



A Study on Impact of Self Medication in Adults and Paediatrics in COVID-19 Pandemic

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Article Info:



Article History:

Received 25 Feb 2024
Reviewed 04 April 2024
Accepted 26 April 2024
Published 15 May 2024

Cite this article as:

Sathya Narayana S, Albin J, Arun S, Prashanth M, Muthukumar M, Dr. Srinivasan R, Saikrupa BV, A Study on Impact of Self Medication in Adults and Paediatrics in COVID-19 Pandemic, Journal of Drug Delivery and Therapeutics. 2024; 14(5):6-10

DOI: <http://dx.doi.org/10.22270/jddt.v14i5.6525>

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Abstract

Background: Self-medication is defined as the use of medicinal products by the consumer to treat self-recognized disorders or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms, which often is accompanied by potential risks to the consumers, including toxicity, therapeutic failure and drug-drug as well as drug-food interactions. The practice of self-medication has exponentially risen during the Covid-19 pandemic due to fear of visiting healthcare setups and subsequently contracting infections.

Aim: The present study aims to determine the prevalence of self-medication in adults and pediatric patients during Covid-19. **Design:** A cross-sectional community-based survey study was conducted among 556 participants, including pediatric and adult populations, for a period of 6 months, through an online platform.

Methods and Material: The data was collected using a self-administered questionnaire, which included informed consent, questions on patient demographics and self-medication practices, and plausible reasons for it. The collected data was analyzed using SPSS 22.0, and R environment ver.3.2.2 software.

Results: Out of 556 participants the prevalence of self-medicating with paracetamol was considered to be high both in adults and paediatrics which was found to be 72.6% (319) and 66.6% (117) respectively. During Covid-19 symptoms, it was reported that Azithromycin consumption was found to be more than paracetamol. It also showed that 62.9% (439) were self-medicating before the Covid-19 pandemic and 20.5% (439) were not aware of the risks associated with self-medication. The major source of self-medication was found to be Google (46.5%) followed by using old prescriptions (121.5%) and using family or friends' prescriptions (10.9%).

Conclusions: The study showed a conclusive rise in self-medication practices during the Covid pandemic among the SM-naïve population.

Keywords: Self-medication, Prevalence, Prescription, Covid-19

INTRODUCTION:

Self-medication (SM) has become more common during the current Covid-19 pandemic. The global health emergency started in China in December 2019 and is caused by the coronavirus. Coronavirus 2 which causes severe acute respiratory syndrome is the source of COVID-19 (SARS-CoV-2). Self-medication is described as the intermittent or ongoing use of a medicine given by a doctor for chronic or recurring diseases or symptoms. It can also refer to the use of medical products by the consumer to treat self-recognized problems. It includes buying, sharing, or eating medications that have been carried home or stored at home without a prescription. It can also comprise seeking advice from a pharmacist, friend, family member, or coworker, or sharing leftover medications with family members, particularly while caring for young children or

the elderly. Self-medicating also includes using the previous prescription^{1,2}.

Self-medication is a voluntary decision made by people in situations where it seems favorable to them. It will typically be chosen for use in symptoms and ailments that are not serious enough to warrant medical attention. Only after self-medicating has failed, persisted, or gotten worse would the patient seek out qualified medical assistance^{1,2}.

Self-medication is an important public health problem, with a reported prevalence of 27% in the USA, 21% in Eastern Europe and 0.1% in Northern and Western Europe. 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. In developing countries like India, a large percentage of the population comprises children and they are more vulnerable and susceptible to different diseases³.

Different studies conducted to evaluate the patterns of SM in children have shown that SM prevalence is quite high among children. The studies which were conducted in developing countries revealed a high prevalence among parents in Germany (25.2%), France (96%), China (62%), and Italy (69.2%)⁴.

The most frequently cited reasons for self-medication include treating illnesses, preventing disease, using prophylaxis, or not wanting to consult a doctor. The other noted causes, according to research, were managing similar health issues based on prior experience, a solid understanding of drugs and their use, advertisements in newspapers and on television, a shortage of trained healthcare providers, age, level of education and socio-economical condition of the person⁵.

