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Original Research Article

A Study on the Adherence to Pediatric OPD Prescriptions and Associated Factors

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Abstract:

Introduction: Compliance with pediatric outpatient department (OPD) prescriptions is essential for ensuring effective treatment and improving the health outcomes of children. Non-compliance can result in treatment failure, increased healthcare costs, and potential health risks. Several factors, including patient demographics, socioeconomic status, education levels, and the nature of the prescribed regimen, influence compliance.

Material and Methods: This prospective observational study was conducted at the Paediatrics OPD of a tertiary care center in Gujarat, focusing on assessing compliance with pediatric prescriptions. Children aged 1 month to 14 years with acute illnesses who visited the OPD within the last 14 days were included, while those with chronic illnesses were excluded. A structured proforma was used to collect demographic data, prescription details, and compliance information.

Results: In our study of 340 pediatric patients, the majority were male (61.8%) and in the 2 months to <5 years age group (49.7%). Respiratory illnesses were the most common (62%), and overall compliance with medications was 83.8%, with higher compliance seen in older children and those with more educated mothers. The most common reasons for non-compliance included caregiver misunderstandings (45.4%) and financial issues (14.5%). Analgesics/antipyretics had the highest compliance rate (93.8%), followed by respiratory drugs (91.5%). Investigations showed an 87.3% compliance rate, with financial constraints and time-restrained lab services being the main reasons for non-compliance.

Conclusion: The study highlights that factors such as age, maternal education, and financial constraints significantly impact pediatric prescription compliance. Tailored interventions addressing these factors are crucial to improving adherence and healthcare outcomes.

Keywords: Pediatric compliance, maternal education, medication adherence, non-compliance.

Introduction

Assessing compliance with pediatric outpatient department (OPD) prescriptions is a critical aspect of ensuring the well-being of our youngest patients. [1] Compliance in pediatric OPD settings encompasses various elements, including adherence to medication regimens, following dietary recommendations, attending follow-up appointments, and addressing lifestyle modi fications. [2]

The interplay of these factors contributes to the overall success of a child's treatment plan. However, non-compliance can lead to treatment failure, increased healthcare costs, and potential risks to the child's health. [3] Non-compliance with pediatric OPD prescriptions can have far-reaching consequences. It may result in exacerbated symptoms, recurrent illnesses, or the development of complications, ultimately leading to an increased burden on the healthcare system. [4,5]

Such interventions could include educational programs for caregivers, improved communication strategies between healthcare providers and families, and enhanced access to pediatric healthcare resources. [6] Factors affecting compliance are multifaceted and can be categorized into patient-related, healthcare provider-related, and systemic factors. [7] Factors influencing compliance span a wide spectrum, including patient demographics, socioeconomic status, education levels, patient beliefs, the quality of the provider-patient relationship, the nature of the disease, and

the complexity of the prescribed drug regimen. [9,10]

Material and Methods

This study was conducted at the Paediatrics OPD of Tertiary care center, Gujarat, with the aim of assessing the compliance of pediatric prescriptions and the factors affecting it. The study was a prospective observational study involving children aged between 1 month and 14 years, who attended their first visit to the OPD within the last 14 days and were diagnosed with acute illnesses. Ethical approval was obtained from the Institutional Ethics Committee (IEC) of the institution, and informed consent was taken from the parents or guardians of all participants. Children with chronic illnesses and those whose parents did not consent to participate were excluded from the study.

A pre-tested, structured proforma was used for data collection, which included details about the child's demographics such as age, sex, family income, and socio-economic status. The prescribed medications, including their names, dosages, and frequency, were recorded, and the medications actually taken by the patients, in terms of dosage and duration, were also noted.

Information regarding the investigations recommended by the physician and the ones actually carried out was collected. The study also documented factors influencing compliance, including financial issues, availability of medications, fear of side effects, and the perceived effectiveness of the prescribed treatments.

The sample size was calculated to be 340 participants based on an expected prevalence of non-compliance of 33% and a margin of error of 5%. The data was collected individually for each patient and entered into a master chart. The analysis was performed using SPSS Version 21.1 and the results were subjected to statistical tests, including chi-square tests, t-tests, and z-tests, to assess the significance of the observed associations.

