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Medication Adherence in Rheumatoid Arthritis Patients: A Randomized Control Study

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Abstract

Rheumatoid Arthritis (RA) is a bone's joints associated disorder. Which leads to create discomfort for patients for living a healthy life. Non-adherence to treatment is a major burden on the health system in the case of chronic disorders. Medication non-adherence is irrelevant behavior of a patient to his/her medication regime, which causes treatment failure and increase the cost of treatment. This is a randomized control study involving 88 patients in two follow-ups divided into 2 groups, Group A and Group B. Group A was normally counseled while Group B was advanced counseled. After each counseling patient's medication adherence was assessed and accordingly counseling was done. A total of 33 males and 55 females participated in the study and significant improvement in medication adherence was found in Group B comparatively Group A. Group A means 6.06±0.15, 4.34±0.11, and 2.88±0.18 Visit 1, Visit 2, and Visit 3 respectively and Group B 5.67±0.17, 3.81±0.15, and 1.95±0.18. results also show that demographical factors like gender, education, and income do not show a significant impact on medication adherence while factors like No. of prescribed drugs, duration of disease, and doctor-patient compliance have a significant effect on adherence. This study exhibits the need for patient counseling in the healthcare system for patients about the seriousness of the illness, medication knowledge, and dosage regimens. This study also highlights the need for clinical pharmacists in every healthcare setup for proper patient counseling to improve therapeutic outcomes in case of chronic disorders.

Keywords: Medication adherence, Patient compliance, Patient counselling

Full-length article **Corresponding Author*, e-mail: patel.rosa@ymail.com

1. Introduction

Rheumatoid arthritis (RA) is a chronic systemic autoimmune inflammatory disease with a prevalence of approximately 1% [1, 2]. Incompletely controlled RA results in severe progressive joint damage, functional disability, morbidity, and increased mortality [3]. Clarification of the molecular pathogenesis of RA has led to an increasing number of targeted therapies [4, 5]. Early intervention with disease-modifying antirheumatic drugs (DMARDs) and biological DMARDs (bDMARDs) improves long-term functional outcomes [6–9]. Depending upon the clinical situation, a realistic goal for every patient with RA is now low disease activity or disease remission [10].

Despite extensive evidence regarding drug efficacy and the risk of long-term harm from uncontrolled RA, medication adherence rates remain suboptimal, ranging from 30 to 80% [11–13]. Improving medication adherence with currently available DMARDs and BDMARDs would improve treatment effectiveness and reduce healthcare costs [14, 15]. Medication nonadherence is a dynamic, multifaceted issue affected by (i) patient factors, (ii) disease features, and (iii) drug characteristics.

Reasons for nonadherence can be unintentional or intentional. The characteristics of patient–doctor interactions are also likely to play a role although they have not been well studied for patients with RA. While many educational and cognitive behavioral interventions have been proposed to improve adherence, the few studies that have examined the efficacy of these programs in RA have had disappointing results. Medication adherence can be improved by the patient counselling efforts of clinical pharmacists. In order to determine the impact of advanced patient counselling on medication adherence for responsible use of the pharmaceuticals and appropriate institution of therapy, the current study was carried out to evaluate medication adherence in rheumatoid arthritis patients utilizing MMAS8.

2. Materials and Methods

The study was conducted at Parul Sevashram Hospital, Vadodara, after the clearance of the institutional ethics committee. A total of 88 RA patients were included in the study after the consent of the patients. The patients were randomly categorized in two groups (44 in each group) and follow-up was taken over the period of 6 months. One group is named Group A (normal counseling) and another one is Group B (Advanced

counseling). Detailed criterion of normal and advanced counselling is mentioned in the study procedure.

2.1. Inclusion criteria

- Rheumatoid arthritis patients of age 18-70 years.
- Both male and female patients.

2.2. Exclusion criteria

- Patients other than Rheumatoid arthritis.
- Patients who are not willing to come for follow-up.
- Pregnant women.