There is a relative increase in the number of searches for the term 'self-medication' in google trends since the 2019 Covid pandemic, which indicates an increased interest of people in self-medication in different parts of the world⁶. The perception of illness and constant advertising has even accounted for about 2.9-3.7% of causes of mortality in hospitals owing to drug-drug interactions⁷. The perception of illness and constant advertising has even accounted for about 2.9-3.7% of causes of mortality in hospitals owing to drug-drug interactions.

Though patient empowerment is viewed as a positive step in the development of the patient-clinician partnership, inappropriate self-medication may increase drug-induced disease and unnecessary public spending at the local level. The person will typically lack a specialist understanding of the fundamentals of therapy or pharmacology. There are some risks that people may face, including incorrect self-diagnosis and disregard for special pharmacological hazards. It's crucial to understand that many of these hazards can also arise when using prescription medication, especially if the patient sees multiple doctors for their condition or receives no counselling during therapy. The goal should be to be able to make use of the advantages of SM, such as improved patient-clinician partnership, while minimizing the hazards when choosing the types of medicinal products that can be used for self-medication^{1,8}.

Several countries have sophisticated pharmacovigilance and adverse drug reaction reporting systems in place. The spontaneous reporting system (also known as the 'Yellow Card System') operated by the Committee on the Safety of Medicines (CSM) in the UK enables doctors and pharmacists to report adverse reactions to both prescription and nonprescription drugs. Most community pharmacies in the UK record details relating to patients' prescription medication on computer systems and these patient medication records (PMRs) are an important monitoring tool that could be exploited in nonprescription drug pharmacovigilance. It has also been proposed that community pharmacies may be able to contribute further to nonprescription drug pharmacovigilance through the establishment of a pharmacy network. In a pilot study in Scotland, community pharmacists monitored patients who had purchased ibuprofen for their own use. These patients were asked to record details of symptoms experienced during the week, related to drug use. Patients were followed-up through the use of questionnaires, for a period of 12 months. This study led to the identification of issues related to the long-term use of ibuprofen, contraindications, adverse effects, and excessive dosage of ibuprofen⁸.

Communication needs to be established and clarified between the Patient-Physician-Pharmacist about self-medication. Comprehensive record-keeping by pharmacists and physicians, in addition to prudent and comprehensive questioning, may help to complete the picture regarding medicine taking. However, this strategy must be supported by education and

information, particularly focused on patients. A clinical pharmacist can play a key role in educating the patients regarding the potential risks of SM, including the consequences of inappropriate dosing as dosages are individualized based on the patient's physiology and severity of the indication for which the medicine is being used, the possibilities of drug-drug and drug-food interactions which may either cause potential side effects or render the drug ineffective, and the risk of developing tolerance in case of anti-histamines and analgesics as well as the development of antimicrobial resistance as a result of inappropriate use of antimicrobials⁸.

A clinical pharmacist can also provide critical insights into patients' psychology in terms of SM and can encourage clinicians to take a complete history of the patient, including the relevant medical history and a thorough medication history comprising the use of OTC analgesics, multivitamins, as well as antimicrobials and parenteral drug usage (optic, and topical dosage forms). In many countries, a clinical pharmacist is involved in the history-taking process at an inpatient hospital set-up, and is viewed as most suitable for the process, being an expert in terms of both medical conditions and pharmacology of drugs^{9,10,11,12}.

The current study is aimed at determining the prevalence of SM among both, the adult and pediatric populations, during the COVID pandemic, identifying the factors contributing towards SM and creating awareness regarding rational self-medication practices.

SUBJECTS AND METHODS:

The present study is a cross-sectional community-based online survey conducted from March 2021 to September 2021 for a duration of 6 months to determine the prevalence of self-medication among the adult and pediatric populations during the Covid-19 pandemic, along with determining the factors contributing to self-medication practices.

The study included people of all genders within the age of 60 years who had provided consent to participate in the study. People above the age of 60 years, pregnant and lactating women as well as patients with psychiatric illnesses were excluded from the study as these patients often are advised specifically against self-medication.

