Perception and determinants of Social Networking Sites (SNS) on spreading awareness and panic during the COVID-19 pandemic in Bangladesh

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ABSTRACT

Introduction: The COVID-19 pandemic is an unprecedented and unique fallout worldwide and creates colossal disruption in human survival. During the pandemic, social networking sites (SNS) played a significant role in disseminating news related to the pandemic.

Methods: This research is based on primary data collected from 400 successful respondents via online Google Form. Bivariate Pearson's Chi-square and multivariate binary logistic regression analysis were performed to determine the impact of the explanatory variables on the study variables.

Results: This study reveals that most respondents (n = 360, 90 %) use SNS to get up-to-date news, and 72.5 % (n = 290) read health-related information. The highest number of participants (n = 386, 96.5 %) were Facebook users. Multivariate binary logistic regression reveals that "reading news on SNS" and "sharing information related to COVID-19 on social media" significantly influence the spread of awareness of COVID-19. "Unauthentic news sources" and "stop using social media to stay away from panic" also have a substantial impact on the spread of panic during the COVID-19 pandemic.

Conclusion: SNS has become an inevitable medium of information carrier nowadays. Social media users are found significantly aware of the COVID-19 pandemic. The findings of this study might assist the concerned persons in taking the necessary steps to propagate authentic news and regulate appropriate policies to prevent spreading misinformation.

1. Introduction

The Coronavirus disease (COVID-19), caused by severe acute respiratory coronavirus 2 (SARS-CoV-2), spreads rapidly worldwide, infecting over 180 million people with around 3.9 million deaths by July 5, 2021. Bangladesh registered the first three cases on March 8, 2020, and as of July 5, more than 950,000 cases and 15,000 deaths were reported across the country. Throughout this pandemic, different online portals, social networking sites (SNS), disease-related websites have circulated information and instructions about COVID-19 [1].

Social networking sites such as Twitter, Facebook, Instagram, and YouTube are powerful platforms for disseminating information world-wide as it is extensively used by a wide range of people [2,3]. For example, the World Health Organization (WHO) created a messaging service using SNS outlets such as Facebook and WhatsApp to answer questions regarding COVID-19 in 15 different languages [4]. In addition, Vietnam's Ministry of Health also established an official social media account to send messages to citizens about COVID-19 protection measures [5]. An analysis of Korean Twitter data found that people using the term "Coronavirus" in tweets communicated more frequently and helped spread information faster [6]. Starting from the first detection of the virus, Bangladesh began to organize daily press conferences. These were also aired live on social media and television channels of the country simultaneously every day. The government

of Macao SAR also did the same by disseminating information and keeping transparency of the situation [7]. A study found that citizen engagement is positively influenced by social media's latest crisis news and government event handling [8]. During the Pandemic, it was mandatory to wear masks regularly outside the home, which became a crucial factor for preventing the transmission of COVID-19. A study was conducted using the keyword "mask" where they analyzed more than four thousand tweets using the keyword and tweeters hashtags and popular tweets encouraged the public to wear masks [9].

People were and still find this COVID-19 period stressful. However, conventional and modern social media spread stress on online social gatherings more than the disease [10]. SNS are not always reliable regarding information shared by users, and evidence showed that it is a potential source of misinformation and unauthentic news during the pandemic [6,11]. Misinfodemics, which means the spread of false information during a pandemic with or without any maleficent intention, was observed more frequently during COVID-19. The spread of misinformation further deteriorates the situation and creates fears amongst citizens [10]. Various such information like the conspiracy theory of coronavirus being lab-made in China, different drugs and highly concentrated alcohol as treatment options, etc., are continuously circulated since the beginning of the pandemic [12–14]. Such news can spread fear and panic, and frequent exposure to fake information may lead to mass trauma leading to post-traumatic stress disorder (PSTD) among users [15].

In Bangladesh, currently, there are 45 million SNS users till January 2021 [16]. The most popular sites are Facebook and Twitter, followed by YouTube and Instagram [17]. Social media awareness campaign plays a crucial role in enlightening people about the consequences of the coronavirus. Such communication sites are the inevitable platform to spread the awareness and knowledge of COVID-19. Different public campaigns have been initiated focusing on the necessity of practicing hand hygiene and inappropriate usage of protective masks and sanitizer in a public place [18]. Recently, the United Nations Development Program (UNDP) Bangladesh launched an SNS campaign with the hashtag #MaskUpBangladesh to promote the use of masks.

Following the importance of social media, the current study is a modest attempt to investigate the impact of social media on the spread of awareness of COVID-19 during this pandemic in Bangladesh. We also estimated the effects of social media on creating panic among users in this crisis.

2. Methods

2.1. Survey design and participants

In this study, we used a cross-sectional questionnaire survey among Bangladeshi citizens aged 18 years or more who understood the contents of the questionnaire. This survey was conducted to collect primary data from June 15, 2020, to August 27, 2020. During this period, Bangladesh experienced the first wave of COVID-19. It was not feasible and advisable to conduct any personal interview for a survey in that situation. Therefore, the data was collected online using Google Forms via a social networking site, Facebook. A questionnaire was prepared, and a pilot survey was carried out on twenty respondents to detect any inconsistencies in the questionnaire. This survey was approved by the Ethical Review Committee of Noakhali Science and Technology University.