2.3. Study procedure

Patients were selected from the orthopedic Department of Parul Sevashram Hospital, Vadodara. Patients were selected on the bases of inclusion and exclusion criteria. Once the patient was found suitable for the study, their voluntary consent was taken by Principle Investigator. Further patients were randomized by simple randomization method in Group A and Group B. Medication adherence assessment was done by Morisky Medication Adherence Assessment (MMAS8).

Further Group A was given normal counseling related to drug administration, drug timings, and route of drug administration, and Group B was given advanced counseling like the seriousness of the disease, the effect of the drug, and administration procedures with the help of printed leaflets. They were also instructed to come for the next follow-up on the date mentioned in the prescription by the physician.

3. Results

Total 88 patients were included in this study, 44 in Group A and Group B, in each group male and female for Group A was 16:82, and for Group B the ratio was 17:27. Out of 88 RA patients, 33 were males, and 55 female which was further evaluated for socio-economic background, demographic data, and status of medications (Age, income, educational qualification, number of drugs prescribed). (Table no.1)

3.1. Assessment of medication Adherence

Both the groups were assessed by Moriski's Medication adherence scales in two follow-ups, in the first visit none of the patients showed a high level of adherence but gradually in the second and third follow-up visits it was improved significantly (Table no.2). Assessment of adherence by MMAS8 showed a significant increase in subsequent follow-ups. Data also proved that improvement in Group B. Advance Counseling was more significant comparatively Group A. In Group A, Mean Adherence was 6.06±0.15, 4.34±0.11, and 2.88±0.18 and in Group B, means were 5.67±0.17, 3.81±0.15, and 1.95±0.18 in visit-1, visit-2, and visit-3 respectively (Table no.3).

4. Discussion

Study results show a significant improvement in medication adherence among patients of Group B-(Advanced counseling) as compared to Group A (normal counseling). It was found that improvement in an advanced counseling group is much higher than normal counseling group (In Group A, the mean was 6.06±0.15, 4.34±0.11, and 2.88±0.18 and in Group B, the means were 5.67±0.17, 3.81±0.15, and 1.95±0.18 in visit-1, visit-2, and visit-3 respectively).

A similar study conducted by Luciana Resend et. al., have reported the study based on medication adherence in patients in treatment for rheumatoid arthritis and systemic lupus erythematosus in a university hospital in Brazil [16]. Patricia Quinlan et. al., have reported one study based on the relationship among health literacy, health knowledge, and adherence to treatment in patients with Rheumatoid Arthritis. [17]

In this study, it was found that patients with rheumatoid arthritis had 12 (13.63%) high adherences while 26(29.54%) had medium and 50(56.81%) showed low adherence assessed by the MMAS8 scale. Gender wise it was found that females are more non-adhered than males, and age-wise age group of 50-60 years shows the highest non-adherence. Based on income, we found that it does not significantly affect medication adherence. Adherence also has a significant relation with educational qualification, at least basic literate people show more adherence than illiterate patients. There are some studies that show education as a barrier to medication adherence. [18.19].

Duration of disease criteria shows that patients having 1-5 years of RA are more serious about the drug and show 18.18% high adherence and 25.00% medium adherence which is higher than other categories. By these results, we can say that more duration and more newly diagnosed patients do not follow instructions properly, which might be due to unawareness of the seriousness of the disease. Another criterion is the number of prescribed drugs showed high adherence in 2 categories of 1-2 and 3-5 numbers of drugs shows more significance than other categories which have a high number of drugs. Hence medication burden is also one of the factors which are affecting medication non-adherence.

Results also showed 42.09%patients reported forgetting to take their medication, 46.59% of patients don't take their medication for the reason other than forgetting, 38.63% of patients stopped their medication when they feel worse, 32.95% of patients forgot to carry their medicines during travel, 23.86% of patients cut their medications while they feel their disease was under control, 17.04% patients feel hassled about sticking on their treatment plan, 20.45% patients forget to take all their medications. Various studies have been conducted on MMAS8 and other questionnaires, which showed similar results.

