Received: 16 April 2024 | Revised: 26 May 2024 | Accepted: 17 June 2024 | Published online: 24 June 2024

RESEARCH ARTICLE

Medinformatics
2024, Vol. 1(3) 142–151
DOI: 10.47852/bonviewMEDIN42023132

BON VIEW PUBLISHING

Home Remedy Practices Among Stay-at-Home COVID-19 Patients in Bangladesh

Md. Abu Bakar Siddique Jami[1,2,*], Ritu Islam[1], Rezwana Sultana[1], Tasnim Iffat[1] and Mst Lubna Jahan[2,3]

[1]*Department of Pharmacy, East West University, Bangladesh*

[2]*Department of Pharmacy, Bangladesh University, Bangladesh*

[3]*Department of Pharmacy, University of Rajshahi, Bangladesh*

Abstract: During the early phases of the COVID-19 pandemic, Bangladesh lacked treatments and immunizations, so patients used several home remedies to heal themselves. This study was conducted among stay-at-home COVID-19 patients in Bangladesh to determine their awareness of the disease and establish correlations between COVID-19 symptoms and the use of home remedies. This is a cross-sectional study that employed a convenient sampling technique. Primary data were collected using a convenient sampling technique from various demographic bases. Data were gathered through 70 face-to-face interviews and an online survey with 276 participants using a semi-structured questionnaire. Participants were from different regions and districts of Bangladesh. In total, 346 respondents participated in the study from May to August 2021. Nearly equal numbers of males and females of various ages participated. More than half of the participants were aged 21–30. Dhaka had the highest participation rate (82%). The study found that 95% of people were aware of the need to consult a doctor, and 99% of participants took the COVID-19 test. 46% of the participants were isolated for 1–2 weeks. Fever, dry cough, loss of smell, tiredness and fatigue, and aches and pains were the most commonly reported symptoms. 77% of the study's participants checked their O2 saturation level daily. Participants with and without various comorbid diseases used home remedies, like drinking honey-ginger tea, taking vapors or steam, eating more citrus fruits, frequent hand washing, etc. In Bangladesh, home remedies such as citrus fruits, honey-ginger tea, steam inhalation, hand washing, and mask usage were common among stay-at-home COVID-19 patients due to limited medical access. Despite seeking medical advice and testing, patients still prefer home care. This study emphasizes the need to understand these patterns and conduct further research to evaluate efficacy and inform policy development.

Keywords: COVID-19, infection, home remedy, disease prevention, herbal, treatment, Bangladesh

1. Introduction

In December 2019, Wuhan, Hubei Province, China, reported an outbreak of pneumonia of unknown cause. The Huanan Seafood Wholesale Market was found to be associated with instances of pneumonia. Priming of respiratory materials into human airway epithelial cells, such as Vero E6 and Huh7 cell lines, resulted in the isolation of a novel respiratory virus, which was later identified as a novel coronavirus linked to SARS-CoV-2 after genome analysis [1]. The World Health Organization (WHO) designated this etiological agent as COVID-19 (Coronavirus Disease – 2019) on February 11, 2020. The new coronavirus spreads fast across numerous countries' borders [2]. After more than 118,000 cases in 114 countries and 4,291 deaths, the WHO declared COVID-19 a pandemic on March 11, 2020. The first case of COVID-19 in Bangladesh was discovered on 2 March 2020. In Bangladesh, there were 29,446 fatal COVID-19 cases verified between January 3, 2020, and April 26, 2023, according to WHO [3]. COVID-19 symptoms can range in severity from very low to extremely severe. Some people may have a few symptoms, while others may be asymptomatic, meaning they have no symptoms. About a week after symptoms begin, some people may notice worsening symptoms such as shortness of breath and pneumonia [4]. According to a team of Chinese scientists, COVID-19 takes an average of 5.2 days to incubate. Leukocytes in the peripheral blood have not changed significantly over this period. Viruses often spread throughout the body via the lungs, heart, gastrointestinal tract, and circulation. Primary lesions deteriorate substantially after 7–14 days, particularly T and B cells, which decline significantly. From the onset of COVID-19 patient symptoms to death, researchers have tracked patients for anywhere between six and forty-one days, with a median of 14 days. However, this duration depends on the patient's age and immune status [5].

1.1. Medication and treatment of COVID-19

At the initial stage of the pandemic, there was a lack of understanding of COVID-19 and its therapeutic management,

*Corresponding author: Md. Abu Bakar Siddique Jami, Department of Pharmacy, East West University and Department of Pharmacy, Bangladesh University, Bangladesh. Email: abubakar.siddique@bu.edu.bd

prompting a rush to develop experimental therapeutics and repurpose drugs to combat this novel viral infection. Substantial progress has been made because of the dedicated work of clinical researchers and organizations, resulting in a greater awareness of COVID-19 and its management and the rapid development of innovative therapies and vaccines [6].

1.1.1. Baricitinib

SARS-CoV-2 infection is associated with both viral entrance and an inflammatory response, so baricitinib can be utilized to block both the AP2-associated protein kinase 1 (AAK1) and regulate endocytosis of the virus. Baricitinib has a strong affinity for and can inhibit AAK1 [7].

1.1.2. Remdesivir

Remdesivir is a wide-ranging antiviral drug that has shown antiviral effectiveness in vitro against SARS-CoV-2 [1]. Remdesivir was more effective than placebo in reducing the time to recuperation in individuals with confirmation of a lower respiratory tract infection who were diagnosed with moderate to severe COVID-19 [8]. The Food and Drug Administration (FDA) has certified remdesivir for use in adults and children patients (over the age of 12 and weighing at least 40 kg) with COVID-19 who are hospitalized [9].

1.1.3. Hydroxychloroquine and chloroquine

During the pandemic, these two drugs were recommended as COVID-19 antiviral therapies. Hydroxychloroquine was highly effective in treating individuals with COVID-19 pneumonia in a clinical trial conducted in China. When it comes to fighting COVID-19, many research groups recommended using existing drugs like chloroquine and hydroxychloroquine [10].

1.1.4. Ivermectin

Ivermectin was found to promote recovery and reduce rates of death in individuals with severe COVID-19. As a result, ivermectin should be explored as an alternate medication for the treatment of COVID-19 disease or as a supplement to existing procedures [11].

1.1.5. Lopinavir/Ritonavir

These medications are FDA-approved HIV combo therapy and were offered as antiviral therapy against COVID-19 during the pandemic's early stages. However, in both inpatient and non-hospitalized patients, lopinavir/ritonavir is currently not recommended for the treatment of COVID-19 [12].

1.1.6. Convalescent plasma therapy

For over a century, convalescent plasma (CP) therapy, a type of adaptive immunotherapy, has been used to prevent and cure various infectious diseases. After receiving a CP transfusion, symptoms such as fever, cough, shortness of breath, and chest pain subsided or significantly improved within 1 to 3 days [13].

