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Association between knowledge and depression at rising time of COVID-19 in Bangladesh

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Article Info

ABSTRACT

Novel coronavirus (nCoV) has created a new challenging situation all over the world. In Bangladesh, people are facing some difficulties to response the emergencies. There are so many people who are lacking of proper quarantine information and knowledge about prevention practices towards coronavirus disease 2019 (COVID-19). COVID-19 has created an experience of mental disorder like depression, anxiety, and stress. Although social media, newspaper, news, television has focused on this issue, still there is to be needed to identify the psychological effects like negative impact on our mind and behavioral changes during lockdown. An online survey of 248 respondents was conducted between April, 15 2020 and May, 15 2020. The aim of this study was to assess the relationship between higher knowledge of public regarding safety measures and depression among the adult population of Bangladesh during lockdown. This study focused on correlation between knowledge level and mental health condition like depression. About 50% respondents were felt high depression after the first announcement of lockdown in Bangladesh. Approximately 50% respondents stated that people of their locality were panicked, not panicked were 26.21% and the probability of getting panic were 23.79% due to COVID-19 during lockdown in Bangladesh. The respondents who had gathered a higher knowledge about precautions were associated with depression.

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1. INTRODUCTION

The first case of COVID-19 was found in China, and it has been spread away drastically all over the world. According to the COVID-19 dashboard of World Health Organization (WHO), there were 3,821,367 total confirmed cases in Southeast Asia and total number of deaths were 71,777 [1]. In addition, globally, total confirmed cases of corona virus and deaths reached to 24,021,218 and 821,462 correspondingly as of 27th August 2020 [1]. In Bangladesh, regarding COVID-19 dashboard of directorate general of health services (DGHS) from the beginning month March 8 to August 27, 2020, total confirmed cases reached to 304,683 and passed away 4,127 persons. Moreover, 488,823 infected persons were in quarantine and 436,418 were released from quarantine in Bangladesh [2].

COVID-19 is newly introduced disease in human health which causes anger, aggressive behavior [3] stress, anxiety, depression [4], [5] mental disorder, economic insecurity and life threating fear among the

general people [6], [7]. A study revealed that people faced an obnoxious situation due to quarantine [8]. Recent studies reported that 25.4% respondent's mental health had worsened since the COVID-19 pandemic in Hong Kong [9]. The quick spread of the virus all over the world, the uncertainties and unpredictability about the prevention of diseases and the consequences of the pandemic, were identified as highly risk factors for the mental health of the common population [10]. Another recent study revealed that COVID-19 has emotional impact on mental health outcomes such as anxiety, depression, and post-traumatic stress signs [11].

People have been introduced with depression especially in a lockdown during 3-4 months. As lockdown and quarantine are very new in Bangladesh, more or less all of us suffer from this depression and make ourselves depressed. People have lost their hope, self-confidence day after day observing the corona virus pandemic. Most of the countries have postponed their daily activities in presence at office, but employees are allowed to work at home at national and international level. Moreover, all types of school, colleges and universities have been closed for restlessness announcement of lockdown. Previous studies shown, during isolation and quarantine, anxiety, frustration, fear of causing infection, insomnia and irritability are very common effects for the patients [12]. Unfortunately, the level of depression is increasing during this coronary period. Another researcher reported that health problem of mind like depression and anxiety among general population have been found during public health emergency [13]. A previous study done in both China and Japan showed that the public has been affected by mental health problems during COVID-19 outbreak [4], Wuhan City medical workers [14], [15]. Another study showed that mental health can be asymmetrically oppressed and simply disregarded in case of emergency responses and trouble [16]. A researcher revealed in his study that people were more likely to fear of affecting the close members of the family who were COVID-19 positive [6]. Recent study stated that much more efforts are needed to develop the delivery of mental health services during the COVID-19 epidemic for low and middle income countries [17]. Another recent study, mentioned that early policies are required for the prevention and medication of the mental health effects due to the COVID-19 pandemic [18]. Therefore, mental states outcome like depression need to be identified and recognized for effective prevention measure of mental health during lockdown, quarantine and isolation time of the residences.

