Original Research Article

A Study to Assess the Psycho-Social Implications of the COVID-19 Pandemic in India

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ABSTRACT

Background: In response to the COVID-19 pandemic, the Indian Government called for a nation-wide quarantine or 'Lockdown' from 21st March 2020. While initially planned for 21days, satisfactory disease control was not achieved and cases continued to rise till November 2020. It is well established, that a Pandemic is associated with a decline in mental health of the population. This study was conducted in order to assess the prevalence, as well as to understand the causative factors for Depression, Anxiety and Stress in the population.
Methodology: An online questionnaire including a consent form, semi-structured proforma, and the DASS-21 was administered via various platforms. All subjects above 18 years of age, willing to give informed consent were included, while those with pre-existing psychiatric illness were excluded from the study. A total of 504 responses were thus analysed.
Results: According to this study, 48.4% of the participants showed signs of psychiatric morbidity; younger age groups and females were more severely affected. Isolation and loneliness, fear of infection and death were reported as major causative factors.
Conclusions: Thus, during a disease pandemic, another pandemic of mental illness may also be present. It is important to recognize and take measures to prevent such ill-effects of otherwise protective measures like quarantine.

Keywords: COVID-19, Depression, Anxiety, Stress, DASS-21, Mental Health

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INTRODUCTION

The Novel Corona Virus (nCOV19, later renamed COVID-19) emerged in Wuhan, China toward the end of 2019. In March 2020, the WHO declared the outbreak to be a Pandemic [1], as a result of which a state of quarantine was imposed on the citizens of many countries, including India. A 'curfew' was announced on 21st March, following which a state of 'Lockdown' (a nationwide quarantine) was put in place in the country from 25th March 2020, in an attempt to control the spread of the disease. [2] Although this initial Phase was planned for 21 days, the lockdown was soon extended in Phases 2, 3, 4 and 5, lasting till late September [3]. Through this time, various services were restarted and/or shut down again, as the cases continued to rise. According to the WHO, India holds the second place for the largest number of confirmed cases, with 4,754,356 tested positive and 78,586 deaths as of September 13th, 2020 [4].

This pandemic is said to bear resemblance to the 2003 outbreak of Severe Acute Respiratory Syndrome [7] (SARS, caused by another coronavirus), which may be used as an indicator to predict a similar epidemiological pattern of COVID-19.

- **Factors Affecting Mental Health:** COVID-19 has now spread to over 160 countries,[1] causing widespread panic and increasing symptoms of anxiety, depression and stress [5] in individuals subjected to the (real or perceived) threat of the virus.[10] The mental health of the population thus requires utmost care in such times of emergency. Prior studies have shown that the following variables may negatively affect mental health in a biological crisis:
- **Fear of infection/death**: Participants in several studies [7-11] reported fears about their own health or fears of infecting others. One study [15] found that mainly pregnant women and those with young children were anxious about contracting any illness. In addition, COVID-19 has repeatedly been described as a "Killer Virus" by the media and general public [9, 12-13], leading to further fear of death. Health professionals working at hospitals are vulnerable to both high risk of infection as well as mental health issues [17]. Further, doctors, nurses and infected patients face increased stigma and a risk of seclusion from the community. Hence, they showed far more anger, fear, frustration, helplessness, isolation, loneliness, nervousness, sadness, worry, and in general, were less happy [11].
- **Inadequate supplies**: the lack of basic supplies and daily needs (groceries, water, clothing etc.) during a quarantine is a major cause of anxiety and frustration [7-15].
- **Inability to access healthcare**: being unable to get regular prescriptions and medical care can cause fear, stress, anxiety and frustration, particularly among people with pre-existing medical conditions [6-7].
- **Finances and job security**: interruption of working routines as well as a risk of unemployment has long lasting consequences; financial loss as a result of quarantine can lead to socioeconomic distress and has been determined as a risk factor for symptoms of psychological disorders [17].
- **Inadequate information and Confusion:** poor information regarding the situation from public health authorities has been reported as a stressor [7]. Conversely, an excess of negative information (rates of spread, fatality etc.) also causes increased anxiety and depression.