2.2. Questionnaire preparation

We developed a survey questionnaire with 29 questions organized into three sections. The first section was designed to obtain background information, including the socio-demographic characteristics

of the participants (6 questions). The second section of the survey included questions on the preference and use of social networking sites as a news source and the source of COVID-related news (8 questions). The third section consisted of questions that addressed the awareness and panic towards the current COVID-19 information on social networking sites (13 questions). In this study, the questions regarding possible influences on the awareness of COVID-19 were: "Social media is helpful during the lockdown", "Reading news on SNS", "Believe news on SNS, Share news related to COVID-19 on SNS", "Repeatedly seeing hygiene and healthy lifestyle info on SNS", "Visit COVID-19 information sites for updates", "Click on the link related to COVID-19 report", and "Ever purchased any medicine knowing information about COVID-19 treatment on SNS." The questions in the awareness model are considered following the research conducted by Liu, P.L., 2020, on "COVID-related information-seeking behaviour" [19–21] and peoples' news sharing behaviour [22]. The questions considered to have possible impacts on panic spread during COVID-19 were: "Sharing misleading information related to COVID-19 on SNS", "Getting confusing news", "Think to stop following confusing pages or groups on SNS", "Considered stopping using social media to stay away from panic", "Unauthentic news sources can mislead people". The design of the questions in this study is slightly extracted from the study examining the Fear of Missing Out (FoMO) relating to the misleading SNS [23] and research assessing the impact of misinformation during COVID-19 [15,24,25]. The questionnaire was designed in English and was pre-tested to ensure its quality and suitability with the statistical analysis. The questionnaire was arranged in yes/no responses and multiple-choice and was easily understandable.

2.3. Statistical analysis

The raw data collected for the research was preprocessed for statistical analysis. As the data was qualitative and categorical, nonparametric tests were performed throughout the study. At the very outset, a frequency distribution table of demographic and socio-economic variables was constructed to understand the background characteristics of the respondents. Pearson's Chi-square test was performed to ascertain the association between the target variable and explanatory variables. The variables found statistically significant in the bivariate Chi-square test were further considered for the multivariate analysis. Multivariate binary logistic regression analysis was performed to determine the direction and magnitude of the influence of explanatory variables on the response variable. The exponential of the logistic regression model parameters was the odds of the individual category of each exogenous variable [26]. The qualitative categorical data do not follow any distribution and the distributional assumption is unnecessary, and thus multivariate binary logistic regression model is appropriate for the current research.

3. Results

SNS plays a vital role in spreading news rapidly among people. During the COVID-19 pandemic, SNS became a popular way to get instant information worldwide. The demographic and socio-economic characteristics of the respondents who participated in this study are represented in Table 1. The maximum of the respondents belongs to the age group 20–30 years (n = 329, 82.3 %). Male and female respondents are 205 (51.2 %) and 195 (48.8 %), respectively. The study discloses that 191 (47.8 %) of the participants are postgraduate, and 182 (45.5 %) are graduates. Regarding occupation, highest number of respondents are students (n = 210, 52.5 %) following service holders (private) (n = 91, 22.8 %). As the SNS can be used through new electronic technology, older people are less susceptible to using these electronic devices. On the other hand, youngers are highly interested in using these devices, and it is known that most of the younger people

Table 1

Frequency distribution of respondents' demographic and socio-economic characteristics.

Variables	Categories	Frequency	Percent
Age	18–20	31	7.8
	20–30	329	82.3
	30–50	40	10
Gender	Male	205	51.2
	Female	195	48.8
Education Qualification	Illiterate	1	0.3
	Secondary	26	6.5
	Graduate	182	45.5
	Postgraduate or more	191	47.8
Occupation	Student	210	52.5
	Searching For job	49	12.3
	Service Holder (Private)	91	22.8
	Service Holder (Public)	28	7
	Business	3	0.8
	Home Maker	2	0.5
	Other	17	4.3
Place of Residence	Rural	94	23.5
	Urban	306	76.5
No. of family members	2–4	181	45.25
	5–8	197	49.25
	8 +	22	5.5
Monthly Family Income (In Taka)	≤20,000	113	28.2
	> 20,000–≤40,000	137	34.3
	> 40,000–≤50,000	76	19
	> 50,000 +	74	18.5

are students in Bangladesh. That is the reason a high percentage of the respondents in this study are students. The most significant number of respondents (n = 306,76.5 %) are currently living in urban areas. Maximum of the respondents (n = 197, 49.25 %) informed that of having family members 5–8. The highest number of the respondents (n = 137, 34.3 %) reported that their monthly family income was 20 k-40 k.

The information on the use of social networking sites by the respondents is presented in Table 2. It was observed that the maximum of the respondents (n = 360, 90 %) uses SNS to keep up to date with the world's news. Most people (n = 292, 73 %) look for news on SNS about infections and deaths due to COVID-19. Moreover, many respondents (n = 290, 72.5 %) read health news on SNS, followed by social news (n = 286, 71.5 %). Several respondents reported that they often visit the IEDCR website to get news related to COVID-19.

