranging from 20-70 years. The mean + SD age of the subjects is calculated to be 46 + 11years. The highest number of subjects were between 31-40 years of age (35%) followed by 51-60 years with 28% [Figure 1].

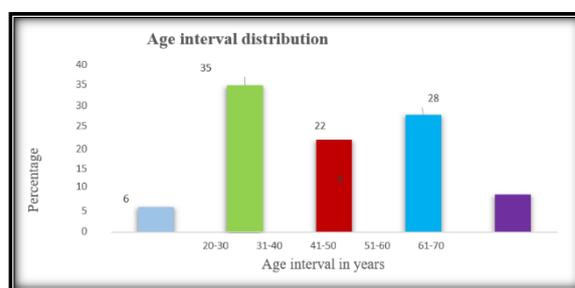


Figure 1: Age distribution (in years) of the subjects with psoriasis (N=100)

[Table 2] depicts the types of medications prescribed to subjects with psoriasis which are divided into topical and systemic agents. Among topical agents 70 were prescribed liquid paraffin and 54 were prescribed Clobetasone+ salicylic acid cream. Among systemic medications 47 were prescribed with Methotrexate and 4 were prescribed Apremilast [Table 3].

Medication adherence:

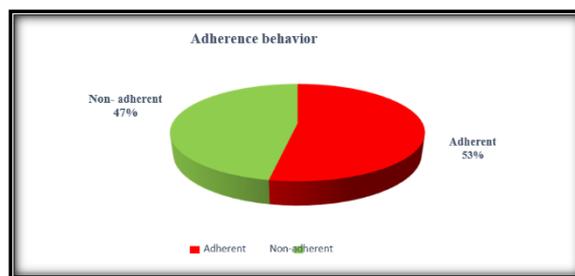


Figure 2: Adherence behaviour based on 14- item medication adherence scale (N=100)

[Figure 2] depicts the adherence behaviour of subjects being assessed for medication adherence using the 14- item version medication adherence scale. Among 100 subjects, 53% subjects showed higher adherence and 47% showed lower adherence to the medications.

The Medication adherence scale (MAS) is a questionnaire divided into 4 subsections – the first section is regarding the relationship of the subjects with their health care provider (MAS Q1) and the median score was 9.0 out of 15. The second section is related to the patient collecting medication related information (MAS Q2) and the median score was 15 out of 25. The third section is regarding the subject's ideas and attitude towards the medication and the median score was 12 out of 15. The fourth section is regarding the patient's current medication status and the median score was 12 out of 15. The total median score was 48, all subjects with a score above 48 were considered to have higher adherence while those with score less than 48 were considered to have lower adherence to medication [Table 4].

The association between categorical variables was tested by Chi-square test. The above table 5 depicts the results. Gender, smoking history, alcohol consumption and total number of psoriatic medications had a statistically significant association with adherence ($p=0.000074, <0.00001 <0.00001$, and 0.02 respectively).

The other variables like age, family history, comorbidities, total number of medication and duration of treatment were found to be statistically not significant with adherence.

As shown in the [Table 6], subjects on mometasone cream and methotrexate had a statistically significant association with non-adherence. ($p=0.0333, <0.00001$ respectively)

Multivariate Logistic Regression was done including those variables in univariate analysis from [Table 5] which had a p value of less than 0.20. On multivariate analysis, the odds of females being adherent is 3.38 when compared to males, (AOR = 3.83, CI = 1.45 – 7.8) the p value was found to be 0.005 which is statistically significant, hence we can conclude that females are more adherent to medication when compared to males. Patients with no history of alcohol consumption were found to be more adherent. (AOR= 0.320, CI= 0.10- 0.98) The p value was found to be 0.04, which was statistically significant.

The patients who were on psoriatic medications (<4 drugs) were found to be more adherent. (AOR = 0.225, CI = 0.05- 0.95) The p value was found to be 0.04, which was statistically significant.

All the other factors like age, comorbid conditions, smoking history, duration of treatment, total number of medications were found to be not statistically significant predictors of medication adherence.

Table 1: Characteristics of the subjects with psoriasis assessed for their medication adherence behaviour (N=100).

