

## ORIGINAL RESEARCH

## CORONA EXPERIENCE

# Factors associated with parental self-medication for common childhood illnesses during the COVID-19 pandemic: a single centre study

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## ABSTRACT

**Background & Objective:** People's interest regarding self-medication increased during the first half of 2020, when the COVID-19 was proclaimed a pandemic, although it has always persisted due to multiple factors. We aimed to identify the factors associated with the use of parental self-medication for their child's illness during the COVID-19 pandemic.

**Methodology:** A cross-sectional descriptive study was conducted at the pediatrics department at Darul Sehat Hospital, Karachi. An interviewer-administered questionnaire was used. We included 275 parents visiting the outpatient clinics with their children of ages 1 to 12 y. Chi-square test of independence was used to check the association of self-medication with studied factors. P-values less than 0.05 were considered significant.

**Results:** Out of 275 parents, 85% were practicing self-medication. 60.3% children suffered from some illness. Parents sought medical advice from pharmacists in 65% of cases, and allopathic drugs were preferred in 64% of cases. 70% of the patients used medicine until recovered, while 41.9% had to seek medical advice. Frequent symptoms observed and treated with self-medication were headaches 19.2% and fever 18.8%.

**Conclusion:** Parental self-medication for common childhood illnesses was substantially more prevalent during the COVID-19 pandemic. Allopathic medicines were preferred choice of parents while pharmacists were commonly consulted for information regarding drugs.

**Abbreviations:** OTC: Over-the-counter; PKR – Pakistani rupees

**Key words:** Self-medication; Side effects; Pharmacists; Medications; Antipyretics

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## 1. INTRODUCTION

A major issue with regard to general health and well-being is the act of self-medication and the inappropriate use of drugs.<sup>1</sup> Self-medication, in accordance with the World Health Organization, is the act of a person choosing and using a drug to cure self-recognized symptoms or illnesses.<sup>2</sup> Globally, prevalence of parental self-medication varies from 25% to 75%.<sup>3</sup> Studies on children's self-medication in developed nations have found that parents self-treat their children quite frequently; 25.2% in Germany, 96% in France, 62% in China, 69.2% in Italy, 59% in India, and 56.6% in Brazil. The prevalence rates in developing nations were; 60.0% in Yemen, 95.75% in Sudan, and 30.1% in Uganda.<sup>4</sup>

Self-medication is the practice of using over-the-counter (OTC) medications to cure minor ailments on one's own, usually without consulting a physician.<sup>5</sup> Obtaining medications without a doctor's prescription, sharing medications with others, and using medications that are readily available at home (as well as unused medications from prior or previous prescriptions) are all examples of self-medication.<sup>6</sup> Parental self-medication is particularly prevalent for children under the age of five.<sup>7</sup> Sex, age, income, education level, views or feelings, knowledge of medications, and a careless attitude toward illness, all play a role in the different self-medication practices that exist across different groups.<sup>8</sup> It is more prevalent in underdeveloped nations since medications are easily accessible there without a prescription.<sup>9</sup>

People's interest in information about self-medication rapidly increased when the COVID-19 was designated as a pandemic in the first half of 2020. The Google trends for searches relating to self-medication confirmed this.<sup>10</sup> Due to the high fatality rate, COVID-19 caused significant dread, anxiety and concern among the general populace worldwide.<sup>11</sup> Inadequate medical knowledge, monetary and emotional reasons along with limited and restricted access to healthcare facilities enhanced the avoidance and delayed visits to the healthcare professionals.<sup>12</sup> Medications being made available at people's doorsteps by courier services has contributed to an upsurge in self-medication practices since partial/complete lockdown and social distancing were widely encouraged throughout the pandemic period.<sup>13</sup> Difficulty in approach to professional healthcare services, either due to lack of transport or family beliefs is also a contributory reason for self-medication for common diseases in children.