1.1.7. Vaccines (Preventive action)

Clinical researchers worldwide worked tirelessly during the pandemic to develop new vaccines against SARS-CoV-2. The immune system is triggered by vaccination, which results in the creation of protective immunity against SARS-CoV-2. The efficiency of most common and approved vaccines is Pfizer–BioNTech (~95%), Moderna (~94.1%), Oxford–AstraZeneca (~81.4%), SPUTNIK V (~91%), Johnson & Johnson (~85%), COVAXIN (~81%), Sinopharm (~78.1%), and Novavax (~ 89.3%) [6].

1.2. Traditional therapy and home remedy

Herbal goods, animal products, spiritual healers, yoga, and relaxation techniques are some of the examples of traditional medicine approaches that are not completely implemented into the modern healthcare system. In COVID-19, patients' immunity is critical. As a result, traditional drugs with immunomodulatory properties could be a good choice for COVID-19 prevention and therapy [14]. A combination of Chinese traditional medicine and Western medicine was commonly employed to control symptoms during the early stages of the COVID-19 outbreak [15]. Home remedies, defined as traditional treatments using natural items, nutritional supplements, or physical exertion, are often supported by cultural traditions. Known as "granny cures", these remedies include turmeric, ginger, eucalyptus oil, lavender oil, and other common everyday products [16]. The key reason for using a home remedy is that the substitute is readily available and free of charge. Furthermore, this natural medication can be used to treat minor injuries and illnesses right away. People's decisions on minor ailments were influenced by various factors, including past experiences, advice from friends and family, and family practice [17].

1.3. Home remedies for COVID-19 and practices in Bangladesh

The WHO stated that natural remedies like ginger can "positively influence your health", but they are not scientifically effective treatments for combating COVID-19 [18]. SARS-CoV-2 can affect multiple organs, including the liver, cardiovascular system, and kidneys. Curcumin may have therapeutic effects against COVID-19 by modulating various molecular targets and cell signaling pathways. *Ocimum sanctum* (Tulsi) can treat COVID-19-related symptoms such as discomfort, diarrhea, coughing, and fever [19]. Tulsi leaf contains eugenol, which may prevent viral entry and reduce pulmonary inflammation, fever, and arrhythmias in an animal model of COVID-19 [20]. Cloves, known for their anti-inflammatory and immunostimulatory properties, have a history of use in treating respiratory problems and show promise against COVID-19 [21]. *Azadirachta indica* (Neem) has antiviral and antibacterial qualities [22]. Glycyrrhiza glabra (Licorice) contains glycyrrhizin, which has anti-inflammatory and antioxidant effects and has been shown to neutralize SARS-CoV-2 in vitro [18, 23]. Citrus fruits, rich in vitamins and flavonoids, have anti-inflammatory and antiviral properties that appear promising in managing COVID-19 [24].

When effective medications are lacking, a condition is not severe, or medical costs are too expensive, patients and families often turn to home remedies. In Bangladesh, these are known as "grandmother's recipes" or "totka chikitsha" [25]. According to the WHO, about 80% of people in low-income countries like Bangladesh rely on traditional remedies for primary healthcare. These practices are deeply rooted in the country's cultural history and are essential to daily life. A recent study shows that self-medication is widespread in Bangladesh [26]. For as long as anybody can remember, several home remedies have been employed in this country to treat diseases and manage other health issues [27, 28]. This country's traditional remedies and contemporary treatment practices have grown dramatically in the last few years. They sometimes used natural remedies, such as medicinal herbs, creepers, or whatever else, to treat themselves [29, 30].

The existing literature on COVID-19 has primarily focused on medical interventions, such as antiviral drugs, vaccines, and hospital-

based treatments. However, there is a significant literature gap in understanding the utilization and effectiveness of home remedies among COVID-19 patients, particularly in low-resource settings like Bangladesh. During the COVID-19 pandemic, the major goal of Bangladesh was to ensure that COVID-19 patients received proper treatment. A densely populated country like Bangladesh found offering adequate medical facilities and hospital beds challenging. Because of a lack of seats, oxygen supply, maintenance, and most importantly safety, many individuals must stay home and receive treatment over the phone or via other online services [15, 31]. Understanding and acknowledging the utilization of home remedies among COVID-19 patients is crucial from a policy perspective. In countries like Bangladesh, where access to healthcare facilities and resources is limited, home remedies have become a popular choice for managing COVID-19 symptoms. By recognizing the significance of home remedy practices, policymakers can develop targeted interventions and educational campaigns to ensure these remedies' safe and effective use. Incorporating home remedies into the broader healthcare system can help bridge gaps in access to medical care and alleviate the burden on existing healthcare facilities.

2. Materials and Methods

2.1. Type of study

The study was a survey-based cross-sectional study designed to evaluate stay-at-home COVID-19 patients' home remedy treatment practices in Bangladesh.

2.2. Sample characteristics

A semi-structured questionnaire was used to conduct a survey. A total of 346 people of different ages and genders participated in the survey. Participants were from different regions and districts of Bangladesh. As a cross-sectional study focusing on stay-at-home COVID-19 patients in Bangladesh, we aimed to gather insights into utilizing home remedies among this population. Given the constraints of time and resources, conducting a study with a large representative sample from the entire population would have been challenging. Consequently, we employed a convenient sampling technique to collect data from various demographic bases within the given timeframe. While this approach may limit the generalizability of our findings to the entire population, it allows us to gain valuable insights and generate hypotheses regarding home remedy practices among stay-at-home COVID-19 patients in Bangladesh. Before being questioned, eligible participants gave their informed consent, and primary data were collected only from them. Data collection was carried out from May 2021 to August 2021. To maintain the uniformity of the data, people who weren't from any area of Bangladesh were not included.

2.3. Sampling technique

In this study, a convenient sampling technique was used to collect information. The sample was obtained from both males and females, as well as people from various age groups, educational levels, and economic statuses.

2.3.1. Inclusion criteria and exclusion criteria

Only COVID-19 patients who received treatment at home were eligible to participate in the study. Participants must be over 15 years old and able to complete the online survey. The participants must have consented to use their responses in the study. The research did not include those who declined to participate in this particular study. COVID-19 patients who received treatment in a hospital or other facility rather than at home were excluded from this study.

2.4. Questionnaire development

A semi-structured questionnaire was constructed based on the study's objectives. It was written in English. The questionnaire was written in simple and plain language to avoid unnecessary semantic misinterpretation. Specific study objectives were considered while designing the questionnaire to guarantee that information relevant to the study's purposes and data could be obtained with optimum reliability and validity. Extra space was provided after some questions for the participants' comments; in most cases, these were used as qualifying remarks, which aided significantly in delivering responses to specific questions and in providing additional information that benefited the surveyor in forming conclusions.

