

Pattern of medicine consumption by the medical students for preventive purpose of COVID- 19: A multicenter study.

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Abstract:

Background: From the beginning of pandemic situation people used to buy, hoard and take different types of medication for the hope of prevention of covid 19. This horrible pandemic situation make people more prone to take medication even antibiotic and more dependent on less reliable sources such as social and digital media for medicine-related information which is mostly observed in developing country. So we have conducted a study to detect the pattern of medicine taken by medical students for preventing purpose of Covid 19. **Method:** This is a cross sectional, multi centered questionnaire study conducted among medical students during the period of July 2021 to December 2021. **Results:** In total 425 medical students responded to the questionnaire, in which 17.4% students took Ivermectin. 12.5% respondents experienced adverse drug reactions due to Ivermectin. Approximately half of the respondent (52.47%) consumed Vitamin C and 46.35% received zinc for prevention of COVID 19. 15.52% respondents received Vitamin B and 16.70% received Combination of Vitamin B and zinc. 34.11% respondents took Vitamin D3, among them most of them (49.65%) took 20,000IU. Calcium and combination of Calcium plus Vitamin D also consumed by the respondent (36%) for the preventive goal. Antibiotic also consumed by the respondent (18.1%) for the preventive ground. **Conclusion:** The study revealed that more or less many respondents took different medicine and supplements for the purpose of survival from COVID -19. Different types of supplements, Ivermectin, and even antibiotic were consumed before vaccine have arrived and those could cause deleterious health effects, unknown drug-drug interaction by their irrational use.

Key Words: Medicine, Consumption, Medical students, Preventive measure, COVID -19.

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Introduction:

SARS-CoV-2 and its correspondent disease, COVID-19, has quickly spread from Asia via Europe to the rest of the

world. It's journey began in December 19 when clusters of patients in the city of Wuhan, Hubei Province, China presented

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with this disease¹. Now it is a global pandemic disease spreading with tremendous velocity with continuously changing its variant. The Virus is proudly prowling around the whole world, compromising millions of lives. Scientists of whole world are still fighting against this unseeable foe. Since many vaccines have invented and available worldwide, human breathed a sigh of relief. The first COVID-19 case in Bangladesh was identified on March 8, 2020. Since then, 21,397 deaths of 1296093 confirmed cases have been reported to date (4th August,2021)². In Bangladesh administration of Oxford Astrazeneca vaccine for covid 19 began to administer on 7 th feb 2021^{3,4}. But from end of 2019 years and even now along with adoption of behavioral measures like hand washing, wearing mask, social distancing, staying home, people used to buy and hoard medicine due to panic and feared situation of the Pandemic^{5,6}. The Covid-19 situation make people more prone to self-medication and more dependent on less reliable sources such as social and digital media for medicine-related information. Vitamins supplements (vitamin C, D, B, and multivitamins), mineral supplements (mostly zinc), Ivermectin are most commonly used medicine to prevent Covid 19.⁷ Woefully it is observed that some developing country people are consumed antibiotic with the intent of preventing or selftreating Covid 19 as antibiotics are sold without prescription⁸. Even increase in

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antibiotic prescription since the beginning of the Pandemic Covid 19, leading to a rising concern for potential increase in Antimicrobial resistance (AMR)⁹. The WHO recommended that unless it is justifiable, no antibiotic therapy or prophylaxis should be used in patients with mild/moderate COVID-19¹⁰. AMR is more dangerous than Pandemic because there are several types of vaccines are invented and application procedure is going on worldwide so hopefully this pandemic will be subsided soon but there is no solution for AMR as there are few new antibiotic in the pipeline, so we may go back to pre antibiotic era. Fat-soluble vitamins like vitamin A, D, E, and K have some promising effect in the therapy of COVID-19¹¹. Though there is solid evidence based on vitamin's physiology and pharmacology and their role in the fight against global pandemic but there is no evidence available from completed randomized controlled trial which undoubtedly and specifically demonstrate a role for vitamin supplementation in the battle against Covid 19. Consuming Supplementation of vitamin A, C D,E and folic acid for prevention of disease or cancer is not always effective but can cause deleterious effect on our health. So, it would be rational to limit these supplements consumption to those having deficiencies of the mentioned vitamins. Studies in India and Bangladesh showed Ivermectin prophylaxis has pertinence in the containment of the Pandemic^{12,13}. After

arrival of some studies though these are not Internationally based randomized control trial, people are adopting alarmingly self-medication with self-dosing, as Ivermectine is sold without prescription. Though this drug has a good margin of safety, but it is not safe to take without knowing proper national and International guideline about certain dose and dosage schedule of Ivermectin to prevent Covid 19. The risk of harmful health effect may potentiate by misuse, overuse or unknown drug- drug interactions of Ivermectin. The aim of this study is to observe the pattern of medicine used by medical students for preventing purpose of Covid 19.