The current study had the following objectives –

- To assess the prevalence of stress, depression, and anxiety as well as their level of severity during the COVID-19 Pandemic in India.
- To study the relationship between socio-demographic variables and stress, depression, and anxiety in the sample population.

METHODOLOGY

The following measures were used in the study –

- **Semi-structured proforma:** specially designed for the study and used to obtain the socio-demographic and clinical variables affecting the mental health of people during a pandemic. Submission of the participant's name was made optional to maintain confidentiality.
- **Depression, Anxiety and Stress Scale (DASS-21):** In order to detect and diagnose the extent of signs of poor mental health (anxiety, depression, stress), the 21 item Depression, Anxiety and Stress Scale (DASS-21) [19] was used. DASS-21 is a set of three self-report scales which measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. Scores for depression, anxiety and stress are calculated by adding the scores for the relevant items [21]. The validity of the test has been confirmed by prior studies, where it demonstrated adequate internal consistency (Cronbach α: 0.761 to 0.906) [20].

Inclusion Criteria

- Individuals above 18 years of age, who consent to participation.

- Individuals with internet access, able to read and understand English.

Exclusion Criteria:

- Individuals with a history of mental illness
- Individuals below 18 years of age

The Institutional Ethics Committee approval as well as the subject's informed consent were obtained, and the semi-structured proforma administered via various online platforms. The questionnaire was constructed using Google Forms and circulated via social media platforms (WhatsApp, Facebook, Instagram, Twitter, LinkedIn etc.) for a period of 3 weeks in the initial stages of the Lockdown. The DASS-21 was similarly circulated, in order to detect and assess the prevalence and severity of depression, anxiety and/or stress. Thus, a snowball method of distribution was used, with each participant potentially forwarding the questionnaire to new participants.

STATISTICAL ANALYSIS

The data thus collected was analyzed using IBM SPSS Statistics 26.0. The tests of significance applied included the Mann Whitney U Test, Kruskal Wallis Test, ANOVA, Tukey (Post-Hoc) Test and Games-Howell Test.

RESULTS

A total of 578 responses were collected from all over the country, from which 504 were selected and further analyzed after applying the exclusion criteria.

Population characteristics and Socio Demographic characteristics (Table 1)

Table 1: Socio-Demographic Characteristics

Factors Assessed		Frequency N (%)
Gender	Male	249 (49.4%)
	Female	255 (50.6%)
Age	18-25	282 (56.0%)
	26-55	180 (35.7%)
	56+	42 (8.3%)
Residential Area	City	414 (82.1%)
	Town	62 (12.3%)
	Village	28 (5.6%)
Occupation	Unemployed	17 (3.4%)
	Student	257 (51.0%)
	Self-Employed	61 (12.1%)
	In Service	152 (30.2%)
	Homemaker	17 (3.4%)
Essential Work	Essential	64 (12.7%)
	Non-Essential	440 (87.3%)
Living Status	Alone	30 (6.0%)
	In Hostel/PG	30 (6.0%)
	Nuclear Family	346 (68.6%)
	Joint Family	98 (19.4%)

Age Distribution: The sample mainly consisted of young adults in the 18-25 years age group (n= 282, 56.0%) and middle-aged adults, 26-55 years old (n=180, 35.7%)

Gender distribution: The sample was nearly equal in gender distribution, with 249 males (49.4%) and 255 females (50.6%).

Occupation: Three aspects of occupation were studied in the questionnaire: a) Essential v/s non-essential work, b) whether currently employed or unemployed and c) the effect of the Pandemic on their work. Only a small proportion (n=64, 12.7%) reported as Essential workers. 60 people reported facing unemployment and/or lack of job opportunities as a direct or indirect result of the Pandemic.

Living status: For ease of analysis, and keeping in mind the established ill effects of isolation, the responses were divided into binary groups, "living away from family" (consisting of those living alone, in hostel or with friends/PG) and "living with family" (consisting of those living with their spouse/nuclear family/joint family). Further, during the lockdown period, travel was restricted, resulting in many people being stranded away from home. At the time of the study, 60 people (11.9%) were living away from their families.

