http://iahsj.kaums.ac.ir/
International Archives of Health Sciences. 2024; 11(2): 69-78
https://doi.org/10.48307/IAHSJ.2024.418547.1067

Research Article Open Access

Prevalence of myths, misinformation, risky, and preventive behaviors regarding COVID-19 among hospitalized patients infected with SARS-CoV-2 in Bangladesh: A cross-sectional study

Subarna Mazumder [1], **Md Rakibul Hassan Bulbul** [2,3], **A G M Niaz Uddin** [4], **Muhammad Zakaria** [1,5 *]

[1] Department of Communication and Journalism, University of Chittagong, Chittagong 4331, Bangladesh
[2] Institute for Developing Science and Health Initiatives (ideSHi), Dhaka 1216, Bangladesh
[3] Department of Biological Sciences, Oakland University, Rochester, Michigan 48309, USA
[4] Department of Political Studies, University of Chittagong, Chittagong 4331, Bangladesh
[5] Department of Communication, Wayne State University, Detroit, Michigan 48202, USA

[*] **Corresponding author:** Muhammad Zakaria, Department of Communication and Journalism, University of Chittagong, Chittagong 4331, Bangladesh, **Email:** zakaria@cu.ac.bd

Received: 1 October 2023 **Revised:** 6 January 2024 **Accepted:** 19 February 2024 **e-Published:** 1 April 2024

Abstract

Objectives: This research aimed to evaluate the prevalence of myths, misinformation, risky behaviors, and preventive practices concerning COVID-19 among patients hospitalized due to novel coronavirus infection in Chattogram, Bangladesh.

Methods: This study utilized a quantitative research approach with a cross-sectional online survey conducted among COVID-19 patients in Chattogram, Bangladesh. Data was collected through a validated, self-administered questionnaire distributed via Google Forms using a convenient sampling method with 408 participants. Data analysis was carried out using IBM SPSS version 24.0. Independent-samples t-test, Pearson correlation, and multiple linear regression analysis were used to identify predictors of outcome variables.

Results: Various myths were prevalent among COVID-19 patients, particularly during the initial wave of the pandemic. For instance, approximately half of the patients believed that regular consumption of black cumin, ginger, and clove, drinking hot water, and spraying bleaching powder could prevent coronavirus. Regression analyses indicated that factors such as having a family income exceeding BDT 50,000 [B=1.51 (95% CI: 0.27, 2.74)], regular media consumption [B=2.70 (95% CI: 1.41, 4.00)], and the second wave of the COVID-19 pandemic [B=3.15 (95% CI: 1.80, 4.49)] were predictive of better COVID-19 knowledge. Additionally, being female [B=-4.33 (95% CI: -5.41, -3.26)], residing in urban areas [B=1.73 (95% CI: 0.69, 2.77)], obtaining COVID-19 information from online media [B=1.16 (95% CI: 0.02, 2.30)], and contracting the infection during the first wave of the pandemic [B=-2.08 (95% CI: -3.22, -0.93)] were significantly associated with adherence to regular COVID-19 preventive behavior.

Conclusion: This study underscores the prevalence of COVID-19-related myths and misinformation among hospitalized patients in Chattogram, Bangladesh, impacting both risky and preventive behaviors. The results emphasize the urgent need for tailored public health education and strategies in Bangladesh to combat misinformation and promote compliance with recommended preventive measures, thereby facilitating effective pandemic management in resource-limited settings.

Keywords: COVID-19, Myths, Misinformation, Risky Behavior, Preventive Behavior.

Introduction

The World Health Organization (WHO) has declared coronavirus disease 2019 (COVID-19) a pandemic, presenting significant challenges to health systems, economies, and food supplies worldwide, profoundly impacting people's lives.[1-5] According to the latest data from the WHO, as of 6 am GMT +6 on June 13, 2022, there have been 532 million confirmed cases of COVID-19 and 6.3 million reported deaths globally.[6] The first case in Bangladesh was reported on March 8, 2020.[7] To date, Bangladesh has recorded 1,953,935 confirmed cases of COVID-19 with 29,131 deaths reported to the WHO.[8]

Bangladesh, being a densely populated country with limited healthcare resources and infrastructure, faces significant challenges in controlling the pandemic without robust public response, despite various non-pharmacological measures implemented by the Government of Bangladesh (GoB).[9] Misinformation has emerged as a critical issue in Bangladesh, impacting not only COVID-19 but also other social, political, and religious matters.[10] Studies on COVID-19 and the "infodemic" on social media have highlighted platforms like Twitter, Facebook, YouTube, and Instagram as primary sources of health-related misinformation globally. Similar trends have been observed in Bangladesh, with misinformation circulating widely on social media platforms, promoting false beliefs such as the consumption of black cumin, ginger, clove, drinking hot water, and spraying bleaching powder as preventive measures against COVID-19.[10-12]

Moreover, existing literature and experiences from past global outbreaks emphasize the crucial link between public awareness, attitudes, and preventive behaviors in managing infectious diseases.[13,14] Understanding the public's awareness and attitudes towards COVID-19 is essential for effective pandemic management in Bangladesh. Previous studies in the country have shed light on various demographic responses to the pandemic, revealing a diverse landscape of awareness, attitudes, and behaviors.[9,15-20] While some segments of the population exhibit poor knowledge and preventive practices, others demonstrate informed and proactive responses, notably among students, individuals with chronic illnesses, and frontline healthcare workers.[16-18] This complexity underscores the need for tailored public health interventions that consider the specific context of Bangladesh to address the challenges posed by the COVID-19 pandemic effectively.

