

**EVALUATION OF SELF-MEDICATION PRACTICE DURING COVID-19 PANDEMIC: A CROSS SECTIONAL ONLINE SURVEY IN AURANGABAD CITY, MAHARASHTRA, INDIA****Dr. Shruti Chandra<sup>1\*</sup>, Dr. Deepali Jayabhaye<sup>2</sup>, Dr. Sukhmeen Kaur<sup>3</sup> and Dr. Amol Ubale<sup>4</sup>**<sup>1</sup>Assistant Professor, Department of Pharmacology, MGM Medical College and Research Centre, Maharashtra, India.<sup>2</sup>Associate Professor, Department of Pharmacology, MGM Medical College and Research Centre, Maharashtra, India.<sup>3</sup>Tutor, Department of Pharmacology, MGM Medical College and Research Centre, Maharashtra, India.<sup>4</sup>Consultant, Radiation oncology, Seth Nandlal Dhoot Hospital, Aurangabad, Maharashtra, India.**\*Corresponding Author: Dr. Shruti Chandra**

Assistant Professor, Department of Pharmacology, MGM Medical College and Research Centre, Maharashtra, India.

Article Received on 07/03/2022

Article Revised on 28/03/2022

Article Accepted on 17/04/2022

**ABSTRACT**

**Background:** Self-medication is a common practice in India as it provides a low-cost alternative for people, which involves inappropriate and injudicious use of medicines treat self-recognized symptoms by the people. **Methods:** A cross sectional online survey was conducted on 552 citizens by structured questionnaires during COVID-19 outbreak from April to May 2021 in Aurangabad city, to observe the prevalence, pattern and sources of self medication. **Results:** Out of total 540 respondents, 75% individuals underwent rtPCR test, out of which 73.3% turned to be positive. 380 people (70.3%) took some or other medication, out of which 204 (53.6%) did self medication without any doctor,s advice. Maximum number of patients suffered from fever (64.4%) followed by throat pain (36.2%), dry-cough, loss of smell, loss of taste, bodyache and diarrhoea. The most common antibiotics used were Azithromycin (254, 66.8%) followed by doxycycline (146, 38.4%). Most common reason for taking self medication was No need to visit the doctor for minor illness (100, 18.5%) followed by ease and convenience (92, 17%). The most common reason for not taking self medication was lack of knowledge about medicines (156, 28.8%) f/b risk of adverse effect (124, 22.9%). **Conclusions:** As per our study, good number of people practiced self medication, especially during the Covid outbreak. This could be due to unusual distress, caused by high self-awareness of their health and buying capacity of medication.

**KEYWORDS:** COVID-19, Self-medication, Rational use of drug.**INTRODUCTION**

On January 30th, 2020, the World Health Organization (WHO) declared a public health emergency of international concern due to the advent in China of a disease called COVID-19 caused by a novel coronavirus, SARSCoV-2, and its rapid spread. Approximately 6 months later, almost 20 million cases and approximately 700,000 deaths have been reported worldwide.<sup>[1]</sup> The SARS-CoV-2 pandemic has changed the way people live in most countries in the world. From December 2019—when the virus was first detected—to July 2020, 13.5 million infections were diagnosed in 188 regions of different countries.<sup>[2]</sup>

The **COVID-19 pandemic in India** is a part of the worldwide pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). As of 27 September 2021, according to official figures, India has the second-highest number of confirmed cases in the world (after the United States of America) with 33,678,786 reported cases of COVID-19 infection and

the third-highest number of COVID-19 deaths (after the United States and Brazil) at 448,062 deaths.<sup>[3,4]</sup>

