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# To Study the Practice of Self-Medication Among Medical Students During the COVID 19 Pandemic

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**ABSTRACT**
Lockdown during COVID-19 pandemic, made access to healthcare services difficult because of which people resorted to self-medicating themselves. The study was planned to determine the reasons for opting self-medication by medical students who have background knowledge and easy access to healthcare and medications. It was an observational cross sectional study, conducted by circulating a google form among undergraduate and postgraduate medical students. We obtained a total number 402 responses. The responses were collecting after obtaining their informed consent and approval from institutional ethics committee. Results were compiled and observations were made based on them. We found that out of the 402 responses, 92.5 % were aware about the term self-medication. 85.3% of the participants practiced self-medication during lockdown period. The most common reason for self-medication was that the OPDs were closed during lockdown. Self-medication was based on the previous experience with medicines in 84.6% of the participants. More than half the participants had shared their prescriptions with others for treating their health conditions. Most common indication and drug used for self-medication was fever and antipyretic respectively. 72.9% participants were aware that drugs can cause long term complications. 83.3% were unaware about contraindications of medications. Most common side effects experienced were nausea, diarrhea, drowsiness and rashes. A large number of medical students practiced self-medication during COVID 19 lockdown period. Awareness level regarding knowledge about contraindications, long term complications and adverse effects and right practices related to self-medication need to be improved.

## INTRODUCTION

COVID-19 spread a lot of uncertainty and anxiety among general population and the health care community. This could be due to the high mortality rates reported by some countries like Italy and Spain or lack of inadequate and full proof ways of preventing COVID-19[1]. There were various challenges in delivering healthcare to patients due to lack of resources and knowledge regarding its proper treatment. The lock down also contributed by making it difficult to access healthcare. All these issues contributed to the panic and led the people to resort to self-care by taking medications without medical consultation not realizing the dangers of this practice[2]. Practical difficulties like travel restrictions and fear of infection transmission from hospitals and clinics also contributed to the increased trend of self-medication[3,4]. Self-medication can prove more hazardous than useful. The reasons for resorting to self-medication include financial constraints, time constraints, difficult access to health services etc[5]. This led to many deaths in patients suffering from COVID-19. Reports of poisoning and death due to self-medication of chloroquine have been reported in USA (United States of America) and Nigeria during the pandemic of COVID-19[1]. Self-medication was reported to be moderately high among general population in studies[6]. Self-medication also exposes the patients to many complications due to the pharmacological interactions or inappropriate use of medicines[2]. In comparison with the general population, medical students are more liable for self-medication due to easy availability of resources like textbooks and proximity to pharmacies. But this could be harmful as studies show that a majority of medical undergraduate students lack knowledge related to rational use of drugs and ethical issues associated with self-medication[7]. Drugs used for self-medication in COVID-19 ranged from azithromycin, non-steroidal anti-inflammatory drugs (NSAIDs), ivermectin, chloroquine to antiretrovirals like lopinavir and ritonavir. On one hand we were repurposing drugs to help with the management of COVID-19 cases while on the other hand this information was also being misused by resorting to self-medication . Not only this but self-medication adversely contributed in creating shortage of these important medicines which adversely affected the health care system[8,9]. Also it led to a hike in the cost of these medications due to their unavailability because of unnecessary hoarding of these medicines, practiced by many people who were driven by fear[8]. Studies have shown that low literacy is an important contributing factor towards self-medication and hence all the complications associated with it[10]. Our study was planned to explore the reasons for opting self-medication by medical students during COVID-19 pandemic and also to evaluate the practices followed while self-medicating.

## MATERIALS AND METHODS

It was a cross-sectional online questionnaire based study conducted in both postgraduate and undergraduate medical students. A self-designed questionnaire in the form of an online goggle form was prepared and validated by conducting a pilot study to make necessary modifications. After obtaining the ethical clearance from the institutional ethics committee, the online goggle form was circulated among the medical students. Participants were included only after they were explained about the study following which the written informed consent was obtained. The initial questions were related to the demography of the patients like name, age, gender and qualifications, which were followed by 25 questions related to self-medication practices where we evaluated the reasons of self-medication along with the types of medicines used and their awareness related to self-medication practices. The inclusion criteria for the study was that the age of the participant should be above 18 years and he/she should be a medical student. Exclusion criteria included those students who did not give their written informed consent to participate in the study. The questionnaire was designed as such where the participant could opt for more than one responses. Data was compiled from all the responses obtained through the questionnaire and inferences were drawn.