Materials And Method:

This study was a cross sectional type of observational study. This study was conducted on all year (1st year to 5th year) undergraduate medical students of 4 (four) non- government medical colleges of Chattogram from July 2021 to December 2021. All the students were given the questionnaire attached with consent form. Students who avoided the questionnaire and did not give the consent were not included in this study. A questionnaire was developed and was linked in google form. The questionnaire was distributed among

students of four (04) Non- Government Medical Colleges through Messenger app and WhatsApp to access all students . Those students who were interested to the questionnaire participated in the study and submitted their response. In order to avoid duplicated response from a single participant, the automated google form questionnaire accepted only one response from a single mail account. A reminder mail or message was sent on 7th day and 15th day of the primary one. The response generated by the students was received through Google drive. All the answered questions were transferred from google drive into a spreadsheet. Frequency distribution and percentage was calculated by using SPSS version 22.

Results:

A total of 425 students participated in this study. Among them 269 (63.30%) were female and 156 (36.7%) were male. As shown in figure 1, Students responded mostly from Chattagram Maa O Shishu Hospital medical College (52%), then Chattogram International Medical College (20.70%), BGC trust Medical College (19.50%) and Southern Medical College (7.50%) respectively.

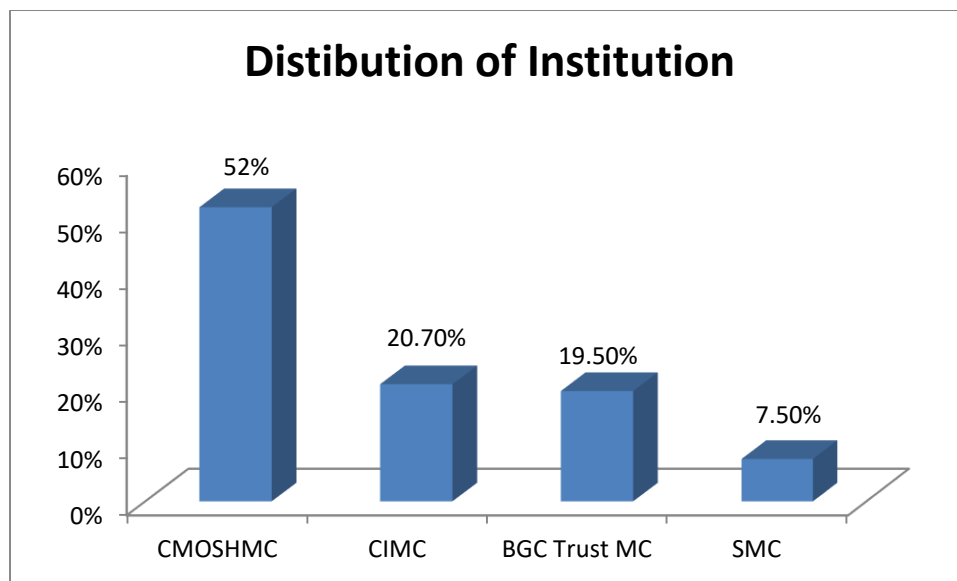


Figure1: Institution distribution according to the percentage.