Characteristics		Frequency(n) N=100
Age (years)	Mean + SD	46 + 10.608 years
Gender	Male	49
	Female	51
Family history	Absent	98
	Present	2
Comorbid conditions	Absent	68
	Present	32
	DM	5
	HTN	1
	HYPOTHYROIDISM	11
	DM+HTN	15
History of substance abuse	Absent	33
	Present	67
	Smoking	33
	Alcohol	34
Types of psoriasis	CPP	70
	PV	23
	SP	7
Duration of treatment (years)	Median, IQR	3, 3-6
Total no. of drugs(n)	Median, IQR	3, 3-4
Total no. of psoriasis medications (n)	Median, IQR	3, 3-4

Abbreviations: DM- Diabetes Mellitus, HTN- Hypertension, CPP-Chronic Plaque Psoriasis, PV- Psoriasis Vulgaris, SP- Scalp Psoriasis, IQR- Interquartile Range.

Table 2: Types of medications prescribed to subjects with psoriasis (N=100)

Medications		Percentage (%)
Topical (42%)	Creams	21
	Ointment	2
	Lotion	19
Systemic (58%)	Tablet	56
	Injection	2

Table 3: Medications prescribed to subjects with psoriasis. (N=100)

	Frequency(n) N = 100	
Anti-psoriatic drugs in use	Betamethasone cream	2
	Mometasone cream	7
	Clobetasone+ salicylic acid cream	54
	Beclomethasone+fusidic acid cream	11
	Calcipotriol ointment	4
	Clobetasol+salicylic acid lotion	1
	Liquid paraffin	70
	Methotrexate	47
	Apremilast	4
Concomitant drugs	Cetirizine	98
	Folic acid	48
	Vitamin D3+calcium	3
	Metformin	20
	Amlodipine	16
	Thyroxine	11

Table 4: Subsections of medication adherence scale assessed among patients on treatment for psoriasis

	Median Score	IQR
Relationship with the health care provider	9/15	7-12
Collecting medication related information	15/25	13-19
Ideas and attitude towards medication	12/15	11-14
Current status of medication use	12/15	10-15
Total	48/70	43-55

Table 5: Characteristics of the subjects with psoriasis according to adherence behaviour to medication (N=100).

Characteristics	Adherence			Chi square value	P-value
		Adherent (n = 53)	Non-adherent (n= 47)		
Gender	Male	13	30	15.6	0.000074*
	Female	40	17		
Age	<40	24	13	3.31	0.068
	>40	29	34		
Family history	No	51	47	0.4325	0.510
	Yes	1	1		
Co- morbid conditions	absent	37	31	0.039	0.843
	present	16	16		
Smoking	No	48	19	26.10	<0.00001*
	Yes	5	28		
Alcohol consumption	No	48	18	28.04	<0.00001*
	Yes	5	29		
Total no. of medications	>4 drugs	9	15	3.046	0.08
	< 4 drugs	44	32		
Duration of treatment	>4 years	25	26	0.662	0.41
	<4 years	28	21		
Total no. of psoriatic medications	>4 drugs	3	10	5.37	0.02*
	<4 drugs	50	37		

Table 6: Medication prescribed for patients with psoriasis according to adherence behaviour (N=100).

Drugs	Adherent (n= 53)	Non-adherent (n=47)	Chi- square(χ^2)	P-value
Liquid paraffin	36	34	0.068	0.793
Clobetasone + salicylic acid cream	29	25	0.002	0.961
Beclomethasone+ fusidic acid cream	5	6	0.044	0.832
Mometasone cream	1	6	3.01	0.0333*
Calcipotriol ointment	2	2	0.151	0.697
Methotrexate	10	37	33.46	<0.00001*
Apremilast	2	2	0.151	0.697

*p value of less than 0.05 was kept as level of significance, χ^2 statistics test was applied.

Multivariate Logistic Regression

Table 7: Factors influencing adherence to medication used in psoriasis (N= 100)

Variables	No. of patients (n)	Multivariate		P-value
		Adjusted OR	95%CI	
Age (>40 years)	63	0.96	0.30-3.08	0.94
Gender (female)	43	3.38	1.45 – 7.8	0.005*
Chronic plaque psoriasis	70	0.411	0.072- 2.35	0.31
Psoriasis vulgaris	23	2.23	0.23-21.6	0.48
Smoking history	33	0.54	0.18-1.5	0.26
Alcohol consumption	34	0.320	0.10- 0.98	0.04*

Total no. of medications (>4 drugs)	24	1.6	0.3-7.7	0.55
Total no. of psoriatic medications (> 4 drugs)	13	0.225	0.05- 0.95	0.04*

*p value of less than 0.05 was kept as level of significance.

