

Pattern of Non-prescription Drug Use in Febrile children Prior to Outpatient Visit in a Semi Urban Tertiary Hospital

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Abstract

Background: Use of drugs without any prior medical consultation is a common practice in lower and middle income countries which causes health hazards and misuse or overuse of drugs. Fever is a common symptom for which parents seek medical care according to their knowledge and ability.

Objective: To observe the patterns of drug use, source of drugs, and identify the factors associated with the use of non-prescription drugs in febrile children.

Methods: This is a hospital based observational cross sectional study conducted over a period of four months in the Ashulia Women and Children Hospital (AWCH). Study population was the febrile children attending paediatric out patient department. Data was collected from parents/caregiver through a pretested questionnaire.

Result: Among 614 study children 77.2% had fever for less than 5 days and out of them 544(90.7%) children were treated with different types of drugs. Out of them 90.1% children had drugs without any prescription mostly from drug retailers (54.8%). Commonly used drug was antipyretic (99.3%) followed by antibiotic (49.1%) and antihistamine (31.9%) and 73.16% children were treated with multiple drugs. Cefixime (40.8%) was found to be a widely used antibiotic. Perception of mild illness (53.3%) was reported predominantly as a cause of using drugs without medical advice.

Conclusion: This study reveals use of multiple drugs including antibiotics for treating febrile illness of children prior to medical consultation and treatment was most commonly taken from drug retailers.

Keywords: Non-prescription drug, febrile children.

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Introduction:

Irrational use of medicines is a worldwide problem increasing morbidity, mortality and costs through increasing adverse drug reactions and hence patients

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are not achieving their desired outcomes.¹ Rational drugs use requires patients to receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest possible cost to them and the community.² Practice of medicine use in a community is considered as an indicator of the quality of the healthcare system. WHO estimates that more than half of all the medicines are inappropriately prescribed, dispensed or sold and such practices are most prevalent in healthcare settings in the developing world.^{3,4}

Drug administration without any prior consultation with authorized health care providers is a common practice worldwide both in adults and children. It is far more widespread in lower and middle income group countries where the health regulatory system is not strong. It is a serious public health problem in Europe with a reported prevalence of 21% in Lithuania, 19.8% in Romania, 15.2% in Spain, 21% in Portugal and 31%

in the Czech Republic.⁵ In developing countries, reported self-medication prevalence rates are much higher, 84% in Pakistan 78% in Saudi Arabia, 67% in Nigeria and 79% in India.^{5,6} Bangladesh is not out of this trend and it is a long continued problem posing a serious threat to public health. Children are more vulnerable to health hazards due to administration of drugs without any prescription. They are commonly treated for fever, cough, diarrhoea, abdominal pain, poor appetite etc. Fever is found to be the commonest cause in different studies for which parents used drugs without prescription.

Self-care is the primary response to disease in the community specially in case of children. Decisions are taken by parents themselves or with the assistance of friends, family members, and drug dispensers. With the context of rapid socioeconomic change with urbanization and migration, decisions of self-care is also extended by the influence of the internet and easy availability of drugs at hand. In Bangladesh the doctor population ratio is 6.5: 10000 and furthermore this ratio is not uniform throughout the country.⁷ In countries like Bangladesh where uniform healthcare service is not available and minimum health service is inaccessible to a large population, use of drugs without prescription is increasing. Other factors like lack of knowledge and awareness about harmful effect of inappropriate use of drugs, lack of education, and economic conditions may also contribute to this practice. Rural people specially lower income groups are mostly dependent on local drug dispensers and nonqualified health care providers for medical help.^{8,9} Even in highly educated groups of urban areas the scenario is not so different.¹⁰ Misuse or inappropriate use of drugs may result in masking of diagnosis, inadequate dose and duration of treatment, use of multiple drugs, duplication of drugs of different pharmaceutical companies. This increases economic burden and causes misuse of resources. Moreover children are at risk of harmful drug interaction, adverse drug reactions.

