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RESEARCH ARTICLE

SELF MEDICATION PRACTICES – GETTING RID OF TROUBLESOME OR TAKING RISKS FOR TROUBLESOME - DURING COVID PANDEMIC

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ABSTRACT

Background: Self-medication practice is the use of OTC medications for self-treatment without prior consultation with registered medical practitioner. Travel restrictions, fear of getting contacted with virus and increased influence of social media has led to an increase in self-medication practices among general public. These practices can be associated with serious ADRs with lifelong consequences. ***Objectives:*** To assess the most prominent ailment for which self-medication has been practiced and to assess the various resources and reasons observed in self-medication practices. ***Methods and Material:*** The prospective, cross-sectional study is based on web-based survey was conducted from June 2021-December 2021. A self-administered questionnaire was developed, validated and distributed using google forms through social media networks. Chi square test for significance was used to find the association between the variables. ***Results:*** A total of 309 participants completed the questionnaire. Out of them 54.4% were female and 45.6% were male, 65.8% were unemployed and 34.2% were employed. Of all 64.2% were students, 30% were working professionals and 5.5% were households. Most of the participants i.e., 47% were found to self-medicate at times during severe conditions. The most frequent medical condition that led to self-medicate was cold/cough(66%) followed by fever(64%) and aches(49.5%). Socio demographic variables like age group between 18-30, $\chi^2(9,N+309)=110.2, P<0.0001$, unemployed participants $\chi^2(6,N=309)=110.2, P<0.001$, and rural residence $\chi^2(6,N=309)=104.04, P=<0.001$ were found to be associated with self-medication practice. ***Conclusions****:* Self-medication practicesarepsychologically influenced by trust, circumstances, frustration plays a vital role in making the suggestions beneficial. Self-medication practices were more prevalent in the rural community.

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INTRODUCTION

Covid'19 is an infectious disease caused by the newly discovered corona virus. In late December 2019, a zoonotic infection was identified in Wuhan city, China. Though initial investigations reported the spread of animal to human transmission, later investigations have declared the human-human transmissions as well through close contact with an infected person and even from coughing and sneezing since the virus generally spreads via airborne zoonotic droplets. Covid-19 is declared as a pandemic by World Health Organization (WHO) as it rapidly spread globally. Face-mask use, social distancing, and lockdowns were few of the measures that were implemented globally. Notably, people have turned to self-care practises to slow the transmission of the virus and pacify their fears. One of such self-care practices is self-medication. Self-medication practices is a global phenomenon characterized by utilization and administration of medical products without medical consultation or supervision. 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.[1]Severe adverse reaction, delayed hospitalization, dangerous pharmacokinetic and pharmacodynamic drug interactions, irrational use of drugs, risk of dependent and abuse are potential risks associated with self-medication practices in India.Self-medication has been the most popular practise for more than ten years, particularly in developing nations like India.[2]In India, the incidence of self-medication practise varies from 8.3% to 92%.[3][4]An Indian study conducted by Arpitha VS et al to evaluate prevalence and patterns of self-medication practices in Urban India observed a prevalence rate of 46%.[5]In modern days, the fear of public results to seek their own responsibility for their health status and obtain knowledge and information from vast sources such an internet, newspaper, magazines. Moreover, the internet is emerging as a major factor influencing the information in health sector and offer promises for safe use and improved self-care.[6]The most predominanttype of self-medication practices arise from prior experience of the disease, insufficient knowledge of the illness, financial or economic difficulties that prevent visiting a doctor, a lack of time to visit a doctor, and easy access to medications, especially in developing nations like India.[7]Other miscellaneous