2.5. Data collection method

The primary online tool used to collect data was Google Forms. A questionnaire form was constructed according to the specified criteria. Through this questionnaire, personal information and other characteristics that may add to knowledge regarding home remedies and treatments used by stay-at-home COVID-19 patients in Bangladesh were collected. Data were collected from people via circularizing the questionnaire form through various social media platforms and online communities. In total, 276 people participated in the online survey. Also, 70 face-to-face interviews were conducted using the same questionnaire. The questionnaire was created with the goal of collecting the most accurate data possible, taking into account the views of the Bangladeshi population. The questions were organized correctly, and the respondents may either complete the form or comment verbally.

2.6. Data analysis

After gathering all of the information, data were entered into Microsoft Office Excel 2019 and filtered out based on various factors such as age, locality, gender, and others. After scientifically organizing the data, certain tables and graphical representations were created and displayed in the results and discussion sections. After thoroughly analyzing the data, conclusions concerning home remedy practices by stay-at-home COVID-19 patients in Bangladesh were drawn.

3. Result and Discussion

This survey-based cross-sectional study was conducted in Bangladesh to find out how people employed home remedies to relieve the symptoms of COVID-19. This study aimed to assess people's knowledge of many aspects of COVID-19 infection, such as how they deal with it after becoming infected and how they use various preventive measures at home without going to the hospital. This study was conducted on 346 participants, and the data were collected through a semi-structured questionnaire. The data were checked and analyzed, and the following results were obtained. Results are calculated and shown in percentages, and the percentages are rounded up for ease of discussion. According to this study, males account for 49% ($n = 170$) of the

total, while females account for 51% ($n = 176$) of the total participants. Participants from a wide range of ages took part in this study. From Table 1, it was evident that respondents between the ages of 21 and 30 years old make up 57% ($n = 197$) of the total 346 participants, indicating that this age group constitutes the vast majority of the participants. Participants in the 30 to 40 age range made up 10% ($n = 35$) of the total, while another 10% of participants were between the ages of 41 and 50. 11% ($n = 38$) cover the 51 to 60 years age group. The age group of 15 to 20 years and 60+ years old has the lowest proportion of total participation, accounting for 6% ($n = 21$) of the overall frequency. Although people of different age groups participated in this study, the age group of 21 to 30 comprises over 57% ($n = 197$) of them. This indicates that young infected people preferred to receive treatment at home rather than being admitted to the hospital. A study conducted among the young COVID-affected population in Ireland showed that 87% of the study population reported they were "staying at home as much as possible" [32]. However, the higher number of young people in our sample can be influenced by factors such as their increased internet usage or the specific groups where the survey link was shared, which could have attracted more participation from youth-based communities. Previous studies have also shown that the internet and social media are becoming a more popular sources of health-related information for young people [33]. The survey data were gathered from various regions and districts of Bangladesh, both within and outside Dhaka's capital. The participants of Dhaka city accounted for 82% ($n = 284$) of the overall data collection. The remaining 18% ($n = 62$) of data was collected from other regions of Bangladesh, with most participants hailing from Faridpur, Rangpur, Tangail, Gazipur, and Chittagong.

Despite the fact that data was gathered from all throughout Bangladesh, the city of Dhaka accounted for the vast majority of what was gathered. Dhaka is Bangladesh's most populated metropolis, where the virus may readily spread and the infection rate is high. A study by Islam et al. found that the city of Dhaka had the highest number of COVID-19 cases in Bangladesh [15]. However, in our study, 99% ($n = 343$) of the participants performed the COVID-19 test. When an infection is confirmed, obtaining appropriate therapy becomes much simpler. This aligns with recommendations from other studies that highlight the importance of testing for early detection and prevention of COVID-19 [34–36]. 95% ($n = 329$) of participants consulted their doctor before taking any medication, making it apparent that the vast majority of people know that they should consult their doctor before taking any medications. Previous studies have also emphasized the importance of consulting healthcare professionals for proper diagnosis and treatment of COVID-19 [37, 38]. Also, from Table 1, at least two weeks' isolation is common, showing that participants are cognizant of the virus's capacity to spread and the value of remaining isolated from others, which can reduce the rate of the infection. A study by Cevik et al. reported that quarantine and isolation of contacts were effective strategies for reducing the transmission of COVID-19 since the duration of the virus remaining viable is relatively short-lived [39]. Some participants reported that they were isolated for more than 29 days, which indicates that they suffered more than others. Moreover, a wide range of symptoms were reported by the respondents, presented in Table 1. The most often seen symptoms in this study included fever (87%), dry cough (69%), loss of smell (79%), tiredness and fatigue (73%), as well as aches and pains (70%). According to the Centers for Disease Control and Prevention, fever or chills, cough, shortness of breath, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea are the common symptoms reported in people with COVID-19 [40]. Most of the individuals surveyed said they have experienced all of those symptoms. The majority of participants were found to be health-concerned, with more than 77% ($n = 266$) of participants monitoring their oxygen saturation levels and following treatment recommendations based on this information. Where public health resources permit, home pulse oximetry, tele-monitoring, and earlier initiation of oxygen supplementation for hypoxemic COVID-19 outpatients may be advantageous for the management of COVID-19 [41].

In addition to other forms of regular treatments, many participants used home remedies as their preferred method of therapy on a regular basis. For example, most of the participants reported drinking honey-ginger tea ($n = 303$, 88%), taking steam ($n = 227$, 65%), eating more citrus fruits ($n = 291$, 84%), frequent hand washing ($n = 263$, 76%) and using a face mask ($n = 248$, 72%). According to an integrative review, in many South Asian nations, people who have COVID-19 manage their symptoms at home rather than being taken to hospitals. Some people prefer herbal teas, while others like hot mixtures of ginger, cloves and honey, fruits high in vitamin C, garlic, turmeric, cinnamon, and black pepper, as well as other Ayurvedic and herbal substances. In African nations like Zimbabwe and South Africa, where drinking mixtures of ginger, garlic, and lemon and using steam inhalation are popular [42]. Despite the fact that physical activity helps people recover from illness more rapidly, the majority of those who took part in our study were somewhat unaware of this. Previous studies have also reported that physical activity helps in the recovery of COVID-19 patients [43–45]. Several health disorders, such as diabetes, chronic renal disease, lung and liver illnesses, and cardiovascular disease, are now well supported by research as having higher risks for individuals who have them. These comorbidities have been identified as risk factors for severe illness and complications in individuals who contract COVID-19 [46, 47]. In Table 2, the information regarding home remedy practice is shown among patients who claimed that they are clinically diagnosed with these mentioned diseases. We found that COVID-19 patients with diabetes ($n = 71$) use home remedies more than others. Most of the diabetic patients who took part in this study used home remedies in a noticeable way. Most of them drank honey-ginger tea ($n = 67$, 95%), consumed citrus fruits ($n = 61$, 86%), wore face mask ($n = 50$, 71%), etc. Apart from that, at least 57 of the 62 people who had hypertension also used home remedies such as; taking steam ($n = 50$, 80%), drinking honey-ginger tea ($n = 57$%, 92%), frequent hand washing ($n = 51$, 82%) etc. The significance of using herbal home remedies by diabetic and hypertensive patients has been depicted by a previous research [48]. Despite the fact that the number of people with liver disease is quite low, their use of home remedies cannot be overlooked. There were 18 individuals with kidney disease, and the majority of them used the mentioned home remedies to get better from COVID-19. A total of 43 patients were diagnosed with respiratory disease, and the vast majority of them relied heavily on those mentioned home remedies as a form of treatment. As per the data in Table 2, 26 patients with heart disease were found among our survey participants to employ home remedies; however, they also had a poor rate of engagement in physical activity ($n = 4$, 14%. Studies have shown many important health benefits of physical exercise such as; improving cardiovascular health by inducing changes in oxygen delivery for heart disease patients [49]. Also, physical exercise practice was found lesser among the diabetic ($n = 17$, 24%), hypertensive

