

# Prevalence and Factors Associated with Anxiety during the COVID-19 Pandemic among Malaysians: A Cross-sectional Study

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## ABSTRAK

Pandemik COVID-19 ialah ancaman kesihatan awam yang mempunyai implikasi psikologi yang meluas. Perubahan drastik dalam gaya hidup akibat pelaksanaan perintah kawalan pergerakan (PKP) dikaitkan dengan kesan buruk terhadap kesihatan mental. Kajian ini bertujuan untuk mengkaji prevalen kebimbangan dalam kalangan rakyat Malaysia semasa pandemik COVID-19 dan faktor-faktor yang berkaitan dengannya. Soal selidik berikut diberikan secara dalam talian melalui borang google iaitu; (i) Generalized Anxiety Disorder-7; (ii) Skala Kecenderungan Kebosanan Pendek; (iii) Skala Pendek untuk Mengukur Kesepian dalam Tinjauan Besar; dan (iv) Indeks Kesejahteraan Pertubuhan Kesihatan Sedunia (WHO). Skor yang lebih tinggi menunjukkan tahap kebimbangan, kebosanan, kesunyian dan kesejahteraan yang lebih tinggi. Daripada 543 peserta, lebih separuh (55.2%) melaporkan kebimbangan ringan (25.6%), sederhana (13.8%) hingga teruk (19.8%). Analisis regresi logistik pelbagai menunjukkan tahap kebimbangan yang sederhana hingga teruk dilaporkan dalam kalangan mereka yang bercerai/berpisah/balu (aOR 6.778, 95% CI [1.200, 38.296]), orang dewasa berumur 25 hingga 34 tahun (aOR

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2.038, 95% CI [1.049, 95% CI [1.049, 3.958]), 35 hingga 44 tahun (aOR 2.279, 95% CI [1.064, 4.882]), dan dengan tahap kebosanan yang lebih tinggi (aOR 1.063, 95% CI [1.035, 1.092]). Satu daripada lima rakyat Malaysia yang dikaji mengalami kebimbangan yang teruk. Orang dewasa dalam lingkungan umur bekerja (antara 25 dan 44 tahun) berkemungkinan lebih tinggi untuk mengalami kebimbangan. Kebosanan meningkatkan kemungkinan kebimbangan berbanding dengan kesepian, kesejahteraan dan daya tindak. Oleh itu, untuk menangani masalah kebimbangan, mesej kesihatan awam tentang faktor risiko perlu ditingkatkan.

*Kata kunci:* COVID-19, kebimbangan, kebosanan, Malaysia, prevalen

## ABSTRACT

The COVID-19 pandemic is a significant public health threat with wide-reaching psychological implications. The drastic changes in lifestyle due to the implementation of the movement control order (MCO) were associated with adverse effects on mental health. This study aimed to examine the prevalence of anxiety among Malaysians during the COVID-19 pandemic and its associated factors. The following questionnaires were self-administered online through google form which included: (i) Generalised Anxiety Disorder-7; (ii) Short Boredom Proneness Scale; (iii) Short Scale for Measuring Loneliness in Large Surveys; and (iv) The World Health Organisation (WHO) well-being index. Higher scores denoted higher levels of anxiety, boredom, loneliness, and well-being. Out of the 543 participants, more than half (55.2%) reported mild (25.6%), moderate (13.8%) to severe (19.8%) anxiety. Multiple logistic regression showed higher odds of moderate to severe anxiety were reported among those divorced/separated/widowed (aOR 6.778, 95% CI [1.200, 38.296]), adults aged 25 to 34 years (aOR 2.038, 95% CI [1.049, 3.958]), 35 to 44 years (aOR 2.279, 95% CI [1.064, 4.882]), and with higher boredom levels (aOR 1.063, 95% CI [1.035, 1.092]). One in five Malaysians surveyed experienced severe anxiety. Adults within the working age range (between 25 and 44 years old) were at higher odds of having anxiety. Boredom increased the odds of anxiety compared to loneliness, well-being and coping. Thus, addressing the risk factors through public health messages is deemed important.

*Keywords:* anxiety, boredom, COVID-19, Malaysia, prevalence

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## INTRODUCTION

The COVID-19 pandemic is a significant public health issue that caused adverse psychological implications (Alzahrani et al. 2022; Aylie et al. 2020; Saladino

et al. 2020; Shi et al. 2020; Sundarasan et al. 2020). Hand-in-hand with the physical threat of the loss of life is the psychological sequel from the drastic changes in lifestyle due to the implementation of lockdown

measures, and impacts on economic stability such as financial losses and unemployment as a result of business and economic collapse (Ho et al. 2020). With the spread of COVID-19 to Malaysia, the movement control order (MCO) was initiated since March 18, 2020, resulting in mandatory stay-at-home policies such as complete or partial closure of schools and working from home (Prime Minister's Department 2020).

