



## ASSESSMENT OF PATIENT MEDICATION ADHERENCE IN TERTIARY CARE TEACHING HOSPITAL

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### ABSTRACT

**Background:** Medication adherence or medication-taking behaviour is defined as the extent to which patients take medications prescribed by their physicians in terms of timing, dosage, and frequency. It includes factors such as filling prescriptions, remembering to take medication on time and understanding instructions, discontinuation of drug therapy. Non-adherence to long-term therapy for chronic diseases averages 50% in developed countries. Poor adherence is a primary reason for poor outcomes and is a potential waste of healthcare resources. **Methodology:** This prospective, observational study was carried out under three departments General medicine, paediatrics, and psychiatry departments at Malla Reddy Hospital. Total 200 Subjects were considered and divided as 80:80:40 [general medicine, paediatrics, psychiatry respectively] and assessed for adherence rates accordingly. A validated assessment tool MMAS-8 questionnaire scale was used to document adherence scores of individual patients. Follow-up was done after 12 weeks to assess and improve the adherence levels by providing effective patient counselling and pictograms. **Results:** According to data, Adherence levels under general medicine, paediatrics, psychiatry was found to be [low-44%, 35%, 38%; medium-32%, 23%, 42%; high-24%, 42%, 20%] and increased to [low- 31%, 38%, 25%; medium-40%, 31%, 50%; high- 29%, 50%, 25% respectively] by patient counselling and follow-up. Gender-wise adherence was found to be higher in males (27%) than females (22%) and it was concluded that literate (41%) people are highly adherent than the illiterates (24%). Overall Departmental adherence levels are [Paediatrics > General Medicine > Psychiatry]. **Conclusion:** Non-adherence to medication leads to relapsing of the disease, resulting in hospitalization and higher medical costs. This study highlighted the level of adherence between three departments and the impact of patient counselling and follow-up on their improvement. The strategy to alter patients' behaviour towards prescribed medication ought to be widely studied and established. The role of pharmacists may be explored in addition.

**KEYWORDS:** Medication adherence, Non-adherence, MMAS-8 scale, Patient counselling, Compliance, Pharmacist.

### INTRODUCTION

Medication Adherence is the extent to which a patient's medication-taking behaviour matches with the recommendations from the prescriber, as well as whether they continue to take them.<sup>[1]</sup> Medication adherence is important for controlling chronic conditions, treating temporary conditions, and overall long-term health and well-being.<sup>[2]</sup> There are two types of it, Primary non-adherence is the frequency with which patients fail to fill prescriptions when starting a new medication, it is thus related to the addition and initiation of drug therapy. Secondary non-adherence is defined as the medication is not taken as prescribed even though prescriptions are filled.<sup>[3]</sup> Poor medication adherence is associated with increased re-hospitalisation, morbidity, mortality, and increased healthcare costs. As a preventable healthcare

measure, it is essential to implement effective medication management initiatives to improve quality measures, and health outcomes and decrease overall costs.<sup>[4]</sup>

The clinical non-adherence rate in mental health treatment is twice that which is seen in most other medical specialties. This is disturbing when considering that individuals who attend their mental health appointments are found to be significantly more likely to comply with their psychotropic medications, than those who do not or do so inconsistently.<sup>[5]</sup> It has been also found that individuals diagnosed with major psychiatric disorders tend to be the most non-compliant with their psychotropic medication. One suspected cause of this is that individuals who suffer from major psychiatric disorders tend to have impaired reasoning skills and

insight.<sup>[6]</sup> Approximately 40% of patients stop taking their prescribed antipsychotic medication within 1 year and about 75% discontinue their medication within 2 years. The paediatric population accounts for approximately 30%, and half of the paediatric population suffers from a chronic medical condition requiring medications. Medication adherence can be problematic for the paediatric population. Rates of medication adherence in this population are extremely variable; they range from 11% to 93%, with an estimated average of around 50%. Factors affecting can be age, culture, socioeconomic status, taste of formulations, and schedule.<sup>[7]</sup>

### Epidemiology

- 125,000 people die a year due to failure to take medication or taking medications improperly.