Bangladesh is a lower middle income country (LMIC) where more than half of the antibiotics used in children are thought to be inappropriately prescribed, dispensed or sold.^{11,12} Global incidence of antibiotic resistance (AMR) is increasing at an alarming rate. There is

emergence of drug-resistant streptococcus pneumoniae which is a particular concern in paediatrics as pneumococci are the leading cause of meningitis, pneumonia, bacteraemia and otitis media in children.^{13,14} Other common emerging antibiotic resistant organism includes klebsiella pneumoniae, E coli, staphylococcus aureus, mycobacterium tuberculosis etc.^{15,16} It is observed that one of the significant contributors to the inappropriate use of antibiotics in Bangladesh are the drug shops and unqualified providers who supply antibiotics to a large proportion of the population which are most often unnecessary.¹⁷

Fever is common in children, most of which are of viral etiology.¹⁸ Under five children worldwide suffer from average 3 to 6 episodes of febrile illness per year which higher in lower and middle income countries.^{19,20} Febrile illness is associated with acute respiratory Symptoms (50-75%) and or gastrointestinal symptoms (10-25%).²¹ These patients need only symptomatic comfort and follow up. Instead a large group of children come to seek medical help after being treated with multiple drugs including antibiotics mostly without prescription.

There are studies regarding drug use in children conducted in the community based on parents' recall from a retrospective period of several months. This hospital based study was conducted to observe patterns of drug use in children prior to outpatient visit with the aim to identify the types of medicine used, source of medicine and factors associated with the use of nonprescription drugs.

Materials and Methods:

This is a cross sectional study carried out at the paediatric outpatient department of Ashulia Women and Children Hospital (AWCH), Ashulia, Savar during the period of January, 2022 to June 2022. This is a hospital in an industrial area where people from lower and middle income groups come to seek medical help. Febrile children of 1 month to 15 years who were registered for the first visit were included consecutively for the study. Very sick children who needed urgent admission or intervention and children attending without a caregiver or reliable attendant were excluded. Total 630 child caregiver pairs were enrolled according to inclusion criteria from the febrile

patients attending the outpatient department. They were interviewed after informed consent with a pretested questionnaire.

History

included drugs used for the present illness and their source, socioeconomic status of parents along with history of present and past illness which is also relevant for management of the febrile illness. Parents were assured not to disclose any personal issues. Moreover no intervention was done except providing necessary treatment and investigation for their illness. Names of medicine were confirmed from prescription, written slip or packet of used medicine produced by attendant. Some attendant could mention trade name of medicine they used. Out of total study population 16 were excluded due to incomplete response and finally 614 were considered for analysis. Data analysis was done by SPSS 25.

Results:

Total number of study children is 614 with a male to female ratio of 1.38:1. As per age distribution 51.8% children were of 1 to 5 year age group, 17.6% were more than 5 years to 15 years and 3.7% were 1 month to 3 months age. Most of the children (92.1%) were immunized as per EPI schedule. In 83.7% of children, mothers responded to the interview. Mother was the caregiver in case of 69.9% and grandparents (17.9%) were the second common caregiver, others being father, distant relatives, day care and paid caregiver. Most of the mothers (65.3%) were housewives and 31.8 mothers were employed. Regarding literacy rate of mothers 5.5% were illiterate, 17.7% completed primary education, 47.6% high school and 29.2% were students or completed HSC or above. Among the parents 48.2% have family income 20000 or more, 37.1% have 10 to 20 thousand, 9.9% have below 10000, and 3.7% of parents could not mention income (Table - I, II).

Among the study children 77.2% had fever of less than 5 days duration, 14.2% had fever of 5 to 7 days and 8.6% had a fever duration of more than 7 days. Most of the children had single or multiple symptoms along with fever. Commonest symptom was cough (67.3%) followed by runny nose (62.4%), loose stool (8.9%), vomiting (12.4%), headache (1.5%), sore

throat (1.6%) urinary complain (1.6%), other complaints (6.8%) like poor appetite, constipation, leg pain, rash etc. and 7.98% of children had no other complaints along with fever (Table - III, Fig.-1).

