

Original Research Article

Self-medication pattern among children attending a tertiary hospital in South India: a cross-sectional study

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ABSTRACT

Background: Administration of medications by care-givers to children without medical consultation is termed self-medication. Published literature on self-medication pattern in Indian children is scanty. Primary objective of the study was to study the prevalence of self-medication. Secondary objectives were to study its characteristics and the relation between demographic characteristics and self-medication.

Methods: This descriptive study was performed in the outpatient department of Institute of child health and hospital for children. All children between 1 month and 12 years of age who attended the outpatient department during a particular time of the day on particular days of week were included in the study. After noting down the demographic characteristics, history of self-medication was elicited. For children who self-medicated, inciting illness, name of drug, source, reason and adverse events were noted down. Prevalence of self-medication was expressed as proportion with 95% confidence interval. Relation between demographic factors and self-medication was determined using chi-square test.

Results: Prevalence of self-medication was 32% (95% confidence interval 28-35%). Common illnesses leading to self-medication were fever, cough and cold. Commonly used drugs were paracetamol, anticold medications and antibiotics. Most of them used previous prescription to procure the drugs and previous experience on efficacy was the most common reason cited. Older children were more commonly self-medicated than the younger ($p = 0.001$).

Conclusions: Self-medication is encountered in 32% of children attending the outpatient department of the hospital and is more common in older children.

Keywords: Children, OTC drugs, Self-medication, South India

INTRODUCTION

WHO recognizes self-medication as an element of self-care.¹ Self-medication is defined as the utilization of drugs to treat self-diagnosed disorders or symptoms or the irregular or continuous use of a prescribed drug for chronic or repeated diseases or symptoms.² In pediatric context, self-medication implies administration of medication by the care giver without medical consultation. Although over-the-counter (OTC) drugs are meant for self-medication and are of proven efficacy and

safety, their improper use due to lack of knowledge of their side effects and interactions could have serious implications, especially in extremes of ages.³

The main problem with self-medication with antibiotics is the emergence of resistance.⁴

Economic, political and cultural factors have contributed to the growth and spread of self-medication worldwide. These include greater availability of drugs, irresponsible publicity, pressure to convert prescription only drugs to

over-the-counter drugs, access to health-care, education of parents and their socio-economic status.⁵

The prevalence of self-medication as stated by various studies done all over the world varies from a value as low as 25% to as high as 75%. Very few studies have been published regarding self-medication in Indian children.⁶⁻¹⁰ There is not enough data on the common illnesses for which self-medication is resorted to, common drugs used, number of drugs used, source of acquiring these drugs and reason for self-medicating. The objectives of this study are to examine the prevalence and characteristics of self-medication and relation of demographic characteristics to self-medication in our children.

METHODS

This descriptive study was conducted in the out-patient department of the Institute of child health and hospital for children, Egmore, Chennai, India. This hospital is the largest government funded pediatric hospital in south Asia. It functions as a tertiary care center receiving referrals from all over the Tamilnadu state and from the neighbouring states too.

All children between one month and twelve years of age who attended the OPD were considered eligible. Children who attended the OPD on two fixed days in a week at a fixed time were included. Children whose caregiver did not understand the local language and those who did not give consent were excluded from the study. Based on prevalence shown in previous study by National Institute of Nutrition, Hyderabad, India, with an alpha error of 1% and allowed error of 15%, a sample size of 685 was planned.⁶

After obtaining informed verbal consent, the structured questionnaire was administered to the caregiver in local language and their response recorded. Name, age, sex, relationship of the caregiver to the child, area of residence (rural or urban), distance from the nearest 24 hours health facility-both government and private and socio-economic status as per the Modified Kuppusamy scale were noted for all respondents.¹¹

Caregivers were questioned whether the child was self-medicated (by the parents/ care givers) in the preceding month. For those who replied in affirmative, details regarding the illness for which the drug was given, the drugs used, duration, source of drugs, reason for not consulting a doctor and adverse events if any, were noted.

Demographic and clinical variables were expressed in frequencies with their percentage. Prevalence of self-medication was expressed in proportion with 95% confidence interval. Association between demographic factors and outcome variable was analyzed using Pearson chi-square test and p-value less than 0.05 was considered significant.

RESULTS

Total of 62,246 children attended OPD during the study period, of which 8826 children attended the OPD on the designated days. Out of 8826 children, 878 were recruited of whom 62 were excluded as they were not well versed with the local language. Caregiver of 62 children did not give consent for the study and had to be excluded. Overall, 754 children and their parents participated in the study and the response rate was 85%.

