

**EVALUATION OF ADHERENCE TO MEDICATION IN PATIENTS OF PSORIASIS:
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ABSTRACT

Aim: To evaluate adherence to medication and to compare adherence to topical and systemic therapy in patients of psoriasis. **Methods:** This was a prospective, cross-sectional, questionnaire-based study carried out in patients of psoriasis on treatment for at least three months. Study subjects were interviewed by direct face-to-face interview and information entered in semi-structured, open-ended questionnaire. Adherence was also assessed by Morisky 4-item medication adherence scale. The same patient was evaluated separately for adherence to topical and systemic medication. **Results:** Significantly more number of patients followed medication schedule for systemic medicines (70.3%) compared to topical (50.5%) ($p=0.03$). In both groups, most common type of non-adherence was: not buying all medicines. Number of patients who thought that not taking systemic medicines would adversely affect the disease was significantly more than those who thought the same about topical medicines ($p=0.007$). Most common reasons for not following medication schedule were: high cost of medicines, forgetfulness, and complex dosing schedule. Antihistaminics were the most preferred systemic medication and Calcipotriol 0.005% and clobetasol 0.05% combination was the most preferred topical medication. **Conclusion:** Rate of high adherence was significantly more with systemic medications compared to topical in the same patients. Majority of patients believed that not using the systemic medicines would more adversely affect the disease and hence they were more adherent to systemic therapy compared to topical. Hence, when prescribing topical treatments, it is important to emphasize upon the patients the importance of being adherent to medication as this is important for effective and long term control of psoriasis.

KEYWORDS: MMAS-4, Morisky 4-item medication adherence scale, cross-sectional study.**INTRODUCTION**

The World Health Organization (WHO) defines adherence, a term which is often used interchangeably with compliance, as the extent to which a person's behaviour- taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.^[1] For patients on long-term therapy for a chronic disease, adherence to therapy – whether it be medication, behavioural, lifestyle or a combination of treatments – is essential for achieving optimal outcomes.^[2]

Nonadherence to medications is one of the leading causes of treatment failure and can lead to increased health care utilization and costs related to medications, increased health care provider visits, and hospital admissions.^[3]

Psoriasis is a chronic inflammatory skin disease that can affect up to 0.3% of the Asian population.^[4] It is characterized by erythematous scaly plaques, typically on the scalp, buttocks and the extensor surfaces of the elbows and knees.^[5] It is a major health and socio-economic problem. There is a high disease burden associated with psoriasis, including various psychosocial impairments and a significant reduction in the patient's quality of life (QoL).

Problems in adherence arise in all situations where self-administration of treatment is required, regardless of the type of disease, disease severity and accessibility to healthcare resources. Low medication adherence rates are inversely proportional to good clinical outcomes, thus resulting in increased direct and indirect costs for the healthcare system.^[6]

Objective measurement of adherence to treatment is difficult as it is affected by several factors concerning a patient, including approach to disease, socio-economic status, psychological profile as well as factors associated with therapy such as dose of drug, side effects, drug type, cost of treatment, efficiency of the health care system, accessibility to medical specialist and doctor-patient communication.^[7]

Recent studies have highlighted poor adherence to treatment in patients with chronic skin diseases such as atopic dermatitis, urticaria, acne, and psoriasis.^[8] A systematic review by Augustine *et al.* reported that the extent of adherence to medication in patients suffering from psoriasis ranged from 27% to 97%.^[9]

To date, existing research on adherence for systemic agents for psoriasis has mostly involved data from outside India or from registry studies, which might not be generalizable to real world practice in this country. Hence, it was essential to study the extent of non-adherence to treatment in patients of psoriasis in Indian setting and to find out factors responsible for non-adherence. Hence, this study was planned with the objectives of evaluating adherence to medication in patients of psoriasis and to compare adherence to topical and systemic therapy.

SUBJECTS AND METHODS

This was a prospective, cross-sectional, questionnaire-based study which was initiated after approval of the institutional ethics committee. The study was carried out in the department of Dermatology (both in-patients and out-patients) of a tertiary care teaching hospital.

Inclusion criteria were: patients of psoriasis as diagnosed by a dermatologist, patients on treatment for psoriasis since at least six months and patients of either gender above 18 years of age. Patients receiving treatment for any other dermatological disorder were excluded.

