

Evaluating the Psychological Distress of the Coronavirus Disease 2019 Pandemic in Egypt

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Abstract: Background: *The increasing numbers of infected cases with Coronavirus disease (COVID-19) overwhelmed the population all over the world. The advice with regard to social distancing and staying at home were recommended in the community which have led to the spread of psychological distress.*

Objective: *To assess the psychological status of the general population in Egypt during the coronavirus disease (COVID-19).*

Methods: *The authors conducted a cross-sectional, observational survey before the peak of the pandemic in Egypt through an online questionnaire. It was shared through e-mails and different social media platforms. The COVID-19 Peritraumatic Distress Index (CPDI) questionnaire adapted by the Shanghai Mental Health Centre was used to inquire about the incidence of anxiety, depression, specific phobias, cognitive changes, avoidance, compulsive behaviors, physical warning signs, and loss of social interaction in the aforementioned period. Logistic regression was used to analyze factors affecting CPDI score to evaluate the relationship between CPDI category, socioeconomic, and demographic characteristics.*

Findings: *Overall, 523 eligible participants were enrolled (including 266 health care workers (HCW) and 257 non-HCW). It was found that 51.9% of HCWs experienced mild to moderate distress, while 15% experienced severe distress. Additionally, non-HCWs' results showed that 39.7% of them experienced mild to moderate distress; 21.8% experienced severe distress (OR: 0.717; 95% CI: 0.493–1.043). Moreover, the percentage of females with severe distress (21.7%) was two times higher than that of males (10.7%) (OR: 0.412; 95%CI: 0.278–0.612).*

Conclusion: *Public health emergencies such as COVID-19 increase the psychological distress liability of the general Egyptian population. Promoting mental health well-being, as well as behaviorally public psychological engagement during outbreaks, is required to support people who are distressed and to ameliorate their mental health.*

Background

Partial lockdown was announced by the Egyptian prime minister in an attempt to contain the spread of the novel coronavirus disease (COVID-19) by the end of March 2020. The disease was first reported by the end of December 2019 in Wuhan, China as an outbreak. [1] It wasn't until 30 January, 2020, when the World Health Organization (WHO) announced the global COVID-19 as a public health crisis of international alarm [2], followed by its declaration as a pandemic affecting 213 countries or territories in April 2020 [3].

The detected Severe Acute Respiratory Syndrome (SARS) [4] in 2003, Middle East Respiratory Syndrome (MERS) in 2012 [5], and COVID-19 are globally spread respiratory infectious diseases caused by β -Coronaviruses [6]. The virus responsible for COVID-19 swiftly spreads via the respiratory system-close contact-causing SARS by which it was named (SARS-CoV-2) [7]. Experiences from previous outbreaks indicate the importance of psychological distress monitoring and assistance as means of avoiding sociological and economic burdens [8].

Since COVID-19 is extremely infectious with no effective vaccination or confirmed treatment modality, negative impact is inevitable on residents' mental well-being [9]. The pandemic triggered a variable range of psychological abnormalities such as anxiety, panic incidents, and depression [10]. An increase in the self-harm percentage, suicidal ideation or even attempts was also an effect [8]. Importantly, we need to reduce the persistent feelings of loneliness and to support the emotion of belonging as mechanisms of protection against mental health problems and suicidal behaviors [11]. Due to the exceptional situation COVID-19, information is crucial to establish the underlying mechanisms linked to poor mental health which involves isolation and entrapment [12].

To improve the efficiency of the psychological therapies, factors that are accompanying mental problems can be modified by requiring identification [13]. Our main objective in this study was to assess the prevalence of psychological distress in the general public to have a solid ground, upon which, mental support implementation could be based. Thus, we planned to identify different factors as potential considerations that might affect the degree of psychological burden.

Aim: Evaluate the psychological impact of the Coronavirus disease 2019 (COVID-19) pandemic on the Egyptian population during the lockdown period

1. METHODS

Ethical Statement

The study was conducted and approved by the Ethics Committee of Asia Metropolitan University (Project ID Number: AMU/MREC/FOM/NF/01/2020). The procedures complied with the declaration of Helsinki regarding research on human subjects [14]. All respondents voluntarily participated and gave their informed consent before they were included in the study.

