Int J Physiol Pathophysiol Pharmacol 2021;13(4):117-125
www.ijppp.org /ISSN:1944-8171/IJPPP0134519

Original Article

Mental health indicators in the later phase of lockdown due to COVID-19 pandemic in healthy youth combined elderly people: a web-based cross-sectional survey

Vibha Gangwar[1], Amita Singh[1], Manish Verma[1], Nitin A John[2], Ritesh S Gangwar[3], Jyoti John[4], Rajani B Jasrotia[1]

[1]Department of Physiology, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow, India; [2]Department of Physiology, All India Institute of Medical Sciences, Bibinagar, India; [3]Department of Cardiology, Rama Medical College, Hospital & Research Center, Kanpur, India; [4]Department of Biochemistry, All India Institute of Medical Sciences, Nagpur, India

Received April 21, 2021; Accepted July 10, 2021; Epub August 15, 2021; Published August 30, 2021

Abstract: Lockdown was implemented throughout the world in March 2020 to control the spread of covid-19 infection. It affected the mental health of people in various ways. This web-based cross-sectional survey was conducted in the general population of India with an aim to evaluate the mental health of the healthy individuals in the later stage of the lockdown period. Data on socio-demographic factors, anxiety, depression (HADS scale), perceived stress (PSS scale), insomnia (insomnia severity index), subjective psychological feeling of well-being (WHO-5 well-being Index), and attitude towards covid-19 (7-point Likert scale) was collected. Univariate regression analysis and Karl Pearson's correlation were used to analyze the correlation of mental health abnormalities with socio-demographic factors. 119 subjects of mean age of 36.03 ± 18.04 years took part in the study. Their average number of days of stay at home during the lockdown and the average number of days of the lifestyle changes was 49.07 ± 31.92 and 61.39 ± 20.03 days, respectively. Depression, anxiety, stress, and clinical insomnia due to covid-19 were reported in 13.45%, 10.92%, 14.29%, and 11.76% subjects, respectively. There was a significant correlation of depression, anxiety, stress, and WHO-5 well-being score with age, socio-economic status, and the average number of days of the change in lifestyle due to the COVID-19 pandemic ($P < 0.05$). Therefore, the study concluded that the abnormalities of mental health were less prevalent in the older age group and lower socioeconomic status in the later phase of lockdown.

Keywords: Anxiety, depression, insomnia, lockdown, stress

Introduction

A major outbreak of a viral pneumonia caused by corona virus (COVID-19) occurred in December 2019 which spread throughout the world in early 2020 and WHO declared it a "Global Pandemic on 11th March 2020" [1, 2]. There was a rapid increase in confirmed cases and deaths that created problems such as stress, anxiety, and depression both in medical personnel and in the general population [3].

According to World Health Organization, as of April 2021, 142238073 cases of COVID-19 were reported out of which 3032124 were deaths [4]. Isolation of all the cases tested positive, contact tracing, and quarantine is going on. Lockdown was implemented in March 2020 to reduce transmission of COVID-19 and released gradually throughout the world COVID-19 pandemic itself and lockdown due to COVID-19 pandemic has affected the world population in various ways including socially, economically, and psychologically beyond the medical risk. Various lines of research had focused previously on understanding how societies define the origin and impact of epidemics and how they deal with them, with emotional coping as a key to the process [5]. In the current unprecedented situation, it is difficult to predict (and thus estimate) the psychological consequences of COVID-19.

Despite national measures in combating the COVID-19 pandemic, confirmed cases are increasing day by day because the success of these measures depends on the attitude of the public towards the COVID-19 pandemic. Therefore, interventions can be planned to overcome the causes of the failure of preventive measures by assessing the attitude of the public towards the COVID-19 pandemic.

Various studies conducted to assess the impact of the COVID-19 pandemic and lockdown on mental health showed a high rate of negative mental health outcomes [6-9]. But these studies were done in the initial period of lockdown when the number of confirmed COVID cases was low and also the economy was not much affected. Therefore, this study was aimed to conduct an online cross-sectional survey after 4 months period of COVID pandemic and lockdown to understand the levels of impact on higher mental functions like anxiety, depression, insomnia, and stress due to COVID-19 pandemic and lockdown in the general population of India in a better way. This study also investigated the attitude towards COVID pandemic and lockdown in the general population to understand the need for interventions to be implemented at the population level to prevent the spread of COVID-19 infection.