Abbreviations: AOR – adjusted odds ratio

DISCUSSION

Psoriasis, a chronic inflammatory skin disorder, has a global prevalence ranging from 0.09% to 11.4%, with a specific prevalence of 2% in India. [2,3] It not only poses the risk of psoriatic arthritis, disability, but also elevates chances of cardiovascular diseases and metabolic disorders, profoundly impacting physical, emotional, and psychological well-being. Managing psoriasis is multifaceted, varying by disease severity, and includes topical, oral, systemic, and biological treatments. Effective treatment faces challenges due to treatment adherence influenced by various factors. This study aimed to identify and understand these factors to address adherence effectively.

This study included 100 participants, averaging around 46 years old. In contrast, Alsubeeh N. A. et al. reported a mean age of 25-30 years in a cross-sectional study [5]. Psoriasis onset, per the World Health Organization's global report, can occur at any age, with 75% of cases arising before 46 years, following a bimodal pattern: the first peak between 16-22 years and the second between 57-60 years [2]. Predominantly, the 31-40 age group had the highest representation. Gender distribution was relatively equal, with 51 females and 49 males. This balance might relate to women's concern about appearance and potentially easier healthcare access for men. The WHO report suggests that both genders can be equally affected by psoriasis.

Only 2 of the 100 participants provided a family history of psoriasis, possibly due to educational and healthcare accessibility variations. The WHO global report on psoriasis notes a genetic predisposition, though the precise cause remains uncertain. Harden J. et al.'s review highlights psoriasis genetics' complexity and multifactorial nature, supported by twin and family studies [6].

Among participants, 32 had comorbidities: 5 had diabetes mellitus, 1 had hypertension, 11 had hypothyroidism, and 15 had both diabetes and hypertension. The WHO report mentions psoriasis associations with cardiovascular diseases, metabolic syndrome (including hypertension, dyslipidemia, and diabetes mellitus), and Crohn's disease. Of the 100 participants, 63 were over 40 years old, and 32 had comorbidities, implying a strong link between age, comorbidities, psoriasis progression, and management [2].

In the current study, 33 patients had a history of smoking, while 34 patients had a history of alcohol consumption. An Italian study led by Naldi L conducted a comprehensive analysis, pooling data from 25 case-control studies. This analysis revealed an odds ratio of 1.78 for psoriasis among smokers. Another pooled analysis of three cohort studies

demonstrated that individuals who smoked 1–14 cigarettes per day had a risk of incident psoriasis at 1.81, while those who smoked ≥ 25 cigarettes per day had an even higher risk at 2.29. This study's findings strongly suggest that smoking not only influences the clinical severity of psoriasis but also affects its response to treatment, underscoring the increased risk of associated comorbidities [7].

Among the participants, 34 individuals reported a history of alcohol consumption. This pattern might be attributed to their rural background, potentially indicating lower socio-economic status and limited access to education. Notably, four parallel case-control studies, encompassing a substantial cohort of 111,375 psoriasis patients, conducted by Meer E, Thrastardottir T et al, identified a significant association between alcohol consumption and psoriasis. The odds ratio for alcohol use and psoriasis was calculated at 1.27 in their comprehensive analysis [8].

The present study included 70 participants diagnosed with chronic plaque psoriasis, 23 with psoriasis vulgaris, and 7 with scalp psoriasis. These specific clinical types were chosen for inclusion due to their frequent occurrence in our clinical setting. Notably, plaque psoriasis and psoriasis vulgaris are essentially the same condition; however, for the purpose of differentiation, diffuse lesions were categorized as chronic plaque psoriasis, while localized lesions were classified as psoriasis vulgaris. In terms of the median duration of psoriasis treatment, it was considered to be approximately 3 years in this study. This aligns with information from the global report on psoriasis, indicating that plaque psoriasis is the most prevalent clinical type, affecting a substantial proportion of patients, ranging from 58% to 97% of all cases [2].

In this study, participants received various treatments including topical agents, oral medications, and injectables. Specifically, 70 used liquid paraffin, 54 used Clobetasone + Salicylic acid topicals, 47 were prescribed Methotrexate, and 4 took Apremilast. These treatments align with WHO's recommendations on psoriasis therapy, categorized into topical, phototherapy, and systemic approaches based on disease severity [2]. Most treatments aim to reduce inflammation and flatten psoriatic plaques, except retinoids.