Questionnaire Design

The current study was conducted during the COVID-19 pandemic early stages and before its peak during the period from 1st to 20th May 2020. It is a nationwide survey which evaluates the psychological distress in the general Egyptian population through COVID-19

Peritraumatic Distress Index (CPDI)'s adjusted version questionnaire [15]. The 24-item questionnaire was tailored by the Shanghai Mental Health Centre to include appropriate diagnostic standards for specific types of phobia and stress ailments which were specified in the International Classification of Diseases (11th Revision) [16]. The CPDI content was validated by a group of public health doctors, psychotherapists, and epidemiologists [15]. The CPDI questionnaire queried about the occurrence of depression, anxiety, specific phobias, avoidance, cognitive alteration, and compulsive conducts, physical indicators, and loss of social effective functioning. Respondents were requested to assess the emotional effect and the rate of occurrence of certain activities on 5-point Likert scales. Items were scored 0 for never, 1 for occasionally, 2 for sometimes, 3 for often, and 4 for always. An overall score of 0-28 represents no distress. A total score from 29 to 51 reveals mild to moderate distress, and any number above or equal to 52 implies severe distress. Additionally, these three categories were divided into two classes: the first class was considered healthy or without distress; the second one was mild to severe distress which was regarded as distressed.

The questionnaire included socio-economic and demographic variables which are age category (<30, 30-45, >45), gender (male, female), religion (Islam and non-Islam), education level (secondary and below, undergraduate degree, and post-graduate degree), employment status (full time or part time-employed, unemployed), monthly family income if present in dollars, nationality (Egyptian and non-Egyptian), ethnicity, and being a health care worker or not.

Inclusion and Exclusion Criteria

Residing in Egypt with an age of 18 years old or more were our inclusion criteria. Exclusion criteria have the ability to understand or read English language, currently infected or hospitalized patients with COVID-19, and experienced/experiencing any mental health problem.

Data Collection

Researchers collected data through an online survey platform that participants accessed through a designated link. Link dissemination through snowball sampling technique began on May 1, 2020 after the announcement of the Movement Control Order (MCO) by the prime minister on March 25, 2020. The link was sent through email, WhatsApp, Facebook, and other social media platforms. The link of the online survey was closed on May 20, 2020. All the subjects voluntarily had responded to the anonymous survey and had given their informed consent before they started filling the survey.

Sample Size Calculation

Prior assessment of sensitivity recommended a sample size of 500 participants with power = 0.9 for the minimal detection of a remarkable impact size of $\delta = 0.2$ ($\alpha = 0.05$; two-tailed).

Statistical Analysis:

Statistical analysis was performed through Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.). First, to evaluate the distribution of each variable, initial univariate analysis was conducted for all variables. Second, binary logistic regression analysis was applied for the estimation of the odds ratios (OR) of significant predicting variables and 95 % confidence intervals (95 % CI). Percentages were used to summarize the categorical data. Comparisons were all 2-tailed and the statistically significant difference was regarded as p-value ≤ 0.05 .

2. RESULTS

We received a total of 550 responses. Only 523 out of 550 participants completed the entire questionnaire, and twenty-seven were excluded from the final data analysis due to inadequate or incomplete data. Age ranged from 18 to 64 years old. The majority of participants were below 30 years old (79.5%), females (69.6%), Muslims (95%), held a college degree (70.6%), had a full-time job (76.3%) and worked in the health care field (50.9%). The mean CPDI score for all the participants was 35.78 ± 15.52 . 187 participants (35.8%) were considered healthy individuals with mean CPDI score 19.87 ± 6.4 , 240 participants (45.9%) experienced mild to moderate distress with mean CPDI score 38.83 ± 6.22 , and 96 participants (18.3%) experienced severe distress with mean score 59.17 ± 8.48 .