Psycho-social variables studied

Table 2: Psycho-Social Variables Studied

Cause Of Worry	Risk Of Infection	133 (26.4%)
	Access To Daily Needs	45 (8.9%)
	Disruption Of Routine	95 (18.8%)
	Fear Of Death	22 (4.4%)
	Financial Insecurity	60 (11.9%)
	Isolation	45 (8.9%)
	Lack Of Information	21 (4.2%)
	Well-Being Of Dependents	70 (13.9%)
	Access To Healthcare	13 (2.6%)
Effect On Jobs	Unemployment	28 (5.6%)
	Lack Of Job Opportunities	32 (6.3%)
	Working/Studying From Home	373 (74%)
	Working As Usual	71 (14.1%)
Effect On Relations	Improved	238 (47.2%)
	Declined	29 (5.8%)
	No change	237 (47.0%)
Stress Due To Media	Yes	295 (58.5%)
	No	209 (41.5%)

Major cause of worry: Risk of infection was a concern for the maximum number of subjects (n=133, 26.4%), followed by a disruption of daily routine. (n=95, 18.8%)

E**ffect of the Pandemic on Jobs:** 28 (5.6%) of the studied subjects were unemployed, and 32 (6.3%) reported a lack of job opportunities as a direct or indirect result of the pandemic.

Family Relations: A major portion (n=238, 47.2%) of the subjects reported an improvement in their relationship with family, while only 5.8% (n= 29) reported a decline.

Media influence: A large number (n=298, 58%) of subjects believed that media and news outlets were clear causes of stress.