A sample size of 385 was obtained for a confidence interval of 95% with an alpha error of 5%. A self-designed validated questionnaire was circulated through online platforms and used to collect the required data. The questionnaire comprised 3 sections. The first section primarily focused on the adult population consisting of demographics, usage of different medications without a physician's advice, and rationality and knowledge of self-medication. The second section comprised of questions to collect information on the various reasons and sources for as well as the frequency of self-medication for various drugs, and was configured in such a way that the parents having child/children of age less than 18 years progressed to the 3rd section and if not, they were asked to submit their response. The third section consisted of questions that assessed the parent's attitudes, knowledge and behaviors towards self-medicating their children. Prompts were provided for each question in the form of options to reduce recall bias.

The questionnaire was designed such that answering all the questions was mandated, without which the questionnaire would not be submitted, in order to prevent any missing data. The baseline characteristics, reasons for self-medication, and prevalence of self-medication were described in the form of percentages. The association between various factors and self-medication was assessed using the chi-square Fischer exact test, where a p-value of less than 0.05 was considered to depict a significant association.

RESULTS:

Among the 439 people included in the study, a large proportion of them belonged to the age group of 18-25 years, constituting 62.6% (275) of the total population. An almost equal proportion of participants belonging to both genders was included, consisting of 50.3% (221) of males and 48.5% (213) of females, while the gender of the remaining people was unspecified. Most of the study's participants were students (50.8%). About 26.7% (117) of the patients had 1 or more children (Table 1).

The most common reasons for self-medication among the participants were the presence of minor illnesses (48.1%), followed by quick relief (22.6%) and fear of getting infected by Covid-19 (13.4%). Most of the participants (79.5%) were aware of the risks of self-medication. About 63% of the patients were

practicing self-medication even before the Covid-19 pandemic. Despite this, a nominal proportion of patients (29%) of the participants recommended self-medication to others (Table 2).

Most participants used paracetamol for the prevention of Covid-19 (3.2%), for symptoms of Covid-19 (3.5%) or because they were diagnosed with Covid-19 (4.3%). Azithromycin was only used by most patients in case of being tested positive for Covid-19 (2.3%) (Table 3).

Among participants with children, most of them self-medicated their child at least one time during the Covid-19 pandemic (63.2%). However, most participants stated that they would consider consulting a doctor before self-medicating their child (76.1%). A nominal proportion of participants preferred using the medications from previous prescriptions for their child to a smaller extent (44.4%) (Table 4).

Table 1: Baseline Characteristics

PARAMETER	NUMBER OF PARTICIPANTS (N=439)	PERCENTAGE (%)
Age (in years)		
18-25	275	62.6
26-35	96	21.9
36-45	53	12.1
46-60	15	3.4
Gender		
Male	221	50.3
Female	213	48.5
Not specified	5	1.1
Occupation		
Unemployed	6	1.4
Student	223	50.8
Professional	85	19.4
Service sector	88	20.0
Others	41	9.3
Having child/children		
Yes	117	26.7
No	322	73.3

Table 2: Self-medication practice descriptions

PARAMETER	NUMBER OF PARTICIPANTS (N=439)	PERCENTAGE (%)
Reasons for self-medication		
Unspecified	48	10.9
Minor illness	211	48.1
Time-saving	22	5.0
Quick relief	99	22.6
Fear of getting Covid	59	13.4
Awareness of risks of self-medication		
Yes	249	79.5
No	90	20.5
The practice of self-medication before the Covid-19 pandemic		
Yes	276	62.9
No	163	37.1
Recommending self-medication to other		
Yes	127	28.9
No	312	71.1

Table 3: Symptoms for which self-medication was practiced with commonly used drugs

SYMPTOMS	PARACETAMOL	DICLOFENAC	CETIRIZINE	PANTOPRAZOLE	AZITHROMYCYIN
1. I used it without having any symptom	1.4	0.7	0.2	0.7	0.7
2. I used it as a preventive for COVID-19	3.2	0.9	1.4	0.7	1.4
3. I had COVID-19 symptoms and self-medicated	3.6	3	1.1	0.5	4.1
4. I was positively diagnosed with COVID-19 and self-medicated to treat it	4.3	1.4	1.6	1.4	2.3
5. I consumed it regularly because other reasons	2.3	0.2	0.5	0.7	0.9
6. I did not take this medication	37.8	61.0	42.1	57.4	70.4
Others	58.08	35.07	53.07	38.7	20.07