Table 1. Prevalence of COVID-19 Peritraumatic distress (CPDI) symptoms among participants, Egypt

CPDI symptoms	Never	Occasionally	Sometimes	Often	Always
	N (%)	N (%)	N (%)	N (%)	N (%)
Compared to usual, I feel more nervous and anxious.	36 (6.9)	109 (20.8)	218 (41.7)	96 (18.4)	63 (12)
I feel insecure and bought a lot of masks, medications, sanitizers, gloves and/or other home supplies.	90 (17.2)	132 (25.2)	140 (26.8)	83 (15.9)	77 (14.7)
I can't stop myself from imagining myself or my family being infected and feel terrified and anxious about it.	86 (16.4)	121 (23.1)	163 (31.2)	81 (15.5)	72 (13.8)
I feel helpless no matter what I do.	153 (29.3)	101 (19.3)	117 (22.4)	76 (14.5)	75 (14.3)
I feel sympathetic to COVID-19 patients and their families.	21 (4.0)	39 (7.5)	66 (12.6)	95 (18.2)	302 (57.7)
I feel helpless and angry about people around me, governors, and media.	51 (9.8)	88 (16.8)	165 (31.5)	128 (24.5)	89 (17.0)
I am losing faith in the people around me.	167 (31.9)	101 (19.3)	128 (24.5)	84 (16.1)	42 (8.0)
I collect information about COVID-19 all day. Even if it's not necessary, I can't stop myself.	174 (33.3)	168 (32.1)	96 (18.4)	44 (8.4)	40 (7.6)
I will believe the COVID-19 information from	346	93	51	16	16

all sources without any evaluation.	(66.2)	(17.8)	(9.8)	(3.1)	(3.1)
I would rather believe in negative news about COVID-19 and be skeptical about the good news.	218 (41.7)	116 (22.2)	125 (23.9)	46 (8.8)	15 (2.9)
I am constantly sharing news about COVID-19 (mostly negative news).	304 (58.1)	132 (25.2)	59 (11.3)	19 (3.6)	4 (0.8)
I avoid watching COVID-19 news since I am too scared to do so.	192 (36.7)	109 (20.8)	128 (24.5)	63 (12.0)	27 (5.2)
I am more irritable and have frequent conflicts with my family.	145 (27.7)	152 (29.1)	128 (24.5)	54 (10.3)	39 (7.5)
I feel tired and sometimes even exhausted.	52 (9.9)	116 (22.2)	140 (26.8)	120 (22.9)	91 (17.4)
When feelings anxious, my reactions are becoming sluggish.	91 (17.4)	131 (25.0)	161 (30.8)	78 (14.9)	57 (10.9)
I find it hard to concentrate.	92 (17.6)	137 (26.2)	155 (29.6)	79 (15.1)	56 (10.7)
I find it hard to make any decisions.	104 (19.9)	139 (26.6)	153 (29.3)	78 (14.9)	48 (9.2)
During this COVID-19 period, I often feel dizzy or have back pain and chest distress.	193 (36.9)	109 (20.8)	108 (20.7)	64 (12.2)	44 (8.4)
During this COVID-19 period, I often feel stomach pain, bloating, and other stomach discomforts.	214 (40.9)	114 (21.8)	94 (18.0)	51 (9.8)	45 (8.6)
I feel uncomfortable when communicating with others.	117 (22.4)	136 (26.0)	141 (27.0)	69 (13.2)	54 (10.3)
Recently, I rarely talk to my family.	274 (52.4)	107 (20.5)	86 (16.4)	34 (6.5)	17 (3.3)
I have frequent awakening at night due to my dream about myself or my family being infected by COVID-19.	389 (74.4)	59 (11.3)	36 (6.9)	18 (3.4)	16 (3.1)
I have changes in my eating habits	184 (35.2)	105 (20.1)	106 (20.3)	68 (13.0)	55 (10.5)
I have constipation or frequent urination.	254 (48.6)	95 (18.2)	82 (15.7)	43 (8.2)	44 (8.4)

Table 1 illustrates different CPDI prevalence of symptoms among participants. 486 respondents (92.9 %) were feeling more nervous and anxious than usual. Most of the respondents (82.6%) bought a lot of masks, medications, sanitizers, gloves, and other basic medical supplies during the pandemic as they felt unsecure. The majority of respondents (96%) felt sympathetic with COVID-19 patients and their families.

Remarkably, 470 respondents (89.9%) were feeling helpless and angry about people surrounding them as well as media and governors. Most of the respondents (71.4%) were more irritable and had frequent conflicts with their families. Comparable percentages of participants reported becoming sluggish (81.64%), difficult to concentrate (81.64%) and being unable to take any decisions (79.92%).

Regarding the physical symptoms, more than half of the participants (58.13%) experienced gastrointestinal abnormalities, suffered from constipation or frequent urination (50.5%), and had back pain (62.14%).