Due to the uncertainties faced by worldwide populations, anxiety levels were expected to increase. However, some studies revealed a mixed or a wide range of prevalence of mental health among the general population. A systematic review by Xiong et al. (2020) encompassing eight countries revealed rates of anxiety between 6.33% and 50.90%, depression between 14.60% and 48.30% and psychological distress between 34.43% and 38.00%. Another systematic review revealed prevalence of anxiety of 31.90% and 33.70% of depression was reported in general population (Salari et al. 2020). A survey among university students in France indicated that two thirds of the studied sample perceived that their anxiety had increased (Husky et al. 2020). A nationally representative study in the United Kingdom (UK) found that the level of anxiety had also risen compared to pre-pandemic estimates, but not drastically (Shevlin et al. 2020). A meta-analysis further revealed that after the peak of COVID-19 epidemic in China, the prevalence of anxiety among the general population was 44% (Deng et al. 2021).

Specific groups of people were at

increased odds of being affected with mental health due to the COVID-19 pandemic. Consistently, women and younger age groups were more affected by the COVID-19 pandemic (El-Zoghby et al. 2020; Hyland et al. 2020; Moghanibashi-Mansourieh 2020; Sundarasan et al. 2020). Other risk factors identified were staying alone (Sundarasan et al. 2020), suffering from a loss of income (Hyland et al. 2020), low social support (Petzold et al. 2020), having children and being married or cohabitation also increased the risk of experiencing anxiety (Malesza & Kaczmarek et al. 2020).

During the COVID-19 pandemic, a study among 983 Malaysian public and private university students indicated that 29.80% had at least minimal anxiety (Sundarasan et al. 2020). Another study covering 16 universities indicated a higher prevalence, whereby 87.70% of the study participants reported at least mild anxiety based on the Generalised Anxiety Disorder Scale 7-item (GAD-7) (Irfan et al. 2021). On the other hand, a multi-center study on six Southeast Asian countries on healthcare workers, revealed that Malaysians had higher prevalence of depression (14.30%) and anxiety (14.90%) (Chew et al. 2020). However, studies on anxiety during the COVID-19 pandemic in Malaysia had disproportionately focused on university students and healthcare workers. This is a disadvantage as diverse demographic groups for the general population may yield a deeper understanding on at-risk groups who may require targeted interventions.

During the COVID-19 pandemic, lockdowns and the preference to

stay at home may have given rise to loneliness (Luchetti et al. 2020). A study among UK adults showed that between March to April 2020, the prevalence of loneliness was 27%, and those with higher difficulties in regulating their emotions experienced greater loneliness (Groarke et al. 2020). Another study on Polish young adults showed that lonelier individuals, worried about financial difficulties and social isolation had greater anxiety and depression (Okruszek et al. 2020). In Malaysia, Sundaresen et al. (2020) found that university students who stayed alone had two times more of anxiety; this may be related to higher loneliness among those who stayed alone.

Apart from loneliness, boredom is also an important topic to be addressed during the pandemic. Bozdağ's (2020) study among Turkish adults found that staying at home resulted in boredom. Boredom has been found to be a factor associated with anxiety, even before the pandemic (Lee & Zelman 2019). Similarly, a study in China during the pandemic found that those with higher boredom reported higher anxiety (Chao et al. 2020). However, there has been a lack of studies investigating the relationship between boredom and anxiety in Malaysia.

Based on the literature reviewed above, this study aimed to examine the prevalence of anxiety among Malaysians during the MCO and its associated risk and protective factors.

## MATERIALS AND METHODS

## STUDY DESIGN AND PARTICIPANTS

A cross-sectional study was undertaken. This study was a part of the International Citizen Project (ICPCOVID) involving 25 countries in the Global South. Questionnaires were self-administered via online mode using the platform provided by Seven Days Digital (<https://www.icpCOVID.com/en-my/form/pfcc>). Only data from Malaysians were extracted and analysed for this paper. Inclusion criteria were being a Malaysian citizen and aged 18 years and above. Participants were excluded if they did not provide informed consent.

## MEASURES

The following measures were self-administered in English or Malay language.

### Socio-demographic Data

Information on socio-demography such as age, gender, marital status, education, economic status, area of domicile, and number of children was collected.

### Anxiety Symptoms

The GAD-7 scale was used to screen for anxiety symptoms (Spitzer et al. 2006), measured on a four-point Likert scale ranging from 0 which indicates "Not at all" to 3 which indicates "Nearly every day" to ascertain their anxiety level for the past two weeks. Higher scores indicated higher levels

of anxiety. Besides, cut-offs of 0 to 4 indicated normal, 5 to 9 indicated mild, 10 to 14 indicated moderate and 15 and above indicated severe anxiety (Spitzer et al. 2006). The validated Malay version of the GAD-7 was used in this study (Sidik et al. 2012). The internal consistency reliability of the scale score in this study was  $\alpha = .93$ .

