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Original Research Article

Primary drug non-adherence in dermatology patients: prevalence, pattern and reasons

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ABSTRACT

Background: Primary drug non-adherence, a pervasive problem in dermatology is not readily documented despite the adverse effect of this phenomenon on the management of patients. The aim of the study was to document the prevalence, pattern and reasons for primary drug non-adherence in dermatology patients.
Methods: This prospective cross-sectional questionnaire based study was conducted from June to December 2021 amongst 302 consecutive consenting adult patients returning to the dermatology clinic following an initial diagnosis and a prescription for medications. Data collected included socio-demographic parameters, primary drug adherence, and number of drugs prescribed, number not purchased, and reason for non-adherence. Data analysis was done in R Studio [R Core Team (2021)].
Results: Three hundred and two (302) patients aged 13 to 87 years with a mean age of 41.72±18.8 years were recruited into the study. Prevalence of primary non-drug adherence was 26.2% (79/302). Amongst the non-adherent patients; 73.4% were females and 26.6% were males. The reasons for non-drug adherence ranged from non-availability of drug (63.3%) to patient forgetting about the prescription. (1.3%). Route of drug not adhered to was Topical in 72%, Oral in 22.7%, oral and topical in 5.3.
Conclusions: Primary drug non-adherence is common with dermatology patients. The propensity for primary non-drug adherence is increased when the number of drugs prescribed are more than three. Dermatologists need to consider the use of drugs capable of addressing multiple symptoms and thereby reduce the number of drugs prescribed.

Keywords: Drug non-adherence, Dermatology, Prevalence, Steroids, Dermatology patients

INTRODUCTION

Drug and medical recommendation non-adherence is a pervasive problem in the medical field.[1-3] Non-adherence to recommended medications negatively influences patient outcome with either a slow or no resolution of diseases. Drug non-adherence can be either primary or secondary.[4] Primary drug non-adherence is defined as failure to obtain or start prescribed medications within one year of the prescription.[2,4,5] Prevalence of primary non-adherence (PNA) varies from 6% to 50%.[1,2,4-6] Primary non-adherence is recorded in patients who have chronic medical and dermatological diseases, in emergency settings and in in-patients.[1,3,7-10]

Amongst dermatology patients, the prevalence of PNA is 11.7 to 45%.[5,11,12] Prevalence of PNA increases with the number of drugs prescribed; being 33% in patients prescribed one drug to 38% in patients prescribed 5 drugs.[2,4] Several reasons have been propounded to be responsible for PNA. These reasons include cost, age, gender, route of medication administration, ethnicity, fear

of side effect, income, complex treatment regimens, forgetfulness and occupation.[2,10,12,13] Lee et al in their review of reasons for PNA, grouped the reasons into five; patient, medical, socioeconomic, healthcare provider and health system factors.[10]

Patient factor is composed of beliefs, perception, attitudes, age, gender, medical history, fear of drug, necessity of drug, physical and mental health.[10] Medical factors include; cost, number of drugs and complexity of drug regimen.[10] Socioeconomic factors include; low socioeconomic status, lack of money with decreased accessibility of drugs.[10]

Health care provider factors are; trust, good communication, shared decision making, experience of medical personnel (less PNA with more experienced doctors).[10] Health care system factors is made up of language barrier and mode of prescription (more PNA with paper prescription).[10]

Studies of primary drug non-adherence in dermatology patients are scarce although PNA is common in clinical settings. This PNA leads to poor resolution of lesions. Most of these patients are unaware that, this is the end effect of PNA. How many of our dermatology clinic patients that are not adherent to prescribed drugs is not known. The reasons for the non-adherence is not documented. The socio-demographic factors associated with this phenomenon (age, level of education, marital status, gender, income, occupation) and class of medications involved are not documented.

This knowledge gap makes it difficult to educate, counsel or intervene to improve adherence. Knowledge gained from this study will aid in the counselling and interventions in dermatology patients. The aim of the study was to document the prevalence, pattern and reasons for primary non-adherence in dermatology patients.

METHODS

This prospective cross-sectional questionnaire based study was conducted at the outpatient skin clinic of the Lagos State University Teaching Hospital following ethical approval by hospitals ethical review board from June to December 2021. Three hundred and two consenting adult patients returning to the dermatology clinic following an initial diagnosis and a prescription for medications were recruited into the study. A self-administered questionnaire designed for the study was administered to every consecutive consenting patient with clarifications made when required. The consecutive sampling method was used in the study.