Among them, 249 (58.6%) students were from 4th year, 77 (18.1%) from 2nd year, 45 (10.6%) from 3rd year, 34 (8%) and 20(4.7%) from 1st year and 5th year respectively. 74 (17.4%) students used Ivermectin for purpose of prevention of Covid 19. Among them 42 (56.5 %) received 12 mg, 30 (40.5%) received 6 mg, 1 (1.4%) and 1 (1.4%) received 24 and 36 mg respectively. Most of the students (62.2%) took it once daily. Most of the respondents (32.4%) took it for 1 day, 28.4% took it for 5 days, 27% for 3 days and 12.2% took it for 2 days. Ivermectin was taken by most of the respondent (73%) for only one time, 13.5% for weekly, 6.5% for monthly and 6.4% irregularly. Among 74 respondents who declared that they received Ivermectin for preventive purpose, 49/74; 66.2% not affected by covid 19 and 25/74; 33.8% were affected by covid 19. Among those (33.8%) who affected by

covid 19, 60% received only home management, 28% needed hospitalization, 8% needed ICU support and 4% needed ventilator. Adverse effect was not observed by most of the respondents (87.8%). 12.5% respondents experienced adverse effect by Ivermectin and among them, most of the respondents (50%) complained of Gastrointestinal disorder, 25% complained of skin problem, 16.7% had neurological problem and only 8.3% complained of cardiovascular problem shown in Figure 2. Respondents received drugs other than Ivermectin for prevention of Covid 19 are shown in Figure 3. Most of the respondents 243(57.1%) consumed dietary supplements for purpose of prevention of Covid 19.

223 (52.47%) received Vitamin C. Among them 151 (67.71%) took daily, 51 (22.86%) took irregularly, 15 (6.72%) took weekly and 6 (2.6%) took only one time after exposure.

197 (46.35%) received zinc for prevention of Covid 19. Among them 125 (63.45%) took daily, 48 (24.36%) took irregularly, 24 (12.18%) took weekly.

66 (15.52%) received Vitamin B and 71 (16.70%) received Combination of Vitamin B and zinc. Among them 84 (61.31%) took daily single or combination of Vitamin B and Zinc, 36 (26.27%) took irregularly and 17 (12.40%) took weekly.

Total 145 (34.11%) respondents took Vitamin D3 for the purpose of prevention of Covid 19. Among them 72 (49.65%) received 20,000 IU, 54 (37.24%) received 40,000 IU and 19 (13.10%) received 2,000 IU. Among 145 respondents who took VitD3, 86 (59.31%) took it weekly, 19 (13.10%) took it irregularly, 18 (12.41%) took monthly, 18 (12.41%) took it after exposure and 4 (2.7%) took daily.

Total 153(36%) received Calcium and combination of Calcium plus Vit D. Among them 81 (52.94%) took it daily, 30 (19.60%) took it weekly and 42 (27.45%) took it irregularly.

77 (18.1%) respondents received antibiotic for prophylactic purpose. Among them 48 (62.33%) respondents received Azithromycin, 5 (6.4%) received Cefixime, 1 (1.29%) received ceftibuten, 7(9.09%) took Amoxiclav, 8 (10.38%) took Doxycycline, 3 (3.8%) took Erythromycin and 5 (6.4%) respondents received antibiotic but did not remember the name of antibiotic. Respondents acquired the information to take drugs mostly from Doctors or consultant (68.90%), others (18.40%), self medication (14.60%), Social Media (8.70%) and scientific literature (3.50%) for preventive purpose are shown in Figure 4.

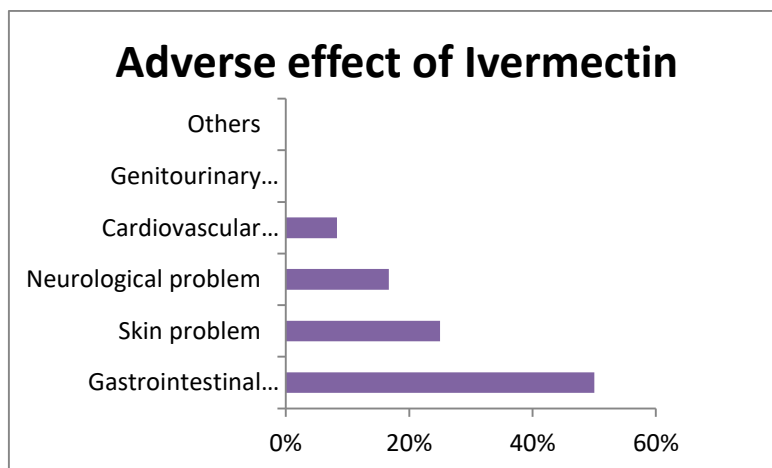


Figure 2: Adverse effects of Ivermectin.