To date, limited research has focused on evaluating the prevalence of myths, misinformation, risky behaviors, and preventive practices related to COVID-19 among hospitalized patients infected with the novel coronavirus in Chattogram, Bangladesh. Understanding these dynamics is crucial for identifying vulnerable communities that require targeted health promotion efforts.

By understanding the specific characteristics of Bangladesh and its population, public health authorities can develop evidence-based strategies that address the country's unique challenges and leverage its strengths to effectively respond to the COVID-19 pandemic. This study on myths, misinformation, risky behaviors, and preventive practices among COVID-19 patients in Chattogram will provide valuable insights for designing targeted interventions that meet the needs of the local population and contribute to the overall public health response in Bangladesh.

Objectives

This study aims to examining the prevalence of myths, misinformation, risky behaviors, and preventive practices among COVID-19 patients in Chattogram during the first and second waves of the pandemic.

Methods

This study utilized a quantitative research approach, employing a cross-sectional online survey among COVID-19 patients in Chattogram, Bangladesh. The study participants included all patients diagnosed with COVID-19 who were receiving treatment in hospitals or clinics after testing positive during the first and second waves of the pandemic. The online survey was conducted between August and December 2020 during the first wave and April to October 2021 during the second wave.

A convenient sampling method was utilized to select participants for this self-reported cross-sectional study due to limited funding and resources, which may be considered a study limitation. Patient lists with mobile numbers were obtained from dedicated COVID-19 hospitals and clinics. Approximately 1000 individuals were approached, resulting in responses from 469 individuals (a response rate of 46.9%). Out of these, 408 respondents (40.8% of those approached) were included in the analysis, with 61 samples excluded due to missing key variables.

Data collection was carried out using a validated self-administered questionnaire. Questions related to the prevalence of myths, misinformation, risky behaviors, and preventive measures regarding COVID-19 were derived from existing literature. A Google Form questionnaire was created and distributed to patients via messaging platforms like Messenger, WhatsApp, or IMO. Data collection facilitators were employed to assist patients who did not use social media apps through mobile interviews. Ten facilitators with previous data collection experience guided the survey process.

The content validity of the questionnaire was assessed by three experts in the field to ensure relevance to the study's objectives. Internal consistency was calculated to ensure reliability, with Cronbach's Alpha values indicating high internal accuracy reliability for the scales analyzed. The Alpha values for myths and misinformation-related items

(α=0.81) and risky and preventive behavior-related items (α=0.81) were considered good.

Responses regarding the prevalence of myths, misinformation, risky behaviors, and precautionary measures related to COVID-19 were recorded on five-point Likert-type scales. The section on COVID-19 myths and misinformation comprised 10 items, with scores ranging from 1 to 5 for varying levels of likelihood ('Extremely unlikely', 'unlikely', 'neutral', 'likely' and 'extremely likely'). The section on risky and preventive behaviors included eight items, with scores ranging from 1 to 6 for frequency levels ('not applicable', 'never', 'seldom', 'sometimes', 'often' and 'always'). Scores for negative statements were reversed in three sections for consistency.

The collected data were analyzed using IBM SPSS version 24.0. Descriptive statistics were employed to examine the overall percentage distribution and mean values concerning the prevalence of myths, misinformation, risky behaviors, and preventive measures related to COVID-19 among the respondents. Subsequently, independent-samples t-tests and Pearson correlations were utilized to compare the mean prevalence of myths, misinformation, risky behaviors, and precautionary measures related to COVID-19 among patients based on different socio-demographic characteristics. Variables with a significance level of $p<0.05$ in bivariate analyses were included in multiple linear regression models to identify predictors of the outcome variables. ANOVA values ($p<0.001$) for each section of the outcome variables indicated that the linear regression model performed effectively and could serve as a reliable predictor of the main outcome variables. Variables with a p-value < 0.05 in the regression analysis were deemed significant predictors.

Ethical approval for the study was obtained from the University of Chittagong's Ethical Review Board (No. CU SOC-21-0005). Informed consent was secured from all participants involved in the study. The study was conducted in accordance with the Declaration of Helsinki.

Results

Table 1 illustrates that among the respondents, 126 (30.9%) were female, and 282 (69.1%) were male. The mean age of the respondents was 38.72 (SD±14.20) years. Concerning the area of residence, more than two-thirds (280, 68.6%) lived in urban areas. Approximately one-third had attained an undergraduate degree (133, 32.6%), followed by graduate (121, 29.7%), HSC (77, 18.9%), and up to SSC (77, 18.9%). In terms of monthly income, more than a third had a monthly income of BDT 20001-40000 (139, 34.1%), followed by BDT 40001-60000 (125, 30.6%), > BDT 60000 (75, 18.4%), and up to BDT 20000 (69, 16.9%). Additionally, 98 (24%) were government employees, followed by private sector employees (79, 19.4%), students (58, 14.2%), housewives (55, 13.5%), business owners (49, 12%), and healthcare providers (26, 6.4%). Among the respondents, 299 (73.3%) were infected with coronavirus during the first wave of the pandemic, while 109 (26.7%) tested positive during the second wave. Furthermore, 124 (30.4%) reported watching TV or reading newspapers regularly, while 284 (69.6%) were irregular in their media consumption habits. Additionally, 116 (28.4%) used the internet for up to two hours daily, while 255 (62.5%) used it for more than two hours.