Patients meeting the selection criteria were briefed about the study and patient information sheet in vernacular language was provided. Informed consent was obtained from those willing to participate. Study subjects were interviewed by a direct face-to-face interview, their prescriptions analysed and the information was entered in a semi-structured, open-ended questionnaire to get the

following details: demographic characteristics, diagnosis, medication details: medicines prescribed, dose/strength, frequency of administration, duration, any precautions/instructions about medicine use, adherence to medication, reasons for non-adherence, awareness about disease, importance of using medications, importance of adherence to medication. The same patient was evaluated separately for adherence to topical and systemic medication.

The questionnaire was pre-tested in five patients and suitable modifications were done.

Adherence to therapy was also assessed by using the Morisky four-item medication adherence questionnaire in which higher score indicates poor adherence.

Patients were approached while they were waiting for doctor's consultation so that they did not need to spend additional time for this purpose. The data obtained was compiled and analysed.

Statistical analysis: Descriptive statistics are tabulated as counts and percentages for categorical variables. Numerical continuous variables, e.g. age, weight are expressed as mean+SD. Fischer's exact test was used to compare difference in the level of adherence to topical and systemic medications. Graph pad prism version 8.0.2 was used for statistical analysis.

RESULTS

This study was carried out in 64 patients either admitted or attending Dermatology OPD of a tertiary care teaching hospital. Mean(+SD) age of the patients was 50.90±10.98 years. The maximum percentage of patients were educated till SSC or less (45.3%). Maximum number of patients were suffering from psoriasis for more than five years (32.4%). Amongst all, 48.3% of patients had family income of INR 10,000 or less. Most common type of psoriasis which was found amongst patients was Psoriasis Vulgaris (34.3%).

Significantly more number of patients followed medication schedule for systemic medicines compared to topical ones ($p=0.03$) and the number of patients who thought that not taking systemic medicines would adversely affect the disease was significantly more than those who thought the same about topical medicines ($p=0.007$) (Table 1).

Table 1: Patients' knowledge and practice about use of medicines (n=64).

Statement	Systemic medicines		Topical medicines		P value
	Yes	No	Yes	No	
Strictly follow medication schedule as prescribed by doctor	45 (70.3)	19 (29.7)	33 (51.5)	31 (48.5)	0.03
Think that not taking medication would adversely affect the disease	58 (90.6)	06 (9.4)	46 (71.9)	18 (28.1)	0.007
Feel some medicines are more important than others	37 (57.8)	27 (42.2)	34 (53.1)	30 (46.9)	0.59
Know how each medicine is helpful or why it is necessary	56 (87.5)	08 (12.5)	48 (75)	16 (25)	0.07
Aware about the precautions to be taken while taking medicines	60 (93.7)	04 (6.3)	62 (96.9)	02 (3.1)	0.40
Stopped taking any medication that was prescribed	24 (37.5)	40 (62.5)	38(59.3)	26(40.6)	0.013

(Figures in parentheses indicate percentage)

On enquiring about preference of medication, 52% of the patients reported that they preferred systemic medication over topical ones. Reasons given by those preferring systemic medicines were: ease of administration and less cost while reasons given by patients who preferred

topical medicines were: softens the skin and causes less adverse effects. Patients' most common perception of consequences of adherence to treatment were: symptomatic improvement and rapid overall improvement.

