Original Article

Parental Preferences And Beliefs Regarding The Use Of Over The Counter (Otc) Medications In Children – A Cross Sectional Study

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DOI: 10.47750/pnr.2022.13.S02.300

Abstract

Introduction: Over the Counter (OTC) Medicines usage for common ailments like fever, cough cold or gastro intestinal complaints have been common in Indian setting and also increasing in other countries as well. Although these medications can be effective, can cause adverse effects especially in paediatric age group if administered in improper dosage or method. This study is an attempt to identify the parental beliefs and methods regarding usage of OTC drugs in their children.

Aim: To identify parental perceptions, knowledge, applications and practice of using OTC drugs in their children.

Materials and Methods: This cross-sectional questionnaire-based study was conducted at Saveetha Medical College Hospital, Chennai, Tamil Nadu, India (tertiary care centre) from May 2022 to September 2022. Parents of children aged up to 14 years were subjected to a validated questionnaire; respondents mostly being mothers. The questionnaire had 3 parts with questions pertaining to socio – demographic details (part 1), knowledge application and practice of using OTC drugs and impact of the covid – 19 pandemic on parents seeking healthcare for their children. The data was tabulated onto excel sheets and analysed using SPSS software for windows.

Results: A total of 83 children participated in the study. Majority of the study population was greater than 1 year. Upon analysing the responses, 74 (89%) of the respondents had OTC drugs at home with most common being drugs for fever (51.4%) followed by cough and cold (33.8%), with the major source of OTC drugs being the nearby pharmacy (97.3%) which was statistically significant amongst educated mothers purchasing OTC medications with a p value of 0.05. Parents did not have much knowledge about the side effects or how the drugs work. With the outlook of visiting a hospital, 50% of the parents still felt it is necessary to visit a hospital for their children's illness. Among those who were apprehensive to visit a hospital, the primary concern was fear of infection in case they visited a hospital which was statistically significant with a p value of 0.001. Overall, parents felt that despite OTC drugs, it is the treatment of a doctor that plays a role in the overall recovery of their child.

Conclusion: This study showed majority of the parents have OTC drugs in their home and use self-medication to treat illness in their children. However, knowledge and awareness in regarding drug dosage, adverse effects and drug actions was found to be less even amongst educated parents. Parental education during hospital visits by treating doctors and information on the drug labels will help the parents to use these medications as a temporary measure until their child meets the doctor and also help to avoid any possible adverse effects due to improper OTC drug administration.

Keywords: OTC drugs, children, adverse drug effects, education

INTRODUCTION:

Over-the-Counter (OTC) Medicines' means drugs which are legally allowed to be sold by pharmacists without need for a prescription[1].Self-medication is the intake of medication the self-diagnosed symptoms without any valid prescription. The World Health Organization (WHO) has defined self-medication as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of prescribed drugs for chronic or recurrent disease or symptoms even after the duration prescribed is finished[2].

Owing to easier availability, access and affordability, there has been an increasing use of OTC medications. Patients often tend to approach a nearby pharmacist instead of visiting a doctor for minor ailments such as cough, cold, allergies, pain, fever, acidity, diarrhoea, and skin-related conditions. Unlike other countries like the US, UK or China, India does not have a policy framework to support and regulate distribution, marketing and consumption of OTC drugs[3].During the COVID-19 pandemic, there have been reports of increasing tendency in the use of OTC and self-medication was seen, with the situation in India particularly deteriorating due to lax regulatory restrictions[4].

Studies have indicated that self-medication is a common practice, with a prevalence of 32.5–81.5%[5] worldwide and of increasing trend in both developed and developing countries[67]. According to a study done in India, the prevalence of self-medication varies from 8.3% to 93%[8].

The commonly used OTC medications are those for fever, cough, running nose, vomiting, diarrhoea and multivitamin supplements[910]. Some of the reasons attributed to usage of OTC medications are socio – economic conditions, unavailability of health care services, drug advertisements, source of drug information from healthcare professionals and nearby pharmacists[1112].

Even though OTC drugs may work in certain situations, usage of these drugs without proper knowledge may cause serious adverse effects in children[13]. The objective of this study is to establish the extent of usage of OTC drugs by parents on their children, knowledge about the types, dosage, adverse effects of OTC drugs and change in outlook of parents about visiting hospital post covid pandemic.