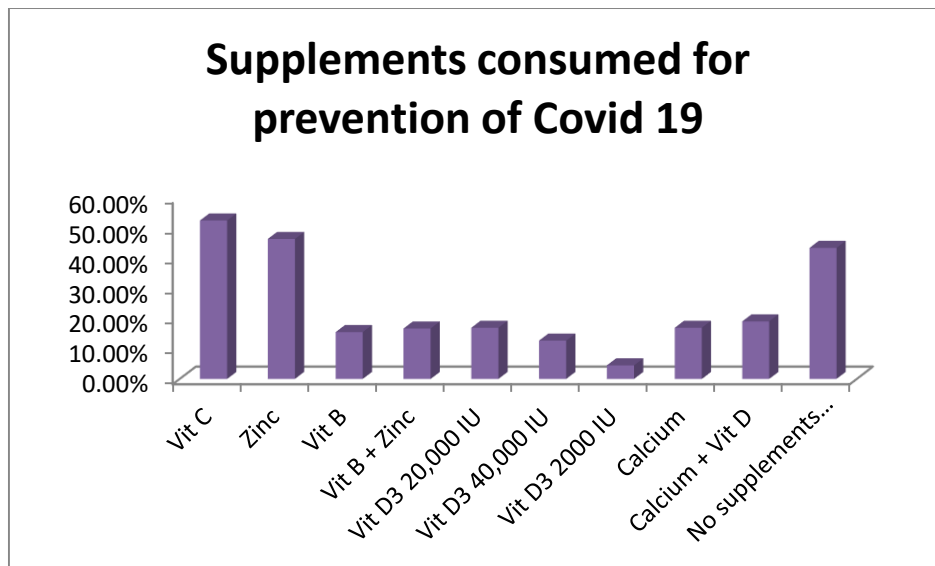
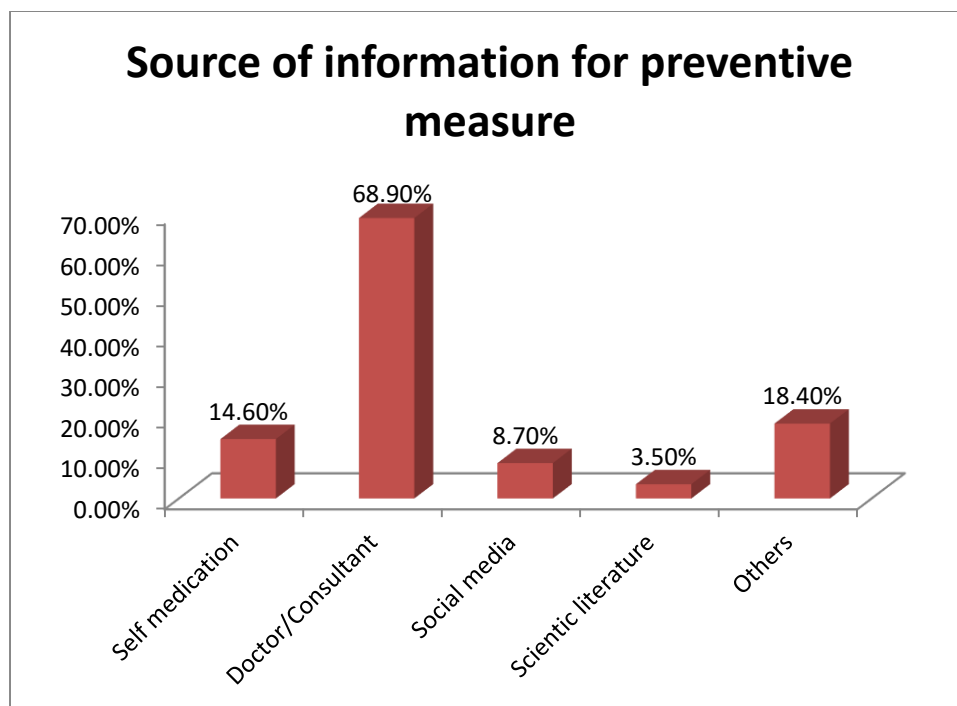


Figure 3: Drugs consumed for purpose of prevention of Covid 19.