Table 2. Univariate analysis showing relationship between CPDI categories and socioeconomic and demographic characteristics of the participants, Egypt

		Normal Distress (%)	Mild to Moderate distress N (%)	Severe Distress N (%)	Total (N=523)	
Age category in years	<30	144 (34.6)	192 (46.2)	80 (19.2)	416 (79.5)	NS
	30-45	38 (41.8)	37 (40.7)	16 (17.6)	91 (17.4)	
	>45	5 (31.3)	11 (68.8)	0 (0)	16 (3.1)	
Gender	Females	107 (29.4)	178 (48.9)	79 (21.7)	364 (69.6)	HS
	Males	80 (50.3)	62 (39.0)	17 (10.7)	159 (30.4)	
Religion	Muslim	178 (35.8)	232 (46.7)	87 (17.5)	497 (95)	NS
	Non-Muslim	9 (34.6)	8 (30.8)	9 (34.6)	26 (5)	
Level of education	Up to university degree	130 (33.7)	182 (47.2)	74 (19.2)	386 (73.8)	NS
	Post graduate degree	57 (41.6)	58 (42.3)	22 (16.1)	137 (26.2)	
Employment status	Full time employment	143 (35.8)	187 (46.9)	69 (17.3)	399 (76.3)	NS
	Part time employment	15 (39.5)	16 (42.1)	7 (18.4)	38 (7.3)	
	Not employed	29 (33.7)	37 (43.0)	20 (23.3)	86 (16.4)	
Health care worker	Yes	88 (33.1)	138 (51.9)	40 (15.0)	266 (50.9)	S
	No	99 (38.5)	102 (39.7)	56 (21.8)	257 (49.1)	

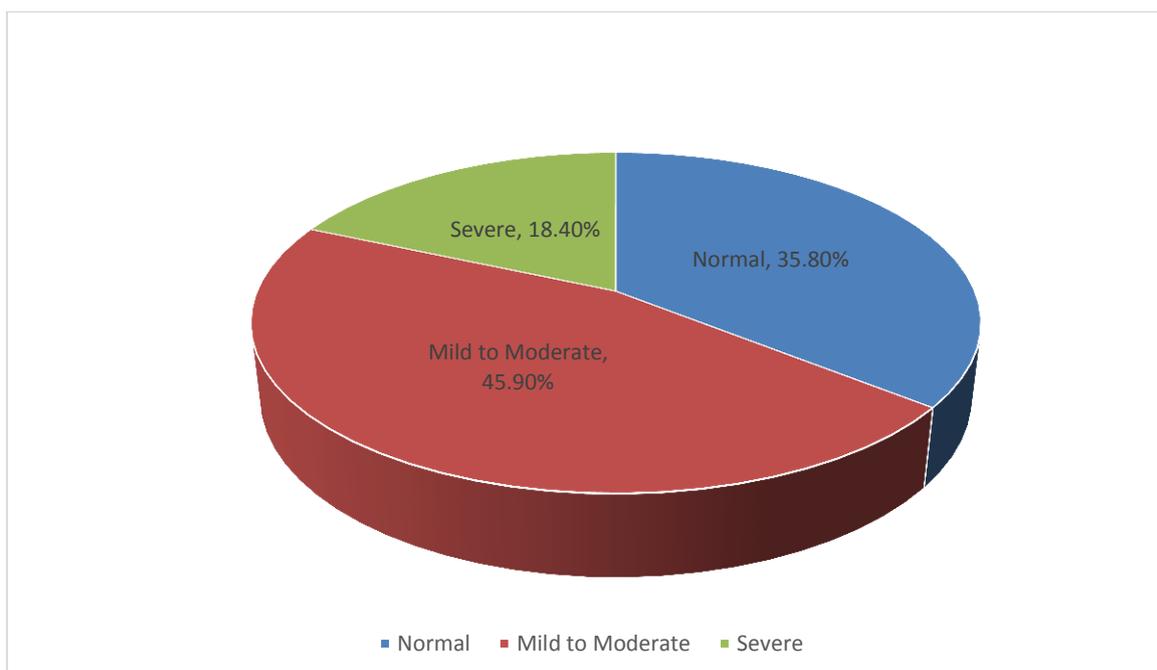
Total		187 (35.8)	240 (45.9)	96 (18.3)		
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Chi square test was used, N: number of patients, NS: non-significant ($P>0.05$), HS: highly significant ($P<0.01$), S: significant ($P<0.05$)