Data collected included socio-demographic parameters, occupation, income levels, primary drug adherence, number of drugs prescribed, number not purchased, and reason for non-adherence. In addition, information on route of and class of drug not adhered to, clinical diagnosis (inflammatory or tumour) was documented.

Data analysis was done in R Studio (R Core Team (2021).

Socio-demographic characteristics were summarized using frequency and percentages for both the adherent and non-adherent groups. Numerical characteristics like age, income, and duration of disease were summarized using mean and standard deviation for normally distributed data and median with interquartile range for skewed data. The occurrence of non-adherence was reported as frequency and percentages and visualized as a bar plot.

Association between socio-demographic characteristics and non-adherence were tested using chi-square and Fisher's exact tests and interpreted using p-values. A p value of 0.05 or less was accepted as a statistically significant difference. Descriptions of the various characteristics of the non-adherent group were summarized and visualized using column charts and cross-tabulations.

RESULTS

Three hundred and two (302) patients aged 13 to 87 years with a mean age of 41.72±18.8 years were recruited into the study. The population was 67.9% female and 32.1% male. There was no difference in socio-demographic factors between the adherent and the non-adherent group. (Table 1).

Primary non-drug adherence was noted in 26.2% (79/302), (Figure 1). Amongst the non-adherent patients; 73.4% were females and 26.6% were males. Marital status was single, married, widow/divorced in 32.9%, 60.8% and 6.3% respectively.

Details of socio-demographic features of the non-adherent patients are as shown in Table 1. The number of drugs prescribed ranged from 1-7 with a median (IQR) of 3 (2-3). The number of drugs not filled ranged from 1-4 with a median (IQR) of 1 (1-1.4).

Figure 2 shows details of the number of drugs prescribed and the number not filled. Most of the patients had only one drug unfilled.

Route of drug not adhered to was topical in 72%, oral in 22.7%, oral and topical in 5.3. Oral drugs not purchased were methotrexate (15.8%), antibiotics (15.8%), vitamins (10.5%), antihistamines (5.3%), antigungals (5.3%), others (ivermectin, hydroxychloquine, isotretinoin) in 47.4%. Topical drugs not adhered to included; steroids (26.8%), sulphursalicylic acid (21.4%), 2% salicylic face wash (16.1%), antigungals (10.7%), retinoids (8.9%), vitix gel (antioxidants for vitiligo (7.1%), moisturizers (3.6%), calcipotriol (3.6%), benzoyl peroxide (3.6%), urea (1.8%), ketoconazole shampoo (1.8%), antibiotic (1.8%) and others (tacrolimus, meladinine lotion) in 12.5%.

Table 1: Socio-demographic features of the primary non-adherent patients.

Variables	Non-adherent		Adherent		Total		P value
	N	%	N	%	N	%	
Age band (years)							
11-20	9	11.4	34	15.2	43	14.2	0.41
21-30	16	20.3	54	24.2	70	23.2	
31-40	10	12.6	30	13.5	40	13.2	
41-50	15	19.0	23	10.3	38	12.6	
51-60	9	11.4	37	16.6	46	15.2	
61-70	10	12.6	27	12.1	37	12.3	
>70	10	12.6	18	8.1	28	9.3	
Sex							
Female	58	73.4	147	65.9	205	67.9	0.28
Male	21	26.6	76	34.1	97	32.1	
Marital status							
Single	26	33.0	97	43.9	123	41.0	0.20
Married	48	60.7	115	52.0	163	54.3	
Others	5	6.3	9	4.1	14	4.7	
Level of education							
None	1	1.3	4	1.9	6	1.7	0.44
Primary	7	8.9	12	5.7	19	6.6	
Secondary	26	33.8	58	27.4	84	29.1	
Tertiary	43	55.8	138	65.1	181	62.6	
Occupation							
Student	16	20.5	39	17.6	55	18.3	0.62
Homemaker	3	3.8	6	2.7	9	3.0	
Farmer	0	0.0	4	1.8	4	1.3	
Office worker	24	30.8	81	36.5	105	35.0	
Unemployed	9	11.50	15	6.8	24	8	
Retired	7	9.0	25	11.3	32	10.7	
Others	19	24.4	52	23.4	71	23.7	
Income band							
<50,000	28	35.4	92	41.3	120	39.7	0.61*
50,001-1,00,000	16	20.3	39	17.5	55	18.2	
1,00,001-1,50,000	6	7.8	24	10.8	30	9.9	
150,001-2,00,000	3	3.8	7	7.8	10	3.3	
>2,00,000	2	2.5	15	6.7	17	5.6	
Missing data**	24		46	2.6	70	23.2	
Diagnosis type							
Inflammatory	69	97.2	192	96.5	261	97.0	
Tumour	2	2.8	6	3.5	8	3.0	

Note: P values computed using Chi-square and Fisher's exact test.