Table 1: Demographic Data of Participants

Parameters	Total	percentage	Group A	Male	Female	Group B	male	Female
	88		44	16	28	44	17	27
Gender Ratio								
Male	33	(37.5)						
Female	55	(62.5)						
Age Group (Years)								
18-30	6	(6.82)	2	0	2	4	0	4
31-40	10	(11.36)	4	2	2	6	2	4
41-50	22	(25.00)	10	1	9	12	3	9
51-60	27	(30.68)	14	8	6	13	7	6
>60	23	(26.14)	14	5	9	9	5	4
Income (INR/Month)								
<200000	38	(43.18)	14	5	10	23	4	19
>200000	50	(56.82)	28	11	18	21	13	8
Educational Qualification								
<10	13	(14.77)	8	2	6	5	3	2
10^{th}	17	(19.32)	10	2	8	7	4	3
12^{th}	22	(25.00)	9	2	7	13	3	10
>12	36	(40.91)	17	10	7	19	7	12
Duration of Disease(years)								
<1	10	(11.36)	3	0	3	7	2	5
1-5	44	(50.00)	22	8	14	22	7	15
6-10	28	(31.82)	16	7	9	12	7	5
>10	6	(6.82)	3	1	2	3	1	2
No. of Prescribed Drugs								
1-2	26	(29.55)	15	8	7	11	5	6
3-5	61	(69.32)	28	8	20	33	12	21
6-8	1	(1.14)	1	0	1	0	0	0
>8	0	(0.00)	0	0	0	0	0	0

Table 2: Medication Adherence Assessment by MMAS8

	Group A			Group B		
	visit 1	visit2	visit3	visit 1	visit2	visit3
High Adherence	0(0%)	0(0%)	5(11.36%)	0(0%)	0(0%)	7(15.9%)
Medium Adherence	0(0%)	0(0%)	4(9.09%)	0(0%)	3(6.81%)	22(50%)
Low adherence	44(100%)	44(100%)	35(79.54%)	44(100%)	41(93.1%)	15(34.09%)

Table 3: Medication Adherence Score from Baseline to Follow-ups

	Group A			Group B		
	visit 1	visit2	visit3	visit 1	visit2	visit3
Mean±SEM	6.06±0.15	4.34±0.11	2.88±0.18	5.67±0.17	3.81±0.15	1.95±0.18