Table I
Demographic characteristics of the study children

Characteristics	Frequency (n - 614)	Percent (%)
Age		
1-3 months	23	3.7
>3-12 months	165	26.9
>12-60 months	318	51.8
> 60 months	108	17.6
upto 15 years		
Sex		
Male	358	58.3
Female	256	41.7
Immunization		
As per age	565	92.0
Partial	9	1.5
None	40	6.5
Caregiver		
Mother	429	69.9
Father	11	1.8
Grandmother	110	17.9
Other relative	25	4.1
Day care	15	2.4
Paid caregiver	12	1.9
Others	12	1.9
Respondent		
Mother	514	83.7
Father	68	11.1
Grand parent	21	3.4
Others	12	1.8

Out of 614 child caregiver pair 90.7% (544) stated about drug treatment prior to attending OPD, 7% did not have any drugs and 2.7% could not confirm. Only Antipyretics as a single drug was administered in 26.8% children and 73.2% of children were treated with multiple drugs along with antipyretic (Fig.- 2,3,4).

Table II

Socioeconomic characteristics of the study children

Characteristic	Frequency (n-614)	Percent (%)
Mothers occupation		
Housewife	401	65.3
Employed	196	31.7
Student	18	2.6
Mother education		
Illiterate	31	5.2
Primary	140	23.3
High	291	48.5
College and above	138	23.0
Father occupation		
Professionals	47	7.8
Workers	303	50.5
Business owner	64	10.7
Vendor	78	13.0
Day laborer	85	14.2
Others	23	3.8
Father education		
Illiterate	34	5.5
Primary	109	17.7
High	292	47.6
College and Above	179	29.2
Family income		
Not known	26	4.2
<5000	3	0.5
>5000-10000	61	9.9
>10000-20000	228	37.2
>20000	296	48.2

Table-III

Duration of fever in study children

Days	Frequency (n-614)	Percent (%)
<5 days	474	77.2
5-7 days	87	14.2
> 7 days	53	8.6

Pattern of Non-prescription Drug Use in Febrile children Prior

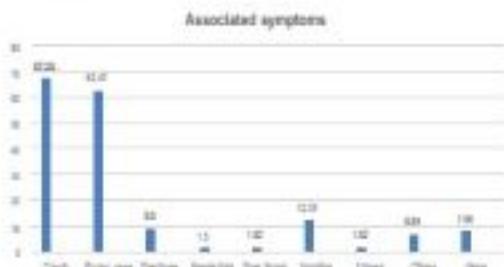


Figure 1: Commonest symptoms were cough (87.3%) and runny nose (62.5%)

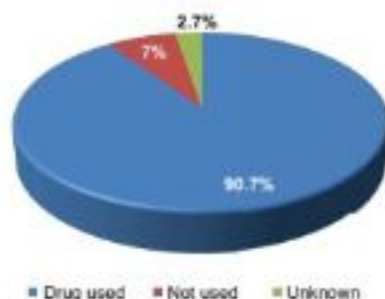


Figure 2: Pattern of drug use : Drug used by 90.7%, Not used- 7%, Unknown -2.7%

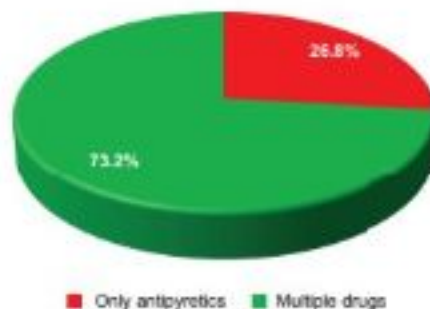


Figure 3: Pattern of drug use: Only antipyretics – 26.8%, Multiple drugs – 73.2%

Among the 544 children receiving prior treatment, 9.9% caregivers consulted a registered physician and nonprescription drugs were used in case of 90.1% children from different sources. Most commonly used drug was antipyretic (99.2%) followed by antibiotics (49.1%). Third most common drug was antihistamin used by 31.98% of children. Other than these, mucolytic (10.8%), bronchodilator (10.5%), antiemetics (4.4%), and vitamins (1.8%) were used.