Parental self-medication practice for common ailments in children causes a greater risk in contrast to adults because certain medicines are not recommended or recommended with restricted use in children.<sup>14</sup> Increased

polypharmacy, erroneous diagnosis, adverse drug effects, drug interactions, wrong drug selections, and drug resistance are risks associated with self-medication.<sup>2</sup> Due to the availability of extensive information from the media, the lack of time to visit the doctor and wait in a lengthy line, particularly when both parents work, and the ease of access to medications, self-medication is quite prevalent among educated people.<sup>15</sup>

This study aimed to determine the factors contributing to the use of parental self-medication for their child's illness during the COVID-19 pandemic. The study also examined the parents' perceptions and knowledge of self-medication during the COVID-19 pandemic, as well as the sources of information for drug use.

## 2. METHODOLOGY

A cross-sectional descriptive study was undertaken at the pediatrics department at Darul Sehat Hospital, a tertiary care hospital. An interviewer-administered questionnaire was used to gather data from parents by the recall medicating practices on children in the preceding 8 months from August 2020 to March 2021. The clarity of the questionnaire was ensured by a pre-test carried out in the hospital. Completing the questionnaire and interview took 10 to 15 min.

It was estimated using an online sample size calculator Open Epi version 3.0 after inserting 77% prevalence of self-medication,<sup>16</sup> at a 5% margin of error and 95% confidence interval, we required at least  $n = 273$  samples for this study. The selection of parents was made by simple random sampling on working days of the week. We included parents of children aged 1 to 12 y, coming to outpatient clinics, willing to participate in the study. Informed written consent was taken from of all the participants.

We excluded health workers (doctors, nurses, midwives, pharmacists) who have the skills and the right to give medical advice, prescribe and/or advise on the use of medication. The mentally handicapped people, critically ill people, and children who were prescribed medications by the healthcare workers were also excluded.

The variables studied included the socio-demographic characteristics of the parents, e.g., age, educational level, and family status; age of the child who received the self-medication, symptoms and/or signs that required medication, the nature of the drugs used (trademark, pharmaceutical firm, and dose), the source of the drugs consumed, the reason motivating the practice of self-medication, the sources of information and knowledge of the risks. Ethical approval was sought from the ethical review committee of our institution.

### Statistical Analysis

Data were stored and analyzed using IBM SPSS version 23.0, and counts with percentages were given for the responses obtained from the parents. Pearson Chi-Square test of independence was used to check the association of self-medication with studied factors, P-values less than 0.05 were considered significant. Bar charts are used to give a graphical presentation of data.

## 3. RESULTS

To study the factors associated with parental self-medication during COVID-19 pandemic, 275 parents were interviewed, out of which 235 (85.5%) practiced self-medication for their children during illness. The baseline characteristics of the participant who consented for this study are detailed in Table 1. Almost half of them were mothers, the mean age was 32.77 y; 34.9% were housewives, 58.5% of families had 4–7 family members, the average monthly income was found between 5000 to 25000 PKR.

Factors associated with self-medication are shown in Table 2. 60.3% children suffered from some illness during last 8 months. 60.3% had a family member with a professional health background. 64.5% used allopathic medications and 16.2% used home remedies, 79.5% obtained medications from the pharmacy rather than ordering online. Some of these factors have a significant association with self-medication ( $P < 0.05$ ).

Perception and attitudes regarding parental self-medication are shown in Table 3. The data shows that 41.9% of the parents went to the hospital when self-medication failed to resolve symptoms, 70.1% used self-medication till they recovered, and 75.6% consulted doctor after experiencing any adverse events (Table 3).

Source of information obtained regarding self-medication during COVID-19 pandemic is shown in Figure 1. A majority of (65%) parents preferred pharmacist to provide them the desired information about the medicines.

The justifications for parental self-mediations are shown in Figure 3, with 49.1% participants encountering common symptoms (e.g., fever, cough, vomiting, loose motions, abdominal pain). Antipyretics have been the common medications used by parents as shown in Figure 2. Headache and fever were the commonest symptoms as shown in Figure 3.