- More than 1 in 3 medicine-related hospital admissions occur due to people not properly adhering to their medications.<sup>[8]</sup>
- Adherence to long-term therapy for chronic illnesses in developed countries averages 50%. In developing countries, the rates are+ even lower. It is undeniable that many patients have trouble following treatment recommendations.<sup>[8]</sup>

### Factors affecting medication adherence

Adherence is a multidimensional phenomenon which is determined by 5 factors such as –

| Categories of Nonadherence | Examples                                                                                                                                                                         |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Health system              | Poor quality of provider-patient relationship; poor communication; lack of access to healthcare; lack of continuity of care                                                      |
| Condition                  | Asymptomatic chronic disease (lack of physical cues); mental health disorders (e.g., depression)                                                                                 |
| Patient                    | Physical impairments (e.g., vision problems or impaired dexterity); cognitive impairment; psychological/behavioural; younger age; inadequate knowledge about drugs and their use |
| Therapy                    | Long-term regimens; Complexity of regimen; side effects                                                                                                                          |
| Socioeconomic              | Low literacy; higher medication costs; poor social support                                                                                                                       |

### MATERIALS AND METHODS

This is a prospective, observational study conducted in the departments of Paediatrics, Psychiatry, and General medicine at Malla Reddy Hospital to assess medication adherence using MMAS-8 scale.

#### Materials

Morisky Medication Adherence Scale [MMAS] a validated assessment tool has a total of 8 questions from which 1-7 require dichotomous replies and 8th question is a 5-point Likert scale and scores are summed between 0-8. A score below 6 indicates low adherence, a score and between 6 < 8 medium adherence and a score of 8 high adherence. Pictograms tools for improving adherence in patients.

#### Inclusion criteria

Patients above 2 - 65 years of either sex who are willing to participate in study and give informed consent from in and Out-Patients are included.

#### Exclusion criteria

Infants, Pregnant women & Lactating women, and above 65 years of age with severe co-morbidities or surgical illness are excluded. Patients who are participating in other study and not willing to sign the informed consent form and their details.

#### Study procedure

A total of 200 subjects were recruited for the study from three departments Paediatrics 80, General medicine 80,

and Psychiatry 40. Subjects between age groups 2-65 years were selected from three departments and are recruited for the study based on inclusion and exclusion criteria. All the required information was collected from the patient's profile and from the patient by using data collection tools like Morisky 8 scale questionnaire. A base line score and follow-up score was obtained after effective counselling and using pictogram tool with a gap of 12 weeks. Thereafter the scoring and analysis of the adherence level are done using the simple standard mean method.

#### Statistical analysis

The data were analysed using the simple mean method, Microsoft excel 2010 and Epi-info software. The data are expressed as frequencies, mean, percentages, and standard deviations whichever is suitable.

### RESULTS

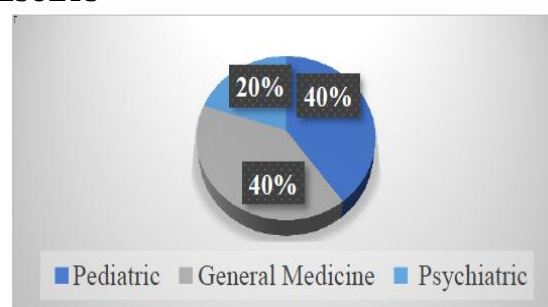
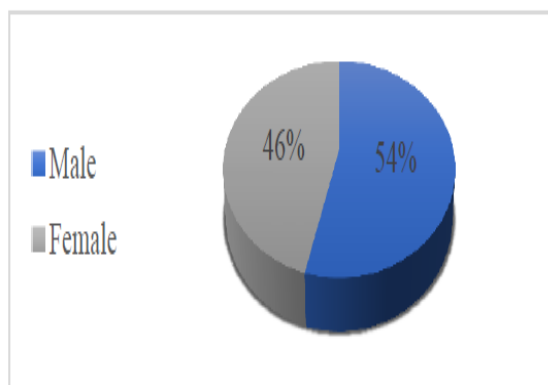


Figure 1: Departmental distribution of patients (n=200).