Homeopathy medicine was received by 4 children. Drugs like ketotifen, montelukast steroid, H2 receptor blockers, proton pump inhibitors, herbal medications, so called appetite enhancing drugs were also found to be used as treatment of febrile illness in some of

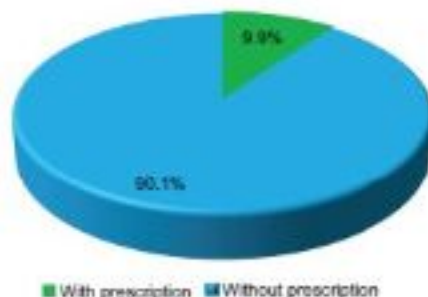


Figure 4: Source of drugs : With prescription – 9.9%, Without prescription – 90.1%

Antibiotics were received by 49.1% children (out of 544). Cefixime (40.8%) was the commonly received antibiotic followed by azythromycin (31.1%), amoxycillin (7.1%), cefuroxim (4.9%), ciprofloxacin (2.6%), cefaclor (2.6%), cefradine (1.1%), clarithromycin (1.1%), amoxyclav (0.74%). Some of the respondents (5.2%) could not recollect the name of the antibiotic but confirmed about the use of powder medicine. Treatment with multiple antibiotic was found in 12.2% of children. Antibiotics were prescribed by registered practitioners in 13.1% of children whereas 63.3% of children received antibiotics from medicine retailer and 16.1% from non-registered treatment providers (Table - IV).

Table IV
Types of antibiotics used

Antibiotics	Frequency (N-267)	Percent (%)
Cefixime	109	40.8
Azythromycin	83	31.1
Amoxycillin	19	7.1
Cefuroxime	13	4.9
Ciprofloxacin	7	2.6
Cefaclor	7	2.6
Clarithromycin	3	1.1
Cefradine	3	1.1
Amoxyclav	2	0.7
Others	7	2.6
Not known	14	5.2
Multiple antibiotics	33	12.3

Commonly used antibiotic was cefixime (40.8%) followed by azithromycin (31.1%)

Out of 544 children who had prior treatment at home for the present illness, 54.8% caregivers stated that they purchased the medicine according to suggestions of medicine retailers. Others got advice from non-registered treatment providers (16.4%), previous prescription (5.5%) and other sources (1.7%) like health line, internet. Parents (11.8%) also treated their children recalling from past experience and recall with the help of friends and family (Fig.-5).

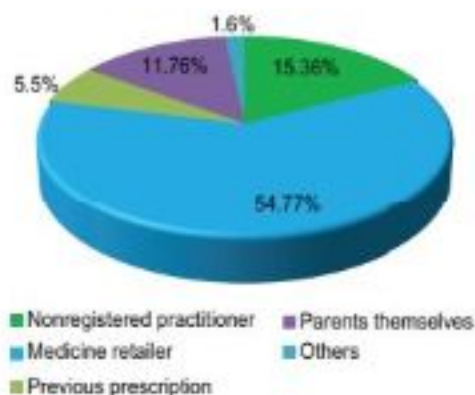


Figure 5: Source of nonprescription drugs: commonest from medicine retailers (54.8%)

Table V
Causes of using nonprescription drugs

Cause	Frequency (n - 490)	Percent (%)
Perception of mild illness	261	53.3
Time constraint	86	17.5
Lack of assistance	35	7.1
Confidence over pharmacy	36	7.3
Distance of facility	34	6.9
Familiarity with drug	19	3.8
Cost of consultation	8	1.6
Fear about hospital	7	1.4
Left over at home	4	0.8

Perception of mild illness was the common cause of treatment without consultation.

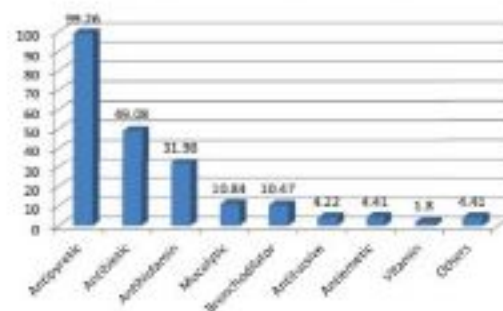


Figure 6: Types of drugs used in febrile children

Among the children who were treated with non-prescription drugs, respondents stated various reasons for taking such a decision. Parents of 53.3% had the perception that the disease of their children was not severe enough to consult a doctor. Time constraint was a barrier which prevented them from coming to hospital or doctors' chambers in 17.6% of children. Other contributing factors were distance of health facility, trust over pharmacy, lack of assistance cost of consultation and left over of medicine at home (Table - V).