## 4. DISCUSSION

The practice of self-medication is significantly common in countries with underdeveloped or developing healthcare systems with major factors being financial

**Table 1: Baseline characteristics of studied samples (n= 275)**

Characteristics		N (%)
<b>Who is answering this survey?</b>	Father	69 (25.1)
	Mother	127 (46.2)
	Other	79 (28.7)
<b>Age Group</b>	≤ 25 y	65 (23.6)
	26–35 y	131 (47.6)
	>35 y	79 (28.7)
	Mean ± SD	32.77 ± 10.66
<b>Qualification</b>	Illiterate	29 (10.5)
	Primary school	20 (7.3)
	Secondary school	70 (25.5)
	High school	74 (26.9)
	Diploma	14 (5.1)
	Graduation	48 (17.5)
	Postgraduate	14 (5.1)
	PhD	6 (2.2)
<b>Occupation</b>	Student	50 (18.2)
	Housewife	96 (34.9)
	Employee	21 (7.6)
	Retired	2 (0.7)
	Business	33 (12.0)
	Other	73 (26.5)
<b>Family members (n)</b>	≤ 3	53 (19.3)
	4–7	161 (58.5)
	> 7	61 (22.2)
<b>Income (Rupee per month)</b>	5000–25000	110 (40.0)
	26000–50000	66 (24.0)
	Above 50000	77 (28.0)
	Other	22 (8.0)
<i>Data presented as n (%)</i>		

cost, parents having insufficient time, previous emergency and medication use and less severe diseases.<sup>17</sup> Even before the COVID-19 pandemic, the practice of self-medication was quite common in Pakistan mainly due to the ready access to medicines from the local pharmacy without prescription.<sup>18</sup> During the COVID-19 pandemic, strict measures to avoid exposure to the virus, difficulty getting the doctors' appointments, lack of access to necessary medications owing to lock down, encouraged parents to opt for self-medication. Additionally, the recommended preventive measures for the COVID-19 virus, including the face mask to prevent airborne infection, persuaded the parents

**Table 2: Factors associated with parental self medication**

Factors		Self medication		P-value
		Did not practice (n = 41)	practice (n = 234)	
Did your child have any disease in the last 8 months?	No	9 (22.0)	44 (18.8)	0.01*
	Yes	31 (75.6)	141 (60.3)	
	May be	1 (2.4)	49 (20.9)	
Gender of child	Male	17 (41.5)	121 (51.7)	0.22
	Female	24 (58.5)	113 (48.3)	
Family member with a professional health background	No	27 (65.90)	93 (39.7)	< 0.01*
	Yes	14 (34.1)	141 (60.30)	
Child age group	≤ 5 y	15 (36.6)	70 (29.9)	0
	6–12 y	19 (46.3)	95 (40.6)	
	> 12 y	7 (17.1)	69 (29.50)	
What do you consider while selecting the drug for self-medication?	Price	0	22 (9.4)	< 0.01*
	Pharmaceutical company	0	42 (17.9)	
	Name of medicine	0	148 (63.2)	
	Not applicable	41 (100)	22 (9.4)	
Your selection of a particular brand depends on the following choices	Recommended by pharmacist	0	126 (53.8)	< 0.01*
	Old prescription	0	22 (9.4)	
	Recommended by friends / family	0	24 (10.3)	
	Advertisement	0	2 (0.9)	
	Experience	0	53 (22.6)	
	others	0	7 (3.0)	
	Not applicable	41 (100)	0	
Where do you obtain your medicine for self-medication/	Pharmacy	0	186 (79.5)	0.51
	Online shopping	0	1 (0.40)	
	Primary healthcare center	0	8 (3.4)	
	Medical representatives	0	11 (4.7)	
	Family/friends	0	23 (9.8)	
	Other	00	5 (2.1)	
	Not applicable	41 (100)	0	
Do you ever check information leaflet before self-medication?	No, never	0	18 (7.7)	< 0.01*
	Yes, always	0	152	
		39.0	65.0	
	Sometimes	0	64 (27.40)	
	Not applicable	41 (100)	0	
Child recovery after self medication	No	0	13 (5.6)	0.04*
	Yes	0	156 (66.7)	
	Sometimes	0	65 (27.80)	
	Not applicable	41(100)	0	