**Inference**

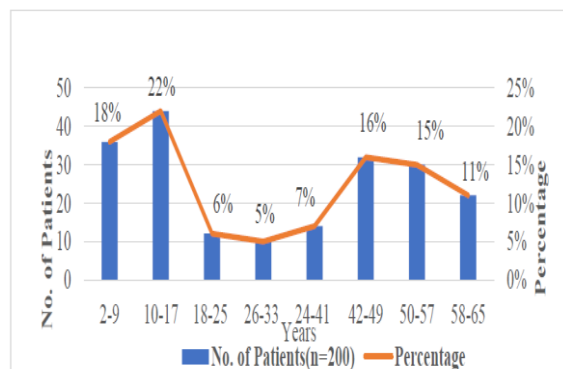
**Figure 1:** In this Study out of 200 Subjects -40% of patients are from General Medicine, 40% from Paediatrics and 20% from psychiatry.



**Figure 2: Gender wise distribution of patients.**

**Inference**

**Figure 2:** Shows that Male (54%) Patients are more affected with Diseases than Females (46%) in all the three departments.



**Figure: 3 Age wise distribution of patients.**

**Inference**

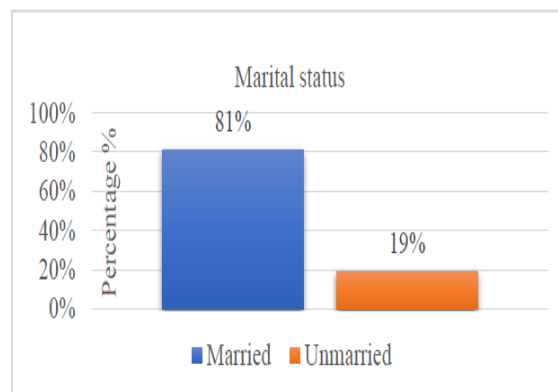
**Figure 3:** Reports that paediatrics age group (10-17 = 22%) and middle age group (42-49 = 16%) patients are more in number from the three departments.

**Table 1: Distribution of patients according to type of occupational status.**

| Occupational status | No. Of patients (n=160) | Percentage % |
|---------------------|-------------------------|--------------|
| Homemaker           | 28                      | 17.5%        |
| Agriculture         | 36                      | 22.5%        |
| Construction field  | 24                      | 15%          |
| Education field     | 18                      | 11%          |
| Manufacturing       | 30                      | 19%          |
| Retired             | 24                      | 15%          |
| Total               | 160                     | 100%         |

**Inference**

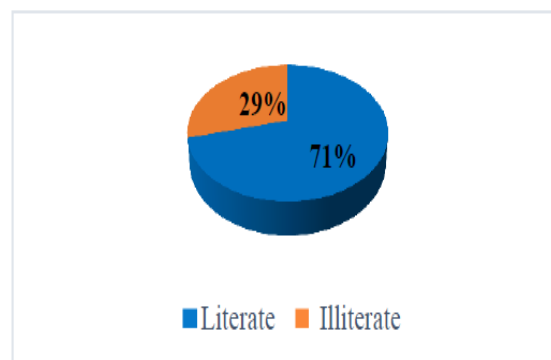
**Table 5.6:** Shows that More no. of Subjects is from Agriculture field (22.5%) and least from educational field (11%).



**Figure 4: Marital status wise distribution of patients.**

**Inference**

**Figure 4:** Demonstrate that Married (81%) population are more in number than the unmarried (19%) people



**Figure: 5 Literacy wise distribution of patients.**

**Inference**

**Figure 5:** Outlines that Educated Patients (71%) are more in number than the un-educated (29%).

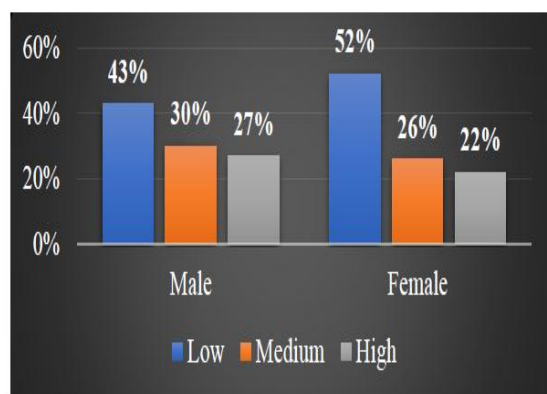


Figure 6: Gender wise adherence levels in patients.

#### Inference

**Figure 6:** Illustrates Females have lower Adherence rates (22%) while males show slighter higher adherence rates (27%).