2.   RESEARCH METHOD

2.1.   Materials

According to Perez-Fuentes et al. [19], an online based survey was conducted using Google Forms that were desired to participate on this study during lockdown situation in Bangladesh. The questionnaire link has been posted by the social media based sampling through the social website such as Messenger, Email, Facebook and WhatsApp. For this research, required sample was calculated by Rana et al. [20] method and 300 samples were suggested for this study. Total numbers of respondents were 248 and aged 18 to above 60 years from Bangladesh. The respondents, who were literate, understood English and had accessed into the internet facilities could participate in this survey. The socio demographic factors were age, gender, occupational status, and educational qualification, region of residence and household members.

2.2.   Content of the questionnaire

Questionnaires were prepared by Pérez-Fuentes et al. [21] method. Socio demographic characteristics (six units), knowledge on safety health practices (seven units), mental health state (three units), understanding about quarantine (two units) were included into the questionnaire. According to respondents answer mental health condition is measured. Beck hopelessness scale for general adult population was used to assess depression [22]. Respondents had taken sufficient time to read all the questions and responded. During the whole study confidentiality was maintained.

2.3.   Data analysis

After data collection, online based questionnaire which were recorded in Microsoft Excel. Later on, it was converted into Stata for analyses. By using Stata SE 14.2 (Stata corp.) descriptive statistics were done to present the percentage distribution of socio-demographic variables. Binary logistic regression analysis was done for the assessment of significant associations at the 95% confidence interval of coefficients. Highest knowledge scores were assigned by seven points. The one point was assigned for correct answer and zero point was assigned for wrong answer.

2.4.   Ethical clearance

The study was approved by the Institute of Biological Sciences Research Ethics Committee (University of Rajshahi, Rajshahi-6205, Bangladesh) and the approval no. was deposited (Ref. no. B.0005/BS.07.04. 2020).

3. RESULTS AND DISCUSSION

3.1. Socio demographic characteristics

In the present study 33.87% of the respondents were in 26-35 years' age group, 22.98%, 22.58%, 15.32% and 5.24% of the respondents were 36-45 years, 18-25 years, 46-60 years and above 60 years respectively. Maximum respondents were the 54.03% male and 45.56% female. In addition, only 0.40% respondents preferred not to say. More than 81% respondents were completed higher education and the level of primary education of respondents (11.69%) was higher than that of 7.26% secondary level education. The size of the family members was 62.10% 4 to 6 members, lowest household size was 14.11% equal to seven and above and less than four members of the household were found only 23.79%. Table 1 represents that, 47.98% respondent's profession were service, 27.82% were student and others who involved in housewife's, business and retired were 12.10%, 8.87% and 3.23% respectively. The data were recorded from the population of Bangladesh and the people of Dhaka, Rajshahi, Chittagong and others division were given responses 38.71%, 32.26%, 20.97% and 8.06% respectively.

Table 1. Respondents frequency and percentage of different socio demographic groups

Items	Category	Frequency (n)	Percent (%)
Gender	Female	113	45.56
	Male	134	54.03
	Not to say	01	0.40
Age group (years)	18-25	56	22.58
	26-35	84	33.87
	36-45	57	22.98
	46-60	38	15.32
	Above 60	13	5.24
Educational status	Higher secondary	201	81.05
	Secondary	18	7.26
	Primary	29	11.69
Occupational status	Service	119	47.98
	Student	69	27.82
	Housewife	30	12.10
	Business	22	8.87
	Retired	08	3.23
Household members	< 4	59	23.79
	4-6	154	62.10
	>=7	35	14.11
Region of residence	Dhaka	96	38.71
	Rajshahi	80	32.26
	Chittagong	52	20.97
	Others	20	8.06

3.2. Understanding about quarantine

The present study shows that more than 67% respondents had known about the experience of quarantine, only 4.032% had no idea about this issue and about 29% of the respondents had misconception about this prevention technique, as shown in Figure 1.
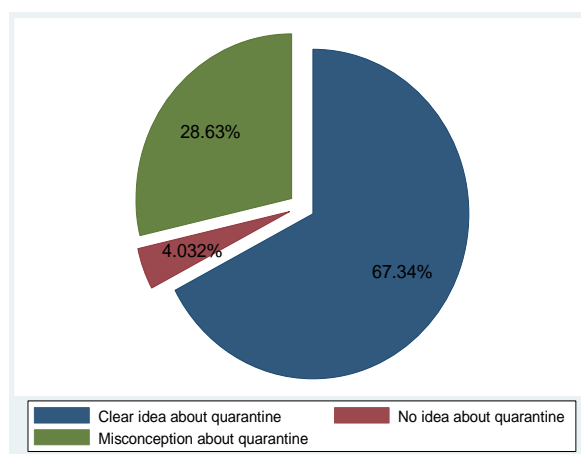