Mean age of children included in our study was 3.86 years. Male to Female ratio was 1.52: 1. 631 (84%) children were from urban areas and 123(16%) were from rural areas. 374 (49.6%) children had a 24 hours government health facility within 2 kilometers from their residence and 530 (70%) had a 24 hours private health facility within 2 kilometers from their residence. 4 children belonged to high socio economic class while 212 and 538 belonged to middle and lower class respectively.

Out of 754 children included in the study, 239 had been administered self-medication by caregivers in the past month which means a prevalence of self-medication is 32% (95% confidence interval 28% - 35%).

Most common illness for which self-medication was resorted to was fever in 183 children (77%) followed by cough and cold in 144 children (60%). Most commonly used drug was paracetamol which was used in 167 children (70%). Paracetamol was used as the only drug in 89 children (37%) and in combination with some other drug(s) in 78 children (33%). Cough and cold medication was used by 64 children (27%) and antibiotics by 48 children (20%) common drugs used for self-medication in children are shown in Figure 1. Single drug was used by 148 children (62%) and multiple drugs were used by 91 children (38%). Mean drug used per patient was 1.5. Mean duration of self-medication was 2.5 days.

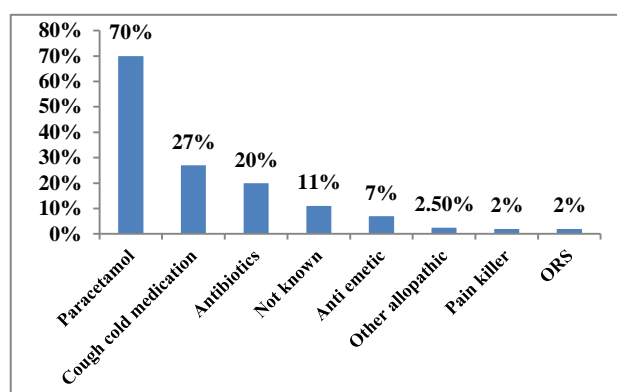


Figure 1: Drugs used for self-medication.

Previous prescription was used to procure the drug(s) in 105 children (44%). Next common source was pharmacy in 78 children (35%). Mother was the source in 41 children (17%), followed by father in 6 (3%), grandparent in 4 (2%) and neighbor in 4 (2%) and a nurse in 1 (0.4%).

Most common reason cited was previous experience of efficacy of drug in 108 children (45%) followed by the perception that the illness was too trivial to warrant a doctor consultation in 66 children (28%). Another 48 (20%) did not consult a doctor due to lack of time and 17 (7%) due to lack of money. Only two patients reported adverse events-both following medicine purchased in pharmacy. One patient was a 2.5 years old boy who developed rash following ingestion of paracetamol and a cough and cold medication and the other was a 11 years

old girl who was said to feel 'weak and giddy' following ingestion of paracetamol, an antibiotic and a cough and cold medication.

When the association between the demographic factors and self-medication was analyzed by univariate analysis, it was found that only age had a statistically significant association with self-medication ($\chi^2 = 18.5$, $p = 0.001$) (Table 1). Prevalence of Self-medication increased with increasing age.

Table 1: Uni-variate analysis of demographic factors and self-medication.

Demographic characteristic	Groups	Self-medicated Number (%)	Not Self-medicated Number (%)	Chi-square test
Age	1 month- 1 year	39 (21)	149 (79)	$\chi^2 = 18.5$ $p = 0.001^*$
	1-5 years	115 (32)	239 (68)	
	5-10 years	65 (38)	105 (62)	
	10-12 years	20 (48)	22 (52)	
Sex	Male	138 (30)	317 (70)	$\chi^2 = 0.99$ $p = 0.32$
	Female	101 (34)	198 (66)	
Residence	Urban	200 (32)	431 (68)	$\chi^2 = 3.16$ $p = 0.21$
	Rural	39 (32)	84 (68)	
Distance (from nearest hospital)	< 2 km	112 (30)	262 (70)	$\chi^2 = 1.05$ $p = 0.31$
	> 2 km	127 (33)	253 (67)	
Socio economic scale	Upper class	1 (25)	3 (75)	$\chi^2 = 1.51$ $p = 0.21$
	Middle class	76 (36)	136 (64)	
	Lower class	162 (30)	376 (70)	

* means p value is highly significant.