Moreover, Figure 1 highlights that TV was the primary source of COVID-19-related information for 47.8% of respondents, followed by Facebook (27.5%), family members (7.4%), friends/colleagues (6.1%), and newspapers (5.4%).

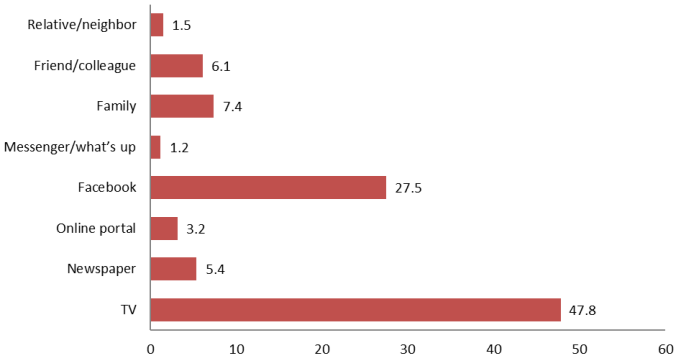

Figure 1. The study participants' key source of COVID-19 related information (%)

Table 2 reveals that half of the respondents (50.5%) had inaccurate knowledge regarding whether regular consumption of black cumin can prevent COVID-19, and over 60% had misconceptions about whether drinking hot water regularly can combat COVID-19. Additionally, around half of the respondents believed that Coronavirus could be eradicated by spraying bleaching powder (51%), and a similar proportion inaccurately thought that regular consumption of garlic (39.7%), ginger, and clove (60.5%) could prevent COVID-19 transmission. More than half of the respondents (56.1%) incorrectly believed that an infected individual would not spread the virus unless symptomatic, and approximately one-fifth (23%) agreed with the statement that being able to hold one's breath for ten seconds without difficulty indicated the absence of COVID-19.

Table 3 indicates that over two-thirds of respondents (69.7%) reported always wearing a face mask when outside

before contracting COVID-19. Moreover, around half of the respondents (49%) maintained social distancing while outdoors, while a small percentage (6.4%) went shopping or to the market daily. Furthermore, more than two-thirds of respondents (68.2%) reported washing their hands with soap and water upon returning home or after contact with hazardous substances, and half of the respondents (50%) used hand sanitizer while outside.

Table 1. Descriptive characteristics of the study participants.

Characteristics (*N* = 408)	Categories	Number	Percentage
Gender	Female	126	30.9
	Male	282	69.1
Age (Mean 38.72 years, SD ±14.20)	>18-25 years	82	20.1
	>25-35 years	127	31.1
	>35-50 years	109	26.7
	>50 years	90	22.1
Area of residence	Rural	76	18.6
	Semi urban	52	12.7
	City	280	68.6
Marital status	Single/divorced	123	30.1
	Married	285	69.9
Family size	Up to 4	159	39.0
	5-6	157	38.5
	> 6	92	22.5
Educational status	Up to SSC	77	18.9
	HSC	77	18.9
	Undergraduate	133	32.6
	Graduate	121	29.7
Occupational status	Housewife	55	13.5
	No job	13	3.2
	Student	58	14.2
	Jobless due to pandemic	8	2.0
	Business	49	12.0
	Government service	98	24.0
	Private service	79	19.4
	Healthcare provider	26	6.4
	Others	22	5.4
Family income	Up to BDT 20000	69	16.9
	BDT 20001-40000	139	34.1
	BDT 40001-60000	125	30.6
	> BDT 60000	75	18.4
Time of infection during the pandemic	First wave	299	73.3
	Second wave	109	26.7
Media use	Regular	124	30.4
	Irregular	284	69.6
Internet use	Up to 2 hours	153	37.5
	> 2 hours	255	62.5

The analysis of variance and coefficients, along with the model summary and ANOVA for the multiple linear regression predicting respondents' lower prevalence of myths, misinformation, risky behaviors, and precautionary behaviors related to COVID-19 among the respondents, are presented in Table 4. Among the

predictor variables, respondents with a family income of more than BDT 50000, regular media use, and exposure to the second wave of the COVID-19 pandemic were associated with a lower prevalence of COVID-19-related myths and misinformation. These factors made significant contributions to the regression model (F=14.12, df=8/407, p<0.001) and accounted for 22% of the variations in the outcome variable.

Furthermore, factors such as being female, residing in urban areas, using online media as the primary source of COVID-19 information, and being infected during the first wave of the COVID-19 pandemic were significantly correlated with adherence to lower risky behaviors and better preventive behaviors concerning COVID-19. These variables also made significant contributions to the regression model (F=11.57, df=10/407, p<0.001) and explained 23% of the variations in the outcome variable.