A p-value of less than 0.05 was considered statistically significant.

Results

In our study, the distribution of cases by age and gender showed that out of 340 participants, 210 (61.8%) were male and 130 (38.2%) were female. In the 2 months to <5 years age group, 106 males (62.7%) and 63 females (37.3%) were included. For the 5 to <10 years age group, 69 males (61.6%) and 43 females (38.4%) participated. In the 10 to 14 years group, 35 males (59.3%) and 24 females (40.7%) were involved. the distribution of cases by socio-economic status (SES) showed that 56 (16.5%) participants were from the upper-middle (UM) SES, 243 (71.5%) were from the lower-middle (LM) SES, and 41 (12%) were from the upper-lower (UL) SES.

In our study, the distribution of cases by system involved showed that 211 cases (62%) were related to respiratory illness, 107 cases (31.5%) were related to gastrointestinal illness, 7 cases (2%) were related to genitourinary illness, 4 cases (1.2%) were related to CNS illness, and 37 cases (10.8%) were related to unspecific febrile illness.

In our study, comparing patient age with compliance status showed that 143 children (84.6%) in the 2 months to <5 years age group were compliant, 89 children (79.5%) in the 5 to <10 years age group were compliant, and 53 children (89.8%) in the 10 to 14 years age group were compliant. Overall, 285 children (83.8%) were compliant, while 55 children (16.2%) were non-compliant. In our study, comparing mother's literacy with compliance status showed that 144 mothers (83.7%) with primary education, 84 mothers (81.5%) with secondary education, 45 mothers (84.9%) with graduate education, and all 12 mothers (100%) with postgraduate education had compliant children. Overall, the compliance rate was highest among mothers with postgraduate education.

In Figure 1, the compliance rates for various drug-related terms were notably high, with 100% compliance for receiving the same formulation as advised. The lowest compliance rate was observed for the dose received as advised (93.8%) and the completion of the advised duration (94.4%).