Table 1. Demographic characteristics and attitude regarding COVID-19

	Frequency (*n*)	Percentage (%)
Gender		
Male	170	49
Female	176	51
Age distribution		
15 to 20 years	21	6
21 to 30 years	197	57
31 to 40 years	35	10
41 to 50 years	35	10
51 to 60 years	38	11
60+ years	21	6
Current residence		
Inside Dhaka	284	82
Outside Dhaka	62	18
Consultation with doctor		
Yes	329	95
No	17	5
Performing COVID-19 test		
Yes	343	99
No	3	1
Isolation days		
0 to 7 days	21	6
8 to 14 days	159	46
15 to 21 days	111	32
22 to 28 days	17	5
29+ days	35	10
Symptoms of COVID-19		
Eye irritation	17	5
Conjunctivitis	17	5
Loss of smell	273	79
Skin rash	24	7
Tiredness and fatigue	253	73
Vomiting	52	15
Chest pain	87	25
Sore throat	149	43
Aches and pain	242	70
Difficulty in breathing	131	38
Diarrhea	87	25
Dry cough	239	69
Fever	301	87
Checking O_2 saturation		
Yes	266	77
No	80	23

	Preventive home treatment			
	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Physical exercise	124	36	222	64
Taking vapor/steam	227	65	119	35
Gargle with warm water	205	59	141	41
Honey-ginger tea	303	88	43	12
Taking citrus fruits	291	84	55	16
Using mask	248	72	98	28
Frequent hand washing	263	76	83	24
Using Ayurvedic/herbal substances	80	23	266	77

($n = 24$, 38%), liver patients ($n = 1$, 5%), kidney patients ($n = 5$, 27%), respiratory patients ($n = 13$, 30%) also. Other home treatments were used at a greater rate among these comorbid patients.

Although COVID-19 patients reported a wide range of symptoms, there were a few that stood out as the most prominent. Patients with COVID-19 were more likely to experience dry cough, breathing problems, aches and pains, and a sore throat for a longer period of time. There were 239 (69%) patients who were suffering from the symptoms of dry cough. With only 23 patients (10%) taking allopathic expectorants for dry cough relief, 152

Table 2. Home remedy practice by comorbid patients

	Diabetic patients (total = 71)		Hypertension patients (total = 62)		Liver disease patients (total = 20)	
	Frequency (*n*)	Percentage (%)	Frequency (*n*)	Percentage (%)	Frequency (*n*)	Percentage (%)
Physical exercise	17	24	24	38	1	5
Taking vapor/steam	53	74	50	80	11	53
Gargle with warm water	44	62	40	64	14	72
Drinking honey/ginger tea	67	95	57	92	15	75
Eating citrus fruits	61	86	48	78	10	50
Wearing mask	50	71	47	76	5	25
Frequent hand washing	61	86	51	82	10	50
Using Ayurvedic/herbal substances	26	36	19	30	10	50
	Kidney disease patients (total = 18)		Respiratory disease patients (total = 43)		Cardiac disease patients (total = 26)	
	Frequency (*n*)	Percentage (%)	Frequency (*n*)	Percentage (%)	Frequency (*n*)	Percentage (%)
Physical exercise	5	27	13	30	4	14
Taking vapor/steam	15	82	30	70	21	79
Gargle with warm water	15	82	34	78	15	57
Drinking honey/ginger tea	18	100	38	89	22	86
Eating citrus fruits	18	100	34	78	21	79
Wearing mask	10	55	34	78	18	71
Frequent hand washing	16	91	38	89	21	79
Using Ayurvedic/herbal substances	8	45	24	56	13	50

(63%) individuals gargled warm water to treat their dry cough. Also, Figure 1 shows that Citrus fruits were consumed by 204 participants (85%) out of a total of 239 participants, and Vitamin C tablets were consumed by 170 people (71%). In most cases, the use of home remedies to alleviate those symptoms was greater than the use of allopathic medicine. A total of 131 COVID-19 patients were suffering from respiratory difficulties participated in this study as we can see in Figure 2. Among them, antihistamines were taken by 96 (73%) participants, Doxofylline was taken by 20 individuals (15%), and Montelukast was taken by 53 (41%) people in the form of an allopathic medicine. On the other side, 96 patients (73.26%) reported using vapor or steam to treat their condition, while 116 (88%) out of 86 patients reported drinking honey-ginger tea to alleviate this symptom. A previous study has also presented the possible benefits of ginger against COVID-19 infection and highlighted its antiviral, anti-inflammatory, antioxidative, and immunomodulatory implications [50]. Besides these, 242 participants experienced aches and pains in their bodies as a symptom. Paracetamol was used by 172 patients (71%) to ease this symptom, whereas antihistamine and montelukast were used by 164 (68%) and 84 patients (35%), respectively, as allopathic therapy. Regarding home remedies, 96 patients (40%) tried different physical exercises for pain, whereas around 212 patients (87.42%) consumed citrus fruits for pain relief. Figure 3 shows that 219 (91%) of 242 patients relied on honey/ginger tea to relieve pain. 163 (67%) patients have taken vapor or steam to relieve the symptoms. Undeniably, the frequency with which people use home remedies is higher than the frequency with which they use conventional medication. There were 149 patients who reported having sore throat as a symptom of COVID-19. In this case, paracetamol was used by 113 (76%) patients; montelukast was taken by only 50 (34%) patients, and 102 (68%) patients stated taking antihistamines as allopathic medicines. On the other hand, 88 (59%) patients used warm water for gargling to get relief from a sore throat. 129 (87%) out of 149 patients reported using honey/ginger tea to relieve sore throat. 132 (89%) of 149 patients preferred citrus fruits as a home remedy to alleviate this symptom. From Figure 4, it is evident that to get relief from a sore throat, several home remedies were favored more than allopathic medicines. A systematic review with the data of 5,417 participants from 40 trials showed that the clinical symptoms of COVID-19 were greatly reduced by herbal medicine and conventional Western medicine combination treatment [51]. It was observed that many patients preferred to take allopathic treatment in addition to a variety of home remedies. A lot of people took both allopathic treatment and home remedies at the same time but used these two strategies at different rates. Moreover, home remedies were often used more frequently than allopathic treatment to relieve these symptoms. The findings reveal that a significant proportion of COVID-19 patients in Bangladesh rely on home remedies as a form of treatment. This highlights the importance of integrating traditional medicine, including home remedies, into national healthcare policies. The findings show that participants were health-conscious and sought medical advice before taking any medication. This emphasizes the need for clear and accurate public health messaging regarding COVID-19 management. Policymakers can work towards disseminating reliable information about the appropriate use of home remedies and the importance of consulting healthcare professionals for proper diagnosis and treatment.