Table 2. Study participants' COVID-19-related myth and misinformation-related items

Item	Likely n (%)	Neutral n (%)	Unlikely n (%)
Regular consumption of black cumin can prevent COVID-19	206 (50.5)	136 (33.3)	66 (16.2)
Drinking hot water regularly can prevent COVID-19	251 (61.5)	73 (17.9)	84 (20.6)
Coronavirus can be killed by spraying bleaching powder	208 (51.0)	134 (32.8)	66 (16.2)
Eating garlic can prevent COVID-19	162 (39.7)	161 (39.5)	85 (20.8)
Regular consumption of ginger and clove can prevent COVID-19	247 (60.5)	93 (22.8)	68 (16.7)
If someone is infected with COVID-19, he will not infect others unless he has symptoms	57 (14.0)	122 (29.9)	229 (56.1)
KN-95 is the most effective mask	257 (63.0)	101 (24.8)	50 (12.3)
If you use rubber gloves when you are outside, there is no possibility of corona	159 (39.0)	122 (29.9)	127 (31.1)
If a person can hold his breath for 10 seconds without any difficulty, then it must be understood that he did not have corona	94 (23.0)	220 (53.9)	94 (23.0)
Corona virus can spread from shoes	202 (49.5)	159 (39.0)	47 (11.5)

Table 3. Study participants' risky and preventive behavior of COVID-19

Item	Always n (%)	Often/Sometimes n (%)	Rarely/Never n (%)	NA n (%)
Wearing a mask while out of the house before being infected with corona	284 (69.6)	65 (15.9)	19 (4.7)	40 (9.8)
Maintaining social distances while being out of the house before you get infected with corona	200 (49.0)	137 (33.6)	24 (5.9)	47 (11.5)
Going out of the house for work or livelihood needs before you get infected with corona	138 (33.8)	113 (27.7)	84 (20.6)	73 (17.9)
Going out to the market or shopping before you get infected with corona	26 (6.4)	171 (41.9)	134 (32.8)	77 (18.9)
Wash your hands with soap and water before coming to the house from outside or touching any hazardous substance	278 (68.1)	82 (20.1)	9 (2.2)	39 (9.6)
Use sanitizer or soap while you are out before you have corona	204 (50.0)	138 (33.9)	24 (5.9)	42 (10.3)
Hang out without urgent need before you get infected with corona	5 (1.2)	75 (18.3)	326 (79.9)	2 (0.5)
Use public transportation (bus, tempo, train, launch) before you get infected with corona	35 (8.6)	92 (22.5)	240 (58.9)	41 (10.)

Table 4. Multiple linear regression analysis depicting factors associated with better knowledge, preventive behavior, and self-efficacy toward COVID-19

Variables	Myths and Misinformation	Risky and Preventive Behavior
	B (95% CI)	B (95% CI)
Gender [a‡]	-	-4.33 (-5.41, -3.26)***
Age [b‡]	-	0.04 (-0.01, 0.08)
Area of residence [c]	1.11 (-0.13, 2.35)	1.73 (0.69, 2.77)**
Marital status [d‡]	-	0.79 (-0.44, 2.02)
Educational status [e]	1.23 (-0.09, 2.55)	0.02 (-1.07, 1.11)
Occupational status [f]	0.81 (-0.37, 2.00)	-0.40 (-1.49, 0.69)
Family income [g‡]	1.51 (0.27, 2.74)*	-
Media use [h]	2.70 (1.41, 4.00)***	-1.04 (-2.12, 0.04)
Internet use [i]	0.61 (-0.68, 1.91)	0.77 (-0.41, 1.94)
Source of COVID-19 information [j]	-1.19 (-2.50, 0.11)	1.16 (0.02, 2.30)*
Time of being infected during the pandemic [k]	3.15 (1.80, 4.49)***	-2.08 (-3.22, -0.93)***
R^2	22%	23%
F	14.12***	11.57***

‡The variables were not included for linear regression predicting the knowledge of COVID-19 as p values were > 0.05 in bivariate analyses.

‡ The variables were not included for linear regression predicting the preventive behavior of COVID-19 as p values were > 0.05 in bivariate analyses. * $p < .05$; ** $p < .01$; *** $p < .001$; CI = Confidence Interval

[a]1 = Female, 2 = Male; [b]Continuous variable; [c]1 = Rural/semi-urban, 2 = City; [d]1 = Single/divorced, 2 = Married; [e]1 = Up to HSC, 2 = Honors/Masters; [f]1 = Low, 2 = High; [g]1 = Up to BDT 50000, 2 = BDT 50000; [h]1 = Irregular, 2 = Regular; [i]1 = Up to 2 hours, 2 = > 2 hours; [j]1 = Mainstream media/personal, 2 = Online media; [k]1 = First wave, 2 = Second wave.

Discussion

The findings presented in Table 1 indicate that just under half (184, 45%) of the COVID-19 patients demonstrated a good level of knowledge regarding the virus. The level of poor knowledge observed in our current study aligns with similar findings from studies conducted in Bangladesh,[16,19] India,[21] Nepal,[22] and Ethiopia.[23] However, some previous studies from Bangladesh,[17,20] Pakistan,[24] Nepal,[25] Malaysia,[26] China,[27] Saudi Arabia,[28] Iran,[29] Canada,[30] Kenya[31] and Rwanda[32] have reported higher levels of knowledge compared to our findings. It is worth noting that the participants in our study were either hospitalized or had contact with healthcare providers after contracting the virus, giving them access to various reliable sources of information, which would be expected to result in a higher knowledge level. Our results even show lower knowledge levels compared to some studies conducted in Bangladesh.[15,33,34] The observed differences within and outside the country may be attributed to variations in study settings, socio-demographic characteristics including educational qualifications, and disparities in access to reliable information sources. Additionally, it could be inferred that there is a lack of education within hospitals and the healthcare system in Bangladesh when it comes to creating awareness about the pandemic.