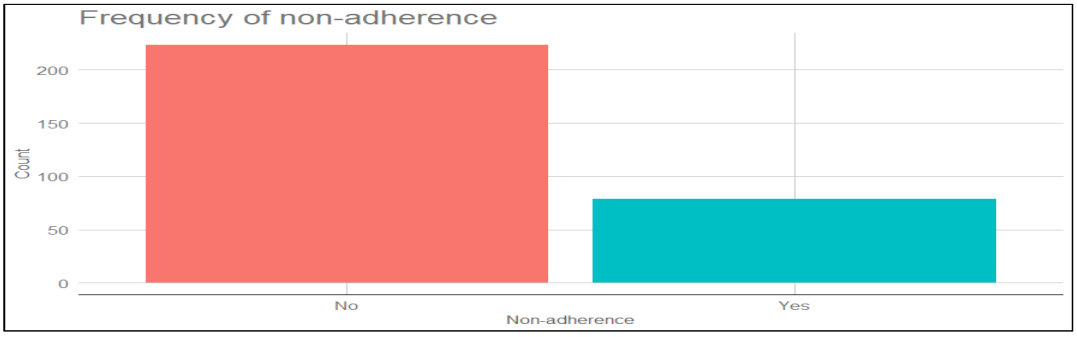

Figure 1: Frequency and percentage of primary drug non-adherence.

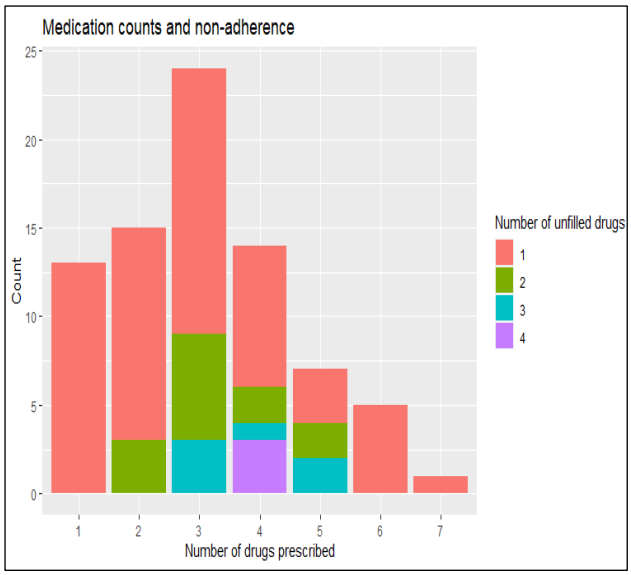

Figure 2: Number of prescribed and unfilled drugs.

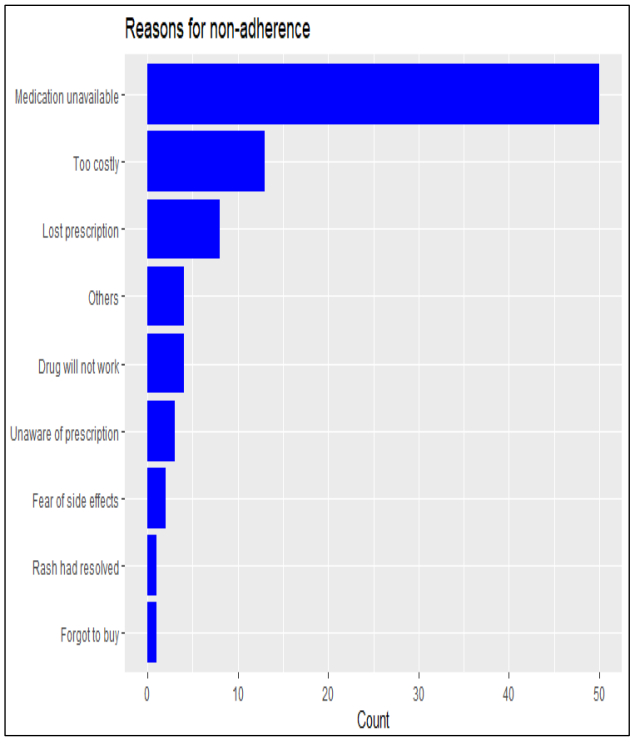

Figure 3: Reasons for non-adherence.