Table 4: Self-medication practice among people for their children

PARAMETER	NUMBER OF PARTICIPANTS (N=117)	PERCENTAGE (%)
Frequency of self-medication during pandemic		
N/A	2	23
1 time	74	63.2
2-3 times	7	6.0
>3 times	2	1.7
Considering a doctor for treatment		
N/A	2	1.7
Never	5	4.3
To a large extent	89	76.1
To a small extent	21	17.9
Considering previous prescriptions for SM		
Nil	5	4.3
Never	43	36.8
To a large extent	17	14.5
To a small extent	52	44.4

The above results depict that a significant proportion of participants began following self-medication practices after the Covid-19 pandemic, especially with paracetamol, mainly for minor illnesses. In the case of participants with children, most patients preferred to consult a doctor for their child, however, a large proportion of them practiced self-medication for their child at least once during the pandemic. This is likely due to the fear of their child contracting the Covid-19 infection when taken to healthcare centers for consultation with a doctor. The study clearly demonstrates a significantly large population being involved in self-medication practices.

DISCUSSION:

Although self-medication can reduce waiting time and save money, it may carry some potential risks, such as antibiotic resistance or inappropriate management with subsequent complications. The main disadvantage is DI with two OTC drugs with prescribed drugs. To reduce the huge burden on health

service centers, which are often less in number staff and unreachable in rural and remote areas for effective and quick relief of symptoms, the World Health Organization (WHO) promotes self-medication practices. The age group people of 18-25 years had self-medicated more and this coincides with the study conducted by Ravindra et.al, out of the whole population we found that health sector-related students and professionals were high in number i.e., Pharm D students were followed by MBBS students, Dental students, Clinical pharmacists, Nurses, Biochemist, Lab technicians, Radiologists status i.e. Professionals, Service job-related participants had more self-medication prevalence as because practicing self-medication avoids the loss of daily wages, time-saving and It was found that Paracetamol was a highly self-medicated drug in the pediatric population as the first symptom occurs 28.0% mentioned they self-medicate when they recognize the It is seen that the self-medication practice in the pediatric population is considerably about self-medication in the pediatric population is important.

Among the 439 people included in the study, a large proportion of them belonged to the age group of 18-25 years, constituting 62.6% (275) of the total population. The most common reasons for self-medication among the participants were the presence of minor illnesses (48.1%), followed by quick relief (22.6%), and fear of getting infected by Covid-19 (13.4%). Most of the participants (79.5%) were aware of the risks of self-medication. About 63% of the patients were practicing self-medication even before the Covid-19 pandemic. Despite this, a nominal proportion of patients (29%) of the participants recommended self-medication to others. Among participants with children, most of them self-medicated their child at least one time during the Covid-19 pandemic (63.2%). However, most participants stated that they would consider consulting a doctor before self-medication their child (76.1%). A nominal proportion of participants preferred using the medications from previous prescriptions for their child to a smaller extent (44.4%). Our study depicts that a significant proportion of participants began following self-medication practices after the Covid-19 pandemic, especially with paracetamol, mainly for minor illnesses. In the case of participants with children, most patients preferred to consult a doctor for their child, however, a large proportion of them practiced self-medication for their child at least once during the pandemic. This is likely due to the fear of their child contracting the Covid-19 infection when taken to healthcare centers for consultation with a doctor. The study demonstrates a significantly large population being involved in self-medication practices.

Author Contributions:

Dr. Sathya Narayana S, Dr. Albin Jose, Dr. Arun S, Dr. Prashanth M collected data and drafted original script. Dr. Muthukumar Mani, Dr. R Srinivasan, assisted with drafting original manuscript and editorial works. Dr. Saikrupa B V supervised the editorial works. All the Authors read and approved the final manuscript.

Acknowledgement:

We wish to express our sincere gratitude and heartfelt thanks to Dr. Padmavathi (pediatrician) for their personal interest, guidance, and support at all stages of this project. Their wide knowledge, encouragement and personal guidance enabled us to finish the project successfully. We extend our heartfelt gratitude to Prof. Dr. J. Saravanan, Dean and Principal, PES College of Pharmacy.

We express our sincere thanks to our friends, colleagues, and college administrators for their constant support. Lastly, we would like express our deepest gratitude to our parents and family for their love and support throughout our life.

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