Materials and methods

Study design

It was a cross-sectional web-based anonymous survey done by the Department of Physiology, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow, India. Online mode of study via a self-reported questionnaire (google form) was selected to minimize the physical interaction as per Indian Government recommendations.

Study population

The study was conducted on healthy individuals among the general population of India using the Snowball sampling technique. As it was a web-based survey, the respondents were not within our control. Therefore, it was difficult to specify a sample size. However, we circulated the link to the questionnaire via WhatsApp and email. 119 subjects took part in the study.

Participants were encouraged to roll out the questionnaire to increase participation. Healthy subjects aged above 18 years were included in the study. Subjects having any systemic or psychiatric illness and taking medication that can affect higher brain functions were excluded from the study.

Data collection

Data was collected over 2 weeks (2nd June to 15th June 2020). The participants were explained about the study on the first page of the questionnaire and online consent was taken from them. The study was approved by the Ethics Committee of Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow (letter no. 635/RMLIMS/2020 dated 02/06/2020) and was in accordance with the Helsinki Declaration of 1975, as revised in 2008.

The subjects who gave consent to participate, were asked to fill a questionnaire which included demographic questions, COVID related questions, attitude towards COVID pandemic, quality of life, and mental health.

Mental health parameters

Depression, anxiety, insomnia, perceived stress, quality of life, and attitude towards COVID pandemic were assessed using the following scales and cut off or scoring [7-9]:

- Hospital Anxiety and Stress Scale (HADS) for depression and anxiety: score over 10 was abnormal.

- Insomnia severity index: a score of over 14 was considered as clinical insomnia.

- Perceived stress scale: a score of over 26 was considered as high perceived stress.

- WHO-5 well-being index for the assessment of the quality of life: the score ranges from 0 to 25, 0 representing the worst possible and 25 representing the best possible quality of life.

- The attitude of the participants towards the COVID-19 pandemic was assessed by 7-point Likert scale.

Statistical analysis

It is a descriptive cross-sectional study done by using the Snowball sampling technique. Socio-

Table 1. Demographic characterstics of the participants

Variable		Mean ± SD	N (Percentage)
Age (years)		36.03 ± 18.04	
Sex	Male		57 (47.89%)
	Females		62 (52.1%)
Zone	Red		78 (65.54%)
	Orange		20 (16.80%)
	Green		21 (17.65%)
Socio-economic status	Lower than average		4 (3.36%)
	Average		76 (63.86%)
	Higher than average		39 (32.77%)
Marital status	Married		86 (72.27%)
	Single		33 (27.73%)
Occupation	Healthcare		53 (44.53%)
	Businessman		6 (5.04%)
	Engineer		5 (4.2%)
	Teacher		11 (9.24%)
	Housewife		7 (5.88%)
	Student		19 (15.97%)
	Others		18 (15.13%)
Average number of days of since change of lifestyle due to pandemic		61.39 ± 20.03	
Average number of days of staying at home due to pandemic		49.07 ± 31.92	

demographic variables were calculated as a percentage. Scores of various scales used in the study were expressed as mean ± standard deviation. Univariate regression analysis was used to calculate the association between socio-demographic factors status and scores of various scales. The correlation of WHO-5 well-being score with the indicators of mental health was analyzed by Karl-Pearson's Correlation. *p*-value less than 0.05 was considered as significant. SPSS-21 was used for all statistical analysis.

Results

119 subjects took part in this online survey out of which the number of female respondents was more compared to males. The mean age of the subjects was 36.03 years (SD = 18.04 years). Only those people could participate in study who understood English and had access to the internet. The lower level of education of the participants was 10th standard and the highest level was doctorate. 75.5% of subjects were graduate or postgraduate and 8.5% were doctorate. Maximum subjects were (65.54%) were from red zones for COVID-19 according to the list issued by the Union Health Ministry of India. Most of the subjects (63.86%) were from average socio-economic status working in the healthcare sector (44.53%) (**Table 1**).

Depression was reported in 13.45% while 25.21% of subjects were borderline. 10.92% of subjects had abnormal anxiety scores while 24.37% were borderline. Perceived stress was low in 85.71% of subjects while it was moderate in 14.29% subjects. There was no case of the high level of perceived stress. 43.69% of participants had insomnia out of which the maximum number of cases had subthreshold insomnia (31.93%) and 10.92% of subjects had moderate clinical insomnia. Only one participant had severe clinical insomnia.