Fig. 1 represents the percentage of media used by the respondents to get up-to-date news about the pandemic. Fig. 1 also illustrates that a maximum number of the respondents use social networking sites (n = 360, 90 %) to get up-to-date information. A low percentage of users have access to the traditional news portal (television and newspaper).

The figure indicates that SNS is a popular information source among other conventional information portals. The percentage of SNS used by the respondents in this study is demonstrated in Fig. 2. The most popular SNS in Bangladesh is Facebook (n = 396, 95.5 %) followed by YouTube (n = 304, 76 %). Fig. 3 represents the most popular social networking sites worldwide, and it is observed from Fig. 3 that 2.7 billion people use Facebook, followed by YouTube (2.29 billion) and WhatsApp (2 billion) in 2021. Hence, both in the context of the world and Bangladesh, Facebook is most popular.

The majority of the respondents (n = 383,95.5 %) in the current study reported that social network sites (SNS) help spread the awareness of the COVID-19 pandemic (Table 3). Most of the respondents (n = 352, 88 %) read news related to COVID-19 from SNS. Many people (n = 312, 78 %) think that the information received from social networking sites is entirely up to their belief. Ninety-four percent of the participant (n = 376) support that the information like frequent

hand washing, maintaining social distance, using masks, following healthy lifestyles to boost immunity, etc. (hygiene info), repeatedly seeing on SNS helps raise awareness about the COVID-19 pandemic. 60.2 % of the respondents reported that they did not share any information related to COVID-19 during the pandemic. Table 3 represents Pearson's chi-square test of association between response and predictor variables in this study. A significant association (p < 0.05) was found between social media use during the lockdown and the spread of awareness of COVID-19. This study also reveals that reading news on SNS was substantially associated (p < 0.05) with the spread of awareness of the COVID-19 pandemic (Table 3). The variable "Believe news on SNS" is significantly associated with " SNS spread awareness of COVID-19 pandemic ". The association between sharing news related to COVID-19 and the spread of awareness of COVID-19 was found significant (p < 0.05). Information related to COVID-19 repeatedly seen on SNS significantly related to the spread of awareness of COVID-19.

In Table 4, hygiene info refers to frequent hand washing, maintaining social distance, using masks, following healthy lifestyles to boost immunity, etc. From Table 4, it was observed that most of the respondents (n = 344,86 %) reported that Sharing misleading information on SNS related to COVID-19 is confusing (p < 0.05), and 66.5 % of the respondents (n = 266) think to stop browsing those sites and found a significant association with the spread of panic. Moreover, several people (n = 203, 50.7 %) considered stopping using social media to stay away from the panic during the COVID-19 pandemic (p < 0.05) was also significantly associated with the spread of fear. Finally, it is found that unauthentic news source significantly misleads people (n = 306, 76.5 %) and lead to panic throughout the situation of the COVID-19 pandemic (p < 0.05).

Logistic regression analysis reveals that reading news on SNS has a significant impact on the spread of awareness of COVID-19 during the pandemic (p < 0.05) (Table 5). People who reported reading news on SNS are more than sixfold (OR:6.25, 95 % CI: 1.71–22.87) likely to be aware of the pandemic than those who do not read news on SNS. It is found from the study that sharing news related to COVID-19 on SNS has significant influences (p < 0.05) on the awareness of the COVID-19 pandemic. Moreover, people sharing news related to COVID-19 are eleven times more susceptible (OR: 11.22, 95 % CI: 1.89–66.41) to be aware of the pandemic than people not sharing news. People reporting SNS is helpful during lockdown are 3.81 times more likely to think that SNS is spreading the awareness of the COVID-19 pandemic than the respondents who reported SNS does not spread the awareness. Respondents who repeatedly see information (like frequent hand washing, maintaining social distance, using masks, following healthy lifestyles to boost immunity, etc.) on SNS are 4.03 times more likely to think that SNS is the way to spread awareness of the COVID-19 pandemic. Hosmer and Lemeshow test of goodness of fit (x^2 = 12.78, p = 0.12) provides that the binary logistic regression model of the perception of the spread awareness of COVID-19 fits the data well in this research.

The binary logistic regression analysis of the perception of panic during COVID-19 on the selected variable is presented in Table 6. The respondents who ever think to stop using social media to stay away from panic are about five times (OR: 4.82, 95 % CI: 0.89–5.26, p < 0.05) likelihood of suffering from panic during the COVID-19 pandemic compared to the respondents who do not think to stop following SNS.

Moreover, respondents believing unauthentic news sources can mislead people significantly impacted the panic during the COVID-19 pandemic (p < 0.05). Finally, the respondents who believe that unauthentic news sources can mislead people are a twelve times higher likelihood (OR:12.20, 95 % CI:3.93–38.87) of suffering from panic during the COVID-19 pandemic than those who do not believe such a statement. The result of the Hosmer and Lemeshow goodness

Table 2
SNS use information during the COVID-19 pandemic.