METHODOLOGY:

Type of study:

Questionnaire based cross sectional study

Objectives:

(1) Prevalence of use of over-the-counter medication
(2) The most common symptom/illness for which parents resort to using OTC for their children
(3) The most prevalent class of medication used over the counter
(4) To association any possible association between the different socioeconomic and educational profiles and self-medication patterns
(5) The effect of the COVID-19 pandemic on the OTC medication patterns
(6) Parental perceptions, awareness and attitude toward the use of over-the-counter medications and doctor/hospital visits

Materials and Methods:

This study was carried out as a questionnaire based cross-sectional interview study

Study Population:

Inclusion criteria:

Children aged up to 14 years brought to Paediatric outpatient department in Saveetha Medical College Hospital, Thandalam, Tamilnadu from May 2022 to September 2022. Parents of children were interviewed.

Exclusion criteria:

Parents who were unwilling were not included in the study.
Interview method
Two-part Questionnaire
A pre validated questionnaire was used comprising of:
Part 1: Socio - demographic details (Age of the child, educational status of both parents, availability of medications at home)
Part 2: 11 items addressed the parents on knowledge regarding dosage, regime and indications of over-the-counter medications and assessment of patterns of use and source of the medications.
Part 3: For assessing the impact of COVID-19 on patterns of OTC use and post-pandemic perception towards seeking healthcare against self-medication and assessing the hesitation towards seeking medical care before usage of over-the-counter medications.

Sample size estimation:

Prevalence of usage of OTC medications ranged from as low as 8.3% [14] to as high as 53.57% [15]. Due to short time frame for the study, we used a lower prevalence rate of 8.3%, with a confidence level of 90% and margin of error of 5% in the sample size calculation formula:

$N=Z^2pq/e^2$

N=sample size,
Z=confidence level at 90%,
pq=variance of population,
e=5% allowable error by substituting the values
The sample size was calculated to be **83**

Statistical analysis:

The data was uploaded into excel sheets; analysed using SPSS software for windows.

RESULTS:

Out of the total study population of 83, 15 children aged less than 1 year, 38 children were aged between 1-5 years, 30 children aged greater than 5 years **(Table 1)**. The majority of the responders were the mothers of the children.

Age in years	number
< 1 year	15
1 – 5 years	38
> 5 years	30
total	**83**

Table 1: Age distribution of the study population

Comparing parental education **(Table 2)**, majority (31.3%) of the mothers have completed high school, 30.1% of them have an undergraduate degree, 21.7% have completed secondary school, 13.3% of them hold postgraduate degrees, 2.4% have completed primary school and 1.2% of them are uneducated. Amongst the fathers, 33.7% have finished high school, 24.1% of them have completed secondary school, 19.3% of them have an undergraduate degree, 16.9% of them have a postgraduate degree, 2.4% have completed primary school and 3% are uneducated.

Education level	Father	Mother	total
uneducated	0	1	1
primary	2	2	4
secondary	20	18	38
higher secondary	11	25	36
undergraduate	16	25	41
postgraduate	14	11	35

Table 2: educational qualifications of parents

In the study population of 83 subjects, 74 (89%) subjects have OTC medications at home and practice self – medication and 9 (11%) do not have medications at home.

Comparing the educational status amongst parents, the number of parents where at least one of them hold an undergraduate or postgraduate degree is 42, where at least one of them has received school education (completed secondary school or high school) is 41 and there are no parents who are both uneducated or have done only primary schooling. Medications are present in 74 homes and not present in 9.
In the 42 parents in whom at least one has an undergraduate or postgraduate degree, 39 have medications at home. Whereas 36 out of 41 of the parents who have completed secondary or high school have medications at home while 5 do not. Overall, irrespective of educational status, majority of parents have medications at home and practice self-medication in their children. Since most of the respondents were mothers, we analysed the variables in comparison to the mother's education.
Among the 74 participants who have medications at home **(Table 3)**, the most common category of medications available at home are drugs for fever (51.4%) followed by medications for common cold (33.8%). The remaining 14.8% is constituted by multivitamin tablets and cough each (4.1%), allergy medication and drugs for stomach issues each (2.7%) and painkillers (1.4%)

type of medications	number
fever	38
cough and cold	28
anti allergics	2
medications for stomach issues	4
multivitamins	3
pain killers	1
no medications	9

Table 3: Types of medications at home

The most common complaint for which OTC medications are being given in this study population is runny nose (51.4%) followed by fever (32.4%). Cough constitutes 8.1% of the cases whereas headache constitutes 5.4%. Diarrheoa and abdominal pain make up 1.6% of cases each for which over the counter medications are being given.