All the parameters were more prevalent in females as compared to males. There was no significant difference in normal and abnormal for any parameter (P > 0.05) (**Table 2**).

Table 3 shows that anxiety, depression, insomnia, and perceived stress were negatively associated with age but a significant correlation was found only between age and prevalence of depression as a continuous variable (univariable OR = -0.271, 95% CI = -0. 21-0.002, *p*-value = 0.047). The gender, marital status, and occupation were not associated with anxiety,

Table 2. Percentage distribution of depression, anxiety, stress and insomnia

Parameter	Total	Gender		Chi square Test	[1]*p*-value
	N (%)	Male N (%)	Female N (%)		
Depression					
Normal	73 (61.34%)	34 (53.65%)	39(62.9%)	Reference	
Borderline	30 (25.21%)	18(31.58%)	12 (19.35%)	1.04	0.307
Abnormal	16 (13.45%)	5(8.77%)	11(17.74%)	0.707	0.401
Anxiety					
Normal	77 (64.70%)	39 (68.42%)	38 (61.29%)	Reference	
Borderline	29 (24.37%)	13 (22.81%)	16 (25.81%)	0.100	0.752
Abnormal	13 (10.92%)	5 (8.77%)	8 (12.90%)	0.263	0.608
Perceived stress					
Low	102 (85.71%)	51 (89.26%)	51 (82.26%)	Reference	
Moderate	17 (14.29%)	6 (10.53%)	11 (17.74%)	0.782	0.389
High	0 (0.0%)	0 (0.00%)	0 (0.00%)	-	-
Insomnia					
No insomnia	67 (56.30%)	31 (54.39%)	36 (58.06%)	Reference	
Subthreshold insomnia	38 (31.93%)	21 (36.84%)	17 (27.42%)	-	0.495
Clinical insomnia (moderate)	13 (10.92%)	5 (8.77%)	8 (12.90%)	0.05	0.831
Clinical Insomnia (severe)	1 (0.84%)	0 (0.00%)	1 (1.61%)	0.85	0.357

[1]chi-square test. *p*-value < 0.05 was considered significant.

depression, insomnia, and perceived stress in response to COVID-19 and lockdown. The economic status of participants was significantly associated with anxiety (univariable OR = 0.26, 95% CI = 0.48-3.31, *p*-value = 0.009), depression (univariable OR = -0.30, 95% CI = 0.78-0.44, *p*-value = 0.002), and insomnia (univariable OR = 0.21, 95% CI = 0.13-4.10, *p*-value = 0.037). There was a positive correlation of anxiety, distress, insomnia with the number of days of lifestyle change since the beginning of the pandemic while perceive stress was negatively associated with it. Only prevalence of anxiety was significantly correlated with the number of days of change in lifestyle since the beginning of pandemic (univariable OR = 0.20, CI = 0.01-0.07, P = 0.028). All the indicators of mental health were negatively but not significantly correlated with the number of days of homestay due to pandemic.

Pearson's correlation coefficients of the WHO-5 well-being score with demographic factors are shown in **Table 4**. WHO-5 well-being score was correlated positively with age and the average number of days of home stay at home since lockdown. WHO-5 well-being score was less than males and it was more in unmarried participants than married ones. But for all the independent variables it was nonsignificant except economic status and average number of days of the change of lifestyle due to pandemic with which there was a significant negative correlation of WHO-5 well-being score.

As shown in **Table 5**, there was no significant difference in attitude about the COVID-19 pandemic in red, orange, and green zones in India.

Discussion

In this study, we report for the first time the mental health status of healthy individuals during the later phase of lockdown in India. The questionnaire was circulated to 5000 people via email and other social media, but only 119 subjects responded to the questionnaire. The low response might be due to so many online studies being done since the beginning of the COVID-19 pandemic that people are exhausted of google forms till now. Also, it was an online study so only people with access to and knowledge of the internet could take part in the study.