Figure 1. Percentages of respondents having knowledge about quarantine

3.3. The levels after feeling depression knowing the consequences of COVID-19

Our result shows that 50% respondents were feeling in high depression after the first announcement of lockdown in Bangladesh. On the other hand, 12.9% were in an extreme depressed and more than 10% respondents were in little depressed. Approximately 30% of the respondent's mental health was moderate depressed, as shown in Figure 2.
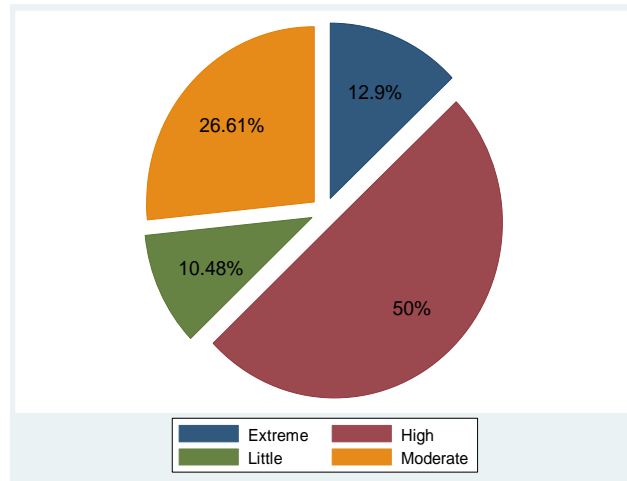

Figure 2. The rate (%) of different levels of feelings regarding depression

3.4. Local people were panicked about COVID-19

About 50% respondents were seen that in their locality people were panicked due to corona virus after announcement of lockdown. On the other hand, more than 26% respondents were also given their responses on not panicked and 23.79% were preferred to probability i.e. "May be", as shown in Figure 3.
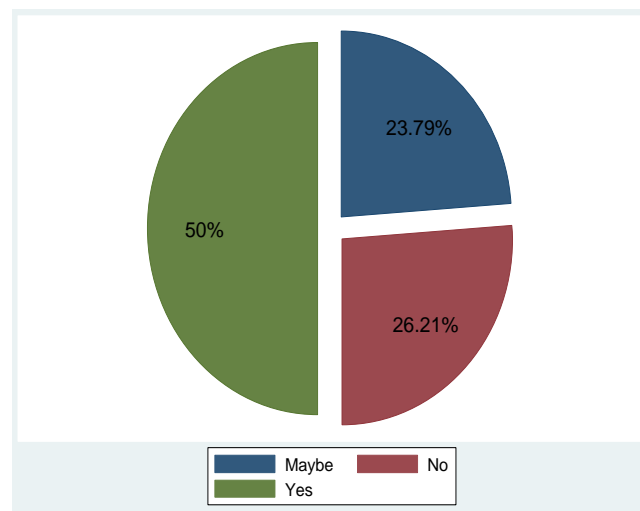

Figure 3. The ratio (%) of panic about COVID-19 in respondents own localities

3.5. Logistic regression analyses

In our study, binary logistic regression analyses showed that people who has highest knowledge level about COVID-19 emergencies were positively associated with depression at 95% confidence interval (p-values: 0.029 and 0.046) and value of odds ratio (1.88 and 1.82) respectively. In addition, our analyses stated even after adjusted the factor; odds ratio are almost same as before, as shown in Table 2.

Table 2. Evaluation of depression associated with level of knowledge regarding COVID-19 by unadjusted and adjusted model

Level of knowledge	Unadjusted model		Adjusted model	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Lower	1.00 (Ref.)		1.00 (Ref.)	
Higher	1.88 (1.07-3.32)	0.029	1.82 (1.01-3.30)	0.046

Note: OR odds ratio; CI confidence intervals

A study done during severe acute respiratory syndrome (SARs) epidemic revealed that about 28.9% and 31.2% of the respondents were affected by symptoms of post-traumatic stress disorder and depression respectively [23]. Another previous study done in Toronto, Canada exposed to quarantine time at home during SARs virus outbreak [24]. A research study showed that factors as 16-24 years' age group, female person and lower level of educational status were associated with negative psychological impact [25]. According to several recent studies, the lower education and higher education level [26] were associated with levels of depression and/or anxiety during the COVID-19 pandemic [27]-[29]. Our study showed that 50% respondents felt highly depression after knowing the spread of corona virus rapidly and they were more scared about their children, aged parents, losing job and maintenance requirements of daily lives. Another recent study reported that 62% of the respondents had depression which supported our findings [30]. A recent study done among Chinese health practitioners stated that the incidence rate of depression was 34.7% [31].