One consequence of poor knowledge is the spread of different myths, as outlined in Table 2, during the COVID-19 pandemic. Previous studies have shown that people engage in irrational behaviors due to myths not only at the onset of the outbreak but also throughout the pandemic.[35,36] Our study also revealed the existence of numerous myths among the studied populations. For instance, around half of the patients believed that regular consumption of black cumin, ginger, and clove, drinking hot water, and spraying bleaching powder can prevent coronavirus. Furthermore, a significant portion of respondents considered shoes to be a deadly disseminator, potentially stemming from their lack of accurate knowledge about the virus. Additionally, about one-third of respondents cited online and social media as their primary source of information on COVID-19. Unreliable social media posts were often identified as misleading and fabricated, with opinions varying based on the source of information. Posts from relatives, friends, and influencers were deemed less reliable compared to those from government or public health institutions. Misinformation spreads rapidly on social media due to its nature as a platform for quick responses with open posting and limited control and monitoring.[29,30]

Evidence suggests that public knowledge and adherence to personal protective measures [as shown in Table 3] play

a crucial role in epidemic control. Therefore, health authorities have taken essential steps to consistently disseminate accurate information to manage and control public preventive behavior.[37] Recommendations such as washing hands, avoiding handshaking, refraining from touching the face with unwashed hands, and wearing masks have been put forth by the WHO and the GOB as key preventive measures for managing the COVID-19 pandemic.[17,38,39] Despite these recommendations, more than half (216, 53%) of the COVID-19 patients in our study reported high levels of adherence to preventive behavioral practices. This finding is consistent with studies conducted in Bangladesh and other countries.[16,17,19] However, several studies conducted in in Bangladesh,[33] Pakistan,[24] Nepal,[22,25] China,[33] Saudi Arabia,[25] Iran,[29] Canada,[30] Kenya,[31] and Rwanda[32] reported higher levels of adherence to preventive behaviors among the population.

On the contrary, a study by Paul et al.,[34] found a lower level of adherence to preventive behavioral practices among the Bangladeshi population. This disparity may be attributed to differences in background attributes, study settings, and study participants across the various studies. Our study findings from Table 3 revealed that one-third of the participants did not consistently use masks while outside their homes before testing positive for coronavirus, did not wash hands with soap upon returning home, ignored social distancing measures, and neglected regular use of sanitizer. These findings indicate a significant portion of the population was reluctant to adopt precautionary behaviors and practices prior to contracting SARS-CoV-2.

Factors influencing the prevalence of myths, misinformation, and risky or preventive behaviors related to COVID-19 were also explored in Table 4. The findings indicated that residing in urban areas was associated with better adherence to COVID-19 preventative practices, which is consistent with previous research.[16,22,33,41] Urban residents often have higher health literacy levels and are exposed to more health-related information, contributing to their improved knowledge.[27] Additionally, our study found a correlation between family income and lower prevalence of coronavirus-related myths and misinformation among patients, aligning with existing literature.[16,28] Individuals with higher incomes tend to exhibit greater professionalism in dealing with COVID-19, possibly due to their higher education levels and better access to various sources of information like mass media and online platforms. This enables them to comprehend and act upon provided information more effectively.

According to the findings presented in Table 4, regular media and internet use were identified as factors influencing a lower prevalence of coronavirus-related myths and misinformation among respondents, aligning with a previous study conducted in Bangladesh.[16] Since the onset of the pandemic, the media has played a crucial role in disseminating essential information required to combat the virus. Our study, depicted in Figure 1, revealed that the public primarily receives information from television and Facebook. This observation underscores the importance of utilizing mainstream media, particularly television, as a key medium for rapidly and accurately transmitting COVID-19-related information. The study's outcomes, consistent with prior research, demonstrate a significant correlation between respondents who primarily accessed COVID-19 information through the internet and social media and their reduced susceptibility to myths, misinformation, and risky behaviors.[25]

Furthermore, our study data [Table 4] indicated that COVID-19 patients affected during the second wave were less likely to believe in myths and misinformation about the pandemic. This trend may be attributed to the extensive dissemination of misinformation, conspiracy theories, and fake news via social networking sites during the initial wave of the pandemic.[10] Many of these myths were later debunked by reputable sources such as the WHO, government agencies, and mainstream media, leading to a more accurate understanding of the pandemic during the subsequent wave. However, it is important to note that these myths have not been entirely eradicated.

Despite these insights, the study has several limitations. Firstly, the use of convenience sampling was necessitated by limited funds and resources, as opposed to random sampling. Secondly, the cross-sectional design of the study makes it challenging to establish causality. Lastly, due to resource constraints, data collection was restricted to a few hospitals and employed an online survey method, potentially impacting the generalizability of the study's findings, although efforts were made to include participants from diverse backgrounds.