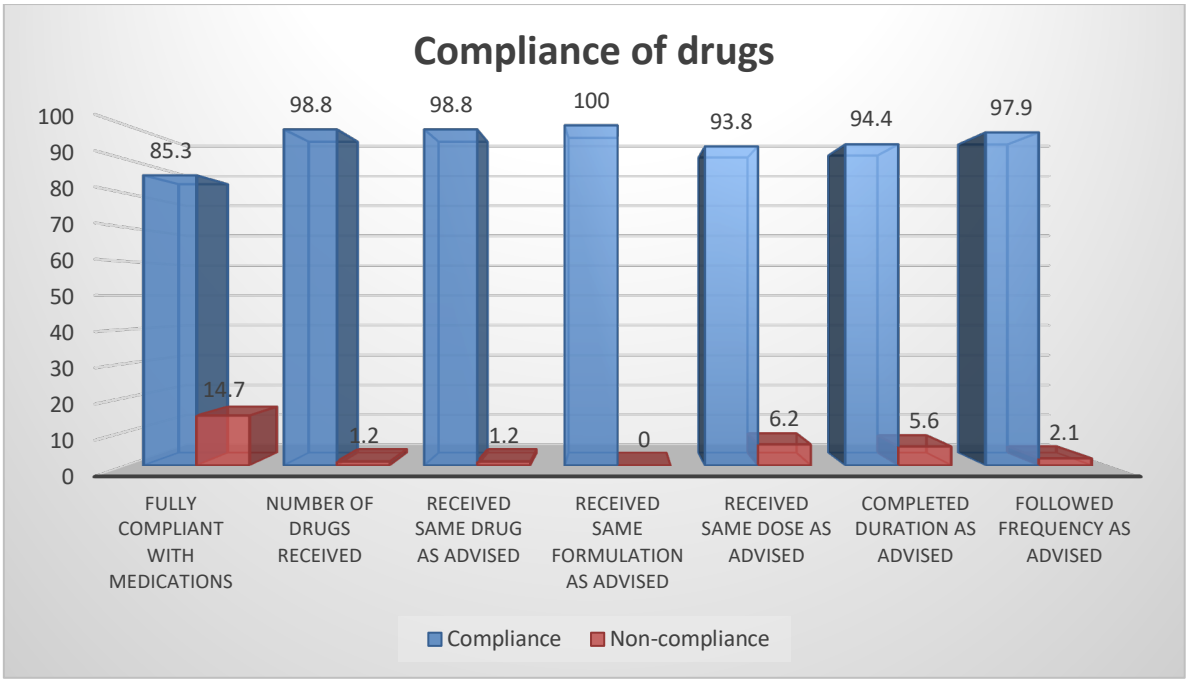

Figure 1: Compliance of drugs

Table 1: Reasons for Non-compliance

S. No.	Reasons for Non-compliance	Non-compliant cases (n, %)
1	Attender's misunderstanding	25 (45.4%)
2	Financial issues	8 (14.5%)
3	Bitter taste of medicine	6 (10.9%)
4	Appearance of side effects	2 (3.6%)
5	Disease free in fewer days than what medicines were prescribed for	9 (16.3%)
6	Missed/forgotten dose	2 (3.6%)
7	No symptomatic improvement	1 (1.8%)
8	Time-restrained laboratory services	3 (5.4%)
9	Not cooperative for investigations	1 (1.8%)

The most common reason for non-compliance was the attender's misunderstanding, accounting for 45.4% of cases, followed by financial issues (14.5%) and the perception of being disease-free earlier than expected (16.3%). Among the drug groups, analgesics/antipyretics had the highest compliance rate at 93.8%, followed by respiratory drugs at 91.5%. Antibiotics and GI drugs had compliance rates of 89.7% and 90.3%, respectively.

In our study, 63 cases were prescribed investigations. Among these, 41 cases (91.1%) complied with radiological investigations, 45 cases (93.7%) complied with blood investigations, and 21 cases (95.4%) complied with other types of investigations. Overall, 55 cases (87.3%) showed compliance with the prescribed investigations, while 8 cases (12.7%) were non-compliant.

Most common reason for non-compliance of investigations in present study was related to financial issues (37.5%) and time restrained lab services (37.5%). Other common reasons were attender's misunderstanding (12.8%) and non-cooperation of the cases.

Discussion

Compliance with paediatric prescriptions is a crucial determinant of treatment efficacy and overall health outcomes in children. [11] Adherence to prescribed medications ensures the effective management of acute illnesses, reduces the risk of complications, and promotes quicker recovery. [12] However, achieving high compliance rates is often challenging due to a multitude of factors. Demographic variables such as age, socioeconomic status, and parental education play significant roles in adherence levels. Prescription-related factors, including the complexity of the medication regimen, dosage frequency, and duration of treatment, can also influence compliance. Additionally, the severity and type of illness, as well as the quality of communication and follow-up by healthcare providers, are pivotal in determining whether patients adhere to their prescribed treatment plans. [13]

Our study data reveals several significant trends in the compliance of paediatric OPD prescriptions and

the factors influencing it. Firstly, there is a notable male predominance, with 210 male participants compared to 130 female participants, reflecting a 60:40 ratio. This gender disparity may be influenced by cultural or societal factors where male children receive more attention and healthcare resources. [14,15] Additionally, the majority of our participants (62%) fall within the age group of 2 months to less than 5 years, indicating a higher incidence of acute illnesses or more frequent medical consultations in this age bracket, which is consistent with other studies observing higher healthcare utilization in younger children due to their vulnerability to infections and other acute conditions. [16,17]

The age distribution in our study shows that the majority (62%) of participants are between 2 months to less than 5 years old. This aligns with the findings of Akhtar et al. [18], which also observed a high frequency of paediatric OPD visits among younger children. The susceptibility of younger children to acute illnesses and their frequent need for medical attention is a common observation in paediatric healthcare studies.

Moreover, our study shows an increase in male predominance as SES increases, which might be explained by better financial capability and health awareness in higher SES families, potentially leading to more frequent healthcare visits for male children. [19] When compared to similar studies, these trends align with findings from Falagas [20] et al. and Vikram et al. [21], which also reported higher compliance rates among children from higher socioeconomic backgrounds, likely due to better access to healthcare resources and educational advantages. Similarly, Baum et al. [22] found that younger children, especially males, tend to receive more attention in terms of healthcare provision, echoing our observation of gender and age-related trends.

