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Patient Counselling for Improving Medication Adherence and Health Care in Pediatrics- An Educational Intervention Study



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ABSTRACT

Poor medication adherence is common in children but there is uncertainty about the best way to enhance medication adherence in this group. Medication compliance is critical for all aspects of Pediatrics, it must be addressed for both acute and chronic uses of medications. Poor compliance places children at risk for problems such as continued disease, complicates the Physician-Patient relationship and prevent accurate assessment of the quality of health care provided. It is an interventional study which includes the paediatric patients in paediatric department of Santhiram medical college and general hospital to improve the medication adherence and health care in paediatric patients. Among 150 pediatric patients, 48 were adhere and 102 were non adhere towards medication. In these 102 patients we assessed for factors affecting medication adherence, based upon the factors counselling and tips were given to their care givers. Before and after counselling the adherence level was measured by using Medication adherence questionnaire. Before counselling 31.9% children were adhere, 68% children were non adhered, 94.8 % children were adhere after counselling, 5.2% children were non adhere. adherence level was improved up to 95% in study population was observed in the study. This study concluded that medication non adherence in paediatrics occurs for a variety of reasons and multiple factors and there are many solutions to enhance medication adherence in paediatric population which includes individualized counselling, regimens and strategies to overcome factors affecting medication adherence. Mainly pharmacist can help to address barriers for adherence and suggest ways to reduce them and counselling leads to improve in adherence and health care in paediatrics.

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INTRODUCTION

Medication adherence, as it relates to health care is the extent to which a person's behavior coincides with medical or health advice. Medication adherence is critical for all aspects of Pediatrics, specifically in successful treatment, disease prevention, and health promotion. Compliance depends on the patient's and physician's committing to the same objectives. It is unfortunate that numerous studies and physician accounts reveal difficulties in achieving compliance with pediatric medication therapy [1]. Medication adherence is a multifactorial problem involving the patient, caregivers, and the entire interdisciplinary health care team, including pharmacists. Medication adherence can be defined as "the extent to which a person's behavior — taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider [2]. Former US Surgeon General Dr. C. Everett Koop once said, "Drugs don't work in patients who don't take them [3]. In other

words, prescription medications can only be effective when they are taken correctly. According to WHO, Poor medication adherence has multifactorial causes that need to be understood before interventions can be designed to improve medication adherence [4].

According to WHO, there are multiple factors leading to poor medication adherence, normally classified into five categories: socioeconomic factors, therapy-related factors, patients-related factors, condition-related factors, and health system/healthcare team-(HCT-) related factors [5]. With an understanding of whether the non-adherence is primary (initiation of pharmacotherapy) or secondary (implementation of the prescribed regimen), and what factors have led to it, a proper intervention can then be tailored individually to improve the medication taking behavior of each patient. Improving the medication adherence in pediatrics by 1.Education child and care givers about treatment, 2.Identify the different barriers to non-adherence and help to overcome it by using tips like a. Incorporate dosing into daily routines and make medication at the same time each day (eg, after brushing teeth, before a meal), b. Keep a tally sheet of doses, mark a calendar or use a pill box, c. use a reminders like alarms etc. d. Ask friends or family members or nurse to remind you, e. Ask

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physician to prescribe sweet flavoring syrups etc [6]. Several effective interventions for improving medication adherence, including more convenient care (e.g., regular phone contact with the physician, pharmacist), reminders, information counseling, self- management plans (e.g., self-monitoring with regular medical review and a written action plan), reinforcement and other forms of supervision or attention [7]. The current research work aims to study the various factors affecting the medication adherence in pediatrics. The main objective of the study is to improve the medication adherence levels by counselling caregivers and children and also to improve the health care of pediatric patient.

METHODOLOGY:

Place of Study: Santhiram Medical College and General Hospital, Nandyal, which is a Tertiary care Teaching Hospital.

Study design: It is an interventional study which includes the paediatric patients in paediatric department of Santhiram medical college and general hospital to improve the medication adherence and health care in paediatric patients.

Study site: The study was conducted at a tertiary care hospital, Nellore.

Study population: Pediatric patients from Inpatient and outpatient units of Pediatric Department of Santhiram Medical College and General hospital in Nandyal. Estimated Sample size is 150.

Study duration: This study was conducted for 6 months.