No significant difference was observed between distressed and healthy participants for the following categories: religion, educational level, and employment status. Although non-statistically significant ($p>0.05$), a higher number of distressed participants were seen for those who were below 30 years old, for Muslims, and for those educated up to an undergraduate degree, as well as in participants with a full-time job. Number of female distressed participants was significantly higher than that of distressed males ($p<0.01$); whereas prevalence of severe distress observed in females (21.7%) was twice observed in males (10.7%). Distress was detected among 66.9% of health care workers and among 61.5% of non-health care workers ($p<0.05$), whereas mild to moderate distress was observed among 138 health care workers and 102 non-health care workers.

Statistically significant factors were further analysed through multivariate logistic regression to identify independent predictive variables. Male participants decreased the odds of being distressed under COVID-19 lockdown by 58.8%, compared to females (OR=0.412, 95% CI: 0.275-0.612, $p=0.0001$). Being a healthcare worker failed to predict the level of mental distress upon multivariate regression (OR=0.717, 95% CI: 0.493-1.043, $p=0.082$).

Fig 1: Prevalence of Psychological Distress in during COVID-19 pandemic, Egypt



The CPDI score ranges from 0 to 100. Any number between 28 and 51 implies mild to moderate distress, and ≥ 52 indicates severe distress.

Table 3: Predictors of CPDI through binary logistics regression

		p-value	Exp (B)	95% C.I.	
				Lower	Upper
Age	<i>< 30</i> ®				
	<i>≥ 30</i>	0.967	1.01	0.611	1.673
Gender	<i>Female</i> ®				
	<i>Male</i>	0.000*	0.412	0.278	0.612
Education	<i>Up to university degree</i> ®				
	<i>Post-graduate degree</i>	0.142	0.698	0.432	1.128
Employment	<i>Employed</i> ®				
	<i>Not employed</i>	0.591	1.135	0.715	1.8
Health care worker	<i>Yes</i> ®				
	<i>No</i>	0.082	0.717	0.493	1.043

® Reference Category, *Significant at 5% level of significance

Table 3 demonstrates the predictor of distress that utilizes the binary logistic regression. When adjusted for further factors, female participants showed higher significant levels of distress as compared to males during COVID-19 (OR=0.412, 95% CI: 0.275-0.612, p=0.000). Even though being non-significant, participants aged <30 showed higher distress levels than older ones (OR=1.01, 95% CI: 0.611-1.673, p=0.967). Education, as well as employment status, failed to predict CPDI score (OR=0.698, 95% CI: 0.432-1.128, p=0.142) and OR=1.135, 95% CI: 0.725-1.8, p=0.591), respectively. In addition, there was no significant difference between healthcare workers and other professions (OR=0.717, 95% CI: 0.493-1.043, p=0.082).

Table 4: Predictors of CPDI in health care workers through binary logistics regression

		p-value	Exp (B)	95% C.I.	
				Lower	Upper
Age	<i>< 30</i> ®				
	<i>≥ 30</i>	0.815	1.092	0.524	2.272
Gender	<i>Female</i> ®				
	<i>Male</i>	0.012	0.471	0.261	0.850

Education	<i>Up to university degree</i> [®]				
	<i>Post-graduate degree</i>	0.373	0.735	0.373	1.448
Employment	<i>Employed</i> [®]				
	<i>Not employed</i>	0.793	1.138	0.432	3.00
Household monthly income		0.821	1.00	0.998	1.00

Table 4 explains the predictor of distress among healthcare providers only through the use of binary logistic regression. In this category, similarly, female participants have more distress levels than males (OR=0.471, 95% CI: 0.261-0.850, p=0.012). Age failed to demonstrate significance in the health care workers (OR=1.092, 95% CI: 0.524-2.272, p=0.815). The relationship was not significant for the level of education (OR=0.735, 95% CI: 0.373-1.448, p=0.373). Employment status as well did not predict the level of mental distress (OR=1.138, 95% CI: 0.432-3.00, p=0.793).