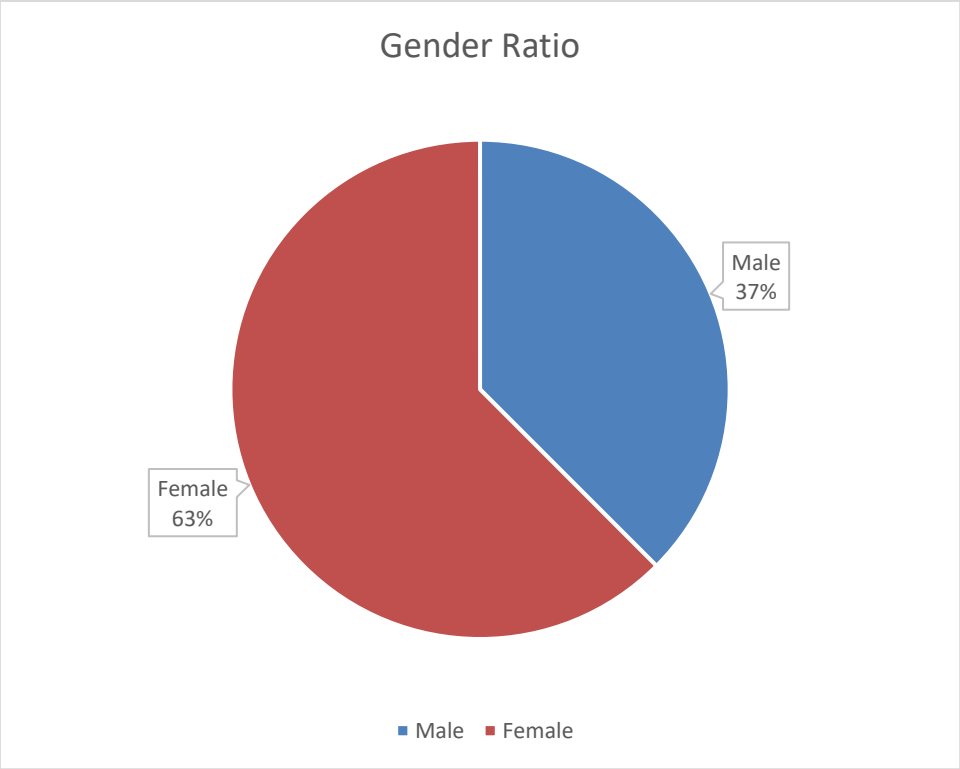

Figure 1: Gender Ratio of RA group

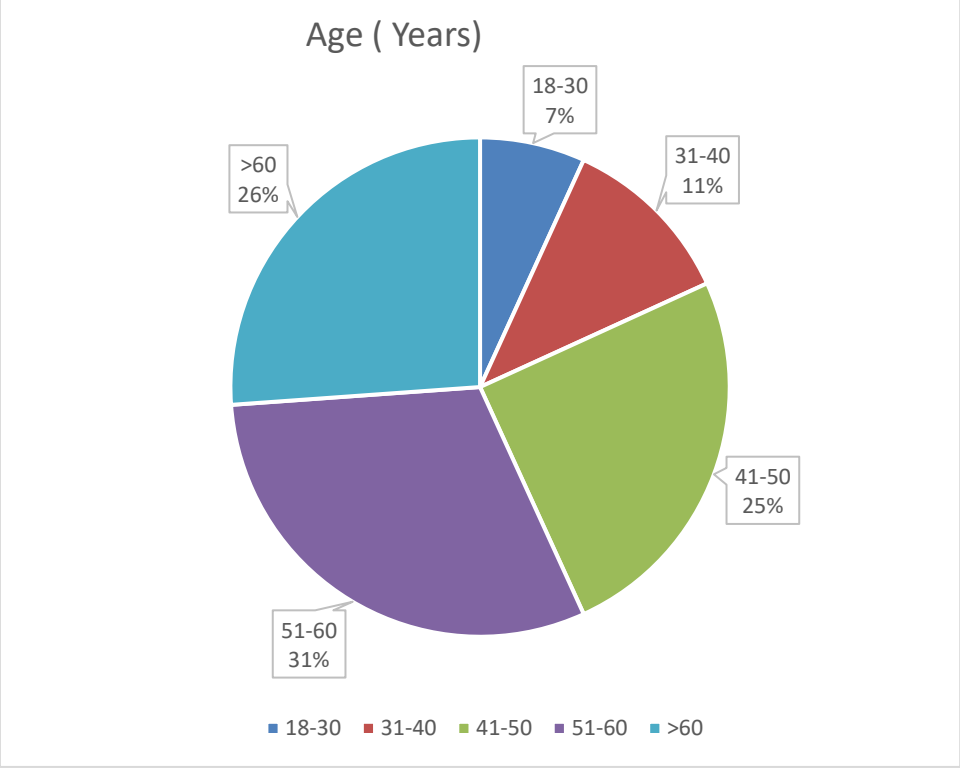

Figure 2: Age Group of RA Group

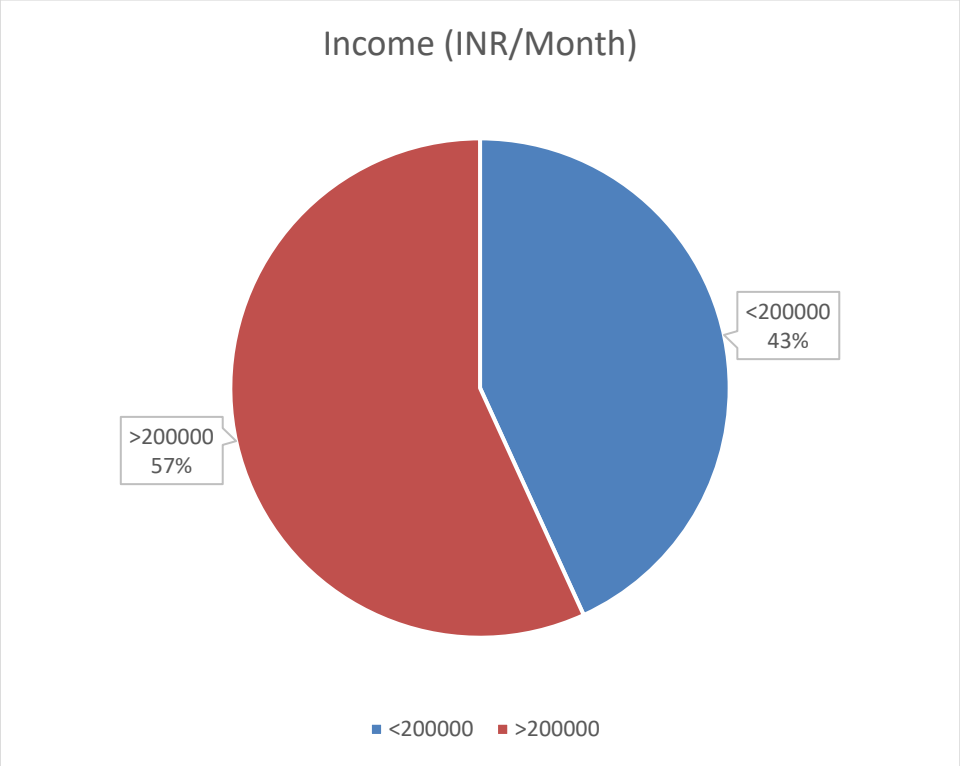

Figure 3: Income categories of RA group

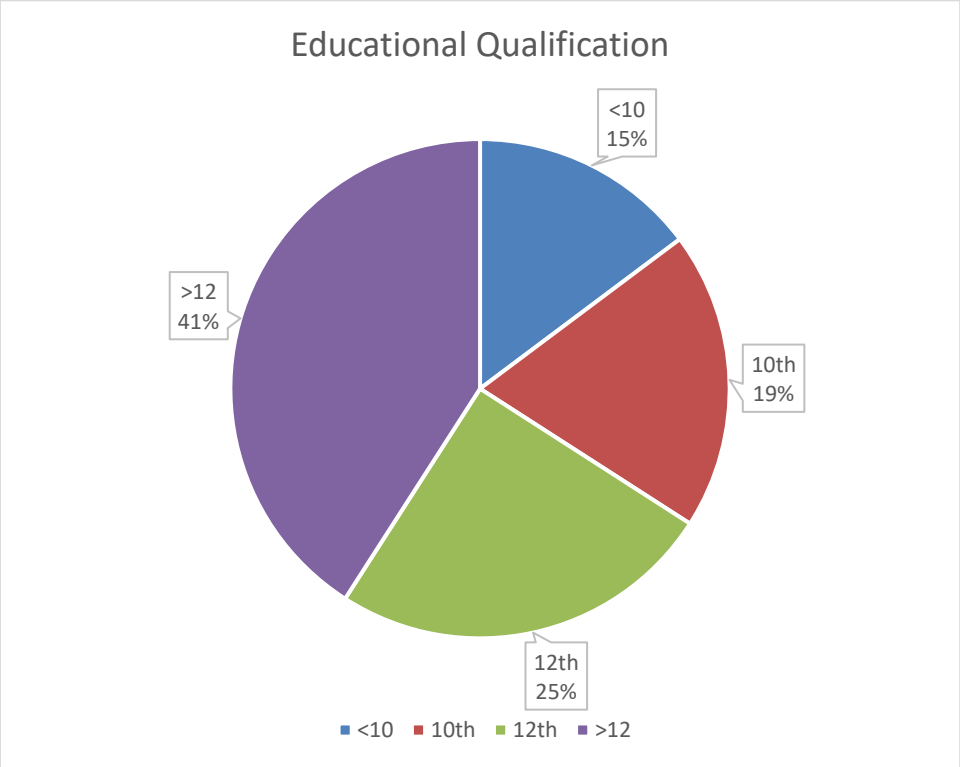