In India, a confirmed case of COVID-19 was reported on 30<sup>th</sup> January 2020, who was a student traveled from Wuhan, China, and has successfully recovered from the infection on 14th February 2020.<sup>[5]</sup> Lockdowns were announced in Kerala on 23 March, and in the rest of the country on 25 March. On 10 June, India's recoveries exceeded active cases for the first time.<sup>[6]</sup> Infection rates started to drop in September, along with the number of new and active cases.<sup>[7]</sup> Daily cases peaked mid-September with over 90,000 cases reported per-day, dropping to below 15,000 in January 2021.<sup>[8]</sup> A second wave beginning in March 2021 was much more devastating than the first, with shortages of vaccines, hospital beds, oxygen cylinders and other medical supplies in parts of the country.<sup>[8]</sup> By late April, India led the world in new and active cases. On 30 April 2021, it became the first country to report over 400,000 new cases in a 24-hour period.<sup>[9]</sup> Experts stated that the virus may reach an endemic stage in India rather than

completely disappear;<sup>[10]</sup> in late August 2021, Soumya Swaminathan said India may be in some stage of endemicity where the country learns to live with the virus.<sup>[11]</sup>

In most countries so far, partial lockdowns as well as social distancing guidelines, frequent washing of hands and/or sanitizing have been put in place to curb the spread of the virus. Some of these restrictions may remain in place probably until a vaccine for the virus has been developed. In this regards many human behavioural patterns to life have been seriously affected ranging from education, economic, health, social, religion etc.<sup>[12]</sup>

Self-medication is defined as the use of medication by a patient on his own initiative or on the advice of a Pharmacist or a lay person instead of consulting a medical practitioner (WHO guidelines, 2000).<sup>[13]</sup> Common sources of self-medications include previous prescribed drug, pharmacist, family, friends, neighbours, internet, and suggestions from an advertisement etc. According to Osemene and Lamikanra, (2012), self-medication is a serious public health problem globally posing risks such as drug resistance, organ damage and deaths (2.9 – 3.7%) in the world because of drug-drug interaction. The probability of drug abuse has been reported to be on the rise as a result of global increase in self-medication. Signs and symptoms of underlying disease conditions can be concealed by self-medication, therefore causing drug resistance, delay diagnoses and making the problem complex or difficult to deal with.<sup>[12]</sup>

In view of this high prevalence of self-medication of prescription-only drugs in India and its associated adverse socio-economic impact on individual and the healthcare service system, supply chain at large. This study is therefore done to evaluate the awareness, pattern and attitude towards self-medication among the high socio-economic and educated citizens in Aurangabad city, Maharashtra, India during the outbreak of COVID-19 without testing, diagnose and prescription.

## METHODS

This cross-sectional online survey adopted a descriptive non-experimental research design to investigate the awareness and practice of self-medication conducted from October to February 2020. The data was collected by conducting online survey by convenience sampling.

Using and relying on the authors' network with people living in Aurangabad city, a structured questionnaire was circulated to complete via clicking the link, connected to Google form. The questionnaire contained brief introduction on the background, objective, procedure, voluntary nature of participation, declaration of anonymity and confidentiality, and notes for filling in the online questionnaire.

The inclusion criteria were set as, the adult citizens living in Aurangabad city, aged 25 years or more, with education level of graduation or above, non-medical professionals, having email address, agreed to participate voluntarily. Respondents having involvement or knowledge on medical background (medical graduates, medical practitioners, nurses, medical researchers) were excluded to find out the public perceptions and their responses to take medications without prescription during COVID-19 outbreak. The frequencies of response were recorded in datasheet and observed according to demographic characteristics, sources of information, clinical symptoms and status of COVID-19 test results.

The questionnaire was developed and validated through face and content validity techniques. The face validity was achieved by giving the draft questionnaire to a few of the citizens with inclusion criteria at Aurangabad city, to assess whether the response looks meaningful, well designed and/or a good measure of the construct to an innocent by stander. Information gathered from this exercise was used to refine and modify the questionnaire further. The content validity was done by giving the resultant questionnaire to two independent scholars from the fields of public health, pharmacology and social statistics to assess its appropriateness, clarity, coverage and relevance to the study. The incorporated draft questionnaire was recast for ambiguity and repetitive questions were struck off.

The reliability of the validated questionnaire was ascertained by test retest method. The questionnaire was administered twice at two weeks' interval on ten respondents from Aurangabad city who practiced self medication during COVID-19 outbreak. Data analysis was performed using SPSS version 25.0.