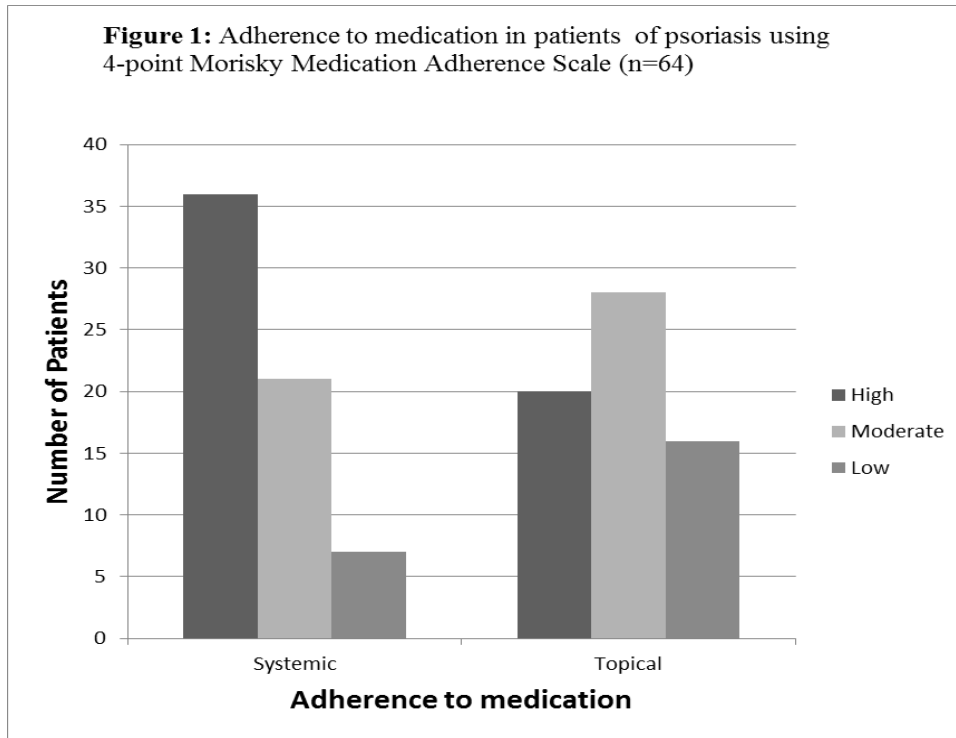


Figure 1: Shows that maximum patients had high adherence to systemic medication (n=36, 56.25%) whereas moderate adherence to topical medication. (n=28, 43.75%). Number of patients showing high adherence to systemic medication was statistically significantly more compared to the same for topical medication. (p=0.004).

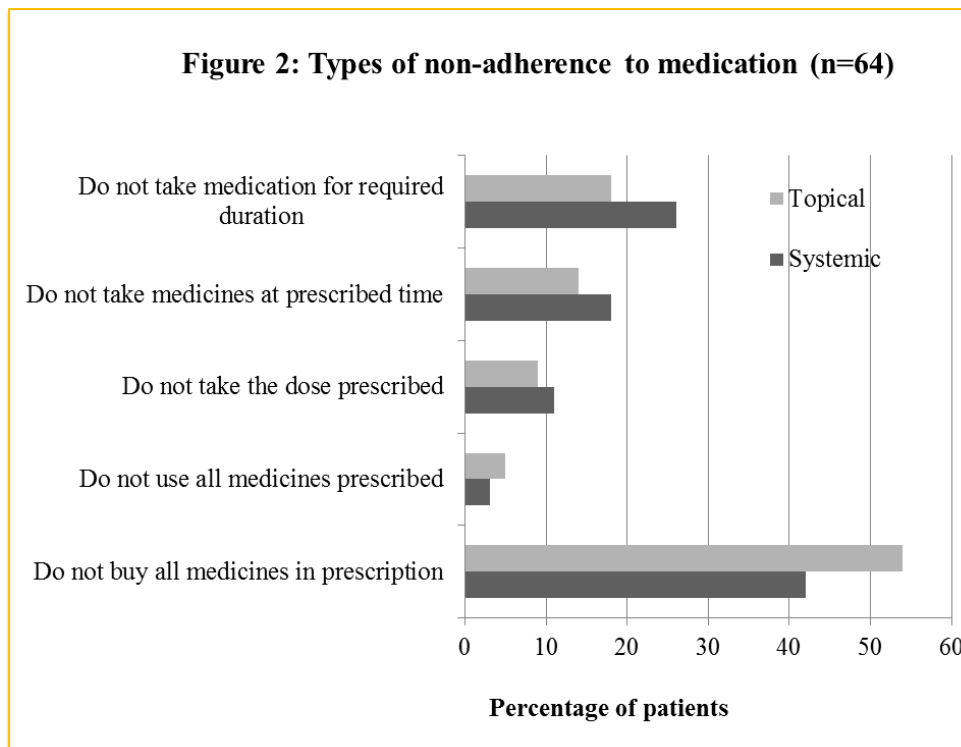


Figure 2: Shows that the most common type of non-adherence seen is, not buying all the medicines, in both systemic as well as topical groups.