Figure 4: Education of RA group

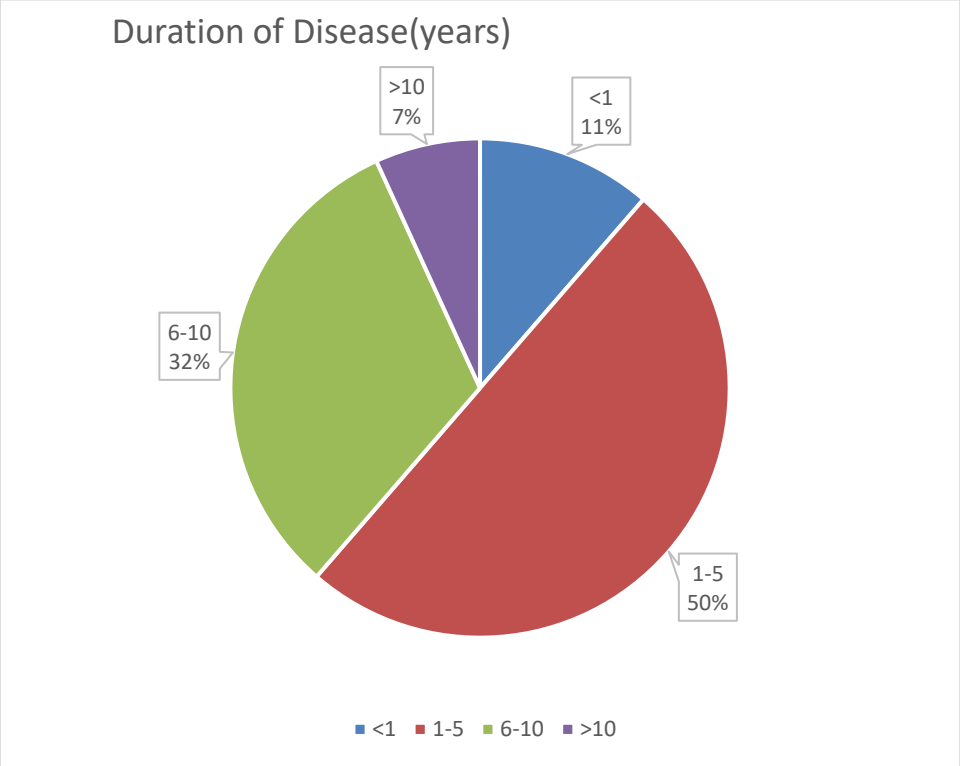

Figure 5: Duration of Disease in RA group

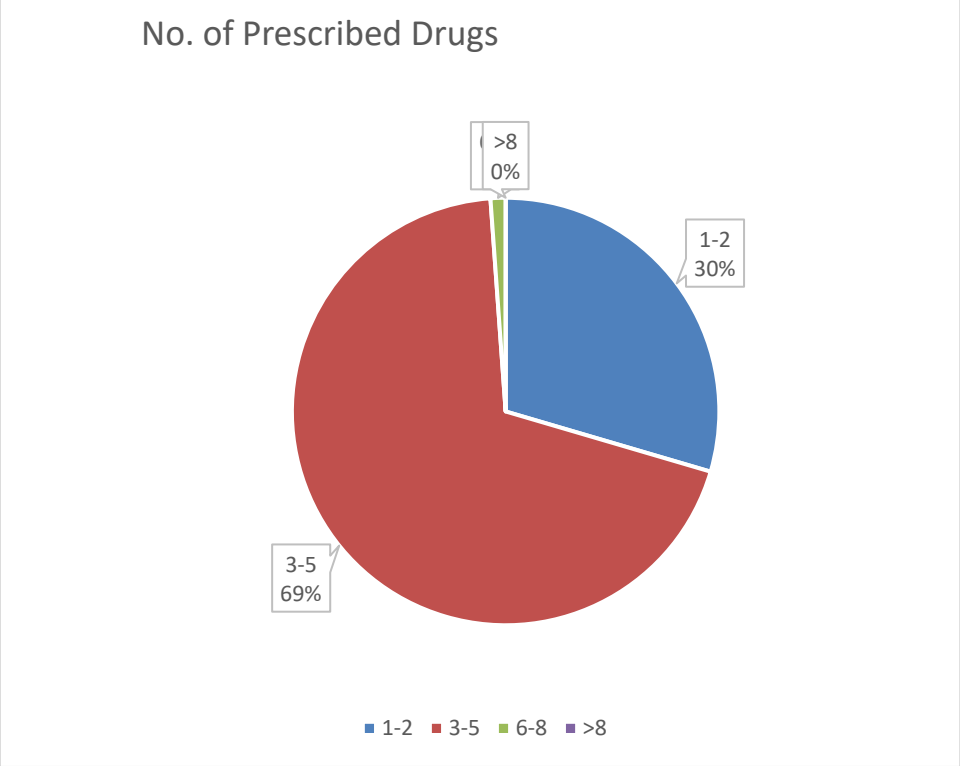

Figure 6: No. of Prescribed Drugs in RA Group

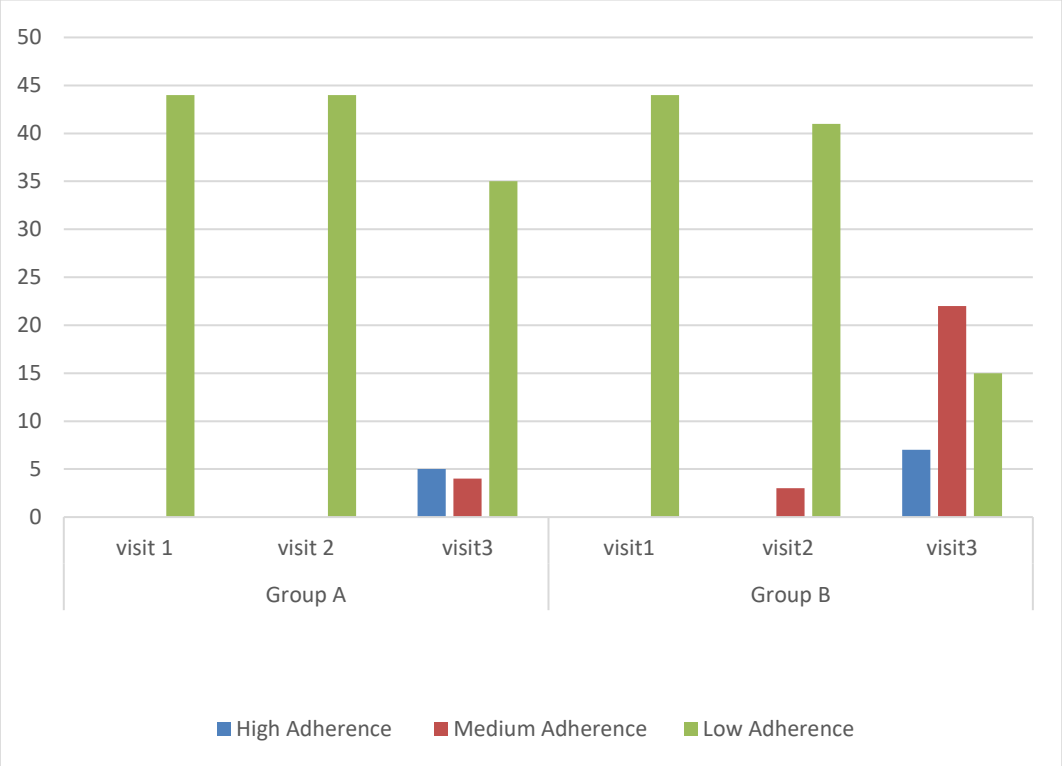

Figure 7: Medication Adherence Assessment Visit-wise

5. Conclusions

This study demonstrates that counseling and adherence evaluation work better together than they do separately, therefore patients should receive appropriate counseling regarding the gravity of their conditions, the seriousness of their medications, and the significance of proper medication administration methods. This study also highlights the need for more healthcare professionals to provide patient counseling and encourage better drug adherence; a clinical pharmacist can fill this function effectively.

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