Study criteria/Patient enrolment: Patients are enrolled in the study based on inclusion & exclusion criteria

a) Inclusion criteria:

- Patients (care givers) who are willing to participate in the study.
- Patients aged between 1 to 12 years.
- Both out patients and in patients.

b) Exclusion criteria:

- < 1-year Pediatrics.
- Patients (care givers) who are not willing to co-operate with the study.
- Patients (care givers) who do not provide proper information.

Study materials:

- Case sheets
- Prescriptions
- Discharge medication charts
- Nurse notes

Study method:

- Questionnaire on factors affecting medication adherence.
- By interviewing the patients and their care givers.
- Medication adherence rating scales.
- Pill charts / calendars.
- Nurse notes.

RESULTS

The prospective interventional study was conducted for a period of six months December to May 2021 in paediatrics department (inpatient and outpatient) at Santhiram Medical College and General Hospital, Nandyal, which is a Tertiary care Teaching Hospital. Factors affecting medication adherence in study population tabulated in Table 1.

Gender	Male	108 (65.2%)
	Female	42 (34.8%)
Age	1-3	33(21.9%)
	4-7	47(31.3%)
	8-10	35(23.2%)
	11-12	35(23.3%)
Adherence	Adhere	48(31.9%)
	Non adhere	102(68.1%)
Therapy related factors	Formulation (type of dosage form)	46 (45%)
	Multiple medication	14(13.7%)
	Quantity	27(26.4%)
	Frequency of dosing	27(26.4%)
	Duration of therapy	19(18.6%)
	Taste	61(59.8%)
Patient related factors	Vomiting after intake	14 (13.7%)
	Fear towards medication	48 (47%)
	Apparent recovery	25 (24.5%)
	School	18 (17.6%)
	Sleeping	6 (5.8%)
	Just (Ignorance)	62 (60.7%)
	Medication finished	4 (3.9%)
	Didn't understand	7 (6.8%)
	Age	24 (23.5%)
	Culture	5 (4.9%)
Condition related factors	Mental condition	5 (50%)
	Genetics	5 (50%)
Socioeconomic status	Family instability	8(34.7%)
	Lack of health insurance coverage	5(21.7%)
	Low literacy of care giver	10(43.34%)

Table 1: Factors affecting medication adherence in study population.

During the study period we collected 150 pediatric cases. Among the 150 patients, males are N=98 (65.3%) and females are N=52 (34.7%). In the study group of 150 paediatric patients, 33 (22%) were in the age group of 1 - 3 years, 47 (31.3%) were in the age group of 4 - 7 years, 35 (23.3%) were in the age group of 8 - 10 years, 35 (23.3%) were in the age group of 11 - 12 years.

In the adherent and non-adherent wise distribution of paediatric patients, Among 150 paediatric patients N=48 (32%) was adherent and N=102 (68%) was non adherent. From the above data it was observed that 3/4th of study population was non adherent towards medication.

In therapy related factors, 59.8% of paediatric affected with taste, 26.4% affected with quantity, 26.4% of paediatric affected with frequency of dosing, 13.7% of paediatric affected with multiple drugs, 18.6% of paediatric affected with duration of therapy and 45% of paediatric affected with formulation. From the above data we observed that what are all the therapy related factors majorly affecting the medication adherence in paediatrics. [8]

In patient related factors, 13.7% of paediatrics affected with vomiting after intake, 47% of paediatrics affected with fear towards medication, 24.5% of paediatrics affected with apparent recovery, 17.6% of paediatrics affected with schooling, 5.8% of paediatrics affected with sleeping, 60.7% of paediatrics affected with just forget, 3.9% of paediatrics affected with bottle got finished, 6.8% of paediatrics are affected with not understanding, 23.5% of paediatrics are affected with age, 4.9% are affected with culture. From the above data we observed that what are all the patient related factors affecting medication adherence in paediatrics [9]. Figure 1 indicates Adherence level of study population.