## RESULTS AND DISCUSSIONS

We received a total number of 402 responses from undergraduate and postgraduate medical students. We had 72.9% undergraduate students and 27.1% postgraduate medical students as participants in the study. 27% of the participants were female and 73% were male. Majority of the participants belonged to the age group of 20-22 years (35.1%) followed by 18-20 years (21.4%) and 22-24 years (20.1%). Among them majority of the students (52.1%) belonged to the 3rd year of MBBS course. Out of the total 402 participants in the study, 92.5% of the participants were aware of the term “self-medication” while 7.5% were unaware of it. The awareness level regarding the term self-medication was similar between male (93%) and female (92%) participants. Out of the total number of participants, 88.8% of the participants had practiced self-medication even before the start of the lock down of COVID-19, while 85.3% of the participants self-medicated themselves only during the lock down of COVID-19. Among the various available treatments options, the most commonly opted was allopathic followed by homeopathic, ayurvedic and unani respectively. The most common reasons for resorting

to self-medication during the lock down period were that the OPDs were closed (47% ) or they had a fear of contracting the infection of COVID-19 (32.7%) in crowded hospitals.

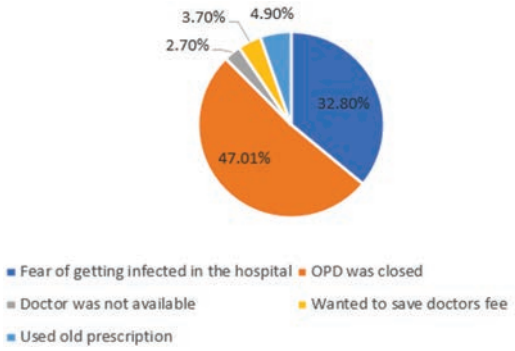


Fig. 1: Reasons for Opting Self Medication

Most of the participants self-medicated themselves based on previous experiences (84.6%), while others gathered the information through television (34.8 %), internet (34.3%), advertisements (6%) and through friends and relatives (5.2%) . >half of the participants (55.7%) had shared their prescriptions with others for common health complaints or diseases.

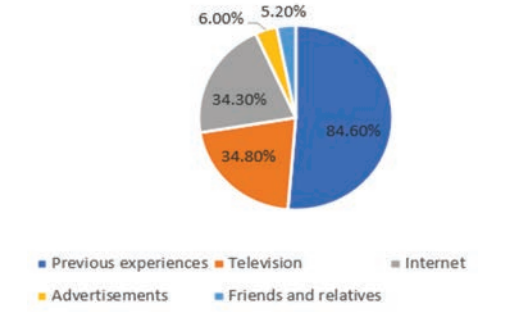


Fig. 2: Information About Medicines for Self Medication was Obtained From

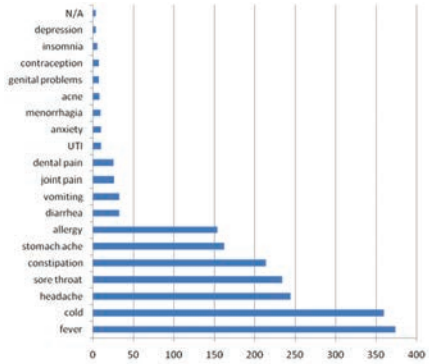


Fig. 3: The Most Common Indication for Self-Medication was Fever, Followed by Cold, Headache, Sore Throat and Least Common Indication was Insomnia and Anxiety

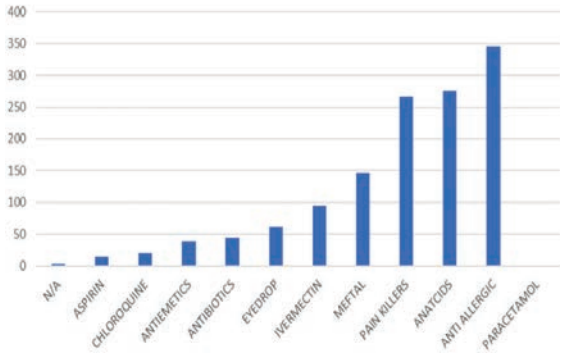


Fig. 4: The Most Commonly Used Drugs for Self-Medication were Antipyretic, Followed by Antiallergic, Antacids, Painkillers etc

Most of the participants (56.2%) took the medicines till the symptoms subsided, while 27.9% continued the medicines even after the symptoms had subsided and 15.4% took the medicines till the course was completed. 73.4% participants reported that they did not read the instructions written at the back of the medicine or in the leaflet. 79.1 % of the participants experienced side effects after taking self-medications. The most common side effect experienced by the participants was nausea (84.3%), followed by diarrhoea (81.5%), rashes (37.7%) and drowsiness (25.4%).