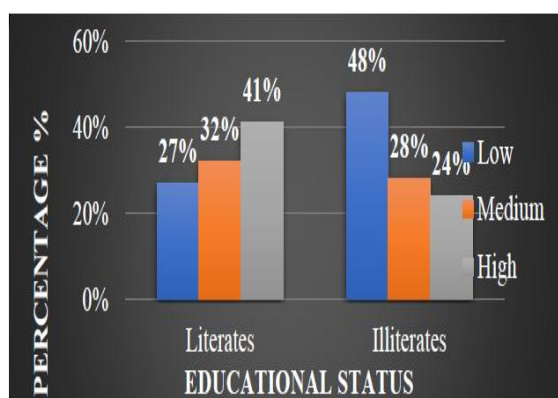


Figure 7: Literacy wise adherence rates among patients.

#### Inference

The Above **Figure 7** clarifies that Un educated patients have lower Adherence rates (24%) compared to literates (41%).

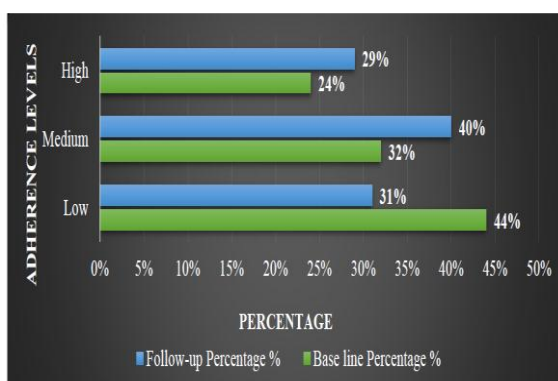


Figure 8: Distribution of overall Adherence level in patients of General Medicine (n=80).

#### Inference

According to MMAS-8 Scale Above **Figure 8** outlines 44% has low adherence and 24% has high adherence in the base level then reports the Improvement of medication adherence levels in follow up stage to 31% and 29% respectively.

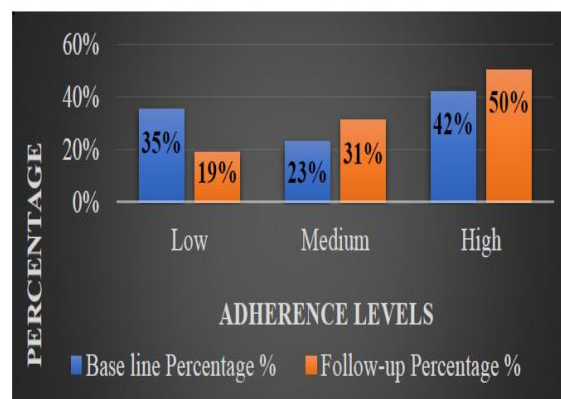


Figure 9: Distribution of overall adherence level in patients of Pediatrics (n=80).

#### Inference

**Figure 9:** Reports 35% has low adherence rates and 42% has high adherence rates in base line which further improved to 50% after follow-up.

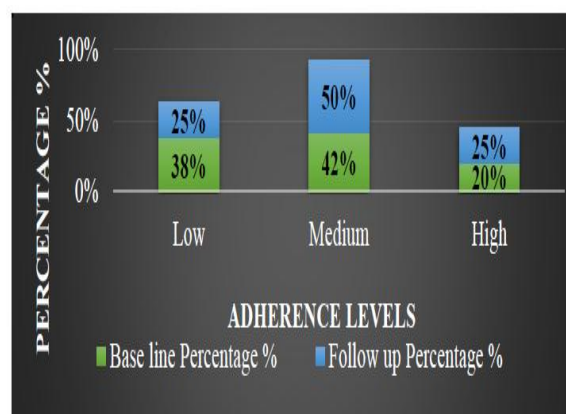


Figure 10: Distribution of overall Adherence level in patients of Psychiatry (n=40).

#### Inference

**Figure 10:** Elicits that 38% has low adherence rates and 20% has high adherence rates in base line which further improved to 25% after follow-up.