## RESULTS

Total 552 participants completed the online survey questionnaire and submitted with e-mail verification. After excluding 12 respondents, of whom 10 were doctors by profession and 2 were below the minimum age limit (25 years); the final sample consisted of 540 valid participants. Among the final sample, 246 (45.5%) were men and 294 (54.4%) were women. Maximum number of participants were from age group of 35-44 years i.e. 214 (39.6%). 204 (37.7%) held a bachelor degree and 182 (33.7%) were unemployed which were mostly housewives. Other demographic characteristics are shown in (Table1).

**Table 1: Demographic Characteristics.**

<b>Gender</b>	Number	Percentage
Male	246	45.5
Female	294	54.4
<b>Age:</b>		
25-34	84	15.5
35-44	214	39.6
45-54	180	33.3
55 +	62	11.4
<b>Education level</b>		
Undergraduate	94	17.4
Bachelor degree	204	37.7
Master degree	196	36.2
Doctoral and advanced	46	8.5
<b>Work status</b>		
Students	20	3.7
Civil service	12	2.2
Non-civil service	142	26.2
Self-employed / business	154	28.5
Retired	30	5.5
Unemployed	182	33.7

Out of 540 respondents, 356 (65.9%) has suffered from COVID 19 symptoms while 184 (34%) did not. Out of 356 maximum number of patients suffer from fever (64.4%) followed by throat pain (36.2%), dry-cough, loss of smell, loss of taste, bodyache and diarrhoea. 406 (75.1%) respondents undergone rtPCR test for COVID 19 while 134 (24.8%) did not. Out of 406 respondents who undergone rtPCR test, 298(73.3%) were positive while 108(26.6%) were negative. Only 160(29.6%) did

not take any medication during the survey period while 380(70.3%) individuals took some medication. Out of these 380 who took medication, 176(46.3%) consulted doctor while rest 204(53.6%) practiced self medication. Commonest source of the drugs used for self-medication was Medical store/Pharmacy (41.1%) followed by Media/Internet (33.3%) and Friends and Family (25.4%). (TABLE 2).