Our study observed an overall compliance rate of 83.8% among pediatric patients attending the OPD for follow-up, with varying rates across different age groups. When comparing this compliance rate with findings from other studies, several factors may contribute to understanding the observed results. Our study's high overall compliance rate aligns with the findings of similar research. For instance, Akhtar et al. [18] reported a good compliance rate of 81.13% in a North Indian pediatric hospital setting. This similarity suggests that pediatric patients in different settings may exhibit consistent adherence to prescribed medications. Several factors may contribute to the high compliance rates observed in our study. Firstly, therapeutic education, as highlighted by François Angoulvant et al. [23], could play a significant role in enhancing parent and patient understanding of medication regimens, thereby improving compliance rates. Additionally, the palatability and acceptability of prescribed medications, as emphasized by Baguley et al. [24] and Liu et al**. [**25**]**, may influence compliance positively, particularly among younger children.

Our study identified a non-compliance rate of 14.7%, with various factors contributing to medication non-adherence among the cases. The most prevalent reason for non-compliance was attender misunderstanding, accounting for 45.4% of cases, highlighting the critical role of clear communication and patient education in ensuring treatment adherence. These findings echo the importance of therapeutic education emphasized by Angoulvant et al., which demonstrated the positive impact of pharmacist-led educational interventions on enhancing parent satisfaction and attitudes toward antibiotic use in pediatric patients.

Another notable reason for non-compliance observed in our study was patients feeling symptom-free before completing the prescribed medication course, accounting for 16.3% of cases. This finding underscores the need for healthcare providers to reinforce the importance of completing the full course of medication to prevent relapse or the development of antibiotic resistance, as highlighted by Fossum et al. [26] in their study on antibiotic prescription patterns for pediatric respiratory tract infections.

Financial issues emerged as a significant barrier to medication adherence, affecting 14.5% of non-compliant cases in our study. This finding underscores the socioeconomic factors influencing medication adherence, as discussed by various studies, including the study by McGrady and Hommel [27], which explored the relationship between medication non-compliance and healthcare utilization in pediatric patients with chronic conditions

Our study revealed that among the 63 cases prescribed investigations, a compliance rate of 87.3% was observed. However, non-compliance was more prevalent among cases undergoing radiological investigations (8.9%) compared to those undergoing blood investigations (6.3%), highlighting potential differences in patient perceptions or experiences with these diagnostic procedures. This aligns with findings from previous research by Warembourg et al. [28], which emphasized the impact of patient knowledge and understanding on compliance to medical recommendations, including diagnostic tests.

Financial constraints emerged as a significant barrier to compliance, with 37.5% of non-compliant cases attributing their non-adherence to financial issues. This finding underscores the socioeconomic factors influencing healthcare access and utilization, as discussed by various

studies, including our own study on medication compliance. Moreover, time constraints within laboratory services were also identified as a common reason for non-compliance, affecting an additional 37.5% of cases. These findings echo the challenges highlighted by Rungvivatjarus et al. [29] regarding pediatric medication management, where they emphasized the need for healthcare systems to address barriers related to service accessibility and efficiency.

Attender misunderstanding and non-cooperation of cases were also identified as contributors to non-compliance, representing 12.8% and 12.8% of cases, respectively. These findings underscore the importance of effective communication between healthcare providers, patients, and caregivers in ensuring understanding and cooperation with recommended diagnostic procedures.

Our study has several limitations, including being conducted at a single pediatric outpatient department, which may limit the generalizability of the findings to other settings. The retrospective design of the study could introduce bias or lead to incomplete data collection. Additionally, the reliance on self-reported compliance and reasons for non-compliance may be affected by recall or social desirability bias. Communication challenges in pediatric patients, along with potential unmeasured confounders, also pose limitations to the study's findings.

Conclusion

In conclusion, our study revealed that male patients predominated and that respiratory illnesses were the most common reason for pediatric outpatient visits. Compliance with medications was overall high, with higher adherence observed in older children and those from higher socioeconomic backgrounds.

Factors such as attender misunderstandings, financial constraints, and medication-related issues contributed to non-compliance. Our findings highlight the need for tailored interventions to address these factors and improve medication adherence, ultimately enhancing healthcare outcomes for pediatric patients.

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