factors such as demographic factors like age, gender and educational status of the population can influence the self-medication use. Moreover, though self-medication can be of benefit due to the ease and affordability it has to be safely practiced. The development of pharmaceutical choices globally makes medicine more accessible to these consumers and provides opportunities for its abuse.[6]Potential risk factors of self-medication include misdiagnosis, delaying medical attention when necessary, serious adverse reactions, harmful drug interactions, particularly for elderly patients with multi-morbidity, improper administration, dosage, and therapy selection, masking of a serious illness, and microbial resistance development.[8][9]Therefore, Self-medication is linked to a risk that could increase mortality due to incorrect diagnosis, failure to seek treatment rapidly, and other factors.[10] In spite of harmful self-medication effects on therapeutic outcome of patients and global burden, many benefits are reported from literature such as cost-effectiveness, decreased time consumption etc.[11] Specially with increase in COVID19 pandemic, the self-medication practices have predominantly taken over alongside the desire to take action for preventive and therapeutic purposes.[12] A study conducted by Alvaro Quincho-Lopez et al, suggested that self-medication is widely practiced to manage or prevent Covid-19 despite its diverse prevalence. This involvesself-medicating with drugs that haven't yet proven to be helpful and might therefore put people at risk with totally unnecessary side effects.[13] Another study conducted on to evaluate prevalence, pattern and predictors of SMP in Southeast Nigeria proved that self-medication practice was found among one third of Nigeria population where age, educational qualification, and cost perception all had a significant impact on COVID-19 prevention and management.[14]Jean Franco Quispe-Cañari et al, reported that self-medication became a serious health concern in Peru, particularly during the COVID-19 pandemic where without adequate substantive evidence, a number of medications were used for COVID-19-related symptoms and breathing difficulties. Certain classification of antimicrobials such as acetaminophen, penicillin and azithromycin, hydroxychloroquine and even antiretrovirals were commonly used.[15]Therefore, it is evident from literature that, significant percentages of individuals self-medicated, using medications for which there was insufficient scientific evidence in India during COVID19 pandemic.[10]In regard to the evidences from literature, the current research was undertaken to evaluate supportive data to better understand common ailments and needs for self-medication during COVID19 pandemic and to assess the resources promoting self-medication practices.

MATERIALS AND METHODS

Study design: A prospective cross-sectional, web-based survey was conducted from June 2021 to December 2021 among the population of Tamil Nadu. Self-administered questionnaire was developed and distributed using google forms through social media networks.

Development of the questionnaire: A self-administered questionnaire was developed in the English language, gathering information from various literatures. The study questionnaire included 4 sections, section 1: participant information/consent, section 2: participant characteristics, section 3: self-medication practices and section 4: knowledge, attitude, and perception with multi-choice patterns.

Sample size: The study sample size was estimated using the Raosoft sample size calculator. A minimum of 385 participants were required at a margin of error of 5%, a 95% confidence interval (CI), and a population size of 1 billion at a 50% response distribution. A total of 309 excluding 10 participants in regard to consent.

Distribution of the questionnaire: The final revised questionnaire was designed using google forms and was posted, advertised, and distributed by the study investigators using their private accounts on social media platforms such as Facebook, WhatsApp, Telegram and LinkedIn. The public were requested to take part in the survey by completing the questionnaire without any time restrictions. Multiple responses or submissions bias were controlled using the 'Limit to one response' feature of Google forms.

Ethical considerations: The purpose of the survey was explained to potential participants, who were requested to provide consent of voluntary willingness prior to their participation. All procedures performed in this study involving human participants were in adherence to the ethics of the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Statistical Analysis: Data was collected using google forms. Microsoft excel spreadsheets and IBM SPSS software version 28 (IBM corporation, Armonk, NY, USA) was used for data cleaning and analysis respectively. Descriptive analysis was performed and the data was reported in frequencies and percentages. Chi-square test of significance was used to identify the association between variables. Statistical significance was set at $p<0.05$.

RESULTS

Among 309 participants recruited for the study, 167 (54.4%) were found to be male and mostly were between 18-30 years of age belonging to urban residency. Most of the study participants 202 (65.8%) were unemployed, reasons divulge may cause of more students recruited. The demographic details of participant responses have been tabulated (Table 1).

Table 1. Participant characteristics

Variables	No. of Participants (N=309)	Percentage (%)
Gender		
Female	167	54.4
Male	140	45.6
Age		
18-30	270	87.9
31-45	19	6.2
46-60	18	5.9
Occupation		
Unemployed	202	65.8
Employed	105	34.2
Marital status		
Single	244	79
Married	64	20.7
Designation		
Student	197	64.2
Working professional	92	30
Household	17	5.5
Residence		
Urban	211	68.7
Rural	96	31.3

In regard to covid19 symptoms piling up during pandemic, the cold/cough, fever, ache and acidity are treated more with OTC drugs without consultation.In regard to the ailments for self-medication practices, the most common ailments reported were cold/cough (66%), fever (64.1%), ache (49.5%) and acidity (28.8%) (Table 2).