SNS user information		N	%	SNS user information		N	%
Getting up-to-date world news on				**Often visit websites**			
Television	No	229	57.2	IEDCR website	No	255	63.7
	Yes	171	42.8		Yes	145	36.3
Reading newspaper	No	288	72	WHO pandemic dashboard	No	250	62.5
	Yes	112	28		Yes	150	37.5
Social networking sites	No	40	10	Corona info-BD	No	290	72.5
	Yes	360	90		Yes	110	27.5
Kind of news read on SNS related to COVID-19				Worldometer	No	297	74.2
The number of infections and the death	No	108	27		Yes	103	25.8
	Yes	292	73	Others	No	348	87
Location of distributed case	No	184	46		Yes	52	13
	Yes	216	54	**Often visited SNS**			
Up to date information or press release by Govt	No	149	37.3	Facebook	No	14	3.5
	Yes	251	62.7		Yes	386	96.5
Vaccination information	No	131	32.8	Instagram	No	202	50.5
	Yes	269	67.2		Yes	198	49.5
Hospital and test facilities	No	148	37	Twitter	No	355	88.8
	Yes	252	63		Yes	45	11.2
Remedial information	No	288	72	Snapchat	No	368	92
	Yes	112	28		Yes	32	8
Kind of news read on SNS				Youtube	No	96	24
Social news	No	114	28.5		Yes	304	76
	Yes	286	71.5	Tiktok	No	391	97.8
Health news	No	110	27.5		Yes	9	2.2
	Yes	290	72.5	Linkedin	No	286	71.5
Technology	No	163	40.8		Yes	114	28.5
	Yes	237	59.2	Whatsapp	No	125	31.2
Political news	No	211	52.8		Yes	275	68.8
	Yes	189	47.2	Skype	No	341	85.2
Sports	No	240	60		Yes	59	14.8
	Yes	160	40	IMO	No	299	74.8
Miscellaneous	No	212	53		Yes	101	25.2
	Yes	188	47	Zoom	No	287	71.5
Good source of COVI-19 information					Yes	113	28.3
Facebook	No	63	15.7	LinkedIn	No	374	93.3
	Yes	338	84.3		Yes	27	6.7
Instagram	No	350	87.3	WhatsApp	No	356	88.8
	Yes	51	12.7		Yes	45	11.2
Twitter	No	372	92.8	Zoom	No	385	96
	Yes	29	7.2		Yes	16	4
YouTube	No	251	62.6	Others	No	394	98.3
	Yes	150	37.4		Yes	7	1.7

of fit test ($x^2 = 3.01$, p = 0.81) implies that the binary logistic regression model of the impact of SNS on the spread of panic during the COVID-19 pandemic fits the data well in this study.

4. Discussion

Social media is a powerful technology for information diffusion in the modern world. Social networking sites (SNS) are the potential server for disseminating information among the people and thus play a significant role in creating awareness during COVID-19 [11,27]. No studies based on the behavior of SNS users and its impact on COVID-19 awareness or panic were done yet in Bangladesh. This study aimed to understand the perception and role of SNS in spreading awareness and panic among Bangladeshi users by an online survey.