When the child complains of symptoms/illness, 59.5% of participants prefer to give the dose of medication on the same day. Parents who wait for one day to see if the symptoms improve, and then medicate on non-improvement constitute 20.3%. Due to inability to see a doctor immediately 12.2% resort to self-medicating their child. 6.8% wait for 3 days to see if the illness/symptoms resolve and then use over-the-counter medication with 1% using OTC drugs only in addition to the medications prescribed by the doctor after a doctor's visit.

Awareness and source of OTC drugs:

Amongst the 74 homes that have medications available, 46 of the participants have used the medications for treatment without a doctor's prescription and 28 of them have used it only after having had the medication prescribed on previous occasion. Majority (97.3%) of OTC drug purchases are made from a nearby pharmacy with only 2.7% parents buying more from the doctor in advance for future use. This had a significant p value of 0.05 amongst educated mother's purchasing OTC drugs from nearby pharmacy (**Table 4**). None of the participants in this study purchase medications online.

	Mothers level of education						p value
Source of medications	**Higher secondary school**	**Postgraduate**	**Primary school**	**Secondary school**	**Undergraduate**	**Uneducated**	
No OTC medications	2(7.7%)	0(0%)	0(0%)	4(22.2%)	3(12.0%)	0(0%)	
Nearby pharmacy	24(92.3%)	11(100%)	1(50.0%)	14(77.8%)	21(84.0%)	1(100%)	
Will get some in advance when I visit doctor for other purposes	0(0%)	0(0%)	1(50.0%)	0(0%)	1(4.0%)	0(0%)	**0.005**

Table 4: Source of OTC medications and correlation with mother's education significant p value was found for purchasing medicines from nearby pharmacy (0.005)

Knowledge about the medication:

50 of the 74 participants did not have knowledge about the actions of the drugs used in their children. 51.4% of patients correctly answered that the drug dosages for children are calculated based on their weight rather than their age. 98.6% of the patients believe they know the right dosage and dosing regimen of the medications they use. 71.6% patients know how to use the medications based on doctor's instructions on a previous occasion, 14.9% know about the use of the medication as they have always used it, 12.2% of parents know by reading instructions on the back of the medication strip/bottle and only 1 participant know about the usage because peer parents have used the medication **(Tables 5, 6)**.

knowledge aspect	**number**
as per old prescription	53
information given in drug label	9
based on previous usage experience	11
based on advice from other parents	1

Table 5: knowledge of drug usage

Problem	Number
Running nose	38
Fever	24
Headache	4
Cough	6
Abdominal pain	1
Diarrhea	1
Total	74

Table 6: Problems for which medications are given

Side effects – Knowledge, awareness and experience:

Out of the 74 patients, 29 of them are of the opinion that there are no side effects to the medications they give to their child. 35 of the parents agree that all drugs have side-effects, 27 of these participants admit that despite knowing that there are side effects while using these drugs they do not know what the side effects are and 8 of them claim to know the side-effects. 10 of the participants do not know if the drugs have side-effects or not.

94.6% of parents safely say that their child has not experienced any side-effects after use, 2 parents report that their child has experienced side effects in the past. Parents of 2 children say they do not know if the child has experienced side-effects or not **(Table 7, 8)**.

Response	Number
Yes, I know what the possible side effects are	8
I do not know if the medicines have side effects or no	10
I am aware, but I do not know what the side effects are	27
No, none of the medications I use have risk of side effects	29
total	74

Table 7: Awareness about the adverse effects of the medicines

Responses	Number
Yes	2
No	70
Maybe, not sure	2
Total	74

Table 8: Has your child experienced any side effects after using these medications?

Effect of Covid – 19 on parents seeking healthcare:

In the current study population, majority of parents still felt that it will be better to visit a hospital or a doctor in case their child had an illness. Those who were apprehensive about visiting a hospital attributed to either fear of acquiring an infection or fear of asking to admit their child (15% in both scenarios). This was statistically significant amongst educated mothers with a p value of 0.001 **(Table 9 - 11)**.

