

Viewpoint Regarding COVID-19 Vaccine and Pursuing Self-medication amidst Medical Students

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Abstract

Background: Since December 2019, the novel coronavirus, SARS-CoV-2, has garnered global attention due to its rapid transmission, mortality and morbidity and absence of effective medicine or vaccine till date. Self-medication could be a vital issue during public health emergencies e.g. COVID-19 pandemic despite of having several pros and cons.

Materials and methods: This descriptive cross-sectional study was designed to assess the prevalence of self-medication practice along with viewpoints regarding COVID-19 vaccine among the undergraduate medical students (4th year) of 14 medical colleges of Bangladesh during COVID- 19 pandemic. A structured questionnaire survey linked in the google form was used as study instrument and was distributed among study population through email, messenger, whatsapp and other social media during the month of October 2020. Total 916 students were participated in the study.

Results: 51.6% of students reported self-medication practice in study period. Fever (63.2%), headache (51.7%) and dry cough (29.9%) were the reported illness for self-medication, while 8.5% respondents took medicines as prophylactic measure against coronavirus infection. Commonly used medicines were paracetamol (88.9%), antihistamine (48.5%), followed by vitamin C (40.2%) and zinc (31.3%). Among antimicrobials, azithromycin (22.6%) was widely used, followed by doxycycline (7.2%) and ivermectine (6.8%). Minor illness (64.6%) and prior experience with the condition (47.5%) were cited as reasons for seeking self-medication, and academic knowledge (73.2%) was the commonest source of information regarding self-medication. 39.6% students believed that vaccine could be the only solution to combat COVID-19, and frontline fighters (69.1%) were priority group for earlier access to COVID-19 vaccine.

Conclusion: Practice of self-medication was prevalent among the undergraduate medical students of Bangladesh during first six months of COVID-19 pandemic, and skeptic as well as mature viewpoints about potential COVID-19 vaccine was observed.

Keywords: Self-medication, medical students, COVID-19 vaccine, COVID-19 pandemic, Bangladesh

INTRODUCTION

For several months, a global crisis is going on due to outbreak of corona virus disease (COVID-19). In December 2019, few cases of atypical pneumonia were reported in Wuhan, China and later identified as novel coronavirus infection caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2).^[1, 2] On January 30, 2020 WHO declared it's as a global health emergency and later as pandemic on March 11, 2020. By November 2020, total 216 countries, areas or territories are affected with case, 62195274 are already infected and 1453355 died

because of COVID-19 pandemic.^[3, 4] In Bangladesh, first case of COVID-19 was detected on 8 March 2020 and rapidly spread out throughout the country.^[5]

Several therapeutic agents have been used for the treatment of COVID-19. Hydroxy-chloroquine and chloroquine, remdesivir, ivermectin, lopinavir/ritonavir, favipiravir, convalescent plasma therapy and corticosteroids are also being tried to use as therapeutic agents to treat Covid- 19.^[6, 7, 8] However, there is no effective antiviral drug or vaccine to combat Covid 19 pandemic. Drug regulatory authorities of different countries and World Health Organization have been providing enormous supports to research institutes and pharmaceutical industries in their quest to develop an effective vaccine for mankind. Although several vaccine candidates have entered various stages of clinical trial, it is still uncertain whether or when an effective vaccine will be available for every person of the universe.^[9, 10, 11] Therefore, the international community currently relies heavily on public health interventions to control COVID-19 until an effective vaccine or proven medicine is obtained.^[12, 13]

According to World Health Organization (WHO), “Self-medication is the selection and use of medicines by individuals to treat self-recognized illness or symptoms”^[14]. Although self-medication promotes self-empowerment of patients, may save time in waiting for healthcare professionals, decrease healthcare expenditure,^[14, 15] it poses risks of wrong diagnosis, delays in seeking medical advice, prolongs sufferings, increases risk of masking of serious illness, use of incorrect dosage, increases incidence of adverse drug reactions, emergence of antimicrobial resistance, drug-drug interactions, polypharmacy, as well as wastages of healthcare resources, and ultimately causes irrational use of medicines.^[16, 17, 18, 19, 20] From the beginning of COVID-19 pandemic, world has been observing a pile of myths in mass media and social media regarding medicines leading to public confusion, panic and increased use of self-medication, including home remedies, without established safety and efficacy. And there is a widespread speculation of overuse of OTC medicine as well as misuse of prescription only medicine in this critical moment among mass population throughout the world.^[21, 22] As their status as ‘future prescribers’ and having knowledge of disease and medicine, it is assumed that a certain proportion of them were seeking self-medication in this pandemic.