Due to country-wise lockdown all over the world, there was a rise in social media use also. Our study found that people were finding social media significantly useful during the lockdown time. Similar to our research, a study also found that COVID-19 was associated with more frequent and overuse of SNS and more significant SNS addiction [21]. People also use SNS for various coronavirus disease-related news and to understand the global perspective. In a study, data revealed that sharing information about physical activities on SNS during COVID-19 had significant positive feedback [28]. Moreover, it is also noted that there is a dispute on which social media provided better reliable information related to the ongoing pandemic. In our study, the majority of the participants were found using Facebook (96.5 %), YouTube (76 %), and WhatsApp (69 %) but Twitter (11.2 %) and other sites were not much popular among the study participants (Table 2). Similar to our findings, an online portal shows 92.16 % of Bangladeshi people use Facebook, followed by YouTube and Twitter [29]. Our observation showed a similar result with overall Bangladesh's SNS users preference, as Facebook and YouTube have the highest number of users in the country according to recent reports [30]. A large number of our participants informed that Facebook (84 %), YouTube (37 %), and Twitter (13 %) provide relatively valuable information related to COVID-19. Surveys of different countries also reported similar results like our study; a majority of participants found using Twitter and WhatsApp in Saudi Arabia [31,32] and Facebook, WhatsApp, YouTube in Jordan and Srilanka for COVID-19 related information and news [33]. In addition, most participants found using WhatsApp, line, Facebook in Indonesia also [3]. A Taiwanese survey among Facebook users also found that 80 % of 1904 participants mainly use the internet as a source of information about COVID-19 [34]. Interestingly, a Srilankan study also revealed that most citizens use Facebook, and this site is responsible for spreading fear and panic about the COVID-19 outbreak [32]. A study in America analyzes English-language conversations on 100 posts each on Reddit, YouTube, and
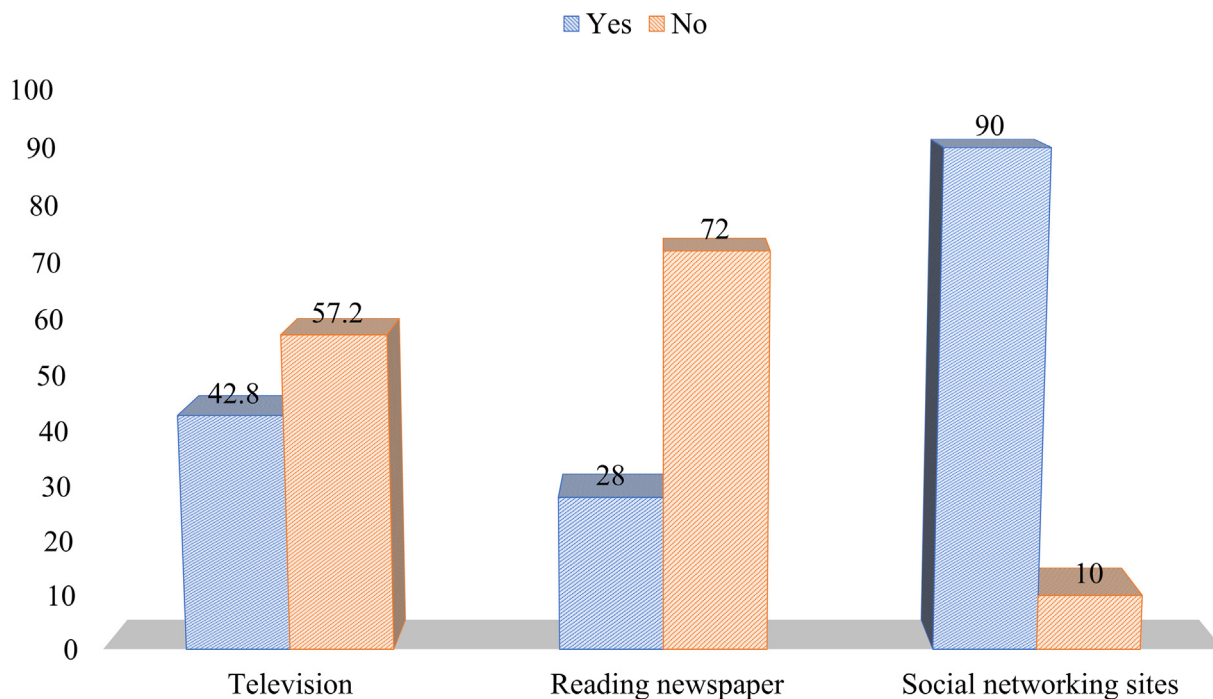
Fig. 1. Percentage of media users to get up-to-date news in Bangladesh.
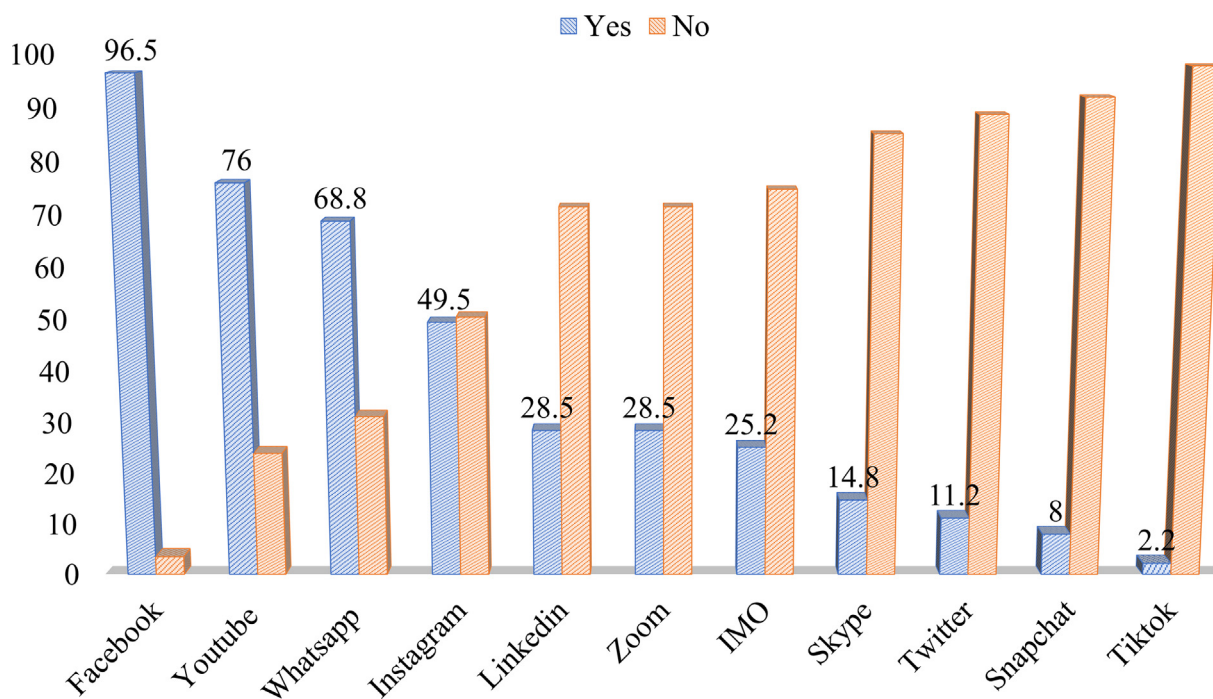

Fig. 2. Percentage of social media most frequently visited by the respondents in Bangladesh.

