

Pediatric Population Home Medication Review for Drug Compliance Assessment A Community-Based Study

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Abstract

Objective: Drug compliance is a key factor in determining a treatment's safety and effectiveness. Medication compliance is the question of whether a patient is taking their medications as prescribed by a doctor and in the appropriate quantity and timing. Failure to comply can result in therapy failure or have long-term effects. Due to their unique pharmacokinetic characteristics, the pediatric population is a particularly vulnerable segment of society and needs to be handled with the utmost caution. The information regarding pediatric compliance was gathered for this community-based prospective trial by reviewing each study subject's home medication regimen.

Methods: In this community-based prospective study, which was conducted by Rajendra Institute of Medical Sciences, Ranchi within a year, data on pediatric compliance were gathered by reviewing each study subject's home prescription regimen. 150 children participated in the trial, and they were evaluated for their medication compliance.

Results: It was discovered that 52% of the population showed low adherence, 30% demonstrated medium adherence, and 18% demonstrated strong adherence. The research population's noncompliance with its treatment was around 82%.

Conclusion: Since the majority of the participants in this research were noncompliant, it is essential to raise public awareness about drug adherence.

Keywords: Compliance, at-home Medication Monitoring, and Child Medication Adherence.

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Introduction

The WHO has said that the definition of medication adherence is the "degree to which the person's behaviour conforms with the approved instructions from a health care practitioner" [1-4]. This study's objective is to monitor patients' medication compliance while taking the paediatric population into mind. Due to physiologic changes brought on by their stage of

development, the paediatric population is viewed as a fragile group that needs special care [5-7].

The International Conference on Harmonisation (ICH) E11 classifications have divided the paediatric population into the following groups: pre-term newborns, newborns (0-28 days), infants (>28 days-12

months), toddlers (>12 months-23 months), preschoolers (2–5 years), school-age children (6–11 years), and adolescents (12–18 years) [8-10].

Drug compliance is crucial to a patient's therapy [Figure 1]. The acquired therapy

must be maintained in order to benefit the most from it. In particular, when it is believed that the pharmacokinetics and pharmacodynamics of the juvenile population are different from those of adults, compliance is essential to accomplishing therapeutic goals [11].