\*P < 0.05 was considered significant using the Pearson Chi-Square test

**Table 3: Parental self-medication perceptions and attitudes (n = 275)**

Perceptions & Attitudes		Self medication		p-value
		Did not practice (n = 41)	Practice (n = 234)	
Parents' responses when self-medication doesn't work	Consult pharmacist	0	80 (34.2)	< 0.01*
	Go to the private clinic	0	32 (13.7)	
	Go to hospital	41 (100)	98 (41.8)	
	Seek advice from family members/friends	0	18 (7.7)	
	Continue	0	6 (2.6)	
Duration of self medication:	Until recovery	0	164 (70.1)	< 0.01*
	No recovery move to next self-medication	0	10 (4.3)	
	No recovery or become critical move to physician	0	21 (9.0)	
	After medicine got over	0	6 (2.6)	
	After complete course of antibiotics	0	16 (6.8)	
	After a few days regardless of the outcome	0	8 (3.4)	
	Other	0	9 (3.80)	
	Not applicable	41 (100)	0	
Informing a doctor about self-medication	Informed physician	0	183 (78.20)	< 0.01*
	Did not inform the physician	0	23 (9.8)	
	Informed physician at times	0	11 (4.7)	
	No experience	41 (100)	17 (7.3)	
Has your child ever had adverse effects from self-medication?	No	0	172 (73.5)	< 0.01*
	Yes	0	62 (26.5)	
	Not applicable	41 (100)	0	
What was your response to adverse effects	Consult doctor	0	177 (75.6)	0.75
	Consult pharmacist	0	14 (6.0)	
	Go to primary healthcare center	0	10 (4.3)	
	Stop taking medicine	0	33 (14.1)	
	Not applicable	41 (100)	0	

\*P < 0.05 was considered significant using the Pearson Chi-Square test; Data given as n (%)

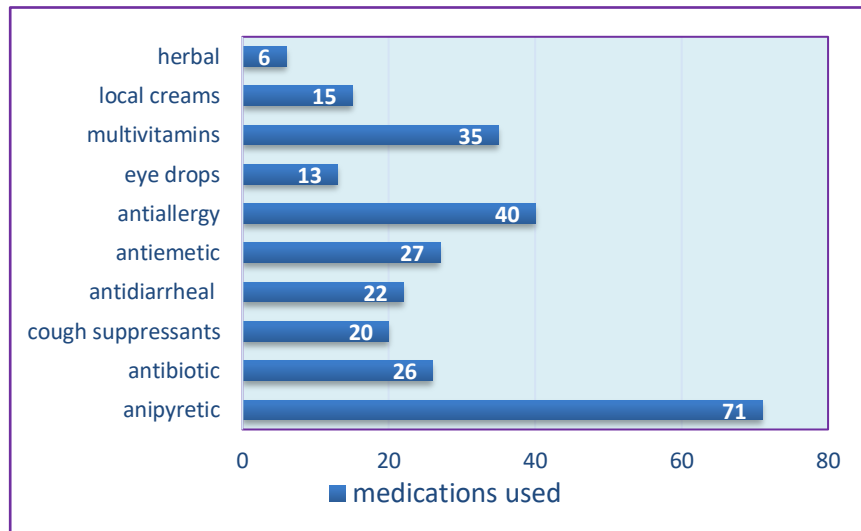
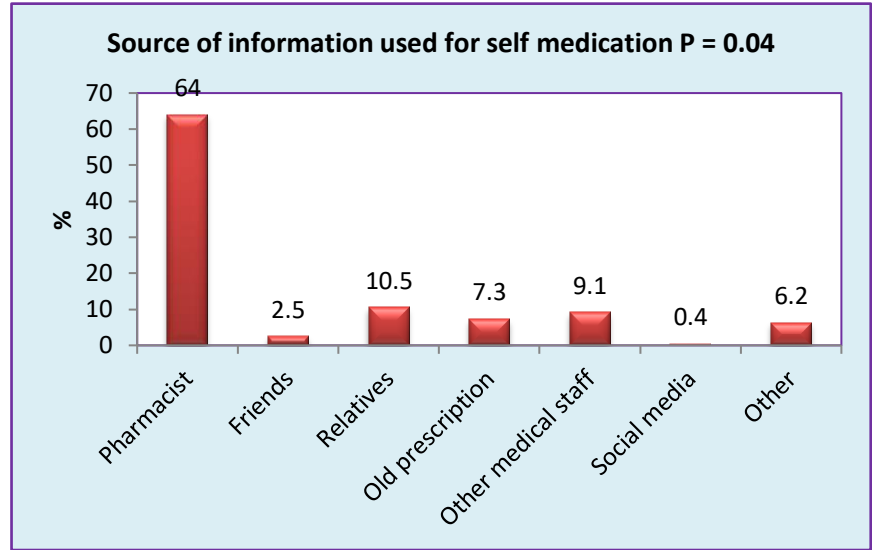
to adopt the self-medication practices for their kids because they found it difficult for them to wear face masks in clinics or hospitals.<sup>19</sup>