Responses	Number
No change after COVID 19; I will go to hospital	46
Prefer alternative forms of medicine	2
Prefer online/consultations over the phone	10
Prefer to go to the doctor immediately	7
Prefer to stay home and treat my illness	18
Total	83

Table 9: Effect of COVID on health-care seeking practices

Responses	Number
No hesitation	30
No particular reason, but hesitant	7
Fear of admission	13
Fear of infections	13
Busy schedule	2
Healthcare is expensive	1
Unable to persuade child	3
Fear that the illness may be more severe	5
No response	9
	83

Table 10: Why do you hesitate to go to the hospital

No	1(3.6%)	1(7.1%)	0(0%)	6(30.0%)	1(6.3%)	0(0%)	**<0.001**
Busy schedule	1(3.6%)	0(0%)	1(50.0%)	0(0%)	0(0%)	0(0%)	
Fear of admission if taken to the hospital	7(25.0%)	0(0%)	0(0%)	2(10.0%)	4(25.0%)	0(0%)	
Fear that the illness may be more serious than anticipated	3(10.7%)	0(0%)	0(0%)	0(0%)	2(12.5%)	0(0%)	
For no particular reason	4(14.3%)	1(7.1%)	0(0%)	1(5.0%)	1(6.3%)	0(0%)	
I do not hesitate to go to the hospital for any reason	9(32.1%)	6(42.9%)	1(50.0%)	8(40.0%)	5(31.3%)	1(33.3%)	
Increased risk of infections at a hospital	2(7.1%)	6(42.9%)	0(0%)	2(10.0%)	3(18.8%)	0(0%)	
Seeking medical care is expensive	0(0%)	0(0%)	0(0%)	1(5.0%)	0(0%)	0(0%)	
Unable to persuade my child to come to a hospital	1(3.6%)	0(0%)	0(0%)	0(0%)	0(0%)	2(66.7%)	

Table 11: Correlation between mother's education and hesitation to go to a hospital for seeking healthcare services. Fear of infection was the statistically significant reason to avoid visiting a hospital.

DISCUSSION:

Nearly 90% of the parents in the study population accepted to having OTC drugs in their homes and self-medicating their children. This is similar to study done by Varun Kumar et al about Prevalence and pattern of self-medication practices in an urban area of Delhi, India[16] which mentioned an overall prevalence of self-medication as 92.8%. looking at the parental education, more than 50% were educated beyond college level, and 95% had both parents educated to atleast high school level. This is similar to a study done by Abla Albsoul-Younes et al[17] about Parental knowledge, perception and practices of Over-the-counter Medicines used for their children also had more than 50% of college level education and nearly 100 % of atleast high school level education. Most common indication for usage of OTC medications was fever followed by

respiratory problems. This is similar to other studies done by Ahmed et al and Misel Trajanovska et al which mentions that fever followed by common cold or respiratory problems were the most common reasons for which people use OTC medicines for practising self-medication[1819]. Nearly all parents got the OTC medications from the nearby pharmacy, which is similar to a study done by Balamurugan and Ganesh in South India wherein more than 57% of the study population obtained their OTC drugs from the nearby pharmacy[20]. Parents used the OTC drugs based on the doctor's previous prescription this is similar to a study done by Salami et al in Nigeria where the mothers used old prescriptions and leftover medications for future use[21]. Parental knowledge regarding how to use the OTC medications predominantly was based on previous doctor's prescriptions and followed by instructions on the label. This is slightly different to the findings of Mi-Ae You et al wherein parents mentioned the instruction sheets followed by doctor's prescription as source of drug usage information[22]. In the present study, with respect to knowledge about adverse effects of OTC drugs, parental responses ranged from unaware of any side effects to fully aware of adverse effects. This is similar to a study done by Hughes et al regarding knowledge about adverse effects of drugs varied from no knowledge to detailedunderstanding[23]. Majority of the parents mentioned that their child so far has had no side effects after administration of OTC medications. This is similar to a study done by Mi-Ae You et al which showed that 90% of the study population as to not having experienced any adverse effect following drug administration[22]. A statistically significant number of parents felt apprehensive about visiting hospitals post the covid pandemic due to fear of cross infection. This is similar to a study done by Kostopoulou et al about reduced emergency department visits by children post covid pandemic due to fear of acquiring infection for their1910hildrenn[24].

CONCLUSION:

This study shows that majority of the parents in the study population have OTC drugs at home and practice self-medication. The most common category of medications that seem to be available at home are drugs for fever and the most common complaint for which parents are resorting to OTC use seems to be the common cold. However, parents are still unaware about drug dosing and adverse effects which may be dangerous in sensitive age groups. Parental education regarding types, dosage and side effect profile of OTC drugs is important to avoid any untoward complications in children.

Limitations:

1. Short time frame for the study period
2. Study population was restricted to parents coming to a tertiary care centre, hence may not be representative of the community situation.

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