However, this study has some limitations that should be taken into account. Firstly, the convenience sampling method used for selecting the participants for the survey has the chance of producing a selection bias. Secondly, because the study was based on self-reported data, it may have additional issues, such as social desirability and recall bias. Thirdly, the study only examined COVID-19 patients who chose to remain at home, which may not be a fair depiction of the general population. It's important to acknowledge that the small sample size limits the generalizability of the findings to a larger population. Furthermore, the overrepresentation of specific regions, such as Dhaka, may impact the generalizability of the findings to the entire population of

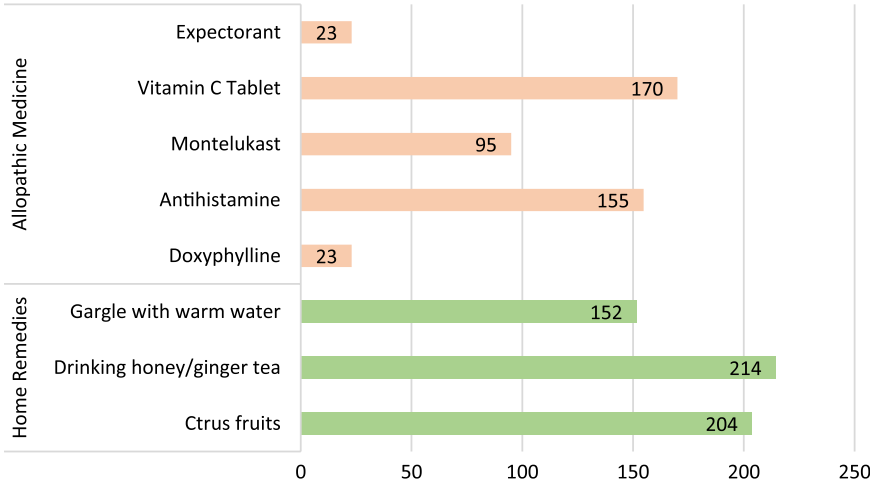

Figure 1. Comparative response of the patients having symptoms of dry cough ($n = 239$)

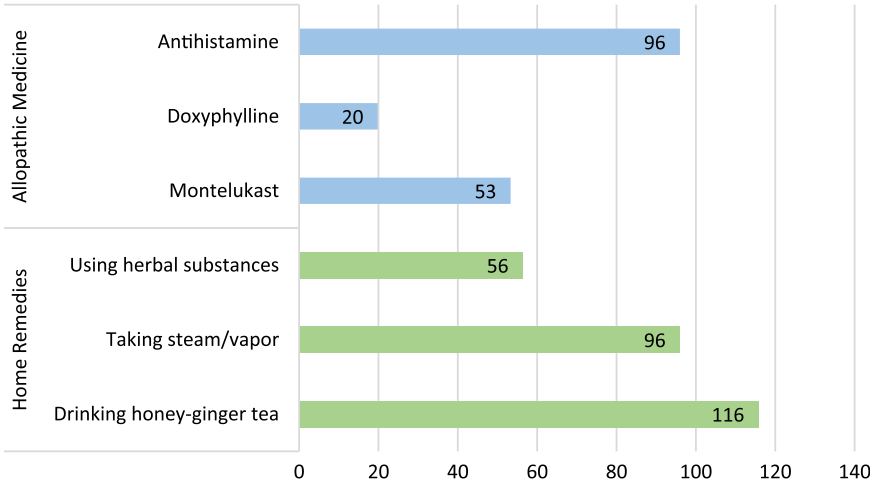

Figure 2. Comparative response of the patients having symptoms of breathing difficulties ($n = 131$)

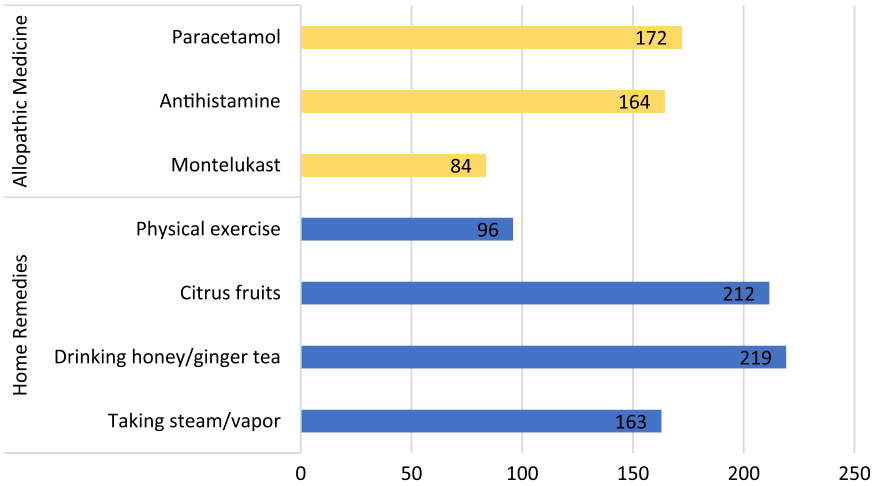

Figure 3. Comparative response of the patients having symptoms of aches and pain ($n = 242$)