DISCUSSION

In this study, prevalence of self-medication was found to be 32% which is similar to the 37% prevalence in urban area observed in the study conducted by NIN, Hyderabad, India.⁶ Our results are also similar to a 25% prevalence of self-medication observed in German study, the largest one with a sample size of 17,450 children.¹² Some studies show prevalence as high as 50-70%.^{7,9,13,15,17} Previous studies have shown that self-medication is more common with the educated and affluent.^{7,12} The fact that our study population mainly belonged to lower socio economic class, could be responsible for lower rate of self-medication in our subjects. Further, self-medication may be considered as an indirect indicator of quality of health care services and hence prevalence of self-medication is low in our region due to better access to health care.

Fever, cough and cold were the most common symptoms that were treated by self-medication in this study which is similar to many studies.^{8,12,16}

Commonest drug used for self-medication was paracetamol followed by anticold medications and antibiotics. This is in agreement with other studies.^{8,9} Usage of paracetamol by the caregiver for bringing down the temperature of a febrile child is acceptable and

advisable. Usage of antibiotics as self-medication is strictly condemnable as it leads to emergence of antibiotic resistance. Though some anticold medications are approved for sale over-the-counter, their use in young children has resulted in many complications including death and hence they are approved by FDA for use in children more than 2 years only.^{17,18} However, cochrane review states that the evidence for efficacy of anticold medicines is weak.¹⁹ Hence their use has to be discouraged, though not condemned. More than one drug was used for self-medication in a sizable number of children. Not many studies bring out whether patients resort to monopharmacy or polypharmacy. Average duration of 2.5 days observed in our study is similar to that observed in other studies.⁹

Previous prescription was most commonly used to procure the drug. Other common sources were pharmacist and mother. This is against other studies which state pharmacist or mother as the commonest source.^{13,16} Possible reasons could be the low educational level of mothers as represented by lower socio economic class. Further using previous prescription gives parents a false sense of security that the treatment is medically correct. On the contrary, lack of clinical assessment by qualified medical professional results in overlooked diagnosis and inappropriate treatment. Though over-the-counter drugs

are approved for sale in pharmacies, the ground reality is that in many pharmacies, drugs are dispensed by unqualified people who may not be able to provide the required information to their customers. Hence, both these practices carry significant risk for children.

Most common reason cited was previous experience of efficacy of the drug followed by the perception that the illness is too trivial to warrant a consultation which is similar to the observation in other studies.²⁰ Lack of time and money were cited as a reason by minority. Adverse reactions were reported in just two patients and that was not counter checked by blood level of the drug as this was beyond the scope of this study.

The observation that children of older age were more commonly self-medicated than younger children, is supported by other studies.^{12,13} Other demographic factors like sex, area of residence-urban and rural, distance from nearest health facility and socioeconomic class did not have a statistically significant association with self-medication. This may reflect the perspective that the factor underlying self-medication is the attitude rather than necessity.

As previously stated, WHO recognizes self-medication as an element of self-care and defines the role of pharmacists in self-medication.²¹ The joint statement by International Pharmaceutical Federation and the World Self-Medication Industry encourages responsible Self-medication by listing responsibilities of pharmacists and manufacturers of non-prescription medicines.²² Responsible self-medication is where the patient is provided all necessary information about the medicine and uses only non-prescription drugs for self-medication. Only when responsible self-medication is practiced it will not be a menace to the society.

Further, educational interventions aimed at young mothers and adolescents can decrease the misuse of prescription-only drugs. Strict enforcement of rules at pharmacy level is required to prevent over-the-counter sale of prescription-only drugs. These measures can go a long way in decreasing undesired self-medication.

Since this was a hospital based study, caregivers showed interest to participate and gave a responsible reply. Hence the response rate was good. Recall bias was less as self-medication history was elicited for a month as against 6 months-1 year period of other studies.¹⁵ One limitation was the possibility of the caregiver giving a socially desirable reply rather than truth due to fear of care being compromised. Further, since the majority of patients attending this hospital belong to low socio economic class, the more educated and affluent were under-represented in this study. Since our hospital caters to children less than 12 years, adolescents too were under-represented.

Further community based study including urban as well as rural areas with equal representation of all age groups and socio economic classes with a simultaneous scrutiny of pharmacy sale pattern can throw more light on the issue.

CONCLUSION

The prevalence of self-medication among children attending outpatient department of institute of child health, Egmore is 32%. Fever, cough and cold are common complaints leading to self-medication and commonly used drugs are paracetamol, anti-cold medications and antibiotics. Previous prescription is commonly used to procure the drugs and previous experience on efficacy of the drug is the commonest reason. Self-medication is more common in older children than younger children.

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