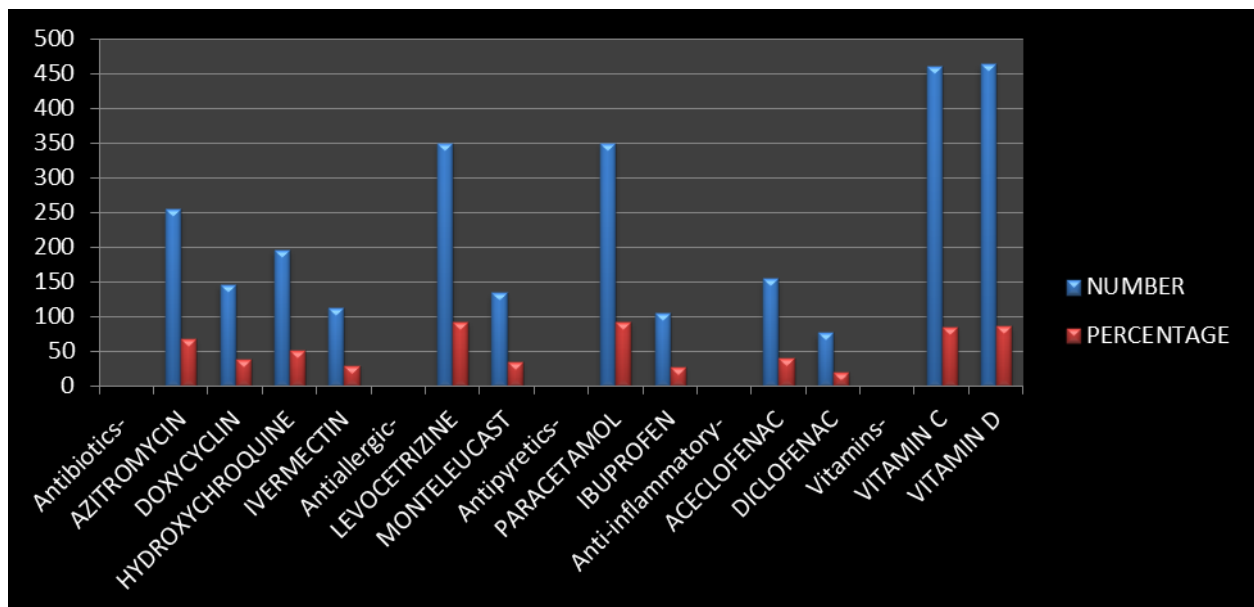
**Table 2: Questions and Answers.**

<b>Sr No</b>	<b>Questions</b>	<b>Response</b>	<b>Percentage</b>
1	Did you suffer from Covid 19 symptoms?		
	Yes	356	65.9
2	No	184	34.0
	If Yes, What were the symptoms?		
	Fever	348	64.4
	Throat pain	196	36.2
	dry-cough	170	31.4
	loss of smell	118	21.8
	loss of taste	116	21.4
	body ache	350	64.8
diarrhea	56	10.3	
	No symptoms	184	34.0
3	Did you undergone rt PCR test?		
	Yes	406	75.1
4	No	134	24.8
	If Yes,		
5	Positive	298	73.3
	Negative	108	26.6
6	Have you taken any Medication?		
	Yes	380	70.3
7	No	160	29.6
	If Yes, Whether taken with		
8	Doctor's advice	176	46.3
	Self-medication	204	53.6
9	What was the source of the drugs used for		

self-medication?		
a) Medical store/Pharmacy	84	41.1
b) Media/Internet	68	33.3
c) Friends and Family	52	25.4

The most frequently used drugs among the respondents were Paracetamol (350, 92.1%) among antipyretics, Levocetrizine (350, 92.1%) among antiallergics, Aceclofenac (154, 40.5%) among anti-inflammatory. The most common antibiotics used were Azithromycin

(254, 66.8%) followed by doxycycline (146, 38.4%). These drugs were taken by individuals who were not even the diagnosed by rRT-PCR positive result. (GRAPH 1, TABLE 3).

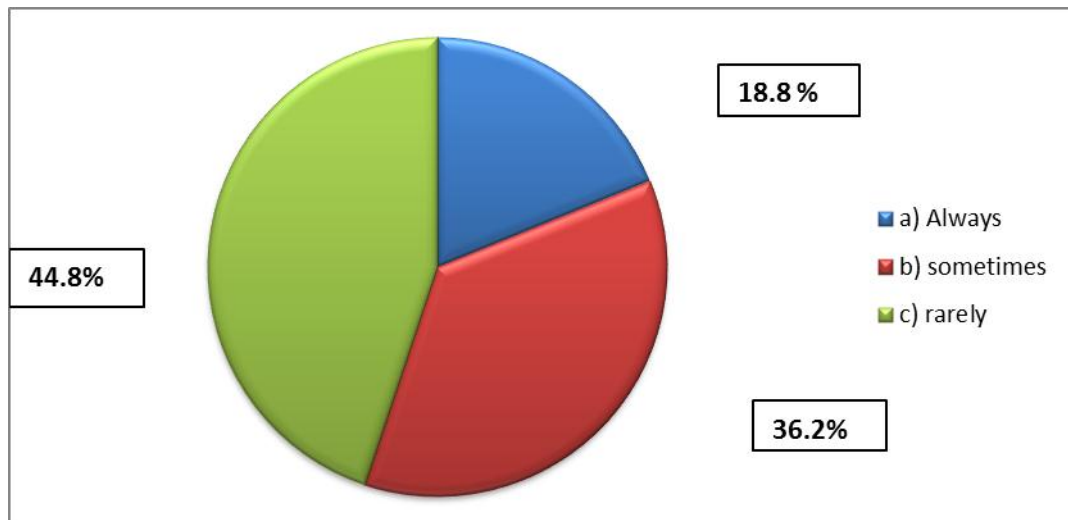


Graph 1: What are the drugs taken for Self Medication.