Evidence showed that age, educational status, marital status, living with elders and who had children did not impact the outcomes of psychological behavior [32]. A study revealed 75.2% of respondents felt fear about their own household members becoming infected with the COVID-19 disease [33]. Similarly, a study conducted in India showed that about 41% people felt scared when their close one became sick and 1/3 participant panicked about their inappropriate social behavior [3]. Another previous study by telephonic survey found a snapshot of public concerns and behaviors at the beginning of swine flu outbreak, during a period of disease uncertainty about the risks from viruses [34]. "*Detachment from normal activities pushes children into a state of crisis that may increase the risk of psychiatric disorders that can lead to acute stress disorder, adjustment disorder, and post-traumatic stress disorder and attention deficit disorder,*" Dr. Khairul said [35]. Moreover, according to our study we observed the first declared lockdown situation and at that time educated people had followed the given rules of government of Bangladesh. But who are house wife or jobless they felt that corona virus could not attacked us due to not going outside as they faced a similar situation in their life. Our study believed that besides the economic crisis, social distancing also made people to feel depression. The more the educated and knowledge will be the more worried and depression. Recent studies suggested that, people with higher education had higher levels of anxiety, depression, and stress. According to this study, the higher prevalence of psychological signs among general people with higher education is undoubtedly due to higher level of knowledge and awareness in relation to individual health which is similar to our findings [36].

The government of China has already given facilities of mental health patients by providing care in the hotline, consultation with the psychiatrist in online and online training course [37]. In contrast, several recent studies have discussed the mental health impact of COVID-19 from the point of view of health anxiety based on practical considerations. The authors emphasized on need for evidence-based research into health depression and its determinants. They also mentioned that valid individual and population level strategies can be developed to minimize it in the face of the COVID-19 pandemic and future outbreaks of a similar nature [38], [39].

4. CONCLUSION

Higher level of knowledge was significantly associated with depression during lockdown, and half of the population of this survey was feeling in depression. This study focused on public knowledge about safety practices towards COVID-19 and the status of mental health after announcement of lockdown in Bangladesh. However, if the mental health programs are not comprehensive, the risk of negative psychological behavior will arise. Thus, proper awareness from the health authorities and government to the civic society is the vital key to prevent depression and panic. This finding will help to implement on future management of infectious disease emergencies for planning mental health programs.

There were some limitations which were observed in this survey. As the study was cross-sectional based on online survey, it was hard to find causal relationships between depression and socio demographic variables. Moreover, findings were limited which might have affected results via selection bias and socially desirable bias. In addition, as it was a small sample size; respondents were those who could read English and lack of proper assessment of depression as respondents might not fully understand about depression. However, this study needs to be imitated with a nationally representative sample.

REFERENCES

[1]   WHO Coronavirus Disease (COVID-19) Dashboard, Covid19.who.int, 2020. [Online]. Available: https://covid19.who.int/?ftag=MSF0951a18. [Accessed: 21- Nov- 2020].

[2]   Coronavirus COVID-19 Dashboard, 2020. [Online]. Available: http://103.247.238.92/webportal/pages/covid19.php. [Accessed: 21- Nov- 2020].

[3]   D. Roy *et al.*, "Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic," *Asian Journal of Psychiatry*, vol. 51, p. 102083, 2020, doi: 10.1016/j.ajp.2020.102083.

[4]   Y. Bao *et al.*, "2019-nCoV epidemic: address mental health care to empower society," *The Lancet*, vol. 395, no. 10224, pp. e37-e38, 2020, doi: 10.1016/s0140-6736(20)30309-3.

[5]   C. Wang *et al.*, "Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China," *International Journal of Environmental Research and Public Health*, vol. 17, no. 5, p. 1729, 2020, doi: 10.3390/ijerph17051729.