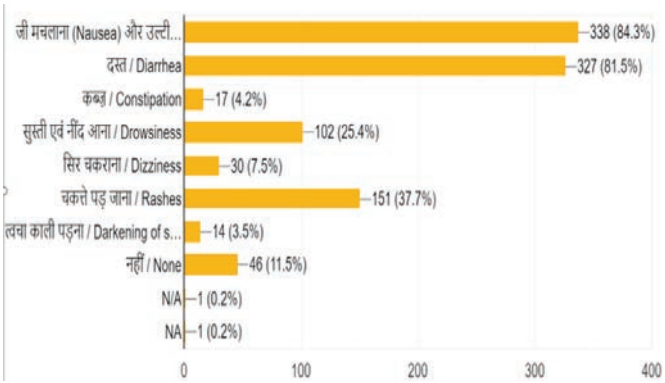


Fig. 5: The Most Common Side Effect Experienced by the Participants was Nausea (84.3%), Followed by Diarrhoea (81.5%), Rashes (37.7%) and Drowsiness (25.4%)

72.9% of the participants were aware that some of the drugs can cause long term side effects. Most participants (83.3%) were unaware about the contraindications of the medicines they took for self-medication. A large number of the participants (86.3%) reported that they had taken some medication for the prevention of COVID-19 infection. For prevention of COVID-19 infection, 87% took

homeopathic medicine and 28% took ayurvedic medicines. 56.5% of the participants came to know about the prophylactic medicines for COVID-19 through friends and family, while 24.6% came to know through the internet and 16.4% came to know through television.72.4% were aware about the disadvantages of self-medication while 27.6% were unaware about them. 93.3% participants agreed that it was inappropriate to take medicines without the doctor's advice. 93.3% thought that medicines should not be given by the pharmacist without a doctor's prescription. Among the participants 64.7% had suffered from COVID-19 infection, among these most had consulted a physician for treatment while 7.8% did not consult a physician and 28.5% did not comment on this.

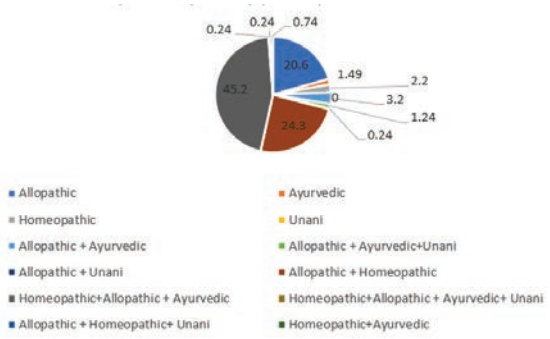


Fig. 6: Treatment Option Opted by Participants for Self-Medication

The various treatment options opted by participants for self-medication range from allopathy to homeopathy, Ayurveda and Unani. The most common being a combination of Homeopathic+Allopathic+ Ayurvedic (45.2%) followed by Allopathic+ Homeopathic (24.3%) and only Allopathic (20.6%). Majority of the participants (72.6%) used their old experience for self-medication, followed by gathering information through friends and family (7.4%) or internet (7.4%) or television (5.2%) and advertisements (2.9%) while few got the information from books, family doctors and pharmacies. When asked if the participants read the instructions written in the patient information leaflet 73.38% responded that they did not read the instructions. 83.3% of the participants were unaware about the contraindications of the medicines they had taken by self-medication. Around 86.3% of the participants had self-medicated themselves for prevention of COVID-19. 27.6% of the study subjects were unaware about the disadvantages of self-medication.