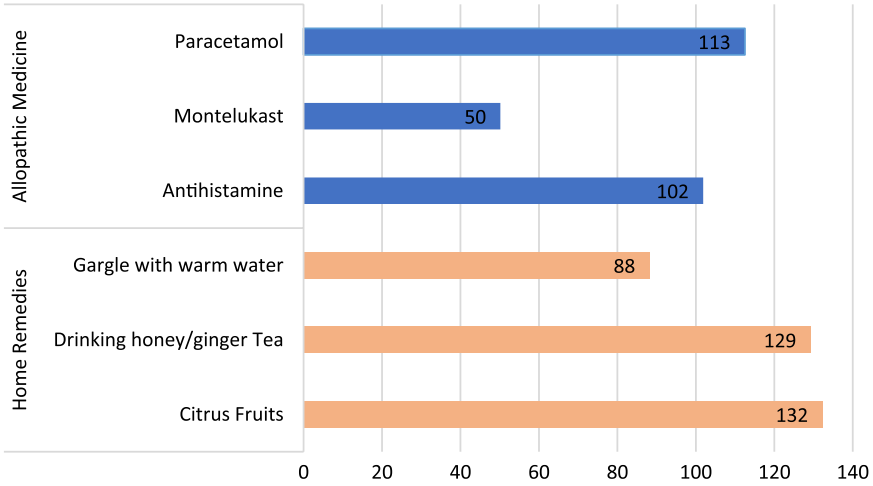

Figure 4. Comparative response of the patients having symptoms of sore throat ($n = 149$)

Bangladesh and introduce geographic bias. Future research should focus on collecting more diverse data with balanced geographic and demographic representations that reflect the nationwide scenario. One of the primary aims of this study was to gain a basic understanding of people's practices and knowledge of home remedies throughout Bangladesh. As a result, complex statistical analyses were avoided to maintain focus on these fundamental insights. In the future, researchers can employ more diverse analytical techniques, such as stratified analysis, data weighting, and power analysis, to achieve more sophisticated and impactful findings. Despite these limitations, the study offers valuable insights, identifies trends, and indicates areas for further investigation. Researchers should interpret the results while considering these limitations and consider them when making conclusions or policy recommendations. Also, this study focused only on home remedies used to relieve symptoms of COVID-19. It did not cover other treatment options or preventive measures in detail. Hence, the results may not provide a complete understanding of the participants' general opinions and behaviors towards COVID-19.

4. Conclusion

This study provides valuable insights into home remedies' prevalence and usage patterns among stay-at-home COVID-19 patients in Bangladesh. Despite the well-known nature of the home remedies, the study's findings can still be helpful to healthcare professionals. With a lack of access to adequate healthcare facilities and limited medical resources in many areas of the country, home remedies have become a popular choice for treating COVID-19 symptoms. According to the findings, young infected people preferred receiving care at home to being admitted to a hospital. The likelihood of catching the infection and the value of receiving the proper medical attention were both known to the participants. Before taking any medicine, most participants sought their doctors' advice. They also conducted COVID-19 tests to determine whether they were infected. It was found that participants were health-conscious, monitoring their oxygen saturation levels and following treatment recommendations. The participants frequently combined home remedies with different types of conventional treatment; the most popular ones were eating citrus fruits, drinking honey-ginger tea, taking steam, frequent hand washing, and using face masks. Patients with underlying medical conditions such as diabetes, hypertension, liver, renal, respiratory, and heart disease frequently employed home remedies. However, they should be more conscious of physical exercise's significance. Understanding the types of home remedies that patients are using and their effectiveness can help healthcare professionals provide more informed guidance to patients and improve disease management. The study provides empirical evidence on the prevalence and usage of these remedies among COVID-19 patients in Bangladesh, validating their implementation. It can also assess the effectiveness of specific remedies and identify knowledge gaps or misconceptions among patients. Understanding cultural considerations and potential policy implications can also enhance healthcare professionals' communication and patient-centered care. Policymakers can encourage further research to generate more evidence on the safety, efficacy, and potential interactions of home remedies with conventional treatments. Also, this research will help to formulate and develop policies and evidence-based guidelines.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

References

[1] Ciotti, M., Ciccozzi, M., Terrinoni, A., Jiang, W. C., Wang, C. B., & Bernardini, S. (2020). The COVID-19 pandemic. *Critical Reviews in Clinical Laboratory Sciences*, *57*(6), 365–388. https://doi.org/10.1080/10408363.2020.1783198

[2] Ahmadi, K., Dashti, M. F., & Delgosha, M. S. (2020). Geographical distribution of COVID-19 in the World and Iran; Investigation of possible transmission roots. *Journal of*

Family Medicine and Primary Care, *9*(8), 4473–4475. https://doi.org/10.4103/jfmpc.jfmpc_733_20

[3] World Health Organization. (2024). *WHO COVID-19 dashboard*. Retrieved from: https://covid19.who.int/region/searo/country/bd

[4] Elliott, J., Whitaker, M., Bodinier, B., Eales, O., Riley, S., Ward, H., . . . , & Elliott, P. (2021). Predictive symptoms for COVID-19 in the community: REACT-1 study of over 1 million people. *PLOS Medicine*, *18*(9), e1003777. https://doi.org/10.1371/journal.pmed.1003777

[5] Hossain, M. F., Hasana, S., Mamun, A. A., Uddin, M. S., Wahed, M. I. I., Sarker, S., . . . , & Abdel-Daim, M. M. (2020). COVID-19 outbreak: Pathogenesis, current therapies, and potentials for future management. *Frontiers in Pharmacology*, *11*, 563478. https://doi.org/10.3389/fphar.2020.563478

[6] Cascella, M., Rajnik, M., Aleem, A., Dulebohn, S. C., & Napoli, R. D. (2023). *Features, evaluation, and treatment of coronavirus (COVID-19)*. Retrieved from: https://www.ncbi.nlm.nih.gov/books/NBK554776/

[7] Frediansyah, A., Tiwari, R., Sharun, K., Dhama, K., & Harapan, H. (2021). Antivirals for COVID-19: A critical review. *Clinical Epidemiology and Global Health*, *9*, 90–98. https://doi.org/10.1016/j.cegh.2020.07.006

[8] Beigel, J. H., Tomashek, K. M., Dodd, L. E., Mehta, A. K., Zingman, B. S., Kalil, A. C., . . . , & Lane, H. C. (2020). Remdesivir for the treatment of Covid-19: Final report. *The New England Journal of Medicine*, *383*(19), 1813–1826.