Table 3: What are the drugs taken for Self Medication.

1	Antibiotics-		
	AZITROMYCIN	254	66.8
	DOXYCYCLIN	146	38.4
	HYDROXYCHROQUINE	196	51.5
	IVERMECTIN	112	29.4
	Antiallergic-		
	LEVOCETRIZINE	350	92.1
	MONTELEUCAST	134	35.2
	Antipyretics-		
	PARACETAMOL	350	92.1
	IBUPROFEN	104	27.3
	Anti-Inflammatory-		
	ACECLOFENAC	154	40.5
	DICLOFENAC	76	20
	Vitamins-		
	VITAMIN C	460	85.1
VITAMIN D	464	85.5	
Others			

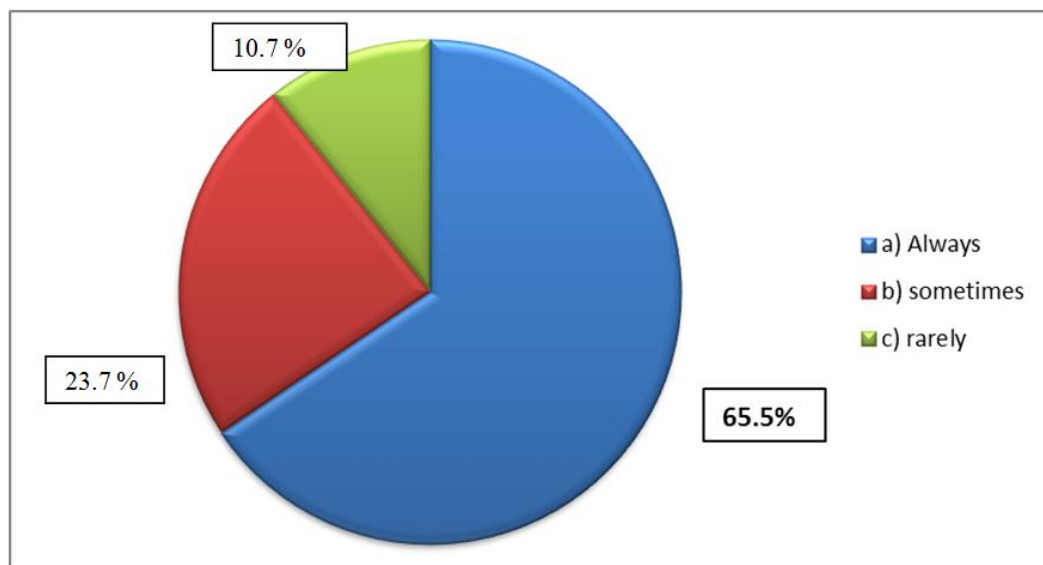
Among 540 individual, 242(44.8%) rarely practices self medication, 190 (36.2%) sometimes takes medicines by themselves while 102 (18.8%) always practice self medication. (CHART 1)



**Chart 1: Weather Practice Self Medication.**

Among 540 individual, 354(65.5%) always visit medical practisioner for their medical problems while 128(23.7%)

visit sometimes, rest 58(10.7%) rarely visit doctors. (CHART 2).



**Chart 2: Whether visit to a qualified medical practitioner.**

Most common reason for taking self medication was No need to visit the doctor for minor illness (100, 18.5%) followed by ease and convenience (92, 17%). The most

common reason for not taking self medication was lack of knowledge about medicines (156, 28.8%) f/b risk of adverse effect (124, 22.9%). (Table 4).