Conceptual Model for Factors Contributing to Medication Adherence

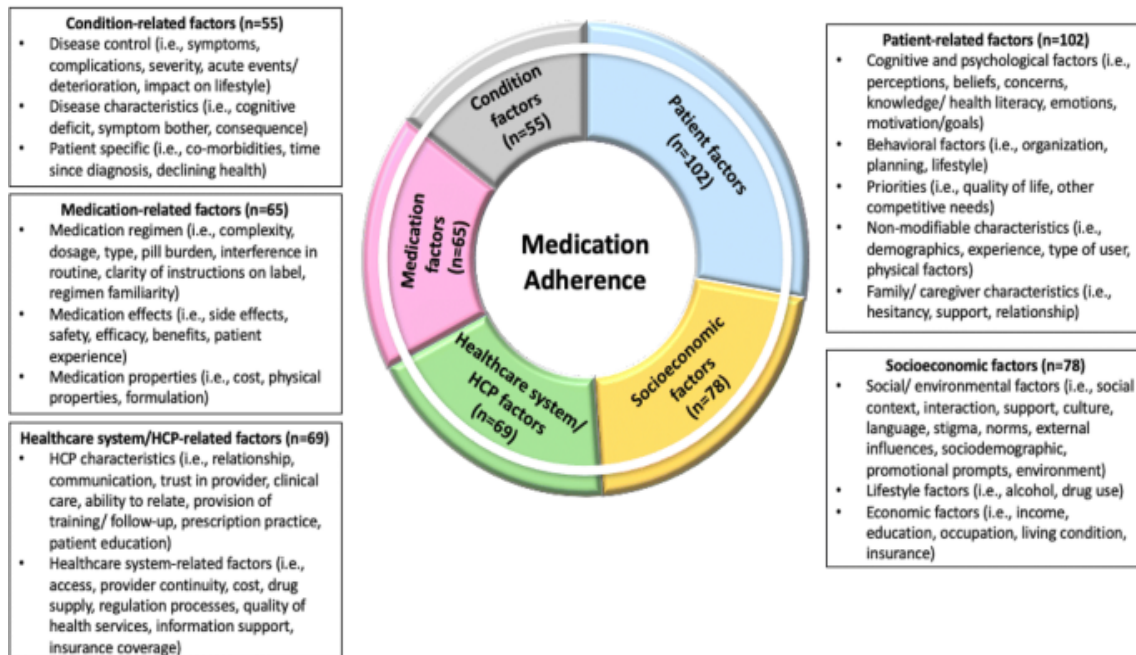


Figure 1: Drug compliance

It can occasionally be difficult for parents or carers to get children to take their medicine, depending on the child's age. In contrast to inpatient care, when nursing staff will ensure timely administration of various pharmaceuticals, it is extremely difficult for health professionals to ensure the timely provision of oral medications [12, 13]. Even when they have chronic diseases, children increasingly take ownership of their medication use at a range of ages [14]. Early on, kids typically assume responsibility for their own medicine administration. Both the child's compliance and the compliance of the parents' or carers' compliance should be taken into account when evaluating paediatric subjects less than 12 years old. Parents and carers of paediatric patients have a key role in medication delivery,

especially because children frequently lack a thorough grasp of their disease or are oblivious of their condition [15].

As a result of their possible dislike of the taste or smell, young children might be challenging for parents to administer drugs to. Information about the patient's health and treatment was acquired during a home medication review (HMR). HMR supports the optimal medication administration to patients at home through a patient-centered approach. It comprises thoroughly reviewing the patient's medication schedule in order to identify any medication-related needs and treat them, as well as to identify and prevent medication mistakes.

Methods

Study Design: Within a year, this community-based prospective

observational research was carried out by Rajendra Institute of Medical Sciences, Ranchi.

Methodology: The information from the patients who qualify for the research was collected using a form that was especially created for data collection. Demographic information, presenting complaints, medical and drug histories, diagnoses, treatments (including dose, frequency, formulation, and duration), and patient progress were all included in the data gathered. The specifics were kept a secret.

Sample Size: A total of 150 research participants- including several individuals from the same home who meet the criteria for inclusion- were used in the study.

Inclusion criteria:

Patients under the age of 18 who are taking medicine for any condition (chronic or ongoing)

Exclusion criteria:

- Patients above the age of 18
- Patients who lack a decent place to stay or were homeless.

Statistical analysis: Microsoft Excel 2010 was used to assess the data that had been obtained. In order to scrutinise the study,

the distinct categories of the study population were divided using filters.

Results

The study involved 150 paediatric patients in the community, 82 of whom were male and 68 of whom were female. Information was gathered from the patients, their carers, or both.

Diseases visible in the substantants

In the pediatric population, there are around 36 distinct illnesses or symptoms that have been observed. The following list of conditions and symptoms is accompanied by the corresponding numbers [Table 1]: Abdominal pain (5), anemia (4), appendicitis (2), asthma (14), allergy (7), cold (47), cough (59), chicken pox (3), constipation (4), conjunctivitis (1), dengue fever (5), Down's syndrome (2), diarrhea (2), eczema (1), encephalitis (2), ear infection (1), fever (84), gastritis (2), hand foot mouth disease (2), loose knee cap (1), mouth candida (1), malaria (2), measles(1), nephrotic syndrome (1), pneumonia (4), rashes (6), seizures (12), sino-nasal polyposis (1), skin infection (4), thalassemia (2), throat infection (2), tinea infection (7), urticarial (2), UTI (1), vomiting (6), wheezing (4).

Table 1: Disease related to Pediatrics.