Figure 1: Prevalence Of Psychiatric Morbidity In Sample

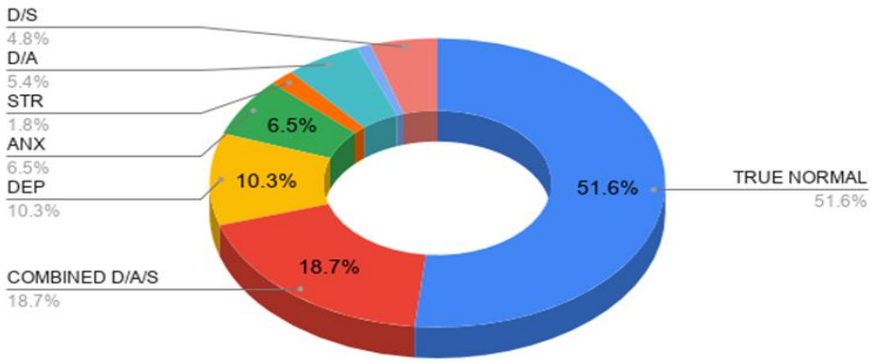

Figure 2: Prevalence of Psychiatric Morbidity In Essential Workers

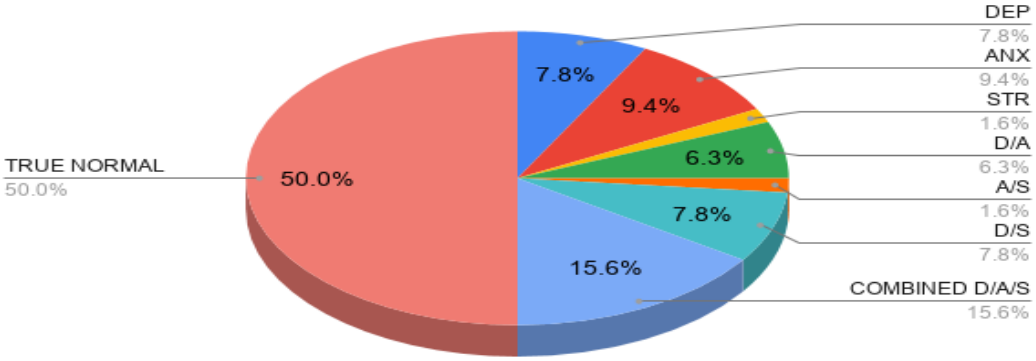

Table 3: Prevalence Of Psychiatric Morbidity In Other Groups

Group	Frequency N, (%)							
	Depression	Anxiety	Stress	D/A	A/S	D/S	D+A+S	Total
Declined Relations	2 (6.9%)	1 (3.4%)	-	1 (3.4%)	1 (3.4%)	3 (10.3%)	18 (62.1%)	89.3%
Isolation/ Loneliness	8 (17.8%)	-	-	5 (11.1%)	-	6 (13.3%)	14 (31.1%)	73.3%
Media As A Concern	31 (10.5%)	19 (6.4%)	6 (2%)	16 (5.4%)	3 (1%)	18 (6.1%)	77 (26.1%)	57.6%
Facing Unemployment	6 (10.0%)	3 (5.0%)	-	3 (5.0%)	-	3 (5.0%)	19 (31.7%)	56.7%
Living Away From Family	6 (10.0%)	3 (5.0%)	1 (1.7%)	2 (3.3%)	-	4 (6.7%)	10 (16.7%)	43.3%
Disrupted Routine	13 (13.7%)	6 (6.3%)	5 (5.3%)	6 (6.3%)	1 (1.1%)	5 (5.3%)	15 (15.8%)	53.7%
Infection As A Concern	11 (8.3%)	10 (7.5%)	-	7 (5.3%)	-	1 (0.8%)	23 (17.3%)	39.1%

This study focusses on any and all signs of poor mental health, rather than the specific grade of illness. Thus, in the following pages, 'normal' or 'true normal' refer to all subjects with a normal score on the DASS-21. The terms 'Depressed'(D or DEP), 'Anxious'(A or ANX), and 'Stressed'(S or STR) refer to those subjects

with scores ranging from Mild, Moderate, Severe or Extremely Severe on the DASS-21 for depression, anxiety, and stress items, respectively.

Total population: Nearly half (n= 244, 48.4%) of the studied population were found to have at least mild forms of D, A and/or S. Signs of all 3 (D+A+S) were observed in 94 participants (18.7%), as shown in Figure 1

Essential Workers: Figure 2 shows the prevalence of psychiatric morbidity in essential workers. 50.0% of essential workers were found to have signs of poor mental health.

Other Groups: A notably high prevalence of the studied variables was similarly observed in other groups, as shown in Table 3. 89.3% of the subjects reporting a decline in their relations, and 73.3% of those feeling isolated showed signs of psychiatric morbidity.

Correlation With Socio-Demographic Variables

Age Variation: Samples were divided to represent the age ranges 18-25 years, 26-55 years, and 56+ years. All three variables (Depression, Anxiety and Stress) showed a significant negative correlation with age (Kruskal Wallis p=0.00). Thus, the age group 18-25 years showed maximum signs of poor mental health.

Gender Variation: Females scored significantly greater in Depression (U= 0.002) as well as Stress (Mann Whitney U= 0.001) at a significance level of p=0.05. Anxiety, however, did not show significant variation between the two genders. (Mann Whitney U=0.120)

Essential Workers: Despite 50% of the studied essential workers (medical personnel, law enforcement, bankers, grocery shop owners etc.) showing signs of poor mental health (see above), a significant correlation could not be established between the two. In comparison, the non-essential population showed more severe grades in all three fields. (DEP U = 0.707; ANX U = 0.986; STR U = 0.730 at p=0.05)

Living Status: Two groups were compared- SAMPLE 1 = Those living WITH family, and SAMPLE 2= those living away from family. There was no significant variation between the two groups for any of the three variables. However, contrary to assumption, people living with family showed higher mean scores in all three aspects, viz. Depression/Anxiety and Stress.

Correlation With Psycho-Social Variables

Effect Of Unemployment: The subjects were divided into two discrete groups i.e. sample 1 which was those occupied in their daily work in some form (working as usual, working/ studying from home,) and sample 2 which was those facing a disruption of work and income (unemployment, lack of hiring opportunities). On comparison, sample 2 showed significantly higher scores of Depression (U=0.020 at p=0.05). A significant difference could not be established between the groups for Anxiety (U=0.081) or Stress (U=0.286)

Media Influence: Subjects were asked if their perception of the pandemic and disease was adversely affected by media (news, social media etc.). On comparison, subjects reporting a perceived negative impact of media scored significantly higher in all three variables. Depression U=0.00, Anxiety U=0.00 and Stress U=0.00, thus implying a 100% statistical significance.