Conclusions

Accurate knowledge and adherence to recommended health precautions are crucial in curbing the rampant spread of COVID-19 in resource-limited countries like Bangladesh. A concerning finding from our study revealed that over half of COVID-19 patients subscribed to myths and misinformation about the virus, indicating a higher prevalence compared to previous reports. These misconceptions contributed to a lack of preventive

behaviors among patients prior to contracting the virus, such as reluctance to wear masks, practice proper hand hygiene, maintain social distancing, and use hand sanitizer regularly.

Factors such as higher education levels, urban residency, older age, elevated occupational status, regular media and internet use, and being affected during the second wave of the pandemic were associated with a reduced likelihood of believing in myths and misinformation, engaging in risky behaviors, and exhibiting better adherence to preventive measures against COVID-19.

Our study underscores the urgent need for enhanced public health policies and educational initiatives in Bangladesh to combat the spread of COVID-19 misinformation. It recommends that public health authorities prioritize the dissemination of clear and accurate information about the virus, particularly targeting regions heavily influenced by false information, notably on social media platforms. Additionally, targeted interventions are necessary in urban and lower-income communities where knowledge and compliance with preventive measures vary based on demographic and socioeconomic factors.

Furthermore, the study advocates for increased collaboration among health authorities, media outlets, and social media platforms to deliver evidence-based information and counteract myths effectively. It emphasizes the crucial role of healthcare providers and community leaders as trusted sources for educating the public on COVID-19 and preventive practices. Ongoing research is also recommended to evaluate the efficacy of these strategies and adapt them as needed to ensure their continued relevance and impact as the pandemic evolves.

Acknowledgment

The authors are thankful to all the patients who participated voluntarily in the study and to the hospital and clinic authorities for their support in data collection.

Competing interests

The authors declare that they have no competing interests.

Abbreviations

Severe acute respiratory syndrome coronavirus 2: SARS-CoV-2; Coronavirus disease 2019: COVID-19;

World Health Organization: WHO;

Government of Bangladesh: GoB.

Authors' contributions

All authors read and approved the final manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis.

Funding

Financial support for this study was provided by the Research and Publication Office of the University of Chittagong (Grant No. 103/2021).

Role of the funding source

None.

Availability of data and materials

The data used in this study are available from the corresponding author on request.

Ethics approval and consent to participate

Ethical approval for the study was obtained from the University of Chittagong's Ethical Review Board (No. CU SOC-21-0005). Informed consent was secured from all participants involved in the study. The study was conducted in accordance with the Declaration of Helsinki.

Consent for publication

By submitting this document, the authors declare their consent for the final accepted version of the manuscript to be considered for publication.

References

1. World Health Organization (WHO). World Health Organization Coronavirus Disease (COVID-19) Pandemic. Available online: https://www.who.int/emergencies/diseases/novel-coronavirus-2019 (accessed on 17 September 2020).
2. Caroppo E, Mazza M, Sannella A, Marano G, Avallone C, Claro AE, et al. Will Nothing Be the Same Again?: Changes in Lifestyle during COVID-19 Pandemic and Consequences on Mental Health. Int J Environ Res Public Health. 2021;18(16):8433. doi:10.3390/ijerph18168433 PMid:34444180 PMCid:PMC8393535
3. Koksoy Vayisoglu S, Aydin Besen M, Oncu E. Perspectives of midwifery and nursing students on recommending the COVID-19 vaccine to women of reproductive age and factors influencing counseling competency: a cross-sectional study. J Prev Complement Med. 2024; 3(1): 1-11. doi: 10.22034/ncm.2023.418212.1133
4. Jones EAK, Mitra AK, Bhuiyan AR. Impact of COVID-19 on Mental Health in Adolescents: A Systematic Review. Int J Environ Res Public Health. 2021;18(5):2470. doi:10.3390/ijerph18052470 PMid:33802278 PMCid:PMC7967607
5. Ben Hassen T, El Bilali H, Allahyari MS. Impact of COVID-19 on Food Behavior and Consumption in Qatar. Sustainability. 2020; 12:6973. doi:10.3390/su12176973
6. World Health Organization (WHO). Coronavirus (COVID-19) Data. WHO: Geneva, Switzerland, 2022; Available online: https://www.who.int/data (accessed on 14 June 2022).