[6]   S. Brooks *et al.*, "The psychological impact of quarantine and how to reduce it: rapid review of the evidence," *The Lancet*, vol. 395, no. 10227, pp. 912-920, 2020, doi: 10.1016/s0140-6736(20)30460-8.

[7]   F. Ornell, J. Schuch, A. Sordi and F. Kessler, ""Pandemic fear" and COVID-19: mental health burden and strategies," *Brazilian Journal of Psychiatry*, vol. 42, no. 3, pp. 232-235, 2020, doi: 10.1590/1516-4446-2020-0008.

[8]   K. Chatterjee and V. Chauhan, "Epidemics, quarantine and mental health," *Medical Journal Armed Forces India*, vol. 76, no. 2, pp. 125-127, 2020, doi: 10.1016/j.mjafi.2020.03.017.

[9]   E. Choi, B. Hui and E. Wan, "Depression and Anxiety in Hong Kong during COVID-19," *International Journal of Environmental Research and Public Health*, vol. 17, no. 10, p. 3740, 2020, doi: 10.3390/ijerph17103740.

[10] A. Zandifar and R. Badrfam, "Iranian mental health during the COVID-19 epidemic," *Asian Journal of Psychiatry*, vol. 51, p. 101990, 2020, doi: 10.1016/j.ajp.2020.101990.

[11] W. Cao *et al.*, "The psychological impact of the COVID-19 epidemic on college students in China," *Psychiatry Research*, vol. 287, p. 112934, 2020, doi: 10.1016/j.psychres.2020.112934.

[12] D. Banerjee, "The COVID-19 outbreak: Crucial role the psychiatrists can play," *Asian Journal of Psychiatry*, vol. 50, p. 102014, 2020, doi: 10.1016/j.ajp.2020.102014.

[13] J. Gao *et al.*, "Mental health problems and social media exposure during COVID-19 outbreak," *PLoS One*, vol. 15, no. 4, p. e0231924, 2020, doi: 10.1371/journal.pone.0231924.

[14] L. Kang *et al.*, "The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus," *The Lancet Psychiatry*, vol. 7, no. 3, p. e14, 2020, doi: 10.1016/S2215-0366(20)30047-X.

[15] J. Shigemura *et al.*, "Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations," *Psychiatry and Clinical Neurosciences,* vol. 74, no. 4, pp. 281-282, 2020, doi: https://doi.org/10.1111/pcn.12988.

[16] A. Danese *et al.*, "Child and adolescent mental health amidst emergencies and disasters," *The British Journal of Psychiatry*, vol. 216, no. 3, pp. 159-162, 2019, doi: 10.1192/bjp.2019.244.

[17] H. Yao *et al.*, "Rethinking online mental health services in China during the COVID-19 epidemic," *Asian journal of psychiatry,* vol. 50, p. 102015, 2020, doi:10.1016/j.ajp.2020.102015

[18] Z. Li *et al.*, "Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control," *Brain, Behavior, and Immunity*, vol. 88, pp. 916-919, 2020, doi: 10.1016/j.bbi.2020.03.007.

[19] M. Pérez-Fuentes *et al.*, "Questionnaire on Perception of Threat from COVID-19," *Journal of Clinical Medicine*, vol. 9, no. 4, p. 1196, 2020, doi: 10.3390/jcm9041196.

[20] M. Rana *et al.*, "Assessment of knowledge regarding tuberculosis among non-medical university students in Bangladesh: a cross-sectional study," *BMC Public Health*, vol. 15, no. 1, 2015, doi: 10.1186/s12889-015-2071-0.

[21] M. Pérez-Fuentes *et al.*, "The Development and Validation of the Healthcare Professional Humanization Scale (HUMAS) for Nursing," *International Journal of Environmental Research and Public Health*, vol. 16, no. 20, p. 3999, 2019, doi: 10.3390/ijerph16203999.

[22] A. Beck *et al.*, "The measurement of pessimism: The Hopelessness Scale", *Journal of Consulting and Clinical Psychology*, vol. 42, no. 6, pp. 861-865, 1974, doi: http://dx.doi.org/10.1037/h0037562 2020.

[23] L. Hawryluck *et al.*, "SARS Control and Psychological Effects of Quarantine, Toronto, Canada," *Emerging Infectious Diseases*, vol. 10, no. 7, pp. 1206-1212, 2004, doi: 10.3201/eid1007.030703.