Facebook. They used a Social Identity Model of Individuation Effects (SIDE) and observed that among those sites, Reddit users were more frequently provided social support than the other two [26].

Most of our study participants admitted that they follow health-related news on SNS, and the majority of them also believed such information. Similar to our study, a US-based survey revealed that most social media users (638/1003, 63.6 %) were reluctant to fact-check what they see on the internet with a health professional, despite a high likelihood of COVID-19 misinformation on social media [35].

Similarly, a survey from Iraq also reported that 76.4 % (516 users) of participants read health news on SNS during COVID-19 [36]. Our data also showed that participants mostly search for "The number of infections and the death" followed by "Vaccination information" in the SNS. An analysis based on 2.8 million tweets on Twitter found four categorical themes have been widely tweets which involved the "origin of COVID-19", "the source of a novel coronavirus," "the impact of covid-19 on people and countries", and "methods of decreasing the spread of Covid-19" [37].
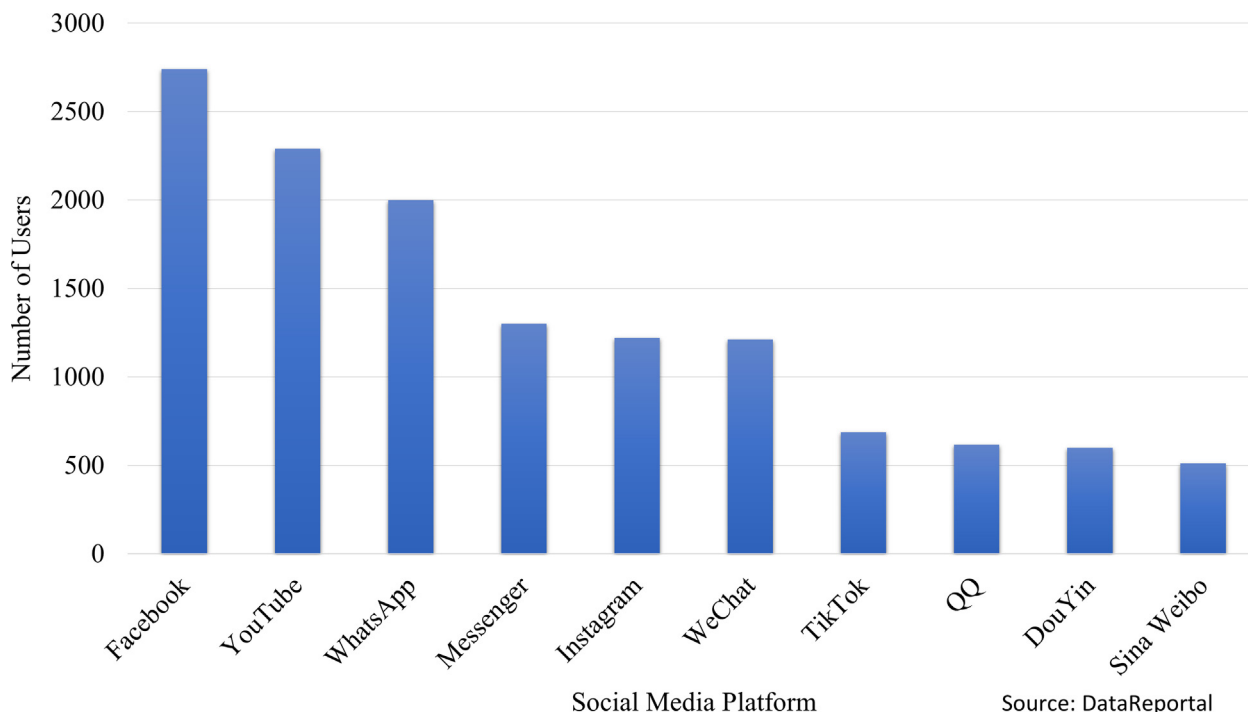
Fig. 3. Most popular social networking platform worldwide in 2021 (in million).

Table 3
Frequency distribution and test of association of the effect of SNS on spreading the awareness of COVID-19 pandemic with the selected variables.