This study shows relatively low rates of depression, anxiety, stress, and clinical insomnia (13.45%, 10.92%, 14.29%, and 11.76% respectively). Similar results were shown by a study by Rossi et al. in Italy i.e. endorsement rate 17.3% for depression, 20.8% for anxiety, 7.3% for insomnia, and 21.8% for high perceived stress

Table 3. Association of demographic variables with depression, anxiety, insomnia and perceived stress in response to COVID-19 and lockdown (Univariate regression analysis)

Variable	Anxiety		Depression		Insomnia severity index		Perceived stress scale score	
	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
Age	-0.23 (-0.20-0.02)	0.104	-0.271 (-0.21-0.002)	0.047*	-0.112 (-0.21-0.09)	0.427	-0.144 (-0.23-0.07)	0.318
Gender	0.13 (-0.44-2.53)	0.166	0.118 (-0.51-2.28)	0.213	0.058 (-1.469-2.708)	0.558	0.01 (-1.97-2.17)	0.925
Marital status	0.23 (-0.34-4.26)	0.095	0.10 (-0.33-2.99)	0.448	-0.099 (-4.40-2.06)	0.473	0.021 (-2.95-3.44)	0.881
Economic status	0.26 (0.48-3.31)	0.009*	0.297 (0.78-0.44)	0.002*	0.208 (0.13-4.10)	0.037*	0.122 (-0.76-3.17)	0.227
Average number of days of since change of lifestyle due to pandemic	0.20 (0.01-0.07)	0.028*	0.145 (-0.01-0.06)	0.103	0.136 (-0.01-0.09)	0.142	-0.021 (-0.05-0.04)	0.826
Average number of days of staying at home due to pandemic	-0.17 (-0.04-0.002)	0.074	-0.14 (-0.38-0.01)	0.149	-0.98 (-0.05-0.02)	0.321	-0.184 (-0.06-0.002)	0.069

*p-value < 0.05 was considered significant.

Table 4. Association of WHO-5 well-being score with demographic factors

Variables	Karl-Pearson's correlation coefficient	*p*-Value
Age and WHO-5 well-being score	0.97	0.292
Female and WHO-5 well-being score	-0.128	0.165
Marital status and WHO-5 well-being score	0.017	0.857
Economic status and WHO-5 well-being score	-0.230	0.012*
Average number of days of since change of lifestyle due to pandemic and WHO-5 well-being score	-0.248	0.007*
Average number of days of staying at home due to pandemic and WHO-5 well-being score	0.074	0.422

**P* value < 0.05 was considered significant.

Table 5. Attitude about COVID-19 pandemic in study population (7-point likert scale)

	Red Zone	Orange Zone	Green Zone	[1]*p*-Value
	Score (Mean ± SD)	Score (Mean ± SD)	Score (Mean ± SD)	
Worry about corona virus (0-7)	5.08 ± 1.73	4.90 ± 1.48	5.57 ± 1.36	0.368
Situation is not as alarming as they say (0-7)	3.42 ± 2.08	4.15 ± 1.87	4.10 ± 1.97	0.207
I trust professionals to slow /stop pandemic (0-7)	4.87 ± 1.58	4.90 ± 1.45	5.14 ± 1.80	0.787
We have means to protect ourselves (0-7)	5.42 ± 1.38	5.60 ± 1.05	6.19 ± 0.87	0.049
Close borders/quarantine is necessary to slow pandemic (0-7)	5.32 ± 1.83	5.60 ± 1.35	6.00 ± 1.52	0.260
No need to change life in corona (0-7)	2.79 ± 1.93	2.55 ± 1.67	2.86 ± 1.56	0.840
Worse effect of pandemic on economic status (0-7)	3.97 ± 1.95	3.55 ± 1.82	4.62 ± 1.60	0.183
Negative effect of pandemic on physical health (0-7)	3.72 ± 2.14	4.50 ± 1.79	4.71 ± 1.55	0.069
Effect on psychological health (0-7)	3.73 ± 2.08	3.35 ± 1.79	4.62 ± 1.69	0.098
Stay at home (0-7)	5.91 ± 1.65	6.55 ± 1.15	5.90 ± 1.73	0.265
Work from home (0-7)	5.00 ± 2.51	5.30 ± 2.47	5.43 ± 2.01	0.726
Completely stopped working during lockdown (0-7)	2.45 ± 1.98	3.25 ± 2.31	3.05 ± 2.50	0.233

[1]chi-square test. *p*-value < 0.05 was considered significant.

[10]. A Chinese study showed depression 50.4%, anxiety 44.6%, insomnia 34.0%, and distress 71.4% [11]. High prevalence of anxiety, depression, stress, and insomnia were also shown by other studies [12, 13]. This can be explained on the basis that all the previous studies were done in the initial period of pandemic and lockdown. The people had very little knowledge about this disease and were more worried for their family members and financial loss during the lockdown period. This study was conducted after the 4 months of the beginning of COVID-19 and lockdown. Till then the the Government of India took many steps to prevent the spread of COVID-19 infection and people were well aware of the preventive measures to be taken. Government also started releasing the lockdown gradually and people were getting back to their work.