Hence, the present study was carried out with the attempt to find out the prevalence of self-medication practice among the undergraduate medical students of Bangladesh during COVID-19 pandemic, which medications were used and to explore their attitude regarding COVID-19 vaccine. Finding of this research will be helpful to develop an educational intervention program on self-medication practice where pharmacovigilance, drug development process, clinical trial, unbiased sources of information and critical appraisal skill will be integrated in order to improve rational use of medicine among the future physicians.

MATERIAL & METHODS

The objective of the study was to describe pattern of self-medication practice among the undergraduate medical students of Bangladesh during COVID-19 pandemic and to explore their viewpoint regarding COVID-19 vaccine.

Study Design and Population

A descriptive cross-sectional study was designed to meet the study objective. The study population comprised of 4th year students of fourteen medical colleges of Bangladesh including government (Armed Forces Medical College, Cumilla Medical College, Colonel Malek Medical College, Manikganj and Rangpur Medical College) and non-government medical colleges (Army Medical College Bogura, Army Medical College Chittagong, BGC Trust Medical College, Brahmanbaria Medical College, Chattogram International Medical College, Jalalabad Ragib-Rabeya Medical College, Sylhet, Jashore Medical College, Khawja Yunus Ali Medical College, Sirajganj, Medical College for Women, Dhaka and US-Bangla Medical College, Narayanganj) in October 2020. Total 916 students participated in the study.

Study Instrument

A structured questionnaire was used for data collection and questionnaire was validated before survey.

Procedure

Ethical approval was taken from the Institutional Review Board (IRB) of BGC Trust Medical College, Chittagong. Permission was taken from college authorities and informed consent was taken from the participants of the Structured Questionnaire Survey. Researchers explained the nature and purpose of the survey to the students during a virtual class. This self-administered questionnaire was linked in google form and was distributed among study population through email, messenger, whatsapp and other social media who gave consent. To assure the quality, students filled and submitted the questionnaire quickly during end of class. Later, this web-based questionnaire was sent to students who were absent in the class through email. A reminder mail or message was given on 7th day and 15th day of the primary one. The response generated by the students was received through

google drive, and it did not accept double response from same participant. To maintain confidentiality, responses were anonymous.

Statistical analysis

Data was compiled, presented and analyzed using SPSS version 22, and was expressed as percentage.

RESULTS

Nine hundreds and sixteen respondents were covered during the study period, of which 326 (35.59%) were males and 590 (64.41%) were females. Total 305 (33.23%) students responded that anyone in family including himself was diagnosed as COVID-19 and among them 242 (26.42%) were RT-PCR positive. Half of the students (51.6%) practiced self-medication. Academic knowledge (73.2%) and prior experience (51.4%) were the commonest source of information. Minor illness (64.6%) and prior experience with the condition (47.5%) were cited as reasons for seeking self-medication (**Table 1**).

Table 1: Prevalence, sources of information and reasons of self-medication practices

Prevalence of self-medication practice	Frequency	Percentage
Yes	473	51.6%
No	443	48.4%
Sources of information regarding medicine	Frequency	Percentage
Academic knowledge	342	73.2%
Prior experience	240	51.4%
Friends and relatives	76	16.3%
Internet	39	8.4%
Social media	29	6.2%
Pharmacist	27	5.8%
Pharmaceutical industries	12	2.6%
Mass media	11	2.4%
Reasons for seeking self-medication	Frequency	Percentage
Illness was too minor to consult	299	64.6%
Prior experience with the condition	220	47.5%
Sufficient academic knowledge	104	22.5%
Quick relief	102	22.0%
To avoid hassel to see a doctor	83	17.9%
Emergency situation	50	10.8%
Cost-effectiveness	25	5.4%
Lack of time to consult	17	3.7%

As shown in Figure 1 and 2, fever(63.2%) was the most common reported illness followed by headache (51.7%) and dry cough (29.9%) for which self-medication is practiced, and the commonly used medicines were paracetamol (88.9%) and antihistamine (48.5%), followed by vitamin C (40.2%) and zinc (31.3%).