[24] M. A. Cava *et al.*, "The experience of quarantine for individuals affected by SARS in Toronto," *Public Health Nursing*, vol. 22, no. 5, pp. 398-406, 2005, doi: https://doi.org/10.1111/j.0737-1209.2005.220504.x.

[25] H. Jeong *et al.*, "Mental health status of people isolated due to Middle East respiratory syndrome," *Epidemiology Health*, vol. 38, p. e2016048, 2016, doi: 10.4178/epih.e2016048.

[26] J. Du *et al.*, "Psychological symptoms among frontline healthcare workers during COVID-19 outbreak in Wuhan," *General hospital psychiatry*, vol. 44, pp. 144-145, 2020, doi:10.1016/j.genhosppsych.2020.03.011.

[27] N. Vindegaard and M. E. Benros, "COVID-19 pandemic and mental health consequences: Systematic review of the current evidence", *Brain, Behavior, and Immunity*, vol. 8, pp. 531-542, 2020, doi: https://doi.org/10.1016/j.bbi.2020.05.048.

[28] A. M. Moghanibashi, "Assessing the anxiety level of Iranian general population during COVID-19 outbreak", *Asian Journal of Psychiatry*, vol. 51, p. 102076, 2020, doi: 10.1016/j.ajp.2020.102076.

[29] Y. Wang *et al.*, "Study on the public psychological states and its related factors during the outbreak of coronavirus disease 2019 (COVID-19) in some regions of China", *Psychology Health Medicine*, vol. 30, pp. 1-10, 2020, doi: 10.1080/13548506.2020.1746817.

[30] F. Caliskan and B. Dost, "The Evaluation of Knowledge, Attitudes, Depression and Anxiety Levels among Emergency Physicians during the COVID-19 Pandemic," *Signa Vitae*, vol. 16, no. 1, pp. 163-171, 2020, doi: 10.22514/sv.2020.16.0022.

[31] Y. Lv *et al.*, "Anxiety and Depression Survey of Chinese Medical Staff before and During COVID-19 Defense," *The Lancet*, 2020. [Online]. Available: https://ssrn.com/abstract=3551350.

[32] Hull HF, "SARS control and psychological effects of quarantine, Toronto, Canada," *Emerging Infectious Disease*, vol. 11, no. 2, pp. 354-355, 2005, doi:10.3201/eid1102.040760.

[33] FJGD. Silva Junior *et al.*, "Impact of COVID-19 pandemic on mental health of young people and adults: a systematic review protocol of observational studies," *BMJ open,* vol. 10, no. 7, p. e039426, 2020, doi: 10.1136/bmjopen-2020-039426.

[34] G.J. Rubin, R. Amlôt, L. Page and S. Wessely, "Public perceptions, anxiety, and behavior change in relation to the swine flu outbreak: cross sectional telephone survey," *BMJ*, vol. 339, pp. 1-18, 2009, doi: 10.1136/bmj. b2651

[35] M. Developer, "Mental Health During Coronavirus: Experts for avoiding over...," *unb.com.bd*, 2020. [Online]. Available: https://www.unb.com.bd/category/Special/mental-health-during-coronavirus-experts-for-avoiding-overuse-of-gadgets/51568.

[36] Y. Zhang and ZF. Ma, "Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: a cross-sectional study," *International Journal Environmental Research Public Health*, vol. 17, no. 7, p. 2381, 2020, doi: https://doi.org/10.3390/ijerph17072381.

[37] S. Liu *et al.*, "Online mental health services in China during the COVID-19 outbreak," *The Lancet Psychiatry*, vol. 7, no. 4, pp. E17-E18, 2020, doi: https://doi.org/10.1016/S2215-0366(20)30077-8.

[38] G. Asmundson and S. Taylor, "Corona phobia: fear and the 2019-nCoV outbreak," Journal *Anxiety Disorder*, vol. 70, p. 102196, 2020. doi: 10.1016/j.janxdis.2020.102196.

[39] G. Asmundson and S. Taylor, "How health anxiety influences responses to viral outbreaks like COVID-19: what all decision-makers, health authorities, and health care professionals need to know," *Journal Anxiety Disorder*, vol. 71, p. 102211, 2020, doi: 10.1016/j.janxdis.2020.102211.