DISCUSSION

Primary drug non-adherence is a worrisome phenomenon in dermatology as it hinders the resolution of lesions. The prevalence of PNA in this study was high as almost one fifth of the patients admitted to not filling their prescriptions. This PNA would have negatively influenced the management of these patients. The prevalence of PNA is consistent with what has been documented in other studies of PNA in dermatology patients.[2,11]

Primary non-drug adherence was noted more in females. This may be because there were more females than males in the study in keeping with females being reported to attend clinics more than males.[1,5,10,14] The frequency of PNA increased with the number of drugs prescribed although there was no difference in frequency of PNA once more than three medications were prescribed. As already documented, cost was one of the reasons for PNA.

A prescription of multiple medicals results in increased cost and thus PNA. There is a need to look critically at prescriptions given to patients once prescriptions are more than three to see if there are drugs that can be used in the relief of more than one symptom and thereby reduce the number of drugs prescribed. In addition, prescribing multiple drugs to a patient can lead to complexity of regimen and difficulty in understanding drug administration by patients. The finding of increased frequency of PNA with increase in number of medications prescribed is in consonance with study findings by other authors.[2,3,15] The reasons for PNA was mostly non-availability of the drugs, cost and loss of prescriptions. Dermatology specific medications are usually not available except in specific pharmacies resulting in inability of patients to fill some recommended medications. In addition, when found, the cost may be prohibitive to the patients. The authors postulate that, the combination of cost and drug unavailability contributes to the loss of prescriptions which is the third factor in PNA. Another reason for PNA was the belief that, the drug will not work. This is not an uncommon finding amongst dermatology patients.[10] In our setting where self-medication is common, prescribing a cream to patient who erroneously believes that they have used a similar cream and ‘‘it did not work’’ can lead to PNA.[16] Anecdotally, we have found that, adherence and compliance improves when it is explained to patients that drugs for the skin are mostly formulated as creams. A few patients were unaware of their prescriptions. Some had fears of side effects and in some patients the rash had resolved. These reasons have been documented by other authors although with a lower frequency than in this study.[10,12]

The most common route of drug medication in PNA patients was topical. This finding was not unexpected as most of the medications prescribed in dermatology are topical. On the other hand, PNA to oral drugs may have been low because the patients believed the oral drugs to be more efficacious as most of them would have already practiced some form of self-medication using topical formulations.[16] Rutherford et al in their study of PNA and prescription factors, found the route of drug administration especially the topical route to be associated with PNA.[17] Steroids were the topical drugs with the highest PNA. Hines et al in a similar study reported the topical route and steroids to account for more PNA.[7] Patients have a phobia for the perceived side effects of steroids.[12,18] This may be the reason for the high PNA with this class of drugs.

The income level was noticed to contribute to PNA as PNA was more common in those with a low income. Medications are becoming more expensive and dermatology drugs are not left out of this phenomenon. Also, this study highlighted cost as one of the reasons for PNA. Primary drug non-adherence was more in the younger age group. Again, this may be related to income level and the cost of drugs. Similar to our study, a younger age has been linked to PNA.[2,10,11,15] Moo-Young et al did not find age to be associated with PNA.[5] Moo-Young et al specifically looked at distance to the pharmacy as a risk for PNA in the United States of America where a means of transportation is not a problem and pharmacies are located in the neighbourhoods. This could be the reason for their study conclusion.

Limitations

This study was limited by the inability to correlate income with PNA. A lot of the patients were unwilling to disclose their income. The authors postulate that these patients were more likely to have incomes that were extremely high. Indeed, the missing income data was not random. The strength of the study lies in the real-life setting in which the study was conducted and that the study findings can be easily translated into clinical practice.

CONCLUSION

In conclusion, primary drug non-adherence is common with dermatology patients. The propensity for primary non-drug adherence is increased when the number of drugs prescribed are more than three. Dermatologists need to consider the use of drugs capable of addressing multiple symptoms and thereby reduce the number of drugs prescribed.

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