Conditions	No. of patients
Anemia	4
Allergy	7
Asthma	14
Seizures	12
Wheezing	4
Sinonasal polyposis	1
Thalassemia	2
Down's syndrome	2
Nephrotic syndrome	1
Eczema	1
Urticaria	2
Skin allergy	4
Abdominal pain	5
Appendicitis	2
Cough	59

Chickenpox	4
Cold	47
Constipation	4
Fever	84
Gastritis	2
Mouth candida	1
Encephalitis	5
Dengue	2
Throat infection	4
Diarrhea	2
Conjunctivitis	1
Hand-foot mouth disease	2
Rash	6
Pneumonia	4
Malaria	2
UTI	1
Ear infection	1
Tinea/ ringworm	7
Vomiting	6

In addition to the majority of children suffering from fever, cough, and colds, there were also a sizable number of cases of asthma and seizures. 52 (34.6%) of the overall individuals had chronic illness, whereas 98 (65.3%) had acute disease.

When these instances are broken down by gender, it can be observed that 33 of the male subjects have chronic illnesses while 49 have acute ones, and 19 of the female subjects have chronic illnesses while 49 have acute ones.

Adaptiveness to therapy among children's patients

Using information from the carer and the eight-item Morisky Medication Adherence Scale-8 (MMAS-8), medication adherence for each study patient was documented. The Morisky Medication Adherence Scale is a validated evaluation instrument used to

evaluate patient population adherence. It comprises of 8 questions, each of which has a score. As the score rises, so does adherence, and the highest score possible is 8. It is separated into three categories: high (=8), medium (6–8), and poor (6) adherence.

It was shown that 27 (18%) of the population was very adherent, 78 (52%) of the population had poor adherence, 45 (30%) had medium adherence, and 45 (30%) had average adherence. As a result, it can be shown that more than half of the population adheres poorly. 78 (52%) low adherent patients were divided into age groups, and it was discovered that 24 (30.76%) of the population was between the ages of 1 and 5, while the remaining 30 (38.46%) belonged to the 6-to-10-year age group [Table 2].

Table 2: Low research population adherence

Age (years)	Study participants
1-5	24 (30.76%)
6-10	30 (38.46%)
11-18	24 (30.76%)

Discussion

HMR is a collaborative workgroup of healthcare professionals that is patient-focused and offered in the community environment to improve patient knowledge and the appropriate administration of medicines [16-19]. This helps patients who are receiving therapy at home to achieve the greatest outcomes possible. This study examines the home medication review in paediatric patients in relation to a number of variables, including medication adherence, population drug storage, and medication mistakes, particularly those related to dose and administration.

150 children who were taking medication for a chronic or ongoing condition made up the study's population. 52 people, or 34.6% of the population, had chronic diseases, whereas 98 people, or 65.3%, had acute illnesses. For the optimum treatment result, adherence to the prescribed therapy is required. The MMAS-8 scale, which consists of 8 questions and assigns scores, is used in this study to measure the adherence of the paediatric patients. The score is based on a scale from 0 to 8, with 8 representing strong adherence, 6 representing medium adherence, and 0 to 6 representing low adherence [20-22].

Similar to research by Sarah El-Rachidi et al., where only 9.3% of the population was entirely adherent while the bulk of the population were not adherent to the therapy, it was discovered in this study that 18% of the population was completely adherent to the therapy [23-26].

Paediatric nonadherence is influenced by a number of variables, including age, socioeconomic status, family structure, dosage frequency, and formulation flavor [27]. Numerous research have been conducted in the area of paediatric population medication adherence, however the bulk of these studies focused on a specific condition that this population suffered from and its adherence to treatment [28-30].

In research conducted by Kristin Loisel et al., it was shown that the medication adherence rates ranged from 12% to 100% across all drugs for the paediatric population with sickle cell disease [31-33]. When the adherence rates of patients for acute and chronic ailments are compared, it is discovered that the population with chronic diseases is more adherent (23%) than the population with acute problems is (15%), based on a perfect score of 8 on the recognised Morisky scale [33].

Conclusion

By taking the medication as directed, one can get the desired therapeutic outcome. However, if this pattern is not followed, the desired consequence might not happen or might happen just momentarily. The majority of the study's paediatric participants did not adhere to their treatment plans in full. This exemplifies the need to ensure adherence in the paediatric population. Particularly for parents and other kid carers, it is critical to stress the importance of following a doctor's prescription when taking medicine.

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