Selected Variables	Categories	Frequency (%)	SNS spread awareness of COVID-19 pandemic			
			No (%)	Yes (%)	Chi- Square	P-value
SNS spread awareness of the COVID-19 pandemic	No	17(4.3)				
	Yes	383(95.5)				
Social media useful during lockdown	No	18(4.5)	5(28)	13(72)	25.639	0.000
	Yes	382(95.5)	12(3)	370(97)		
Reading news on SNS	No	48(12)	9(19)	39(81)	28.182	0.000
	Yes	352(88)	8(2)	344(97)		
Believe news on SNS	No	88(22)	8(9)	80(91)	6.497	0.017
	Yes	312(78)	9(3)	303(97)		
Share news related to COVID-19 on SNS	No	12(3)	5(42)	7(58)		
	Yes	318(79.5)	7(2)	311(98)	46.004	0.000
	May be	70(17.5)	5(7)	65(93)		
Repeatedly seeing hygiene and healthy lifestyle info on SNS	No	24(6)	5(21)	19(79)	17.254	0.002
	Yes	376(94)	12(3)	364(97)		
Visit COVID-19 information sites for updates	No	97(24.2)	4(4)	93(96)	0.005	0.603
	Yes	303(75.8)	13(4)	290(96)		
Click on the link related to COVID-19 info	No	190(47.5)	11(6)	179(94)	2.108	0.114
	Yes	210(52.5)	6(3)	204(97)		
Ever purchased any medicine knowing information about COVID-19 treatment on SNS	No	305(76.3)	16(5)	289(95)		
	Yes	95(23.7)	1(1)	94(99)	3.139	0.059

The impact of SNS on raising awareness about the COVID-19 pandemic is significantly high; 95.5 % of our study participants reported that SNS helps spread awareness regarding the COVID-19 pandemic. A study with 2555 participants explicates that social media platforms significantly influenced public health protection against the COVID-19 Pandemic [33]. Reading news connected to COVID-19 on SNS has a significant impact on spreading awareness of the pandemic. This study revealed that the respondents reading news on SNS are six times more susceptible to being aware of COVID-19. Moreover, news on SNS generally contains information regarding viral transmission and personal protection to avoid infection. An infographic about airway management of patients with suspected or confirmed COVID-19 was rapidly shared on Twitter and WeChat [38,39]. That's the reason reading news on SNS impacts the awareness of the COVID-19. In addition, SNS sig-

nificantly influences public health protection as well as awareness against the COVID-19 pandemic [33].

People sharing news about COVID-19 on SNS is significantly influenced the spread of awareness about the pandemic. Our findings suggest that the participants who share news related to COVID-19 have eleven times greater odds of being aware compared to the respondents who do not share any information. A study informed that 43 % of the participants share COVID-19 related information on SNS, and only 2 % forward the information without confirming and reading the sources [31]. A Bolivian study reported high exposure to COVID-19 news on SNS was associated with higher risk perception [40].

The current study confirms that stopping using SNS to avoid panic significantly influences the spread of fear during the lockdown. Our result also revealed that the respondents who considered stopping

Table 4

Frequency distribution and bivariate analysis of the effect of SNS on panic during COVID-19 pandemic with the selected variables.

Selected Variables	Categories	Frequency (%)	Misleading information related to COVID-19 on SNS spread fear and panic among the people			
Misleading information related to COVID-19 on SNS spread fear and panic	No	37(9.3)				
	Yes	363(90.8)	No (%)	Yes (%)	Chi-Square	p-value
Getting confusing news	No	56(14)	15(27)	41(73)	23.853	0.000
	Yes	344(86)	22(6)	322(94)		
Think to stop following confusing pages or groups on SNS	No	134(33.5)	23(17)	111(83)	15.035	0.000
	Yes	266(66.5)	14(5)	252(95)		
Considered stopping using social media to stay away from panic	No	197(49.3)	31(16)	166(84)	19.454	0.000
	Yes	203(50.7)	6(3)	197(97)		
Unauthentic news sources can mislead people	No	22(5.5)	9(41)	13(59)	36.881	0.000
	Yes	306(76.5)	16(5)	290(95)		
	May be	72(18)	12(17)	60(83)		

Table 5

Logistic regression analysis of the spread of the awareness of COVID-19 on SNS on the selected variables.

Selected Variables	B	S.E.	Exp(B)	95 % C.I. for EXP(B)		p-value
				Lower	Upper	
Social media useful during lockdown (Yes)	1.338	0.73	3.813	0.911	15.956	0.067
Reading news on SNS (Yes)	1.833	0.662	6.251	1.709	22.871	0.006
Believe news on SNS (Yes)	0.934	0.624	2.545	0.75	8.643	0.134
Share news related to COVID-19 on SNS (No)			1			0.027
Share news related to COVID-19 on SNS (Yes)	2.418	0.907	11.221	1.896	66.408	0.008
Share news related to COVID-19 on SNS (Maybe)	2.07	0.953	7.921	1.223	51.326	0.03
Repeatedly seeing hygiene and healthy lifestyle info on SNS (Yes)	1.393	0.818	4.026	0.81	20.013	0.089
Ever purchased any medicine knowing information about COVID-19 treatment on SNS (Yes)	1.106	1.075	3.024	0.368	24.845	0.303
Constant	−3.141	1.26	0.043			0.013

Reference Category: No

Table 6

Logistic regression analysis of panic among people during COVID-19 pandemic on the selected variables.