It is quite frequent to purchase medications from pharmacies or obtain information about medications from a pharmacist. However, the COVID-19 pandemic exacerbated this trend, especially for parents at home treating their children themselves. In one of the studies conducted by Arain et al, around 80% of the people in their survey bought medications during the pandemic for

their future use.<sup>20</sup> In our study, the parents who used self-medication frequently were primarily housewives and young couples, which is somewhat comparable to the research conducted by Rafiq et al.<sup>21</sup>

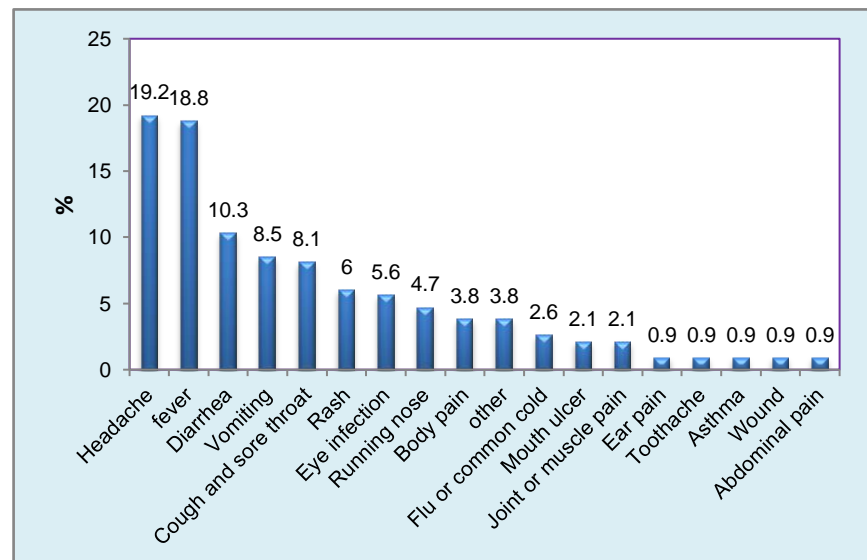
Similar studies reported that people rely more on the advice of the pharmacist or a friend thus avoiding to seek professional medical help.<sup>22,23,24</sup> Furthermore, buying medicine directly from the pharmacist was cost effective, and individuals continued to do that during the economic downturn precipitated by the lockdown during COVID-

**Figure 1: Information sources used for parental self-medication**



**Figure 2: Common medications used by parents (n = 275)**

**Figure 3: Common symptoms leading to parental self medication**



**Table 4: Parental self-medication perceptions and attitudes (n = 275)**

Perceptions & Attitudes		Self medication		p-value
		Did not practice (n = 41)	Practice (n = 234)	
Parents' responses when self-medication doesn't work	Consult pharmacist	0	80 (34.20)	< 0.01*
	Go to the private clinic	0	32 (13.7)	
	Go to hospital	41 (100)	98941.90	
	Seek advice from family members/friends	0	1897.7)	
	Continue	0	6 (2.6)	
Duration of self medication:	Until recovery	0	164 (70.1)	< 0.01*
	No recovery move to next self-medication	0	10 (4.3)	
	No recovery or become critical move to physician	0	21 (9.0)	
	After medicine got over	0	6 (2.6)	
	After complete course of antibiotics	0	16 (6.8)	
	After a few days regardless of the outcome	0	8 (3.4)	
	Other	0	9 (3.80)	
	Not applicable	41 (100)	0	
Informing a doctor about self-medication	Informed physician	0	183 (78.20)	< 0.01*
	Did not inform the physician	0	23 (9.8)	
	Informed physician at times	0	11 (4.7)	
	No experience	41 (100)	17 (7.3)	
Has your child ever had adverse effects from self-medication?	No	0	172 (73.5)	< 0.01*
	Yes	0	62 ( 26.5)	
	Not applicable	41 (100)	0	
What was your response to adverse effects	Consult doctor	0	177 (75.6)	0.75
	Consult pharmacist	0	14 (6.0)	
	Go to the primary health care center	0	10 (4.3)	
	Stop taking medicine	0	33 (14.1)	
	Not applicable	41 (100)	0	