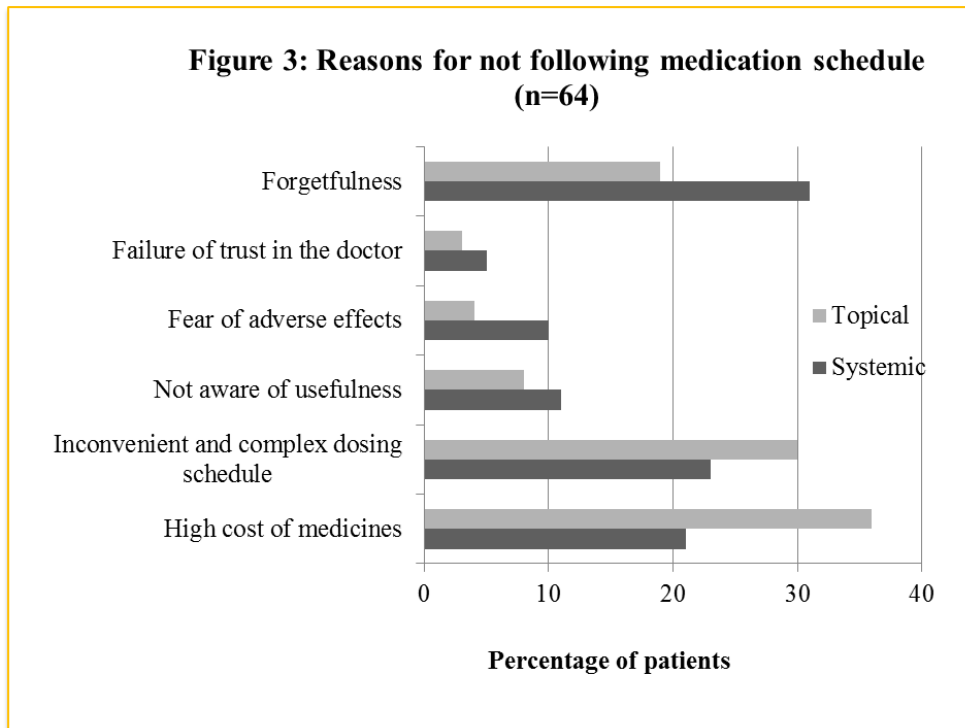


Figure 3: Shows that the most common reasons for not following medication schedule were: high cost of medicines, forgetfulness, and complex dosing schedule.

Figure 4 shows that systemic medication that was most preferred was antihistaminics and Calcipotriol 0.005%

and clobetasol 0.05% combination was the most preferred topical medication.

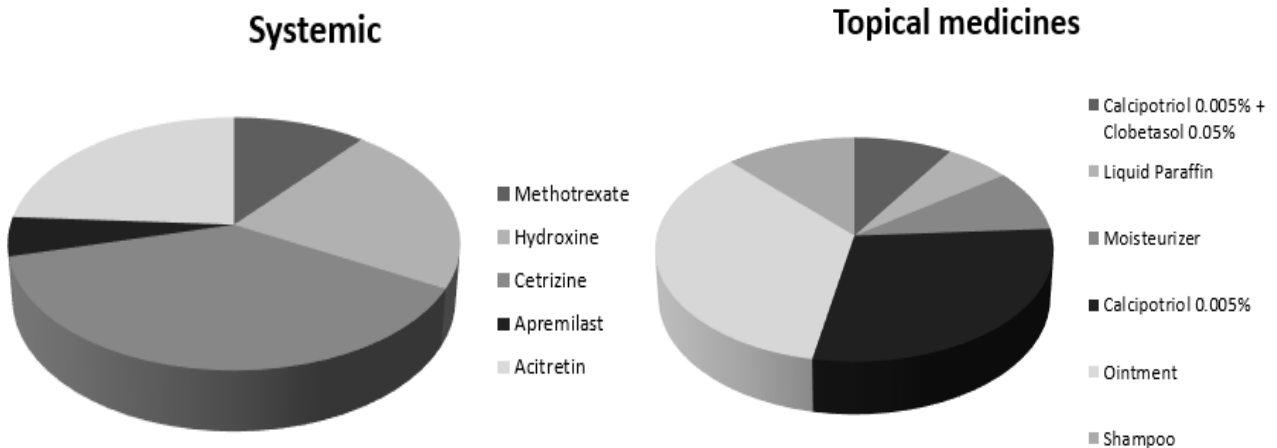


Figure 4: Patients' perception of importance of medicines: Systemic vs Topical.