**Table 4: Common Reasons of Practicing Self Medication or Not.**

Sr. No.	Questions	Response	Percentage
1	According to you which of the following were the reasons in favour of self medication?		
	No need to visit the doctor for minor illness	100	18.5
	Quick relief	58	10.7
	Time saving	44	8.1
	Confidence on your knowledge about medicines		
	Economical	16	2.9
	Ease and convenience	84	15.5
	Learning opportunity	92	17.0
	Crowd avoidance	34	6.2
	If any others (please specify)	112	20.7



	According to you which of the following were the reasons for not taking self medication?		
2	Lack of knowledge about medicines		
	Risk of adverse effects	156	28.8
	Risk of using wrong drugs	124	22.9
	Risk of misdiagnosing	92	17.0
	Risk of drug dependence	84	15.5
	Risk of using drugs wrongly	28	5.1
	If any others (please specify)	56	10.3

## DISCUSSION

Total 552 participants completed the online survey questionnaire and submitted with e-mail verification. Almost similar proportion of male (45.5%) and female (54.4%) participated in the study and most of them (39.6%) belonged to the age group of 35-44 years. Highest number of respondents (37.7%) held Bachelor degree. Among all individuals, 182 (33.7%) were unemployed which were mostly housewives. Similar results were observed by Nasir M et al Samuel S. Dare et al.<sup>[14,15]</sup>

Out of 540 respondents, 356 (65.9%) has suffered from COVID 19 symptoms while 184 (34%) did not. Out of 356 maximum number of patients suffer from fever (64.4%) followed by throat pain (36.2%), dry-cough, loss of smell, loss of taste, bodyache and diarrhoea. 406 (75.1%) respondents undergone rtPCR test for COVID 19 while 134 (24.8%) did not. Out of 406 respondents who undergone rtPCR test, 298(73.3%) were positive while 108(26.6%) were negative. Only 160(29.6%) did not take any medication during the survey period while 380(70.3%) individuals took some medication. Out of these 380 who took medication, 176(46.3%) consulted doctor while rest 204(53.6%) practiced self medication. Commonest source of the drugs used for self-medication was Medical store/Pharmacy (41.1%) followed by Media/Internet (33.3%) and Friends and Family (25.4%). According to Nasir M et al Among 626 survey population in Dhaka city who had taken medication for COVID-19, only 132 (21.08%) were documented as positive and 78 (12.45%) as negative by RT-PCR test. The rest of 416 (66.45%) had never done the test, but almost 355 (85.33%) had taken medication without doing any test for COVID-19.<sup>[14]</sup> This finding could be due to having additional distress due to high self-awareness of their health as reported by Roberts et al among people with higher educational status.<sup>[16]</sup> Having self-medication without detecting COVID-19 among a large number of respondents could also be due to feeling of insecurity influenced by availability of local medical resources, efficiency of public health system, and prevention and control measures taken in pandemic situation.<sup>[17]</sup>

The most frequently used drugs among the respondents were Paracetamol (350, 92.1%) among antipyretics, Levocetizine (350, 92.1%) among antiallergics, Aceclofenac (154, 40.5%) among anti-inflammatory. The most common antibiotics used were Azithromycin

(254, 66.8%) followed by doxycycline (146, 38.4%). These drugs were taken by individuals who were not even the diagnosed by rRT-PCR positive result. Chowdhury et al reported use of 21% and 25% for azithromycin and doxycycline before the pandemic in their study.<sup>[18]</sup> Azithromycin was the fifth highest percentage of people with self-medication throughout the previous years, whereas it became most common antibiotic during the present pandemic.<sup>[19]</sup>

The overall the prevalence and dominance of self-medication of antimicrobials in low and middle income countries were reported around 39% in previous studies before COVID-19 pandemic; but was outrageously higher (88.33%) in Aurangabad city during the pandemic.<sup>[20,21]</sup> Having inappropriate antimicrobials and supplementary medications (zinc, calcium, vitamin-D) without prescription is associated with the risk of drug interactions, masking symptoms of underlying diseases and most importantly, the development of anti-microbial resistance.<sup>[24,25]</sup> Unopposed access to buy antibiotics and its injudicious use might provoke a longterm burden of drug-resistant strains with problems of under and over-dosage, treatment failure and severe adverse effects to vital organs. It also results in delay in care seeking, which results in paradoxical economic loss due to delayed diagnosis and irrational treatment.<sup>[27]</sup>