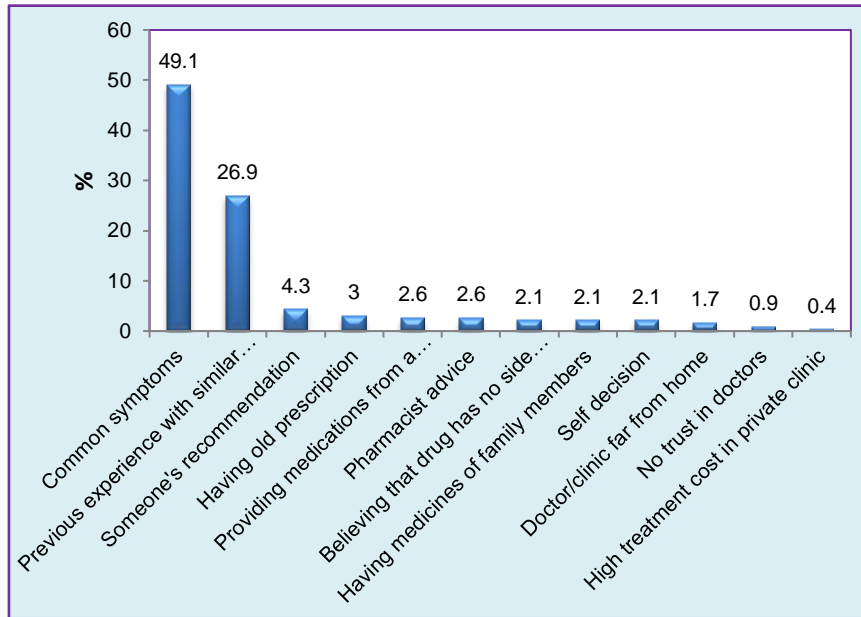
*\*P < 0.05 was considered significant using the Pearson Chi-Square test*

19 pandemic.<sup>21</sup> In our study, a similar pattern was observed where parents relied on a pharmacist's and family members' advice. Headache and fever were the commonest symptoms reported by the parents and antipyretics, cough suppressants, and multivitamins were among the drugs that parents took most frequently, followed by antibiotics and antidiarrheals for their children. This trend is similar to a study done in Romania

which showed fever as the commonest symptom and the antipyretics commonly used by mothers without prescription.<sup>12</sup>

## 5. LIMITATIONS

The main limitation of this study was that it only used data from one institute, leaving out a wider range of age groups and parental backgrounds. Additionally,



**Figure 4: Parental self-medication justifications**

comparing the self-medication practices before and after the COVID-19 pandemic would have provided more context for the findings. This suggests that additional, larger-scale studies of this kind should be carried out to identify the factors influencing parental self-medication.

## 6. CONCLUSION

The results indicated that self-medication by parents was much more common during the COVID-19 pandemic. Self-medication was favoured since it reduces the risk of parents exposing themselves and their kids to the virus while they attend a hospital or clinic. Allopathic

medicines were preferred choice of parents while the pharmacists were commonly consulted for information regarding drugs.

Better facilities are needed for telemedicine and online consultations in order to prevent the use of self-medication. To prevent future self-medication, the media and health professionals should hold sessions to educate parents about the potential risks of the drugs.

## 7. Data availability

The numerical data generated during this research is available with the authors.

## 8. Acknowledgement

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## 9. Conflict of interest

The authors declare no conflict of interest.

## 10. Funding

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## 11. Authors' contribution

FS, MI: Concept & design of study, Acquisition of Data, Data analysis & interpretation, Drafting of Paper

SQB: Concept & design of study, Acquisition of Data

UHS: Data analysis & interpretation, Drafting of Paper and revising

All authors approved the final draft.

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