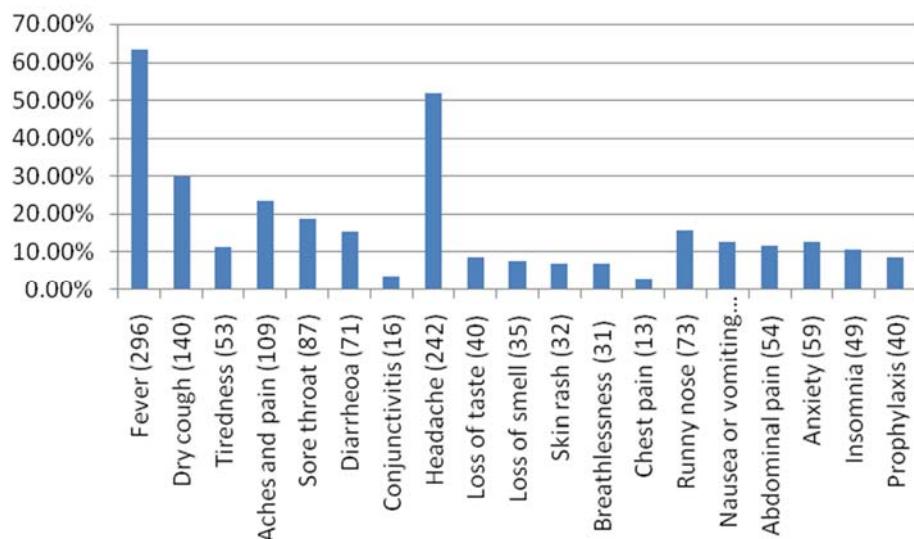


Figure 1: Illness for self-medication (N=473)

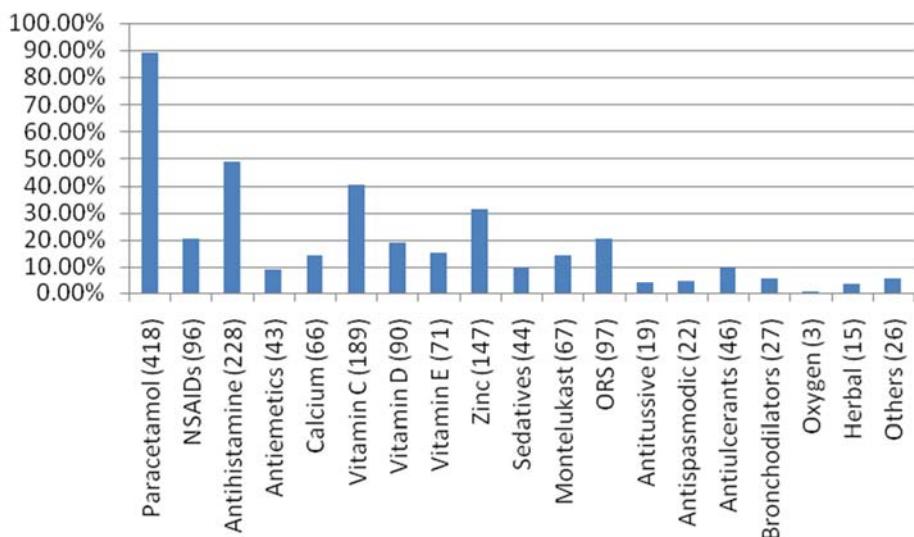


Figure 2: Medicines used as self-medication (N=473)

Figure 3 showed that azithromycin (22.6%) was the mostly used anti-infective agent as self-medication, followed by doxycycline (7.2%) and ivermectine (6.8%).

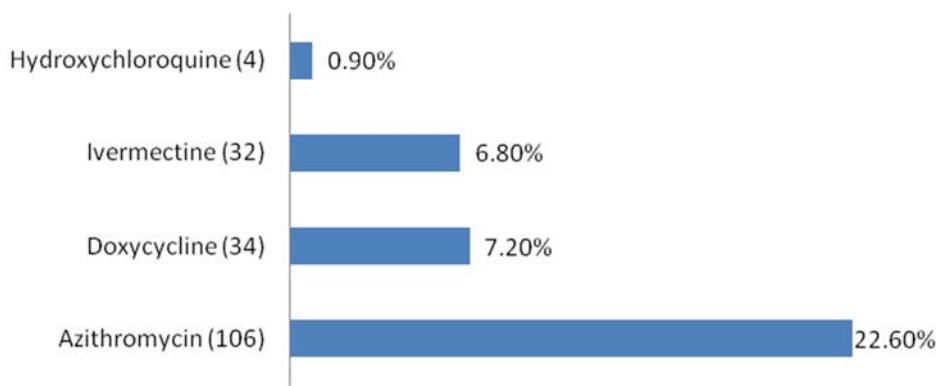


Figure 3:Anti-infective agents used as self-medication

Mixed attitudes towards COVID-19 vaccine were observed. And majority of the reaspondents (69.1%) preferred frontline fighter to get earlier access to vaccine (**Table 2**).