Among 540 individual, 354(65.5%) always visit medical practitioner for their medical problems while 128(23.7%) visit sometimes, rest 58(10.7%) rarely visit doctors. This finding was very much similar to the previous studies that reported the high prevalence of self medication (including antimicrobials) since people could obtain any drugs from the pharmacies without prescription even in the distant areas of the country.<sup>[22]</sup> Moreover, during pandemic, people struggle to cope with constant news of the spread and effects of COVID-19 on news-media, social-media, internet without having adequate forms of social support and access to doctors as a result of lockdowns and self-isolation.<sup>[23]</sup> According to Samuel S. Dare et al, Among the 272 respondents, those who had practice self-medication before COVID-19 pandemic were 239, (88%) and those that have not were 33, (12%). During COVID-19 pandemic, the respondents who practiced self-medication were 156, (57%) while those that did not were 116, (43%).<sup>[15]</sup>

Most common reason for taking self medication was No need to visit the doctor for minor illness (100, 18.5%)

followed by ease and convenience (92, 17%). The most common reason for not taking self medication was lack of knowledge about medicines (156, 28.8%) f/b risk of adverse effect (124, 22.9%). Although there is no approved specific medication to prevent or treat COVID-19, this online survey among the educated adults with high socio-economic standings revealed that high prevalence of self-medication of prescription only drugs was persistent during the outbreak in Dhaka city. Unsolicited news of spread, effects and remedies in media channels, internet; mental stress of lockdown and isolation, insecurity and panic about scarcity of drug and healthcare support might have triggered up the practice self-medication. Psychological distress levels were also influenced by availability of local medical resources, prevention and control measures.<sup>[26]</sup>

## CONCLUSION

The pattern of medication, including self-medication is an important health indicator, which reflect the degree of supply utilization and regulatory enforcement of healthcare services within a community. While responsible self-medication may be beneficial in a situation such as a pandemic, inappropriate self-medication presents dangers. It involves high risks of developing antibiotic resistance, adverse drug reactions and financial loss. The study revealed the causes of self-medication as news of spread, effects and remedies in media channels, internet; mental stress of lockdown and isolation, insecurity and panic about scarcity of drug and healthcare support. Therefore, there is a need of strict regulatory enforcement to protect people and proper utilization of resources during COVID-19 outbreak in Aurangabad city.