3. DISCUSSION

The current study aimed to investigate the impact of COVID-19 on mental health among Egyptian adults during the lockdown and pre-pandemic peak. To the best knowledge of researchers, this is the only study that assesses the psychological effect of COVID-19 on the Egyptian population through the use of COVID-19 Peritraumatic Distress Index (CPDI) questionnaire.

The level of distress that was assessed through CPDI questionnaire demonstrated a mean score of 35.78 ± 15.5 , whereas, more than half the participants (64.2%) were distressed. Severe distress was observed among 18.3% of the respondents. Our results were consistent with those obtained from respondents in the center of the epidemic in Hubei, China as reported by Qui et al [15] who used the same questionnaire and who documented a mean score of 30.94 ± 19.22 . However, results reported by Qui et al [15] revealed a much lower percentage of participants who experienced mild to moderate distress and severe distress than the results of this study (29.29% and 5.14% respectively vs. 64.2% and 18.3%, respectively). Strict prevention and control measures, restriction of community activities, and life under quarantine, were new uncommon procedures for the Egyptian population which all contributed to the higher results of this study. Another explanation for the higher distress levels compared to results observed by Qui et al [15] was the different times of conducting the research questionnaire; where the authors collected their data before WHO announces COVID as a global pandemic, while ours was collected two months after the announcement.

On the other hand, our findings were comparable to the published results from an Iranian study which revealed mean CPDI score equals to 34.54 ± 14.92 [17]. Another study with similar findings is conducted in Brazil [18] with a mean score of 37.64 ± 15.22 . These comparable results might be explained by conducting these researches after pandemic announcement.

The literature reported that distress predictors may vary across countries [17]. Gender predicted distress in Egypt which is congruent to that observed in Iran [17], China [15], Brazil [18], and Italy [19]. In the present study, female respondents showed significantly higher psychological distress than their male peers (OR=0.412, 95% CI: 0.275-0.612,

$p=0.0001$). These matched results concluded that females are much more susceptible to stress and more likely to develop post-traumatic stress disorder.

Other factors such as age, level of education, and employment status failed to predict distress in Egypt. The same findings were documented in Iran [17] but not in China [15]. These differences could be rationalized as medical systems vary in different countries as well as the different lockdown policies. Therefore, these results suggest that distress predictors should be identified in each country in order to select those who are more vulnerable during the COVID-19 pandemic.

Moreover, more than half of the participants (52%) were below 30 years old and felt distressed. These results were in accordance with those observed by Cheng et al. [20] and Qui et al. [15] where young adult group aged 18 to 30 years were associated with higher distress scores. These findings confirmed that young people tend to obtain a lot of information from social media that can easily increase stress. Additionally, people with young age has more tendencies to be elicited by surrounding stressors.

In the current study, employees tend to be more distressed than unemployed participants. This could be explained by their higher concerns about virus exposure in public transportation upon returning to work, and the possibility of deprivation of their income that might explain the high stress level which is consistent with others findings [15,21]. Our results recommend more attention needed to be paid to vulnerable groups such as the young adults, females, and employees.

Overall, most of our respondents (92.9%) were more nervous and anxious owing to the pandemic, a finding similar to what was observed in a study from Egypt [22] and India [23]. These results are understandable as stress is highly elevated during outbreaks.

Although higher numbers of distressed participants were healthcare workers, being one failed to predict distress level. An earlier study conducted by Mishra et al. [24] dissimilated our results as they revealed lower levels of nervousness and anxiety among healthcare workers. Our findings might be due to the fear of the unavailability of personal protective equipment in hospitals as well as the necessity of working beside COVID-19 positive patients. Epidemiological monitoring, screening, referral, and targeted intervention are essential to reduce psychological distress and to prevent further mental health problems.

4. LIMITATIONS OF THE STUDY

The survey was conducted in the English language and most of the respondents were educated and were below 30 years old. For this reason, these respondents can gain an easy access to social networks which entails a certain selection bias. As a result, our data could not be generalized to other sectors.

5. CONCLUSION

Any emergent pandemic can affect the psychological health and increase the incidence of mental issues especially with a fast transmitting one as COVID-19. This effect is likely going to change in accordance with the severity or the variation of the circumstances as discovering a vaccine or definitive treatment. Meanwhile, it is urged to continue monitoring the mental residents' perception and behaviour and providing solutions to those who are at higher risk.

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Competing
None declared.

Interests

6. REFERENCES

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