Most patients had mild to moderate disease and received topical and oral treatments. Some with severe disease previously received inadequate care elsewhere and were prescribed injectables upon referral to our tertiary centre. Non-adherence to psoriasis medications was observed in 47% of patients. International reviews report average adherence rates of around 50-60% [9,10,11]. Various measures assess adherence, with subjective ones

showing higher rates. Notably, 40% self-reported non-adherence. Enhancing adherence improves treatment outcomes, quality of life, and controls systemic effects of psoriasis^[9-12].

Mistaking non-adherence for treatment failure can result in unwarranted treatment modifications or dose increases, underscoring the critical role of adherence in medical care outcomes^[13]. Medication adherence can be influenced by various factors, including socioeconomic, disease-related, healthcare system-related, therapy-related, and patient-related factors. In our study, participants over 40 years had 29 adherent and 34 nonadherent individuals, while those under 40 years had 24 adherent and 13 nonadherent. Devaux S et al. found that early disease onset and perceived severity affected adherence^[14,15]. However, in our study, 13 under-40 participants were nonadherent, compared to 34 over-40 nonadherent ones.

Psoriasis, a chronic condition, often requires long-term treatment, and patients aged 40 and older tend to stop medications as symptoms improve. In this study, 53% were adherent, 47% nonadherent. Notably, adherence differed by gender: 13 adherent males, 40 adherent females, 30 nonadherent males, and 17 nonadherent females. Addressing these adherence trends is crucial for optimizing patient outcomes.

Solmaz D et al. conducted a study with 1,393 patients recruited from a multicenter Psoriatic Arthritis International Database. Their analysis revealed that 444 patients (31.9%) had a family history of psoriasis. Among these individuals, women with an earlier age of psoriasis onset exhibited better adherence to medication^[15]. Storm et al. conducted a primary adherence study in Denmark, revealing that males exhibited higher adherence levels^[10]. Variations in the association between gender and adherence have been observed across different studies. Conducting larger-scale studies at multiple centres could provide a more comprehensive understanding of this relationship. Furthermore, it is worth noting that medication adherence tends to be lower in chronic conditions such as diabetes, hypertension, and dyslipidemias.

In the current study, adherence to medication among subjects with hypertension revealed that 8 were adherent, while 9 were nonadherent. Similarly, among subjects with diabetes mellitus, 11 adhered to medication, while 9 were nonadherent. In the case of hypothyroidism, 7 were adherent, and 4 were nonadherent. Overall, individuals without any comorbid conditions demonstrated better medication adherence. Research has indicated that nonadherence rates are notably high in patients dealing with multiple chronic conditions, particularly when they are prescribed multiple medications for each condition. The prevalence of individuals with multiple chronic conditions is increasing; however, there is limited evidence regarding the effectiveness of interventions aimed at enhancing adherence and improving outcomes in this patient group^[12].

In the study, patients who smoked showed lower medication adherence. Possible reasons for non-adherence include patients not perceiving positive medication effects, supported by a study by Hayran Y et al. This study found 72 active smokers among participants, and cigarette smoke was linked to increased oxidative stress and harmful free radicals. These factors can interfere with signalling pathways in psoriasis pathogenesis like NF-κB and JAK-STAT, leading to increased inflammation and abnormal keratinocyte proliferation, potentially reducing medication effectiveness and causing nonadherence^[16].

In four case-control studies by Meer E, Thrastardottir T et al involving 111,375 psoriasis patients, an association with alcohol consumption was found, with an odds ratio of 1.27. In this study, those with an alcohol history were more likely to be nonadherent compared to those without. Kearney N et al's review also indicated higher alcohol consumption in psoriasis patients, which can be a risk factor for psoriasis development in genetically predisposed individuals. Additionally, alcohol consumption is known to promote keratinocyte proliferation and pro-inflammatory signalling cascades linked to psoriasis pathogenesis^[17].

The median medication adherence score for 100 participants using the 14-item Medication Adherence Scale was 48, with 53 being adherent and 47 non-adherents. A 10% drop in adherence corresponds to a 1-point worsening of psoriasis on a nine-point scale, indicating the importance of adherence for clinical response. In this study, the subsection "relationship with the health care provider" scored the lowest (9/15), which may impact patient adherence. Eicher L et al's systematic review emphasized that open communication and empathy in the physician-patient relationship are essential, with patient trust being a significant predictor of treatment adherence^[13].

The subsection related to patient-collected medication information scored low (15/25). In India, where half the population resides in rural areas, access to disease information and long-term management knowledge is limited. Lack of awareness about drug benefits and side effects can lead to adverse reactions, causing financial burdens and contributing to nonadherence.