Perceived Change In Family Relationships: Subjects were asked to report how their relationship with their family may have changed during the quarantine, and were grouped as Sample 1= Improved, Sample 2 = no change and Sample 3= Declined. The data was then analyzed using the Kruskal-Wallis test at p=0.05 and a confidence level of 95%. Subjects reporting a Decline in the nature of their relationship, showed significantly higher scores in all three variables: DEP p=0.00, ANX p = 0.00 and STR p=0.00

Table 4: Mean Scores Of D/A/S For Reported Cause Of Worry

Item	N	Mean Score, (S.D.)		
		Depression	Anxiety	Stress
Risk Of Infection	133	7.23 (7.78)	5.76 (7.11)	8.20 (8.36)
Disruption Of Daily Routine	95	10.42(9.78)	5.24 (6.58)	10.23 (8.58)
Well-Being Of Dependents	70	5.43 (8.16)	4.94 (7.45)	7.37 (9.32)
Risk Of Unemployment	60	7.73 (8.36)	5.17 (6.17)	8.33 (8.96)

Isolation/Loneliness	45	16.58 (11.51)	7.64 (7.87)	14.00 (10.0)
Access To Daily Needs	45	10.67 (10.48)	5.24 (6.09)	10.40 (9.53)
Fear Of Death	22	13.09 (11.27)	11.27(7.05)	13.82(9.54)
Confusion/Lack Of Information	21	7.62 (9.24)	4.00 (5.17)	9.24 (9.43)
Access To Healthcare	13	10.31 (8.63)	10.46(9.53)	13.85(11.85)

Table 5: Shows a summary of significant variables with their values

Sr. no.	Variable	Significant Morbidity (At A Level Of P=0.05)	Significance (Mann- Whitney U/ Kruskal-Wallis)
1.	Age	Depression, Anxiety, Stress	p=0.00, p=0.00, p=0.00
2.	Gender (Female)	Depression, Stress	U=0.002, U=0.001
3.	Essential Work	N/A	-
4.	Living Status	N/A	-
Psycho-Social Variables			
1.	Unemployment	Depression	U=0.02
2.	Media Influence	Depression, Anxiety, Stress	U=0.00, U=0.00, U=0.00
3.	Declined Relations	Depression, Anxiety, Stress	U=0.00, U=0.00, U=0.00

Major Cause Of Worry

Descriptive statistics were obtained for the options given. The mean score and corresponding standard deviation for each of the 9 options are given in table 4.

Tukey and Games-Howell post-hoc tests were conducted to determine the variable associated with maximum signs of poor mental health. (Figures 4, 5 and 6 - significance level at 0.05, significant figures have been displayed in bold). As is clear from both the mean scores and the results of the Games-Howell test, subjects reporting 'Isolation / Loneliness' as a major worry scored significantly higher in Depression and well as Stress as compared to other variables. Subjects reporting 'Fear of Death' as a concern scored significantly higher than other variables for Anxiety.

Multiple Comparisons

DEPRESSION DEP_RAW

CAUSE OF STRESS (I)	CONMPARED CAUSE (J)	Mean Difference (I-J)	Std. Error	Sig.
Isolation/Loneliness	Access to daily needs (groceries, etc.)	5.911	2.320	.225
	Access to healthcare	6.270	2.946	.477
	Confusion/lack of information	8.959*	2.648	**.035**
	Disruption of daily routine/Boredom	6.157	1.988	.065
	Fear of death	3.487	2.953	.956
	Risk of infection	9.345*	1.844	**.000**
	Risk of unemployment/financial insecurity	8.844*	2.028	**.001**
	Well-being of dependents (children, pets etc.)	11.149*	1.974	**.000**

Figure 3: Games-Howell Test for Depression V/S Cause Of Worry

Multiple Comparisons

Dependent Variable ANX_RAW

CAUSE OF STRESS (I)	COMPARED CAUSE (J)	Mean Difference (I-J)	Std. Error	Sig.
Fear of death	Access to daily needs (groceries, etc.)	6.028*	1.757	**.036**
	Access to healthcare	.811	3.040	1.000
	Confusion/lack of information	7.273*	1.881	.011
	Disruption of daily routine/Boredom	6.031*	1.648	**.023**
	Isolation/Loneliness	3.628	1.908	.616
	Risk of infection	5.513*	1.625	**.045**
	Risk of unemployment/financial insecurity	6.106*	1.702	**.026**
	Well-being of dependents (children, pets etc.)	6.330*	1.747	**.022**