Discussion:

In the present study 90.7% (544) febrile children were treated before seeking consultation. Out of which 90.1% were treated without prescription. This can be compared to the findings by Carmen C et al²¹ where parents of 81.1% children below 12 years of age reported to have self-medicated their child. Whereas in other two studies of India and Pakistan it is 86.1% and 95.7% respectively.^{22,23} Worldwide Fever, cough and cold are the commonly reported symptoms for which drugs are used without consulting physician.^{24,25}

Out of 544 children who had prior treatment 26.8% were treated with a single drug that is an antipyretics and 73.2% were treated with multiple drugs including antipyretic. Finding of Patel et al²² is different (single drug 61.5% vs multiple drugs 52.3%). Our study found antipyretic as the most commonly used drug (99.3%) followed by antibiotics (49.1%). In the studies by Carmen et al²¹ and Aslam et al²³ also antipyretic was described as commonly and frequently used medicine (92.7%, 83%).

Near about half of the children who were treated at home 49.1% got antibiotic which can be compared to

the observation of Saima et al²⁶ (52.5%). Patel et al²² reported antibiotic use in 21.1% study population with febrile illness. Rate of antibiotic use in children was closer to observation by Aslam et al²³ and Fontini et al²⁴ (reportedly 36.6% and 34.6% respectively). Common antibiotic in the present study was cefixime (40.8%) followed by azythromycin (31.1%). Types of antibiotic used were different in various studies. Carmen et al²¹ found preference of amoxicillin and amoxiclav (58.2%), followed by macrolide (37.4%). In another study amoxycillin predominated (41.4%).²⁴ Practice of keeping antibiotics at home by parents to treat their children was observed by some studies in Mongolia (58%) and China (25.3%).^{27,28}

Pharmacy was the common source of nonprescription drugs in this study. Caregivers of 54.8% children used drugs according to the advice of medicine retailers, 16.4% from unqualified providers and parents themselves in case of 11.8% children. This is comparable to observation by Patel et al²² (81.8% from pharmacy, 7.4% from health care staff). In the present study 13.1% children who were treated with antibiotic got prescribed by registered physician and 63.3% got advised by medicine retailers and 16.1% from unqualified treatment providers. Similar observation was reported by a nationally representative survey where 60% of children received antibiotic from pharmacy and other unqualified source.²⁹

It is estimated that more than 50% of antibiotics worldwide are purchased privately without a prescription, from pharmacies or street vendors in the informal sector.³⁰ Ganchimeg et al²⁷ reported that out of the non-prescribed antibiotics, 31% were given on the advice of pharmacists, 35% on the advice of family members and 8% on the advice of friends.

In this study parents perception of mild illness was the commonest cause of treating children without prescription (53.3%) which is lower than the findings of Garofalo et al³¹ (84%).³² Easy availability of drugs was commonly reported by parents as a cause of not to consult for treating their children in two other studies (37.2 % and 52%).^{23,24} Monitory constraint was significantly reported by Aslam et al²³ (55%) and Saima et al²⁶ (44%) which is understated in the present study (1.6%). Availability of a previous prescription (5.5%) was also observed as a cause of treating the present febrile illness of the children. It is comparable to the finding in the study by Patel et al²²

(5.5%) whereas in a study by Aslam et al²³ 48.5% of parents reported about treating their children according to a previous prescription. Time constraint was mentioned by 17.5% parents in this study as a cause of failure to take medical consultation which is comparable to observation of Patel et al²² (21.1%) and Aslam et al²³ (49.5%).

Conclusion:

This study gives an alarming message about treatment of children without prescription. Use of multiple drugs for treating febrile illness and high rate of antibiotic use were the threat for child health in the near future. Unrestricted availability of drugs including antibiotics is one of the leading causes of this problem which is preventable. Other factors like waiting time in hospitals, monetary issues, insufficient health facilities at reach, practice of non-registered treatment providers are notable.

Recommendation:

This study recommends large scale studies to assess the cause and magnitude of the upcoming health hazard due to inappropriate sale, purchase and use of medicines:

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