## REFERENCES

1. Arnold J. Sadio<sup>1,2</sup>, Fifonsi A. Gbeasor-Komlanvi<sup>1,2</sup> Sadio et al. Assessment of self-medication practices in the context of the COVID-19 outbreak in Togo BMC Public Health, 2021; 21: 58.
2. Marta Makowska<sup>1</sup>, Rafał Boguszewski<sup>1,\*</sup>, Michał Nowakowski<sup>2</sup> and Monika Podkowińska<sup>1</sup> Self-Medication-Related Behaviors and Poland's COVID-19 Lockdown Int. J. Environ. Res. Public Health, 2020; 17: 8344; doi:10.3390/ijerph17228344
3. "Coronavirus: India records 25,166 new cases in 24 hours – lowest in 154 days". Scroll.in. Retrieved 17 August 2021.
4. "India coronavirus: New record deaths as virus engulfs India". BBC News. 2 May 2021. Retrieved 3 May 2021.
5. Maheshwari S, Gupta PK, Sinha R, Rawat P. Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: A cross-sectional study. J Acute Dis, 2020; 9(3): 100-104.
6. "Coronavirus | India becomes first country in the world to report over 4 lakh new cases on 30 April 2021". The Hindu. Special Correspondent. 30 April 2021. ISSN 0971-751X. Retrieved 2 May 2021.
7. "When will India be free of Covid-19? Virus will become endemic, says top ICMR official". Hindustan Times. Retrieved 25 August 2021.
8. Bhaduri, Ayshee (25 August 2021). Goswami, Sohini (ed.). "Learning to live with Covid? India may be entering endemic stage, says top doc". Hindustan Times. Retrieved 25 August 2021.
9. "Covid-19: Number of recoveries exceed active cases for first time". Hindustan Times. New Delhi. Retrieved 11 June 2020.
10. "With very high COVID-19 testing, India's positivity rate fallen below 8%: MoHFW". The Economic Times. 18 October 2020. Retrieved 19 October 2020.
11. Michael Safi (21 April 2021). "India's shocking surge in Covid cases follows baffling decline". The Guardian. Retrieved 29 April 2021.
12. Samuel S. Dare, Ejike Daniel Eze, Echoru Isaac, Ibe Michael Usman, Fred Ssempijja, Edmund Eriya Bukunya, Robinson Ssebuufumed. COVID-19 Pandemic and Behavioural Response to Self-Medication Practice in Western Uganda Rxiv 2021.01.02.20248576; doi: <https://doi.org/10.1101/2021.01.02.20248576>
13. Sankdia *et al.*: Knowledge, Attitude and Practice of Self-Medication among Second Year Medical Students. International Journal of Pharmacology and Clinical Sciences, Mar 2017; 6(1): 1-5.
14. Nasir M, Chowdhury ASMS, Zahan T. Self-medication during COVID-19 outbreak: a cross sectional online survey in Dhaka city. Int J Basic Clin Pharmacol, 2020; 9: 1325-30.
15. Samuel S. Dare, Ejike Daniel Eze, Echoru Isaac, Ibe Michael Usman, Fred Ssempijja, Edmund Eriya Bukunya, Robinson Ssebuufu COVID-19 Pandemic and Behavioural Response to Self-Medication Practice in Western Uganda medRxiv 2021.01.02.20248576; doi: <https://doi.org/10.1101/2021.01.02.20248576>
16. Roberts T, Esponda MG, Krupchanka D. Factors associated with health service utilization for common mental disorders: a systematic review. BMC Psychiatry, 2018; 18: 262.
17. Wind TR, Komproe IH. The mechanism that associate community social capital with post-disaster mental health: a multilevel model. Soc Sci Med, 2012; 75: 1715-20.
18. Chowdhury N, Islam MR, Hasan MM. Cephalosporin-3G, Highly Prescribed Antibiotic to Outpatients in Rajshahi, Bangladesh: Prescription Errors, Carelessness, Irrational Uses are the Triggering Causes of Antibiotic Resistance. Int J Pharmacy Teaching Practices, 2013; 4(1): 504-10.
19. News Report. Available at: <https://thelocalindian.com/story-feed/awareness/selfmedication-coronavirus-covid-19-pandemic-20327>. Accessed on 30 March 2020.
20. Ocan M, Obuku EA, Bwanga F. Household antimicrobial self-medication: a systematic review

- and meta-analysis of the burden, risk factors and outcomes in developing countries. *BMC Public Health*, 2015; 15: 742.
21. Morgan DJ, Okeke IN, Laxminarayan R. Nonprescription anti-microbial use worldwide: a systematic review. *Lancet Infect Dis*, 2011; 11: 692-701.
  22. Islam MS. Self-medications among higher educated population in Bangladesh: an email-based exploratory study. *Internet J Health*, 2007; 5: 2.
  23. Huibo L, Zheng S, Liu F. Fighting against COVID-19: Innovative strategies for clinical pharmacists. *Res Soc Adm Pharm* 2020; (IN PRESS). Available at: <https://www.sciencedirect.com/science/article/pii/S1551741120303284>.
  24. Okeke IN, Klugman KP, Bhutta ZA. Anti-microbial resistance in developing countries Part II: strategies for containment. *Lancet Infect Dis*, 2005; 5: 568-80.
  25. World Health Organization. Community-Based Surveillance of Antimicrobial use and Resistance in Resource constrained settings. A report on five pilot projects. Geneva, Switzerland: WHO; 2009. Available at: <http://www.apps.who.int/medicinedocs/documents/s16168e.pdf>. Accessed on 4 August 2020.
  26. Qiu J, Shen B, Zhao M. A Nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General Psychiatry*, 2020; 33: e100213.
  27. Kalyan VS, Sudhakar K, Srinivas P. Evaluation of self-medication practices among undergraduate dental students of tertiary care teaching dental hospital in south India. *J Education Ethics Dentistry*, 2013; 3(1): 21-5.