7. Islam J, Guo X, Ali MA, Islam MA, Qi X, Zhuang G. Spatial Pattern of COVID-19 in Bangladesh: An Ecological Study. BMJ Open. 2021;11:e047566. doi:10.1136/bmjopen-2020-047566 PMCid:PMC8718340
8. World Health Organization (WHO). Bangladesh Situation. WHO: Geneva, Switzerland, 2022; Available online: https://covid19.who.int/region/searo/country/bd (accessed on 14 June 2022).
9. Hosen I, Pakpour AH, Sakib N, Hussain N, Al Mamun F, Mamun MA. Knowledge and Preventive Behaviors Regarding COVID-19 in Bangladesh: A Nationwide Distribution. PLoS One. 2021;16: e0251151. doi:10.1371/journal.pone.0251151 PMid:33939763 PMCid:PMC8092662
10. Aziz A, Islam MM, Zakaria M. COVID-19 Exposes Digital Divide, Social Stigma, and Information Crisis in Bangladesh. Media Asia. 2020;47:144-151. doi:10.1080/01296612.2020.1843219
11. Cinelli M, Quattrociocchi W, Galeazzi A, Valensise CM, Brugnoli E, Schmidt AL, et al. The COVID-19 Social Media Infodemic. Sci Rep. 2020;10:1-8. doi:10.1038/s41598-020-73510-5 PMid:33024152 PMCid:PMC7538912
12. Shawapon HR. Corona niye gujob rotonakarider shashtir dabi (Punishment for Corona Virus Rumor Spreaders). DW. 2020; Available online: https://p.dw.com/p/3ZO19.
13. Person B, Sy F, Holton K, Govert B, Liang A. Fear and stigma: the epidemic within the SARS outbreak. Emerg Infect Dis. 2004; 10 (2):358-363. doi:10.3201/eid1002.030750 PMid:15030713 PMCid:PMC3322940
14. Tao N. An Analysis on Reasons of SARS-Induced Psychological Panic Among Students. J Anhui Institute Educat. 2003;21:78-79.
15. Abir T, Kalimullah NA, Osuagwu UL, Yazdani DMNA, Mamun AA, Husain T, et al. Factors Associated with the Perception of Risk and Knowledge of Contracting the SARS-Cov-2 Among Adults in Bangladesh: Analysis of Online Surveys. Int J Environ Res Public Health. 2020;17:5252. doi:10.3390/ijerph17145252 PMid:32708161 PMCid:PMC7400220
16. Ferdous MZ, Islam MS, Sikder MT, Mosaddek ASM, Zegarra-Valdivia JA, Gozal D. Knowledge, Attitude, and Practice Regarding COVID-19 Outbreak in Bangladesh: An Online-Based Cross-Sectional Study. PLoS One. 2020;15:e0239254. doi:10.1371/journal.pone.0239254 PMid:33035219 PMCid:PMC7546509
17. Hossain MB, Alam MZ, Islam MS, Sultan S, Faysal MM, Rima S, et al. Do knowledge and attitudes matter for preventive behavioral practices toward the COVID-19? a cross-sectional online survey among the adult population in Bangladesh. Heliyon. 2020;6:e05799. doi:10.1016/j.heliyon.2020.e05799 PMid:33363262 PMCid:PMC7751379
18. Paul A, Sikdar D, Hossain MM, Amin MR, Deeba F, Mahanta J, et al. Knowledge, Attitudes, and Practices Toward the Novel Coronavirus Among Bangladeshis: Implications for Mitigation Measures. PLoS One. 2020;15:e0238492. doi:10.1371/journal.pone.0238492 PMid:32877449 PMCid:PMC7467312
19. Rahman SMM, Akter A, Mostary KF, Ferdousi S, Ummon IJ, Mubdi-Un-Naafi S, et al. Assessment of knowledge, attitudes and practices towards prevention of coronavirus disease (COVID-19) among Bangladeshi population. Bangladesh Med Res Council Bull. 2020;46(2):73-82. doi:10.3329/bmrcb.v46i2.49015
20. Munia AT, Sikdar KYK, Haque MA, Islam MA, Sarkar MR. Assessment of Bangladeshi People's Knowledge, Awareness, Precautionary Behavior and Preventive Actions During the COVID-19 Pandemic: A Cross-Sectional Survey. Malays J Med Health Sci. 2021;17:225-233.
21. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of Knowledge, Attitude, Anxiety & Perceived Mental Healthcare Need in Indian Population During COVID-19 Pandemic. Asian J Psychiatry. 2020;51:1-7. doi:10.1016/j.ajp.2020.102083 PMid:32283510 PMCid:PMC7139237
22. Devkota HR, Sijali TR, Bogati R, Clarke A, Adhikary P, Karkee R. How Does Public Knowledge, Attitudes, and Behaviors Correlate in Relation to COVID-19? A Community-Based Cross-Sectional Study in Nepal. Front Public Health. 2021;8:1-7. doi:10.3389/fpubh.2020.589372 PMid:33520911 PMCid:PMC7842277
23. Degu A, Nibret G, Gebrehana H, Getie A, Getnet B. Knowledge and Attitude Towards the Current Pandemic Corona Virus Disease and Associated Factors Among Pregnant Women Attending Antenatal Care in Debre Tabor General Hospital Northwest Ethiopia: An Institutional-Based Cross-Sectional Study. Int J Women's Health. 2021;13:61-71. doi:10.2147/IJWH.S285552 PMid:33447093 PMCid:PMC7802825
24. Raza A, Ali Q, Hussain T. Role of Knowledge, Behavior, Norms, and E-Guidelines in Controlling the Spread of COVID-19: Evidence from Pakistan. Environ Sci Pollut Res. 2021;40329-40345. doi:10.1007/s11356-020-10931-9 PMid:33011950 PMCid:PMC7532951
25. Tamang N, Rai P, Dhungana S, Sherchan B, Shah B, Pyakurel P, et al. COVID-19: A National Survey on Perceived Level of Knowledge, Attitude and Practice Among Frontline Healthcare Workers in Nepal. BMC Public Health. 2020;20:1-10. doi:10.1186/s12889-020-10025-8 PMid:33317486 PMCid:PMC7734608
26. Puwaneswarry M, Nathratul Ayeshah Z, Gaaitheri K, Lim KQ, Tang SL, Ng CG, et al. Development of Knowledge, Attitudes, and Practices (KAP) Towards COVID-19 Pandemic in Malaysia. Med Health. 2020;15:262-275. doi:10.17576/MH.2020.1502.23
27. Yue S, Zhang J, Cao M, Chen B. Knowledge, Attitudes and Practices of COVID-19 Among Urban and Rural Residents in China: A Cross-Sectional Study. J Commun Health. 2021;46:286-291. doi:10.1007/s10900-020-00877-x PMid:32757087 PMCid:PMC7403196
28. Bazaid AS, Aldarhami A, Binsaleh NK, Sherwani S, Althomali OW. Knowledge and Practice of Personal Protective Measures During the COVID-19 Pandemic: A Cross-Sectional Study in Saudi Arabia. PLoS One. 2020;15:e0243695. doi:10.1371/journal.pone.0243695 PMid:33306718 PMCid:PMC7732079
29. Honarvar B, Lankarani KB, Kharmandar A, Shaygani F, Zahedroozgar M, Rahmanian Haghighi MR, et al. Knowledge, Attitudes, Risk Perceptions, and Practices of Adults Toward COVID-19: A Population and Field-Based Study from Iran. Int J Public Health. 2020;65:731-739. doi:10.1007/s00038-020-01406-2 PMid:32583009 PMCid:PMC7311321