Figure 4: Games-Howell Test For Anxiety V/S Cause Of Worry

Multiple Comparisons

Dependent Variable STR_RAW

CAUSE OF STRESS (I)	COMPARED CAUSE (J)	Mean Difference (I-J)	Std. Error	Sig.
Isolation/Loneliness	Access to daily needs (groceries, etc.)	3.600	2.060	.716
	Access to healthcare	.154	3.608	1.000
	Confusion/lack of information	4.762	2.542	.635
	Disruption of daily routine/Boredom	3.768	1.733	.432
	Fear of death	.182	2.523	1.000
	Risk of infection	5.805*	1.659	**.022**
	Risk of unemployment/financial insecurity	5.667	1.889	.080
	Well-being of dependents (children, pets etc.)	6.629*	1.862	**.017**

Figure 5: Games-Howell Test For Stress V/S Cause Of Worry

DISCUSSION

Through this cross-sectional study, we aimed to assess the degree and distribution of mental illness (if any) in the Indian population and identify potential causes for the same, in the setting of the extended lockdown for the COVID-19 pandemic. The effect of a quarantine on mental health is well researched and documented [5,7-8,10-11,14-15]. The findings of this study were in accordance with prior literature. Several studies [22-23] confirmed the gender variation in mental illness, with women more likely to report worse scores. Similarly, the negative correlation of mental illness with age was also reported by other studies [23]. Financial Stress, such as a risk of unemployment, frustration and boredom were reported to be major stressors in a study done earlier [7]. While prior research [6-7,22] did report healthcare professionals experiencing greater stress, depression and anxiety as well as stigmatization from the community, this study did not establish a significant relation between essential workers and mental illness.

Ge L and others in their study [24] have already established a strong link between isolation, loneliness and depression; this finding was confirmed in our study, with isolation/loneliness reported as a major concern for subjects. Further, subjects reporting the same as a concern scored significantly higher in all depression and stress. A recent, detailed paper [25] reported media coverage of the COVID-19 pandemic in the Kingdom of Saudi Arabia as an important factor contributing to stress and anxiety. This is also reflected in the Indian setting, with a significant correlation between the factors. The World Health Organization, recognizing this, has also issued guidelines recommending reduced exposure to news outlets. [1]

In regards to family relations, similar results were reported during the COVID-19 quarantine in Spain [26]. While a larger proportion of the population perceived an improvement in their relations, those reporting a decline scored significantly worse in all fields. Interestingly, those living with parents showed worse scores than those living alone, a finding also reported by researchers [26]

CONCLUSION

During any crisis, including a Pandemic, the mental health of a population suffers as much as physical health, and thus should be given appropriate attention to mitigate the ill-effects. Amongst the total population studied, 48.4% of subjects showed some signs of poor mental health. This study found that young adults in the age group 18-25 years were more likely to suffer from signs of poor mental health in all three measured fields, viz. depression, anxiety, and stress. Similarly, females scored higher in depression and stress, but not in anxiety. The data also suggests that sources of media have a significant negative impact on mental health, with subjects showing high scores for all three variables. While most subjects perceived an improvement in their relationships, those who felt a decline displayed a significantly worse mental health status. It should be noted that there is some evidence to indicate that staying with family in the Indian setting may cause a paradoxical decline in mental health. Among the possible causes of worry and stress in subjects, 'isolation/loneliness' was the most significant contributor to Depression and Stress, while 'fear of death' had maximum impact on Anxiety. This study may help identify the magnitude of mental health problems due to the COVID -19 pandemic. While measures are taken to combat the disease itself, one must not neglect other challenges to health that may develop as a consequence of protective measures (like quarantine).

Understanding the factors responsible for poor mental health during the COVID-19 pandemic and its consequences is essential for the development of appropriate strategies to address the issue.