Table 2: Viewpoint about COVID-19 vaccine

Vaccine is the only solution to combat COVID-19	Frequency	Percentage
Yes	363	39.6%
No	293	32.0%
Not sure	260	28.4%
Priority for earlier access to the vaccine	Frequency	Percentage
Frontline fighters	633	69.1%
Person with co-morbidities	324	35.4%
Older age group	286	31.2%
Pregnant and lactating mother	193	21.1%
Children	152	16.67%
All citizens	308	33.6%

DISCUSSION

Self-medication is a primitive virtue of human beings in which an individual uses drugs to treat self-diagnosed minor symptoms or disease. Despite of several pros and cons, practice of self-medication is familiar all over the world and increasing particularly during humanitarian situations. For last several months, a pandemic has been going on and lots of misconception are going on about therapeutic measures to control this higly contagious microorganisms. Current study was conducted in this context to assess the prevalence of self-medication, common illness and common medicines used for such practice among undergraduate medical students of Bangladesh during COVID-19 pandemic as well as their viewpoints regarding COVID-19 vaccine.

In this research, 51.6% of respondents had taken some form of self-medication during the pandemic, and that was similar to a study conducted in Kenya among healthcare workers where 60.4% of respondents used self-medication during the pandemic.^[23] Increased prevalence of self-medication was also observed in a study conducted in Bangladesh during COVID-19 outbreak, among non-medical professionals.^[24] The commonest illness that lead to self-medication practice in this study were fever, headache and dry cough and that is concordance with previous studies.^[24, 25] 8.5% students took medicine as prophylaxis against COVID-19 and similar trend was observed in related literature.^[24] Paracetamol was the most commonly used medicines among the studied population, which is similar to one study conducted in Peru during COVID-19pandemic.^[25] Increased use of Vitamin C and Zinc was observed among medical students, and that concordance with the findings of recent studies conducted during pandemic.^[25, 26] The rate of self-medication with antiinfective agent like azithromycin (22.6%) was found much higher among future physicians during pandemic comparing to 9.93% students of a medical college in Bangladesh took antimicrobials without prescription before the pandemic,^[27] probably because of infodemic, panic and mental stressas well as easy accessibility of antimicrobials in community without prescription, and all these could be worsen the current situation of antimicrobial resistance in Bangladesh along with potential risks of drug-drug interactions.^[28] Although overall use of antimicrobials was increased among medical students during this pandemic, it was comparatively lesser than usage found among general people.^[24] In this study, the most common reason for self-medication reported by a large number of participants was illness which was too minor to report, and similar observation was found in other studies conducted in Bangladesh and india.^[27, 29, 30, 31] Most of the participants cited ‘academic knowledge’ as the commonest source of information about medicine for practicing self-medication, and this finding was concomittant to studies conducted before pandemic.^[27, 32, 33] Use of social media, internet and mass media as source of information for medicine had been observed in our studies, and that was similar to recent trends observed in other studies.^[24, 34]

Many efforts have been directed towards the development of COVID-19 vaccine and a large number of COVID-19 vaccine candidates based upon various platforms have already been identified. But efficacy and safety of vaccine candidates as well as duration of protection is still questionable. Whether the vaccines prevent

transmission of SARS-CoV-2 or mainly just protect against illness is largely unknown too. If the latter, achieving herd immunity through immunisation becomes a difficult prospect as many millions of people at high risk of disease will not be immunised any time soon due to speculation of limited supply of vaccines, hesitancy to vaccinate and lack of infrastructure.^[35, 36, 37] And probably for these reasons our participants expressed skeptic view regarding COVID-19 vaccine. As sufficient vaccine supply will not be immediately available to immunize all, there should be a priority groups for vaccine. Several advisory bodies advised that the first priorities for any COVID-19 vaccination program should be the prevention of COVID-19 mortality and the protection of health and social care staff and system, and secondary priorities could include vaccination of those at increased risk of hospitalization and at increased risk of exposure, and to maintain resilience in essential public services.^[38, 39] Similar viewpoint had been observed among the medical students as they prioritized frontline fighters (health and social care staff) for COVID-19 vaccine.

The practice of self-medication among undergraduate medical student during COVID-19 pandemic is a crucial issue to address. Self-medication was practiced with a wide range of drugs from the conventional antipyretics to antibiotics. Skeptic viewpoint regarding COVID-19 vaccine, necessitate continuation of public health intervention e.g. usage of face masks, hand hygiene and maintenance of social distancing to mitigate mortality and morbidity of COVID-19.

CONCLUSION

Practice of self-medication is an integral part of self-care, specially in developing countries in humanatarian situations like COVID-19 pandemic. In current study, half of the respondents practiced self-medication in the period of pandemic with a wide range of drugs. And regarding COVID-19 vaccine, their attitude was skeptic as well as mature. Educational intervention on self-medication might be helpful in improving current practices of undergraduate medical students of Bangladesh.

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