30. Parsons Leigh J, Fiest K, Brundin-Mather R, Plotnikoff K, Soo A, Sypes EE, et al. A National Cross-Sectional Survey of Public Perceptions of the COVID-19 Pandemic: Self-Reported Beliefs, Knowledge, and Behaviors. PLoS One. 2020;15:e0241259. doi:10.1371/journal.pone.0241259 PMid:33095836 PMCid:PMC7584165
31. Karijo E, Wamugi S, Lemanyishoe S, Njuki J, Boit F, Kibui V, et al. Knowledge, Attitudes, Practices, and the Effects of COVID-19 Among the Youth in Kenya. BMC Public Health. 2021;21:1-13. doi:10.1186/s12889-021-11067-2 PMid:34053442 PMCid:PMC8164891
32. Iradukunda PG, Pierre G, Muhozi V, Denhere K, Dzinamarira T. Knowledge, Attitude, and Practice Towards COVID-19 Among People Living with HIV/AIDS in Kigali, Rwanda. J Commun Health. 2021;46:245-250. doi:10.1007/s10900-020-00938-1 PMid:33106963 PMCid:PMC7587540
33. Hossain MA, Jahid MIK, Hossain KMA, Walton LM, Uddin Z, Haque MO, et al. Knowledge, Attitudes, and Fear of COVID-19 During the Rapid Rise Period in Bangladesh. PLoS One. 2020;15:e0239646. doi:10.1371/journal.pone.0239646 PMid:32970769 PMCid:PMC7514023
34. Paul A, Nath TK, Mahanta J, Sultana NN, Kayes AI, Noon SJ, et al. Psychological and Livelihood Impacts of COVID-19 on Bangladeshi Lower Income People. Asia Pacific J Public Health. 2021;33:100-108. doi:10.1371/journal.pone.0238492 PMid:32877449 PMCid:PMC7467312
35. Zhao A, Li Z, Ke Y, Huo S, Ma Y, Zhang Y, et al. Dietary Diversity Among Chinese Residents During the COVID-19 Outbreak and Its Associated Factors. Nutrients. 2020;12:1699. doi:10.3390/nu12061699 PMid:32517210 PMCid:PMC7352896
36. Zhang J, Zhao A, Ke Y, Huo S, Ma Y, Zhang Y, et al. Dietary Behaviors in the Post-Lockdown Period and Its Effects on Dietary Diversity: The Second Stage of a Nutrition Survey in a Longitudinal Chinese Study in the COVID-19 Era. Nutrients. 2020; 12:3269. doi:10.3390/nu12113269 PMid:33114499 PMCid:PMC7693097
37. Takahashi S, Sato K, Kusaka Y, Hagihara A. Public Preventive Awareness and Preventive Behaviors During a Major Influenza Epidemic in Fukui, Japan. J Infect Public Health. 2017;10:637-643. doi:10.1016/j.jiph.2017.04.002 PMid:28529138
38. Anwar S, Nasrullah M, Hosen MJ. COVID-19 and Bangladesh: Challenges and How to Address Them. Front Public Health. 2020;8:1-8. doi:10.3389/fpubh.2020.00154 PMid:32426318 PMCid:PMC7203732
39. World Health Organization. Coronavirus Disease (COVID-19) Advice for the Public. WHO: Geneva, Switzerland, 2020; Available online: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public (accessed 02 May 2020).
40. Schiavo R. Health Communication: From Theory to Practice. John Wiley & Sons; 2013.
41. Hossain MJ, Kuddus MR, Rahman SA. Knowledge, Attitudes, and Behavioral Responses Toward COVID-19 During Early Phase in Bangladesh: A Questionnaire-Based Study. Asia Pac J Public Health. 2021;33:141-144. doi:10.1177/1010539520977328 PMid:33242975

How to Cite this Article:
Mazumder S, Bulbul M, Uddin AGM, Zakaria M. Prevalence of myths, misinformation, risky and preventive behaviors of COVID-19 among hospitalized patients infected with novel coronavirus in Bangladesh: A cross-sectional study. Int Arch Health Sci. 2024;11(2):69-78. doi: 10.48307/iahsj.2024.418547.1067