REFERENCES

1. W.H.O. Mental Health and Psychosocial Considerations During COVID-19 Outbreak. Version 1.4; (accessed March 31, 2020)
2. Karan Deep Singh, Vindu Goel, Hari Kumar and Jeffrey Gettleman. India, Day 1: World's Largest Coronavirus Lockdown Begins. The New York Times; 2020
3. Govt releases lockdown 5.0 guidelines: Here's what's allowed and what's not. The Economic Times, May 31st, 2020.
4. WHO Coronavirus Disease (COVID-19) Dashboard. Covid19.who.int/table. (accessed Sep 13, 2020)
5. Deborah Brauser. Suicide, Depression, Anxiety: COVID19's Heavy Toll on Youth. Medscape Medical News. Sep 25th, 2020. Accessed Sep 26, 2020.
6. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, Ng CH. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. The Lancet Psychiatry 2020;7(3):228-9.
7. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet 2020;395(10227):912-20.
8. Centers for Disease Control and Prevention. Quarantine and isolation. 2017. https://www.cdc.gov/quarantine/index.html (accessed Mar 30, 2020).
9. Miles SH. Kaci Hickox: public health and the politics of fear. Am J Bioethics 2015;15(4):17-9.
10. Rubin GJ, Wessely S. The psychological effects of quarantining a city. BMJ 2020;Jan 28:368.
11. Bai Y, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatr Serv 2004;55(9):1055-7.
12. Connor Boyd, Sam Blanchard. Killer coronavirus may live on doorknobs, bus handrails and protective gear for up to NINE DAYS - four times longer than flu, study finds. UK, The Daily Mail; 2020
13. Blendon RJ, Benson JM, DesRoches CM, Raleigh E, Taylor-Clark K. The public's response to severe acute respiratory syndrome in Toronto and the United States. Clin Infect Dis 2004;38(7):925-31.
14. Cava MA, Fay KE, Beanlands HJ, McCay EA, Wignall R. The experience of quarantine for individuals affected by SARS in Toronto. Pub Health Nurs 2005;22(5):398-406.
15. Jeong H, Yim HW, Song YJ, Ki M, Min JA, Cho J, Chae JH. Mental health status of people isolated due to Middle East Respiratory Syndrome. Epidemiol Health 2016;38.
16. Maunder R, Hunter J, Vincent L, Bennett J, Peladeau N, Leszcz M, Sadavoy J, Verhaeghe LM, Steinberg R, Mazzulli T. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. CMAJ 2003;168(10):1245-51.
17. Wester M, Giesecke J. Ebola and healthcare worker stigma. Scand J Pub Health 2019;47(2):99-104.
18. Braunack-Mayer A, Tooher R, Collins JE, Street JM, Marshall H. Understanding the school community's response to school closures during the H1N1 2009 influenza pandemic. BMC public health. 2013 Dec;13(1):1-5.
19. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. Arlington, VA: American Psychiatric Association, 2013
20. Le MTH, Tran TD, Holton S, Nguyen HT, Wolfe R, Fisher J. Reliability, convergent validity and factor structure of the DASS-21 in a sample of Vietnamese adolescents. PLoS One 2017;12(7):e180557.
21. Lovibond SH, Lovibond PF. DASS-21. Manual for the Depression Anxiety & Stress Scales. (2nd Ed.) Sydney: Psychology Foundation. 1995.
22. Christensen H, Jorm AF, Mackinnon AJ, Korten AE, Jacomb PA, Henderson AS, Rodgers B. Age differences in depression and anxiety symptoms: a structural equation modelling analysis of data from a general population sample. Psychol Med. 1999;29(2):325-39.
23. Leach LS, Christensen H, Mackinnon AJ, Windsor TD, Butterworth P. Gender differences in depression and anxiety across the adult lifespan: the role of psychosocial mediators. Soc Psych Psychiatr Epidemiol 2008;43(12):983-98.
24. Ge L, Yap CW, Ong R, Heng BH. Social isolation, loneliness and their relationships with depressive symptoms: A population-based study. Plos One 2017;12(8):e0182145
25. Zakout YM, Alreshidi FS, Elsaid RM, Ahmed HG. The magnitude of COVID-19 related stress, anxiety and depression associated with intense mass media coverage in Saudi Arabia. AIMS Public Health 2020;7(3):664-78.
26. Günther-Bel C, Vilaregut A, Carratala E, Torras-Garat S, Pérez-Testor C. A Mixed-method Study of Individual, Couple, and Parental Functioning During the State-regulated COVID-19 Lockdown in Spain. Fam Process 2020;59(3):1060-79.

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