Union Health Ministry, India divided the COVID affected areas in India into red, green, and orange zones depending upon the incidence of COVID-19 cases, doubling rate, the extent of testing, and surveillance feedback. The majority of participants (65.54%) in this study belonged to the red zone area which was highly infectious. As residing in the red zone increased, the chances of exposure to COVID-19 and lockdown was extended longer in the red zone than the green and orange zone, residents of the red zone had more negative mental health outcomes. Similar results were also found in a study done on mental health status in doctors working in the COVID-19 pandemic in India [14].

Significant predictors of mental health indicators were young age, socio-economic status, and number of days of the change in lifestyle for anxiety and economic status both for depression and insomnia. Depression, anxiety, and insomnia were more common in higher socioeconomic status. The reason would be that COVID-19 started from developed countries affecting the rich people [15]. Also, more of the affluent class was approaching to hospital. Our study also found a significant association of depression with young age, which agrees with the finding of study from Italy and China. This might be because of the fact that younger people have more tendency to be stimulated by surrounding stressors [16, 17]. A study done in Saudi Arabia found higher levels of stress, anxiety, and depression in females [18]. Another online survey conducted in Saudi Arabia reported a higher level of anxiety among married participants [19]. The current study did not find any significant correlation of mental health outcomes with gender and marital status of respondents.

This study also found significantly reduced subjective well-being (as assessed by WHO-5 well-being index) with an increase in socioeconomic status and number of days of the change in lifestyle in COVID-19 pandemic. A study done in Oman on physicians showed a significant correlation of the WHO-5 well-being score with gender and age. They concluded that older male physicians report less stress than young female physicians [20]. Our study also showed better subjective well-being in older males than younger females, but the findings were not significant. The negative correlation of mental health with the change of lifestyle might be because of social distancing measures that led to decreased physical activity, and disruptions to everyday life, altering the way people work and interact during lockdown [21].

This study also assessed the attitude of participants towards the COVID-19 pandemic and safety measures. The majority of participants accepted that situation is alarming and the pandemic has negative effects on physical and psychological health and economic status. But they trusted health professionals to manage the situation and were using all the safety measures to prevent the spread of COVID-19. Participants agreed to close the borders and quarantine to avoid the spread of COVID-19. This shows that people are aware of the preventive measures to avoid COVID-19 infection and physical and mental well-being. These findings are consistent with those of a study conducted by Tomer et al. which showed the knowledge, attitude, and practice score towards COVID-19, 80.64%, 97.33%, and 93.8% consecutively [22]. 44.53% of participants of the current study were healthcare workers. Therefore, healthcare workers have better awareness and a positive attitude towards epidemic/pandemic. A similar result was also found in a study conducted in Indore, India which showed that health care professionals have significantly higher knowledge and awareness towards pandemic flu [23].

The limitation of this study was the small sample size. The study population was limited to

people with access to and knowledge of the internet. The participants were not in our control, so we could not reach the desired sample size. Assessment of the mental health needs face-to-face interview which was not possible during the COVID-19 pandemic and lockdown. Although we circulated the questionnaire to the general population most of the respondents were healthcare workers.

Conclusion

Our study showed that the prevalence of anxiety, stress, depression, and insomnia was less in the later phase of the lockdown period. This may be due to awareness of people towards the COVID-19 pandemic and taking adequate preventive measures to limit the spread of infection. Therefore, more awareness programs to address the issues of mental health are needed for further betterment. The correlation of the WHO-5 well-being index with mental health indicators can be better evaluated with a larger sample size.

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Vibha Gangwar, Department of Physiology, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow, Uttar Pradesh, India. E-mail: vgangwar.vg@gmail.com

References

[1] Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, He L, Sheng C, Cai Y, Li X, Wang J and Zhang Z. Mental health care for medical staff in China during the COVID-19 outbreak. Lancet Psychiatry 2020; 7: e15-e16.

[2] Tang D, Tou J, Wang J, Chen Q, Wang W, Huang J, Zhao H, Wei J, Xu J, Zhao D, Fu J and Shu Q. Prevention and control strategies for emergency, limited-term, and elective operations in paediatric surgery during the epidemic period of COVID-19. World J Pediatr Surg 2020; 3: e000122.