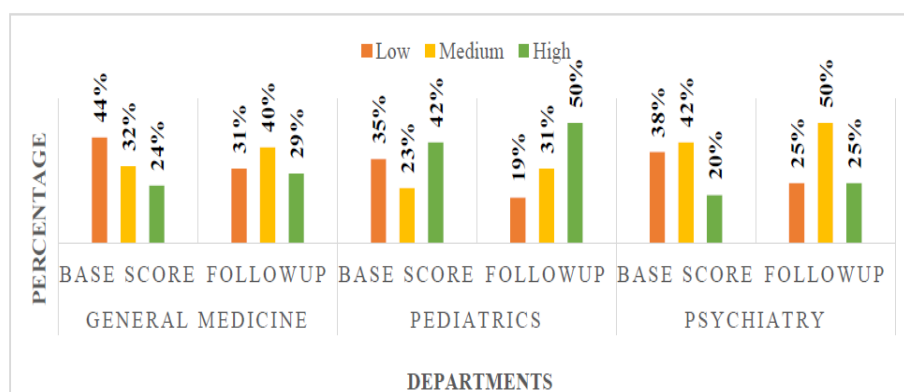


Figure 11: Comparison of adherence levels between General Medicine vs Pediatrics vs Psychiatry.

### Inference

The above **Figure 11**: Represents the comparison of adherence levels between three departments and illustrates Paediatrics department has Higher level of adherence than other two departments [Paediatrics>General Medicine>Psychiatry] in both base line scores and follow up. Also outlines about the Improvement in adherence levels after follow-up in all three Departments.

### DISCUSSION

Medication adherence remains a major public health issue and is anticipated to continue as the population ages and becomes increasingly dependent on self-administered medications. It is a critical element for chronic disease management. Medication non-adherence is a significant barrier to positive health outcomes in patients with chronic diseases. The Morisky scale is a commonly used, validated measure of adherence that is predictive of treatment adherence. This study investigated the level of medication adherence in different departments.<sup>[9]</sup>

Under the department of general medicine, a total of 80 subjects were studied from which we observed 44% has low adherence, 32% had medium adherence and 24% has high medication adherence at the base level and got improved to 31%, 40%, 29% respectively. A collaborative approach both by physician and patients are important to take care regarding the augments of adherence. Patients who have difficulty maintaining adequate adherence need more intensive strategies than patients who have less difficulty with adherence, a more lenient treatment regimen, or both. New technologies such as cell phone reminders and personal digital assistants and paging boxes may be needed to help patients who have the most difficulty meeting regimen goals.<sup>[10]</sup>

Under the department of Psychiatry, a total of 40 subjects were studied from which we observed 38% has low adherence, 42% had medium adherence and 20% has high medication adherence at the base level and got improved to 25%, 50%, and 25% respectively. The patients were issued picture-coded pictogram tools on

their first visit to the hospital. These cards visually represented when during the day the medication should be taken. Illiterate people also found it extremely useful as it has picture coding techniques for better understanding.

Under the department of Paediatrics, a total of 80 subjects were studied from which we observed that 35% has low adherence, 23% had medium adherence and 42% has high medication adherence at the base level and got improved to 19%, 31%, 50% respectively. Prescription misunderstanding and medication errors have been worrisome issues all over the world in all health care systems. Most of the parents in this study were young housewives, farmers, and labourers with at least a high school education, although they came from less privileged backgrounds. Although paediatric patients show higher adherence than the other two departments in the present study, among the demographic parameters, age of parents, Child's age, parent, education of parent, experience in administering medicine, several medicines prescribed, and type of dosage form were significantly impacting parent's understanding regarding medication.<sup>[11]</sup>

### CONCLUSION

Medication Non-Adherence In patients leads to substantial worsening of disease, death and is associated with increased health care costs, ADR's. It is a widespread problem which causes disease relapse worldwide with long term therapies. This can be prevented by continuous follow-ups with the patient, by considering their financial burden, using technology for monitoring (e-pill devices, alarms, timers, pictograms, flash cards, blisters packs) and empowering them to understand the regimen and its benefits. And pharmacists play an important role in increasing adherence rates by sharing their knowledge and skills in patient counselling.

Results obtained in this study highlighted the level of adherence between three departments and the impact of patient counselling and follow up in their improvement. Each department exhibits different percentages of Adherence over age groups, gender, literacy, marital status.

It was observed that male patients exhibit higher medication adherence (27%) medium and high) as compared to female patients (22%). In the taken study sample we have found that more number patients were in age groups of (10-17yrs) and (42-49yrs). In this study, educated patients were found more adherent (41%) than uneducated patients (24%). Altogether pediatric patients were more adherent to medication as compared to young & older patients. There is an observed improvement in medication adherence by means of follow-up and counselling.

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