A cross-sectional study in Saudi Arabia by Alsubeeh et al. revealed that higher adherence scores correlated with patient satisfaction and positive patient-doctor relationships, while lower adherence scores were linked to negative treatment experiences, forgetfulness, and treatment non-responsiveness, among other factors.^[5]

In our study, the mean treatment duration was 4 years. Richards HL et al. reported that adherence tends to decrease with longer treatment durations in psoriasis patients, with higher adherence at the treatment's outset, reflecting optimism about its effectiveness.^[18] Interestingly, in our study, treatment duration did not predict medication adherence. Contrary findings were observed by Jankowiak B et

al., where participants with over 2 years of treatment were more adherent.^[19] In another study from Egypt by Soliman M et al., where the median treatment duration was 12 years, participants showed nonadherence, possibly due to the prolonged treatment, changing medications, cost, forgetfulness, hopelessness, and loss of interest due to limited treatment effectiveness.

Furthermore, our study identified that patients with chronic plaque psoriasis tended to be nonadherent. Alsubeeh NA's cross-sectional study analysing treatment adherence in dermatological diseases found that adherence was lowest in patients with chronic plaque psoriasis ($p < 0.001$), particularly among those using topical medications and injectables.^[5]

Patients with psoriasis vulgaris in our study demonstrated higher adherence, likely because they experienced rapid treatment responses. Regarding the medication count, participants were typically prescribed three psoriasis medications (topical, oral, and injectable). Notably, patients prescribed mometasone cream showed significant nonadherence. This aligns with previous studies reporting a high nonadherence rate, approximately 97%, with topical treatments. Corticophobia, the fear of corticosteroids, significantly affects adherence, with prevalence ranging from 21% to 84% in individuals with chronic dermatological conditions. Physician-patient communication plays a crucial role in minimizing corticophobia, emphasizing the necessity and benefits of topical steroids, and assuring patients that when used correctly, they do not have systemic effects.^[13]

The WHO global report on psoriasis recommends long-term systemic therapy for moderate to severe psoriasis^[2]. Our study reveals a significant link between medication nonadherence and methotrexate use in psoriasis treatment. Strober B's review article highlights that continuous methotrexate therapy at reasonable doses over four months can achieve a PASI 75 response rate of 40%, but its efficacy lags behind most biologic agents. Methotrexate has notable adverse effects like pancytopenia, hepatotoxicity, pulmonary fibrosis, and less severe ones like nausea and vomiting, which might contribute to nonadherence^[20]. A limitation is that our study didn't capture specific side effects from patients using topical corticosteroids or methotrexate, representing a potential study gap.

Patients often perceive psoriasis and its treatment as burdensome, leading to social stigma, which limits social engagement and work-life balance. This perception is exacerbated by poor symptom control, treatment unpredictability, and psoriasis's lifelong nature, contributing to psychological stress.^[21] Common adherence barriers include a subpar doctor-patient relationship, limited disease and treatment knowledge, efficacy doubts, unrealistic expectations, side-effect fears, complex regimens, poor follow-up, forgetfulness, psychological factors, and cost concerns.^[18] Analysis of the medication adherence

scale subsections found that the patient's relationship with healthcare providers scored lowest, indicating it may be a significant barrier at our healthcare centre

To enhance adherence, consider strategies such as improving the patient-provider relationship, counselling patients and families on psoriasis's chronic nature and reducing stigma, and involving families in medication administration. Physicians and patients can collaboratively design personalized treatment plans and educational programs, tailoring medications to symptoms and responses, thus enhancing efficacy and adherence.

Study limitations include its cross-sectional design in a government tertiary care hospital with a relatively small sample size, which may limit multiple predictor identification (though adequate for adherence effects). Unexamined variables include skin allergies, medication costs, alternative treatments (e.g., ayurvedic, homeopathy), and adverse drug reactions. Patient self-reporting reliability may be low. The single-centre approach could affect result generalizability. Further research should explore additional predictors, adherence interventions, and employ objective adherence measures.

CONCLUSION

In conclusion, psoriasis, a complex chronic skin disorder, profoundly affects individuals physically and emotionally. Effective treatment requires adherence, influenced by various factors explored in our study: age, gender, comorbidities, lifestyle (smoking and alcohol), and psoriasis type. Tailored interventions are crucial to address these adherence challenges, improving patient outcomes and quality of life. Despite our study's limitations, further research with objective adherence measures is needed to enhance our understanding of psoriasis management.

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