Table 2. Self-medicating ailments during covid19 pandemic (More than one response was accepted)

Ailments	No. of participants	Percentage (%)
Cold/cough	204	66
Fever	198	64.1
Ache	153	49.5
Acidity	89	28.8
Wound	58	18.8
Skin and hair problems	56	18.1
Acne	38	12.3
Dysmenorrhea	22	7.1
Psychological problems	22	7.1
Diarrhoea	16	5.2
Diabetes	16	5.2
Others	16	5.2
Hypertension	14	4.5
ENT	14	4.5

Resources of drug information was prominently taken from internet community (44%). The fast-growing internet community with biased data have contributed much to the self-medication practices. The second most used resources were family/close relatives, followed by remembering the name of the drug and usage of old prescriptions. The reasons divulge includes minor illness which do not require consultation (68.3%), fear of infection at hospitals/clinics (32.7%), and emergencies (29.1%). Very minimal amount of responses had cost as a factor (13.9%). (Table 3)Participants were most aware of terminologies such as expiry date (86.4%), correct dose and duration (80.9%) and adverse drug reaction (77.3%). The participants were made to choose multiple options. (Table 4)

Table 3. Resources and reasons for self-medication practices during covid19 pandemic

S. No	Resources	No. of responses (N=309)	Percentage (%)
Resources			
1	Internet	136	44
2	Family/friends/neighbours	127	41.1
3	Remembering the name of the drug	122	39.5
4	Old prescriptions	95	30.7
5	Textbooks	87	28.2
6	Old left-over medications	33	10.7
7	Others	18	5.4
Reasons			
1	Minor illness	211	68.3
2	Fear of getting infected due to covid19 pandemic	101	32.7
3	Emergency	90	29.1
4	Self-reliance regarding the disease	89	28.8
5	Lack of time to get consultation	55	17.8
6	Affordability to healthcare	43	13.9
7	Lack of clinics/hospitals	23	7.4
8	Lack of trust in doctors	16	5.2

Table 4. Frequency and awareness of self-medication practices

S. No	Variables	No. of responses (N=309)	Percentage (%)
Frequency			
1	At times during severe conditions	145	47.2
2	Occasionally	125	40.7
3	Regularly	37	12.1
Awareness of terminologies			
1	Expiry date	267	86.4
2	Correct dose and duration	250	80.9
3	Adverse drug reaction	239	77.3
4	Drug interactions	202	65.4
5	Antibiotic resistance	198	64.1
6	I don't know anything	24	7.8

The frequency of self-medication was acceptable range of 47.2% compared with literatures. Regular self-medication practices were limited to 37 (12.1%). The significance with age, occupation and residence were found to be influencing. The 18-30 age group were most involved in self-medication practices, due to the internet usage and modern facility availabilities (P<0.001) and unemployed participants were into more self-medication use and SES can play a role in influencing (P<0.001). The rural people were more self-medicating due to the lack of hospitals/clinics and in regard to affordability (P<0.001). (Table 5)

DISCUSSION

The Indian scientific literature is limited for self-medication practices among general public and therefore our study aimed to study the impact of self-medication practices during covid19 pandemic to understand the resources and reasons of SMP better. This prospective cross-sectional study enrolled participants with all age groups from various educational background, occupation and socioeconomic status. The participants who did not agree to consent were excluded. Our study reported 54.4% of male population were between 18-30 age group which comparatively similar to other studies reported. In regard to occupation 64.8% were unemployed and were students from urban background. The significance of age with self-medication practices among the general public resulted in P value <0.001 with increased frequency among 18-30 years old. The age is a contributing factor for self-medication practices due to availability and accessibility of resources among social medias and browsers. Similar significance of P = 0.000 was reported in Kumar V et al concluding higher prevalence among literature group with better educational background. The significance among occupation and self-medication practices revealed P value <0.001.[16] Self-medication practices were more common among unemployed individuals' reasons including poor socioeconomic status and increasing costs of consultation fee. The self-medication practices were found to be more frequent at severe conditions. The most common ailments were cold/cough, fever, ache and acidity. Study conducted in Ahmedabad, India reported the most common reasons for self-medication to be common cold (61.6%), fever (51.8%) and paracetamol and cough syrups to be most common class of drugs.[17]The most common resources were old prescriptions, internet and information from family/friends. Results of similar study conducted in Karachi, Pakistan revealed that personal experience and old prescriptions were most common resources for self-medication practices.[18]The reasons for self-medication practices were due to emergency situations, simple/mild ailments, self-reliance about the disease and fear of infection at hospital settings. Other studies have also reported minor ailments (68%) and lack of time for consultation (26%).[19]

In concordance with literature, the current study results indicate the self-medication practices only at severe medical emergencies. The resources for obtaining information were found to be internet and old prescriptions with reasons including lack of time and money. The immediate therapy option for study participants were found to be non-pharmacological therapy. Favourable responses were acquired regarding telemedicine applications in significantly reducing self-medication practices harm. Telemedicine practices at hospital system can significantly expand access to niche medical specialists and has perks of accessing affordableconsultation anytime anywhere. Studies should be developed in regard to assess the impact of telemedicine practices on self-medication practices.