[3] Liu S, Yang L, Zhang C, Xiang YT, Liu Z, Hu S and Zhang B. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiatry 2020; 7: e17-e8.

[4] World Health organization. Coronavirus disease (COVID-19) Situation dashboard. Available: https://covid19.who.int/region/searo/country/in. Accessed on 21/04/2021.

[5] Idoiaga Mondragon N, Gil de Montes L and Valencia J. Understanding an Ebola outbreak: social representations of emerging infectious diseases. J Health Psychol 2017; 22: 951-960.

[6] Varshney M, Parel JT, Raizada N and Sarin SK. Initial psychological impact of COVID-19 and its correlates in Indian community: an online (FEEL COVID) survey. PLoS One 2020; 15: e0233874.

[7] White RG and Van Der Boor C. Impact of the COVID-19 pandemic and initial period of lockdown on the mental health and well-being of adults in the UK. BJPsych Open 2020; 6: e90.

[8] Kokou-Kpolou CK, Megalakaki O, Laimou D and Kousouri M. Insomnia during COVID-19 pandemic and lockdown: prevalence, severity and associated risk factors in French population. Psychiatry Res 2020; 290: 113128.

[9] Gupta AK, Sahoo S, Mehra A and Grover S. Psychological impact of 'Lockdown' due to COVID-19 pandemic in Nepal: an online survey. Asian J Psychiatr 2020; 54: 10224.

[10] Rossi R, Socci V, Talevi D, Mensi S, Niolu C, Pacitti F, Di Marco A, Rossi A, Siracusano A and Di Lorenzo G. COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. Front Psychiatry 2020; 11: 790.

[11] Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, Wu J, Du H, Chen T, Li R, Tan H, Kang L, Yao L, Huang M, Wang H, Wang G, Liu Z and Hu S. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 2020; 3: e2039763.

[12] Chakraborty K and Chatterjee M. Psychological impact of COVID-19 pandemic on general population in West Bengal: a cross-sectional study. Indian J Psychiatry 2020; 62: 266-272.

[13] Roy D, Tripathy S, Kar SK, Sharma N, Verma SK and Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian J Psychiatry 2020; 51: 102083.

[14] Sahni D, Kaur R, Sahni G, Bhagat S, Kumar P and Mittal N. Assessment of physical and mental health status of doctors working in COVID-19 pandemic. Int J Otorhinolaryngol Head Neck Surg 2021; 7: 772-81.

[15] Tandon PN. COVID-19: impact on health of people & wealth of nations. Indian J Med Res 2020; 151: 121-123.

[16] Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS and Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020; 17: 1729.

[17] Mazza C, Ricci E, Biondi S, Colasanti M, Ferracuti S, Napoli C and Roma P. A nationwide survey of psychological distress among Italian

people during the COVID-19 pandemic: immediate psychological responses and associated factors. Int J Environ Res Public Health 2020; 17: 3165.

[18] Alkhamees AA, Alrashed SA, Alzunaydi AA, Almohimeed AS and Aljohani MS. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. Compr Psychiatry 2020; 102: 152192.

[19] Alsaqri SH, Alkwiese MJ, Aldalaykeh MK, Hamzi MI, Mahdi MM and Shafie ZM. Anxiety among the general population during Coronavirus-19 Disease in Saudi Arabia: implications for a mental support program. medRxiv 2020: 2020.05.07.20090225.

[20] Badahdah AM, Khamis F and Mahyijari NA. The psychological well-being of physicians during COVID-19 outbreak in Oman. Psychiatry Res 2020; 289: 113053.

[21] Giuntella O, Hyde K, Saccardo S and Sadoff S. Lifestyle and mental health disruptions during COVID-19. Proc Natl Acad Sci U S A 2021; 118: e2016632118.

[22] Tomar BS, Singh P, Natjiya D, Suman S, Raj P, Tripathi S and Chauhan DS. Indian community's knowledge, attitude and practice towards COVID-19. Indian J Soc Psychiatry 2021; 37: 48-56.

[23] Mishra P, Bhadauria US, Dasar PL, Kumar S, Lalani A, Sarkar P Chauhan A, Godha S and Vyas S. Knowledge, attitude and anxiety towards pandemic flu a potential bio weapon among health professionals in Indore city. Przegl Epidemiol 2016; 70: 41-45.