[9] Chera, A., & Tanca, A. (2022). Remdesivir: The first FDA-approved anti-COVID-19 treatment for young children. *Discoveries*, *10*(2), e151. https://doi.org/10.15190/d.2022.10

[10] Boopathi, S., Poma, A. B., & Kolandaivel, P. (2021). Novel 2019 coronavirus structure, mechanism of action, antiviral drug promises and rule out against its treatment. *Journal of Biomolecular Structure and Dynamics*, *39*(9), 3409–3418. https://doi.org/10.1080/07391102.2020.1758788

[11] Okumuş, N., Demirtürk, N., Çetinkaya, R. A., Güner, R., Avcı, İ. Y., Orhan, S., . . . , & Taşkın, G. (2021). Evaluation of the effectiveness and safety of adding ivermectin to treatment in severe COVID-19 patients. *BMC Infectious Diseases*, *21*, 411. https://doi.org/10.1186/s12879-021-06104-9

[12] Cao, B., Wang, Y., Wen, D., Liu, W., Wang, J., Fan, G., . . . , & Wang, C. (2020). A trial of Lopinavir–Ritonavir in adults hospitalized with severe Covid-19. *The New England Journal of Medicine*, *382*(19), 1787–1799. https://doi.org/10.1056/NEJMoa2001282

[13] Duan, K., Liu, B., Li, C., Zhang, H., Yu, T., Qu, J., . . . , & Yang, X. (2020). Effectiveness of convalescent plasma therapy in severe COVID-19 patients. *Proceedings of the National Academy of Sciences*, *117*(17), 9490–9496. https://doi.org/10.1073/pnas.2004168117

[14] Umeta Chali, B., Melaku, T., Berhanu, N., Mengistu, B., Milkessa, G., Mamo, G., . . . , & Mulugeta, T. (2021). Traditional medicine practice in the context of COVID-19 pandemic: Community claim in Jimma Zone, Oromia, Ethiopia. *Infection and Drug Resistance*, *14*, 3773–3783. https://doi.org/10.2147/IDR.S331434

[15] Islam, S., Islam, R., Mannan, F., Rahman, S., & Islam, T. (2020). COVID-19 pandemic: An analysis of the healthcare, social and economic challenges in Bangladesh. *Progress in Disaster Science*, *8*, 100135. https://doi.org/10.1016/j.pdisas.2020.100135

[16] Parisius, L. M., Stock-Schröer, B., Berger, S., Hermann, K., & Joos, S. (2014). Use of home remedies: A cross-sectional survey of patients in Germany. *BMC Family Practice*, *15*, 116. https://doi.org/10.1186/1471-2296-15-116

[17] Anwar, M., Green, J. A., Norris, P., & Bukhari, N. I. (2015). Self-medication, home remedies, and spiritual healing: Common responses to everyday symptoms in Pakistan. *Health Psychology and Behavioral Medicine*, *3*(1), 281–295. https://doi.org/10.1080/21642850.2015.1088387

[18] Carbonaro, G. (2021). *Eight fruits, vegetables and herbs that might help tackle COVID-19*. Retrieved from: https://newseu.cgtn.com/news/2021-03-26/Eight-fruits-vegetables-and-herbs-that-might-help-tackle-COVID-19-YVuDwvMN5m/index.html

[19] Rani, N., Tomar, N., Upadhyaya, S., Pathak, D., Kumar, S., & Saha, S. (2022). Tulsi – *Ocimum Sanctum*: A herbal drug for health benefits. *International Journal of Science and Healthcare Research*, *7*(4), 263–277. https://doi.org/10.52403/ijshr.20221037

[20] Paidi, R. K., Jana, M., Raha, S., McKay, M., Sheinin, M., Mishra, R. K., & Pahan, K. (2021). Eugenol, a component of holy basil (Tulsi) and common spice clove, inhibits the interaction between SARS-CoV-2 spike S1 and ACE2 to induce therapeutic responses. *Journal of Neuroimmune Pharmacology*, *16*, 743–755. https://doi.org/10.1007/s11481-021-10028-1

[21] Vicidomini, C., Roviello, V., & Roviello, G. N. (2021). Molecular basis of the therapeutical potential of clove (*Syzygium aromaticum* L.) and clues to its anti-COVID-19 utility. *Molecules*, *26*(7), 1880. https://doi.org/10.3390/molecules26071880

[22] Wylie, M. R., & Merrell, D. S. (2022). The antimicrobial potential of the neem tree *Azadirachta indica*. *Frontiers in Pharmacology*, *13*, 891535. https://doi.org/10.3389/fphar.2022.891535

[23] Diomede, L., Beeg, M., Gamba, A., Fumagalli, O., Gobbi, M., & Salmona, M. (2021). Can antiviral activity of licorice help fight COVID-19 infection? *Biomolecules*, *11*(6), 855. https://doi.org/10.3390/biom11060855

[24] Liu, W., Zheng, W., Cheng, L., Li, M., Huang, J., Bao, S., . . . , & Ma, Z. (2022). Citrus fruits are rich in flavonoids for immunoregulation and potential targeting ACE2. *Natural Products and Bioprospecting*, *12*(1), 4. https://doi.org/10.1007/s13659-022-00325-4

[25] Anam, E., Swachho, R. B., Jannat, K., & Rahmatullah, M. (2021). Home remedies for COVID-19 treatment in Gazipur district, Bangladesh. *Journal of Medicinal Plants Studies*, *9*(1), 25–28. https://doi.org/10.22271/plants.2021.v9.i1a.1244

[26] Jami, M. A. B. S., & Biswas, K. (2023). A cross-sectional study regarding the knowledge, attitude and awareness about self-medication among Bangladeshi people. *Health Policy and Technology*, 100715. https://doi.org/10.1016/j.hlpt.2022.100715

[27] Jami, M. A. B. S., Sultana, R., Hasan, M. M., & Ananna, I. J. (2024). Menstrual health and prevalence of menstrual disorders among modern society females in Dhaka, Bangladesh: A cross-sectional study. *Series of Clinical and Biomedical Research*, *1*(1), 1–12. https://doi.org/10.54178/2997-2701.v1i1a1992

[28] Roni, M. A. H., Jami, M. A. B. S., Sultana, R., Areefin, P., Hossain, S., Hossen, S., . . . , & Yunus, M. Y. B. M. (2024). Traditional herbal interventions for premenstrual syndrome management: A comprehensive literature review. *International Journal of Chemical and Biochemical Sciences*, *25*(18), 120–140.