Selected Variables	B	S.E.	Exp(B)	95 % C.I. for EXP(B)		p-value
				Lower	Upper	
Getting confusing news (Yes)	0.771	0.453	2.163	0.89	5.255	0.089
Think to stop following confusing pages or groups on SNS (Yes)	0.619	0.437	1.856	0.788	4.371	0.157
Considered stopping using social media to stay away from panic (Yes)	1.573	0.499	4.82	1.812	12.82	0.002
Unauthentic news sources can mislead people (No)			1			0.000
Unauthentic news sources can mislead people (Yes)	2.502	0.578	12.201	3.931	37.866	0.000
Unauthentic news sources can mislead people (Maybe)	1.521	0.618	4.576	1.363	15.363	0.014
Constant	−1.138	0.594	0.321			0.055

Reference Category: No.

SNS for avoiding panic were about five times more likely to perceive that SNS spread panic during the pandemic than the respondents who did not consider stopping social media. A study among United States college students (n = 176) taking online classes during the pandemic revealed that pandemic-related stress was associated with changes in SNS addiction and the extent of one's SNS content. The findings also suggest that components of SNS use are associated with both positive and negative pandemic-related social outcomes but significantly negatively impact the pandemic-related emotional consequences [20].

A cross-sectional study on Chinese citizens revealed that more than 80 % of participants reported being frequently exposed to social media and was positively associated with high odds of anxiety [15]. Similarly, a study concluded that the high prevalence of anxiety and depression was strongly correlated with SNS exposure [41]. The unauthentic news on SNS substantially influences the spread of panic during the COVID-19 situation. A study of over 1.07 million Chinese texts by Chang and colleagues from various online sources identified that negative sentiments mainly came from online news with stigmatizing language linked with the COVID-19 Pandemic, and they concluded that online news served as a hotbed for disseminating negative emotional, social posts [42]. A study by Gao et al. (2020) revealed mental health problems are likely to be positively associated with frequent social media exposure during the COVID-19 outbreak [15].

During the COVID-19 pandemic, misinformation has been regarded as a foe of social networking sites. However, reports suggest that not only during the pandemic, but social media were also always disseminating inaccurate news without fact check, and most American social media have been struggling against such misinformation for a very long [43]. Misinformation and misleading news about COVID-19 on social media fuel baseless panic among many cybercitizens, creating confusion and hampering citizens' mental well-being [11,27]. The study results disclose that the respondents who believe that unauthentic news sources mislead people have twelve times more panic by misleading information than those who do not believe such a statement. Much similar to our study, an online survey of Srilanka conducted with a sample of 102 participants revealed social media has a significant impact on spreading fear and panic related to the COVID-19 outbreak. Among the study participants, 66 % were exposed to distressing news and experiences, 68 % revealed having feared and panicked by reading stories regarding COVID-19, and 62 % admitted difficulties to deal with social media content and reading reports [32]. In Brazil, a quantitative study on WhatsApp, Instagram, and Facebook showed that fake news was mainly shared on WhatsApp [27].

Incidence on Chiness people around the world elicits panic over the SNS platform due to the rapid travel of false news transmited faster than the COVID-19 spread [44]. The unpredictable nature of the situation, uncertainty regarding COVID-19, and the bombardment of the misinformation trigger pernicious psychological distress and mental illness, including stress, fear, depression, anxiety [45]. In contrast, some studies analyzing tweets from all over the world during the pandemic found that the most common theme and popular hashtags can help people make aware about wearing masks. And some influential accounts can continue to utilize social media platforms to encourage users to follow hygienic attributes such as masks wearing [9].

This study did not analyze the impact of socio-demographic factors (such as age, occupation, education, etc.) on increasing COVID-19 panic or awareness in SNS. Furthermore, the number of elderly respondents is absent as they are not active Facebook users, which has a certain impact on the wholeness of the respondent group. Further research could be possible to understand the actual degree of fear and awareness raised by SNS via prospective longitudinal research in several periods of the pandemic time in a specific population.

5. Conclusions

The advent of the COVID-19 Pandemic is noted as the first Pandemic in the era of social media. In this pandemic time, SNS played a crucial role in propagating awareness. In contrast, some social media disseminated misinformation also. This study revealed that reading news on SNS and sharing news related to pandemics significantly influence the awareness of COVID-19. On the other hand, people who considered stopping social media from avoiding panic are more in fear during COVID-19 than their counterparts who did not stop using social media. Moreover, the respondents' perception of "unauthentic news sources can mislead anyone by falsehood" substantially influenced the spread of panic and fear during the COVID-19. The findings of this study light on the role of social networking sites, and it is observed to play a significant role in disseminating both awareness and panic during COVID-19. This study contributes to narrowing the gap in the relationship between social networking sites and spreading awareness in Bangladesh. The policymakers can create major public groups, pages on Facebook, Twitter, YouTube, and other websites to propagate authentic news and maintain regular federal monitoring to avert the COVID-19 pandemic's misinformation.

Data availability:

Data would be available upon request.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author's Contribution

MOF prepared the methodology, analyzed the data, created tables and figures, wrote the results, reviewed the final manuscript, and supervised the work; PD conceptualized the study, collected data, wrote and reviewed the manuscript, supervised the work; SK, EAE, and HN generated the idea of the work, collected data, literature review, wrote and reviewed the manuscript.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.hpopen.2022.100075.

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