Telemedicine is a service that aims to improve a patient's health by allowing two-way, real-time interactive communication between the patient and a physician at a remote location.[20] Telemedicine is a unique and creative method for meeting patients' critical health needs during COVID-19. Telemedicine assists patients in self-management of their ailment under the supervision of physicians improves access to care while reducing the risk of direct transmission of the infection, and provide wider access to caregivers. Over the last several decades, technological advancements have substantially increased the availability of telemedicine services. Despite this, telemedicine services must be provided in a variety of settings. Heavy regulatory restrictions, a lack of a supporting payment system, a lack of technology available in certain parts of the country, and difficulty in performing patient examinations may be the main barriers to telemedicine implementation. Implementing telemedicine facilities is one of the most effective approaches to reducing self-medication and promoting sensible drug use. The majority of those who responded to our survey expressed an interest in telemedicine. However, only a few corporate hospitals in our country currently provide such services at a greater cost. There is an essential need for the implementation of programmes like eSanjeevani which seeks to deliver clinical counselling to patients via video from the comfort of their homes, and it is also critical to enhance public knowledge about the benefits of such services.[20]Self-medication needs to be properly regulated, particularly in rural India that are experiencing an economic

Table 5. Factors influencing self-medication practices

Sociodemographic factors	No. of participants (N=309)	Frequencyof self-medication			P value
		At times at severe conditions	Occasionally	Regularly	
Age	270				
18-30	19	135	102	33	
31-45	18	4	12	3	**<.001**
46-60		6	11	1	
Sex					0.358
Male	167	75	68	24	
Female	140	70	57	13	
Occupation					
Unemployed	201	106	74	21	**<.001**
Employed	105	38	51	16	
Designation					
Student	197	101	74	22	
Working professional	92	37	41	14	
Household	17	6	10	1	0.332
Residence					
Rural	211	100	89	22	
Urban	96	45	36	15	**<.001**

downturn, frequently have low literacy rates, and have few treatment facilities.[21] A comprehensive approach should be used to improve the self-medication practices, utilizing public education, sound training for healthcare professionals, especially community pharmacists, and strict pharmaceutical restrictions on information services and drug use. The protective assistance of public health authorities will help to reduce the potential threat of self-medication. [22,23] The government should provide rational solutions for drug abuse. To encourage the public to use medication wisely and rationally, it should be made widely available, affordable, and consultable with healthcare professionals. [24,25] The general public should be targeted by mass media programmes designed to increase knowledge of medication appropriate use and potential hazards associated with inappropriate use; the efficacy of each campaign should be evaluated.[26] In order to expand the OTC market, the OTC Committee of the Organization of Pharmaceutical Producers of India are trying to promote regulatory support for concerns such as the availability of over-the-counter medications and raising public and regulatory awareness of the value of rationalizing self-medication.[27] WHO states that "It has become widely accepted that self-medication has an important place in the health care system, recognition of the responsibility of individuals for their own health and awareness that professional care for minor ailments is often unnecessary has contributed to this view. Improvements in people's general knowledge, level of education and socio-economic status in many countries form a reasonable basis for successful self-medication" under guidelines for the regulatory assessment of medicinal products for use in self-medication. The international council of nurses (ICN) on the other hand states that "Self-medication is a key component of self-care that is particularly significant in an era of increasing chronic illness and well-informed health care consumers. Optimizing responsible self-medication is an important and underused resource for health and provides an opportunity for collaboration and consultation among consumers, nurses, pharmacists and physicians."

Limitations

The study is limited to responses from medical/paramedical students from urban background who have better access to social media and internet facilities with relatively higher socioeconomic and better educational conditions. The unemployment rates must be commonly taken among students and may contribute bias. The self-administered question could not be validated due to lack of time.

CONCLUSION

Self-medication practices are psychologically influenced by trust, circumstances, frustration plays a vital role in making the suggestions beneficial. From the whole, the most influencing factor was found to be source of information.

Self-medication practices were more prevalent in the rural community. Awareness regarding SMP would help general public decide on the appropriate medication use. The public must be well aware about the prevalence risk factors associated with self-medication use. Taking concern of self-medication practices, pharmacist should play a key role in alleviating the public health issues arising from improper practices of drug use. It is the responsibility of the pharmacists to plan interventions to improve the use of medicine. Telemedicine practices must be employed in rural communities and must be made affordable. Advertising and marketing of non-prescription/off-label medications must be hold responsible with clear and accurate information on usage and risk provided.

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