We aimed to study the practice of self-medication among medical students during the lockdown of COVID-19 pandemic, when access to health care facilities had become difficult due to various challenges. Studies have confirmed that there has been a drastic rise in self-medication practices following the outburst of COVID-19 pandemic due to the urge for preventive action and self care[11]. Studies state that tendency to self-medicate is high in both medical and non-medical students[3,12]. Medical students have easy access to drug related information through textbooks, medical journals and proximity to pharmacies for obtaining medications. World Health Organization (WHO) defines self-medication as the selection and administration of medicines to treat self-recognized symptoms or ailments without consulting a doctor[13]. It also includes the use or reuse of previously prescribed or unused drug packets, direct purchasing of prescription drugs without consultation of a physician and irrational use of over-the-counter (OTC) drugs. As per our study, a large number of participants (92.5%) were aware about the term "self-medication" which was also reported by Wegbom *et al.* in their study[2]. The percentage of participants who self-medicated themselves for prevention of COVID-19 was also quite large in our study (86.3%) which was in contrast to another study by Sadio AJ *et al.* where only 34% of the study subjects opted for self-medication for COVID-19 prevention[1]. This variation could be because of the difference in study population in both studies, as in our study we had included medical students who have a baseline knowledge and easy access to medicines while in the study conducted by Sadio AJ *et al.,* they had included study participants from various sectors like air transport, police, healthcare etc. In our study we found that there was no association between gender and practice of self-medication as 93.44% of males and 90% of the females (90%) practiced self-medication. These result are in contrast to those obtained by Lukovic *et al.* where they found that self-medication was practiced more by females as compared to males[14]. The most common reason for opting self-medication in our study was that the OPDs were closed (47.01%) or they had a fear of getting infections in hospitals (32.8%) while in another study by Wegbom[2] the reasons for self-medication were fear of stigma of the disease (79.5%) or quarantine (77.3%) or fear of catching an infection from the hospital (76.3%) but in another study by Al-Qahtani AM the participants considered their symptoms minor hence they opted for Self medication[15]. The most common indications for self-medication as per our study were fever (93%), followed by cold (79%), headache (60%), sore throat (57%) these findings were different from a study conducted by Khadka A and Kafle KK where the most common indication for opting self-medication was headache[16]. while in another study by Mutua C.M *et al.* it was pain and respiratory symptoms[17]. We found that the most common drug

used for self-medication in our study part was paracetamol, these finding were similar to a study conducted by Quispe-Cañari[8] Whereas, in other studies the most common drugs administered were either multivitamins or vitamin C respectively[18,19]. Mutua C.M *et al.* in their study found that anti-pyretics were most commonly used for self-medication for both fever and pain associated with infections[17]. We found that 93.3% of the study participants thought that the practice of self- medication was inappropriate while in another study by Khadka A and Kafle KK, 68.4% of the medical students thought that practice of self-medication should be encouraged because it had beneficial effects like saving time, money and feeling of self-confidence. In the study by Khadka A and Kafle KK, the students obtained the medicines for self-medication from pharmacies (58.3%) or used the leftover medicines (22.2%) from earlier use and 19.4% obtained them from friends and family. While in our study the participants self-medicated themselves based on previous experience in 84.6% cases and 5.2% obtained the information about medicines from friends and relatives[16]. The role of television, internet and advertisements in propagating information regarding medicines for practice of self-medication as per our study was 34.8%, 34.3% and 6% respectively. While in another study the source of information for self-medication was communication with parents (33.3%), textbooks (20.3%), pharmacies (18.5 %) and television and internet (10.9%) 23 In our study we found that the 55.7% of the study participants had shared their prescription with others, while in another study by Gyawali *et al.* 54% of the participants shared their previous experience with medicines as a source of self-medication[20]. In our study we found that 27.6% of the study participants were unaware of the harmful effects or disadvantages of self-medication, while in another study 87.5% of the students were aware that self-medication could lead to adverse drug reactions[16]. The duration of self-medication in our participants was till the symptoms subsided (56.2%), some continued the medications even after the symptoms had subsided (27.9%) and 15.4% took the medicines till the course was complete. While in another study 92.2% participants took the medicines for a week or even <that[14]. Out of 402 participants, 63.9% of them had suffered from COVID-19 infection. Out of these COVID-19 positive participants 56.2% did consult a physician for treatment. In our study, 78.7% of the participants experienced adverse effects due to self-medication, whereas in another study by Jagadeesh K the same percentage was as low as 8.8%[21]. We also found that before self-medicating themselves 73.38% of the study participants did not read the instructions which are written on the patient information leaflet. Unfortunately 83.3% of the participants were unaware about the contraindications of the medicines they took for self-medication.

## CONCLUSION

In our study we noted that a large number of study participants experienced side effects to drugs they used for self-medication. Also awareness regarding long term side effects and contraindications of drugs was very low. The practice of reading instructions on the information leaflet provided with the medicines was also not followed by many participants. Though if safely practiced, self-medication can be helpful in some scenarios but awareness regarding safe practices like ruling out the contraindications, being aware about the side effects and following right administration techniques need to be highlighted.

## ACKNOWLEDGMENT

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