Discussion:

Our Study has shown that only one fifth students (74/425;17.4%) took Ivermectin for prophylaxis of Covid 19. Ivermectin has made the international headlines with evidences of its in vitro activity against the

virus after arrival of Covid 19¹⁴. Though different vivo studies showed that it may lower the incidence of Covid 19 but it is not approved by FDA or any other agencies for the prophylaxis and treatment of Covid 19. In this study those who used ivermectin,

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most of them (42/74; 56.5%) use 12 mg which corresponds with the study held in Bangladesh.¹³ In this study, About one third of respondent (33.8%) were affected by covid 19 those who took Ivermectin whereas the study in Egypt showed only 7.4% were infected after taking Ivermectin. The rate of infection is more in this study may be because of respondents took variable dose of ivermectin and there were variable dosage schedule by their own choice but in Egypt study there were fixed dose of ivermectin were given according to the respondents body weight as it was a randomized control trial. With regard to the ivermectin adverse effect, most of the respondents 65/74 (87.8%) had no adverse effect, gastrointestinal side effect (50%) and neurological side effect (16.7%) corresponds to the side effect observed in the Egypt study¹⁵.

In the study most of the respondents (223/425;52.47%) took vitamin C for prevention of covid 19. Vitamin C has anti-inflammatory and antioxidant properties which can be potentially counteract the cytokine storm produced by severe Covid 19¹⁶. Moreover early injection of intravenous vitamin C can prevent microthrombi formation and capillary plugging and decrease D-dimer level in covid 19 ^{17,18}. Though various studies revealed that injectable vitamin C has some role to attenuate complications of covid 19 but currently there are no evidence that

support the use of oral vitamin C to prevent covid 19.

About half of the respondent (197/425; 46.35%) consumed zinc for preventive purpose and most of them (125/197; 63.45%) took it daily. Increase intracellular zinc concentration can efficiently impair the replication of a variety of RNA viruses¹⁹ but several studies revealed not enough evidence on the association between individual zinc status and COVID-19 infections and mortality²⁰.

Few percentage (66/425; 15.52%, 71/425; 16.70%) received vitamin B or in combination of vitamin B with zinc respectively. Adequate vitamin intake is necessary for strengthening of the immune system. vitamin B down regulates pro-inflammatory cytokines and inflammation, reduces breathing difficulty and gastrointestinal problems, prevents hypercoagulability, may potentially improves outcomes and reduces the length of stay in the hospital for COVID-19 patients²¹. Some theoretical evidence suggests the potential role of vitamin B6 in suppression of severity and complications of covid 19²². But there are no clinical trials that support that theoretical evidence.

About one third of the respondents (145/425; 34.11%) took vitamin D3 for the purpose of prevention of covid 19. Hypothetically, Vitamin D might aid in preventing SARS-CoV-2 infection through immunomodulation, act as an immunosuppressant by inhibiting Cytokine Release Syndrome in COVID-19, prevent loss of neural sensation in Covid 19²³ but a review study determined the correlation of vitamin D levels with COVID-19 cases and deaths in 20 European countries and concluded that there is not enough evidence on the association between vitamin D levels and COVID-19 severity and mortality²⁴.

In this study very few respondents (77/425; 18.1%) received antibiotic for prophylactic purpose. There is no role of antibiotic in pre exposure prophylaxis. Antimicrobial resistance have raised a grave concern with the reverberation of long term Covid 19. antibiotics prescribing pattern is high in patients with COVID-19, mainly due to suspected bacterial co-infections though the prevalence of bacterial co-infection and secondary infection in hospitalized patient with COVID-19 is relatively low at 3.5% and 14.3%, respectively^{9,25-26}. Antimicrobial stewardship efforts are urgently necessary to alleviate the impact of COVID-19 on antimicrobial resistance.

CONCLUSION:

It's a blessing that scientists around the world have developed successful Covid 19 vaccines in incredible short period of time. Bangladesh Journal of Medical Education 2022; 13(2); Ata et al., publisher and licensee Association for Medical Education. This is an Open Access article which permits unrestricted non-commercial use, provided the original work is properly cited.

Otherwise before vaccine we were using multiple medicines for the purpose of prevention of Covid 19. Ivermectine, antibiotic, multiple vitamins though they are hypothetically or theoretically have prophylactic effect for covid 19 but there are no clinical trial concluded that one of them proved to be effective. Due to development of vaccine, hopefully self medicated irrational multiple vitamin, antibiotic and other drugs consume will mitigate. Along with vaccine administration, there should be emphasis on proper health hygiene including mask wearing and avoid irrational self medication.

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