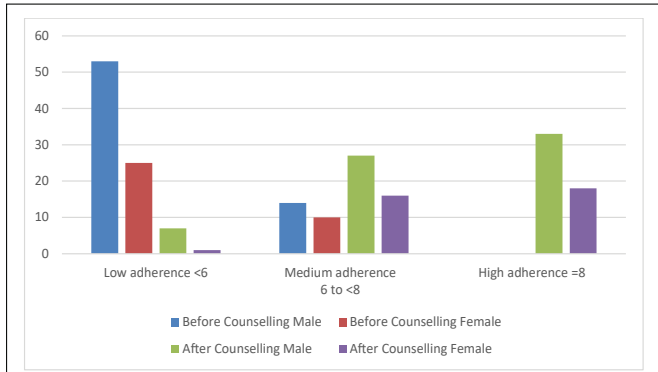


Figure 1: Adherence level wise distribution of subjects in study population (Before and after Counselling).

In adherence level wise distribution of paediatric patients, before counselling out of 102 patients, 53 were male and 25 were female are in the low adherence level (<6), 14 were male and 10 were female in medium adherence (6-<8) and 0 patients are high adherence (8). After counselling out of 102 paediatric patients, 7 were male and 1 were female in low adherence (<6), 27 were male and 16 were female in the medium adherence (6-<8) and 33 were male and 18 were female in the high adherence (8). From the above data it was observed that the adherence level in paediatrics was improved before and after counselling. Statistical analysis of adherence level wise distribution of subjects in study population (Before and after Counselling) shown in Table 2.

Adherence level	No. of patients (N=102)				p-Value
	Before counselling	Before Counselling (Mean ± SD)	After counselling	After Counselling (Mean ± SD)	
Low adherence <6	78		8		0.0004 (Significant)
Medium adherence 6 to <8	24	4.8 ± 1.16	43	7.1 ± 1.01	
High adherence =8	0		51		

Table 2: Statistical analysis of adherence level wise distribution of subjects in study population (Before and after Counselling).

In the comparison of mean and SD (standard deviation) of adherence levels before and after counselling are 4.8 ± 1.16 and 7.1 ± 1.01 . These results were treated statistically by the use of paired t-test at a significant level of p, the value is less than 0.05 ($0.0004 < 0.05$), which is significant [11]. Health care counselling wise distribution of subjects in study population represented in Figure 2.

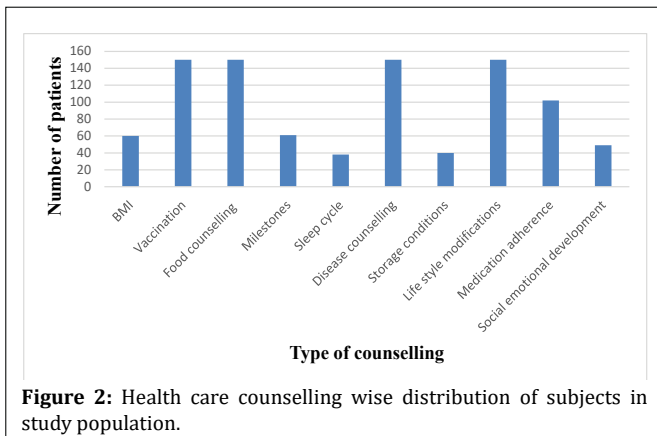


Figure 2: Health care counselling wise distribution of subjects in study population.

In health care counselling wise distribution, 60 patients were educated about BMI, 150 patients were educated about vaccination, 150 patients were educated about food counselling, 61 patients were educated about milestones, 38 patients were educated about sleep cycle, 150 patients were educated about disease counselling, 40 patients were educated about storage conditions of specific

medication like antibiotics, 150 patients were educated about lifestyle modifications, 102 patients were educated about medication adherence, 49 patients were educated about Social emotional development. Based upon the age of the patient the counselling was given to paediatrics and their care givers. [10]

CONCLUSION:

In our study we concluded that medication non adherence in pediatrics occurs for a variety of reasons and multiple factors like therapy related factors, patient related factors, illness and characteristics of individual child such as developmental level and Psychopathology, and characteristics of family system in which child lives. On the other hand, community, occupation and education level of parents also affects the medication compliance in pediatrics. There are many solutions to enhance medication adherence in pediatric population which includes individualized counselling, simplified regimens, use of technology and strategies to improve taste and advising tips to overcome factors affecting medication adherence. Good communication with patients and families, educating them in health matters and treatment regimens leads to success of the therapy. Mainly pharmacist can help to address barriers for adherence and suggest ways to reduce them and counselling can lead to improve in health care of patients.

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Conflict of Interest

None

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Ethical Committee Approval:

We Have Memorandum of Understanding with Santhiram Medical College and Hospitals to Conduct the Study.

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