DISCUSSION

This study compared adherence to systemic and topical medication in patients of psoriasis. Level of adherence was assessed separately for systemic and topical medications in the same patients using MMAS-4. The MMAS-4 has been shown to be a useful, reliable and valid measure of treatment adherence, with good sensitivity (0.81) and moderate specificity (0.44).^[10]

Rate of high adherence was significantly more with systemic medications (56.25%) compared to topical (43.75%). We did not come across any published Indian

studies that compared adherence to systemic versus topical medications in the same patients in psoriasis. In general, adherence to topical treatment has been reported to be lower than other dosage forms.^[11] A study from Japan which assessed adherence to medications in psoriasis patients reported higher adherence to oral medication (12.5%) compared to topical(5.6%).^[12] Poor adherence to topical medications is a difficult challenge particularly in the treatment of diseases like psoriasis which require long term treatment with topical agents.

In this study significantly more number of patients believed that not using the systemic medicines would more adversely affect the disease and hence they were more adherent to systemic therapy compared to topical. A systematic review of adherence in the treatment of psoriasis has also mentioned that efficacy of topical medication is often inferior to that of the systemic agents due to which adherence to topical therapy is poor.^[9] Low efficacy as one of the reasons for poor adherence to topical therapies in psoriasis has also been reported in other studies.^[13,14]

The most common reasons for not following medication schedule were: high cost of medicines and forgetfulness in both groups and complex, inconvenient regimes in the topical treatment group. Forgetfulness as a cause of lack of adherence may be due to improvement in the patients' skin conditions. Patients are more likely to miss medications if they have relief of symptoms.^[13] Hence, it is necessary to emphasize upon the patients the importance of continuing treatment even after lesions have subsided so as to suppress subclinical inflammation and prevent recurrence.^[13] Many patients find topical medications inconvenient due to characteristics of topical agents and need of frequent application to different body parts. Hence, cosmetic acceptability and ease of use affect adherence to treatment and patients generally prefer less messy treatments that are easy to apply.^[15] Therefore, it is recommended that pharmaceutical companies develop vehicles that are more patient-friendly in order to improve adherence.^[13]

High adherence to systemic medications is an encouraging finding but at the same time lack of awareness and low level of adherence to topical medications is a matter of concern that needs to be addressed seriously. This indicates that patients need to be made aware that topical medications are as important for improvement of the disease as are systemic medications.

The most common type of non-adherence was not buying all the medications which were prescribed by the doctor especially topical medications. As has been mentioned earlier majority of patients considered systemic medications more important than topical medications, hence, were not serious about adhering to the topical medications. Another reason for not buying all medicines was high cost of medicines. This is an expected reason as most of the patients visiting this hospital are from low socio-economic background. Hence, it is important for the prescribing physician to consider cost as one of the factors while prescribing medicines.

In this study 15.6% (10) patients were concerned about adverse effects of systemic drugs whereas only 6.25% (4) patients were concerned about adverse effects of topical drugs. In a previous study, 26.4% of patients were highly concerned about their systemic therapy

which included potential long-term adverse effects and future medication dependency.^[16] Whereas in a study on adherence to topical therapies for the treatment of Psoriasis, 24% of patients had fear of adverse effects.^[13] More concern about adverse effects of systemic medicines is an expected observation as people are usually aware that systemic medicines can cause more adverse effects compared to topical.

Amongst all systemic drugs, most preferred drugs were antihistaminics. This finding is opposite to a previous study stating that adherence to potent and expensive drugs was higher compared to mild and inexpensive drugs such as antihistamines and anti-allergic drugs which were used for symptomatic treatment.^[12] The cause for antihistaminics being the most preferred drugs in this study is obvious as they provide immediate relief from symptoms such as pruritus which are a major cause of discomfort to the patient.

Our study had some limitations: first, the sample size was small, hence, population of this study may not exactly reflect the real distribution of psoriasis patients in the community due to which generalizability of the study findings is doubtful. Second, the patient population was self-selected which may cause selection bias though efforts were taken to include all patients who met the eligibility criteria thereby trying to reduce selection bias.

To conclude, rate of high adherence was significantly more with systemic medications compared to topical in the same patients. Majority of patients believed that not using the systemic medicines would more adversely affect the disease and hence they were more adherent to systemic therapy compared to topical. Hence, when prescribing topical treatments, it is important to emphasize upon the patients the importance of being adherent to medication as this is important for effective and long term control of psoriasis.

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