[29] Haque, M. I., Chowdhury, A. A., Shahjahan, M., & Harun, M. G. D. (2018). Traditional healing practices in rural Bangladesh: A qualitative investigation. *BMC Complementary and Alternative Medicine*, *18*, 62. https://doi.org/10.1186/s12906-018-2129-5

[30] Jami, M. A. B. S., Sultana, R., & Islam, Z. (2024). A cross-sectional study regarding the prevalence of premenstrual syndrome (PMS) and its impact on the regular life of female students in Bangladesh. *Series of Clinical and Biomedical Research*, *1*(1), 1–14. https://doi.org/10.54178/2997-2701.v1i1a1993

[31] Islam, T., Talukder, A. K., Siddiqui, N., & Islam, T. (2020). Tackling the COVID-19 pandemic: The Bangladesh perspective. *Journal of Public Health Research*, *9*(4), 1794. https://doi.org/10.4081/jphr.2020.1794

[32] Nearchou, F., Flinn, C., French, A., Hennessy, E., Kerin, L., & Linehan, C. (2022). Health literacy of COVID-19 and compliance with precautionary measures: A cross-sectional study in adolescents and young adults in Ireland. *Youth*, *2*(2), 165–180. https://doi.org/10.3390/youth2020013

[33] Goodyear, V. A., Armour, K. M., & Wood, H. (2019). Young people and their engagement with health-related social media: New perspectives. *Sport, Education and Society*, *24*(7), 673–688. https://doi.org/10.1080/13573322.2017.1423464

[34] Aldila, D., Samiadji, B. M., Simorangkir, G. M., Khosnaw, S. H. A., & Shahzad, M. (2021). Impact of early detection and vaccination strategy in COVID-19 eradication program in Jakarta, Indonesia. *BMC Research Notes*, *14*, 132. https://doi.org/10.1186/s13104-021-05540-9

[35] Chen, Y. J., Jian, W. H., Liang, Z. Y., Guan, W. J., Liang, W. H., Chen, R. C., . . . , & Zheng, J. P. (2021). Earlier diagnosis improves COVID-19 prognosis: A nationwide retrospective cohort analysis. *Annals of Translational Medicine*, *9*(11), 941. https://doi.org/10.21037/atm-20-7210

[36] Hashmi, H. A. S., & Asif, H. M. (2020). Early detection and assessment of Covid-19. *Frontiers in Medicine*, *7*, 311. https://doi.org/10.3389/fmed.2020.00311

[37] Johnson, S. B., & Butcher, F. (2021). Doctors during the COVID-19 pandemic: What are their duties and what is owed to them? *Journal of Medical Ethics*, *47*(1), 12–15. https://doi.org/10.1136/medethics-2020-106266

[38] Yang, C., Yin, J., Liu, J., Liu, J., Chen, Q., Yang, H., . . . , & Li, Z. (2022). The roles of primary care doctors in the COVID-19 pandemic: Consistency and influencing factors of doctor's perception and actions and nominal definitions. *BMC Health Services Research*, *22*(1), 1143. https://doi.org/10.1186/s12913-022-08487-0

[39] Cevik, M., Tate, M., Lloyd, O., Maraolo, A. E., Schafers, J., & Ho, A. (2021). SARS-CoV-2, SARS-CoV, and MERS-CoV viral load dynamics, duration of viral shedding, and infectiousness: A systematic review and meta-analysis. *The Lancet Microbe*, *2*(1), e13–e22. https://doi.org/10.1016/S2666-5247(20)30172-5

[40] Centers for Disease Control and Prevention. (2024). *Symptoms of COVID-19*. Retrieved from: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

[41] Shenoy, N., Luchtel, R., & Gulani, P. (2020). Considerations for target oxygen saturation in COVID-19 patients: Are we under-shooting? *BMC Medicine*, *18*, 260. https://doi.org/10.1186/s12916-020-01735-2

[42] Malapela, R. G., Thupayagale-Tshweneagae, G., & Baratedi, W. M. (2022). Use of home remedies for the treatment and prevention of coronavirus disease: An integrative review. *Health Science Reports*, *6*(1), e900. https://doi.org/10.1002/hsr2.900

[43] Clemente-Suárez, V. J., Beltrán-Velasco, A. I., Ramos-Campo, D. J., Mielgo-Ayuso, J., Nikolaidis, P. A., Belando, N., & Tornero-Aguilera, J. F. (2022). Physical activity and COVID-19. The basis for an efficient intervention in times of COVID-19 pandemic. *Physiology & Behavior*, *244*, 113667. https://doi.org/10.1016/j.physbeh.2021.113667

[44] Jimeno-Almazán, A., Pallarés, J. G., Buendía-Romero, Á., Martínez-Cava, A., Franco-López, F., Sánchez-Alcaraz Martínez, B. J., . . . , & Courel-Ibáñez, J. (2021). Post-COVID-19 syndrome and the potential benefits of exercise. *International Journal of Environmental Research and Public Health*, *18*(10), 5329. https://doi.org/10.3390/ijerph18105329

[45] Yang, J., Li, X., He, T., Ju, F., Qiu, Y., & Tian, Z. (2022). Impact of physical activity on COVID-19. *International Journal of Environmental Research and Public Health*, *19*(21), 14108. https://doi.org/10.3390/ijerph192114108

[46] Adab, P., Haroon, S., O'Hara, M. E., & Jordan, R. E. (2022). Comorbidities and covid-19. *The BMJ*, *377*, o1431. https://doi.org/10.1136/bmj.o1431

[47] Sanyaolu, A., Okorie, C., Marinkovic, A., Patidar, R., Younis, K., Desai, P., . . . , & Altaf, M. (2020). Comorbidity and its impact on patients with COVID-19. *SN Comprehensive Clinical Medicine*, *2*, 1069–1076. https://doi.org/10.1007/s42399-020-00363-4

[48] Tsabang, N., Yedjou, C. G., Tsambang, L. W. D., Tchinda, A. T., Donfagsiteli, N., Agbor, G. A., . . . , & Nkongmeneck, B. A. (2015). Treatment of diabetes and/or hypertension using medicinal plants in Cameroon. *Medicinal & Aromatic Plants*. https://doi.org/10.4172%2F2167-0412.S2-003

[49] Pinckard, K., Baskin, K. K., & Stanford, K. I. (2019). Effects of exercise to improve cardiovascular health. *Frontiers in Cardiovascular Medicine*, *6*, 69. https://doi.org/10.3389/fcvm.2019.00069

[50] Jafarzadeh, A., Jafarzadeh, S., & Nemati, M. (2021). Therapeutic potential of ginger against COVID-19: Is there enough evidence? *Journal of Traditional Chinese Medical Sciences*, *8*(4), 267–279. https://doi.org/10.1016/j.jtcms.2021.10.001

[51] Chien, T. J., Liu, C. Y., Chang, Y. I., Fang, C. J., Pai, J. H., Wu, Y. X., & Chen, S. W. (2022). Therapeutic effects of herbal-medicine combined therapy for COVID-19: A systematic review and meta-analysis of randomized controlled trials. *Frontiers in Pharmacology*, *13*, 950012. https://doi.org/10.3389/fphar.2022.950012

How to Cite: Jami, M. A. B. S., Islam, R., Sultana, R., Iffat, T., & Jahan, M. L. (2024). Home Remedy Practices Among Stay-at-Home COVID-19 Patients in Bangladesh. *Medinformatics*, *1*(3), 142–151. https://doi.org/10.47852/bonviewMEDIN42023132