### Well-being

The World Health Organisation (WHO) Well-Being Index was used to measure overall positive mental health (Löwe et al. 2004). The measure consists of five items and has been employed to measure well-being during the COVID-19 pandemic (White & Van Der Boor 2020). Participants answered on a six-point Likert scale ranging from 0 representing "At no time" to 5 representing "All of the time". Higher scores indicated better well-being. This questionnaire was translated by the research team members into the Malay language. The internal consistency reliability of the scale score in this study was  $\alpha = 0.91$ .

### Boredom

The Short Boredom Proneness Scale (Struk et al. 2017) was used to measure boredom during the COVID-19 pandemic. The scale consisted of eight items, which were scored on a seven-point Likert scale ranging from 1 indicated "Very strongly disagree" to 7 indicated "Very strongly agree". The higher the score, the higher the boredom level in an individual. This questionnaire was translated by the

research team members into the Malay language. The internal consistency reliability of the scale score in this study was  $\alpha = 0.92$ .

### Loneliness

The Short Scale for Measuring Loneliness in Large Surveys (Hughes et al. 2004) consists of three items to measure loneliness. In this study, we added a question pertinent to the COVID-19 situation, which was "At home, do you feel trapped with too many people in the house?". Participants answered on a three-point Likert scale ranging from 1 indicated "Hardly ever" to 3 indicated "Often". Higher scores denoted greater levels of loneliness. This questionnaire was translated by the research team members into the Malay language. The internal consistency reliability of the scale score in this study was  $\alpha = 0.84$ .

### Coping

A single-item question was included to measure perception of coping, "In your opinion, do you think you are coping well during the COVID-19 situation?" Participants answered on a five-point Likert scale ranging from 1 indicated "Not well at all" to 5 indicated "Very well". This item was translated by the research team members into the Malay language.

### ETHICS CONSIDERATIONS

Ethics approval was obtained from the University of Malaya Research Ethics Committee (UMREC) (Approval No.:

UM.TNC2/UMREC-950). Informed consent was obtained from all participants, prior to data collection.

## PROCEDURES

Questionnaires that were only available in the English language were translated to Malay by the researchers. The questionnaire was distributed by the researchers through online platforms such as email and social media platforms such as Facebook and WhatsApp using the convenience sampling method. Participants could choose to answer either the English or Malay version of the questionnaire. The participant information sheet provided information about the study, including the research objectives, risk and benefits of participating in this research, confidentiality and organisations involved. Participants were also given a consent form. After participants gave their consent to participate in the study, they completed the self-administered online survey. A psychoeducation feedback sheet was given to participants to understand their level of anxiety, and advice was provided on ways to manage their anxiety, such as getting enough sleep.

## DATA ANALYSIS

All analyses were performed using SPSS version 27 (IBM Corp 2020, Armonk, NY). Descriptive statistics such as frequency and percentage were used to report the demographic information of participants. Pearson correlation test was done to test the associations between well-being, boredom,

loneliness and coping with anxiety. Multiple logistic regression model was constructed to determine the influence of the relevant variables on anxiety (moderate-to-severe anxiety vs. no/mild anxiety) as the criterion. A cut-off score of  $\geq 10$  was used to categorise (i) normal/mildly anxious and (ii) moderate to severely anxious groups. The predictors were chosen based on a zero-order correlation conducted prior to running the regression models. Variables that were non-significant in the correlation analysis were not entered into the multiple logistic regression model. The model was adjusted for age, gender, marital status, education, socio-economic status, having children, and area of domicile. Missing data were deleted list wise during analysis.

## RESULTS

A total of 543 Malaysian participants responded to the survey. Using G\*Power (version 3.1.9.2) post-hoc calculation with a medium effect size (0.15), a 5% significance level, thirteen predictors, and a sample size of 543 resulted in the power of the study to be about 99.9%. Majority of the participants were between 18 to 24 years old (27.8%), female (72.8%), had postgraduate education (35.0%), hail from the lower to middle income category (47.5%), had no children (60.4%) and lived in the urban area (84.5%). More than half (59.3%) reported mild (25.2%), moderate (13.6%) to severe (19.5%) anxiety symptoms (Table 1). Meanwhile, with regards to mental health and well-

Table 1: Participant demographics of the study (N=543)

Variable	Frequency (n)	Percentage (%)
Age (in years)		
18 to 24	150	27.8
25 to 34	146	27.1
35 to 44	108	20.0
45 to 54	63	11.7
55 to 64	63	11.7
65 and above	9	1.7
Gender		
Male	147	27.2
Female	393	72.8
Marital status		
Married	233	44.2
Single	277	52.6
Divorced	17	3.2
Education		
Primary/Secondary	43	8.0
Diploma/ Certificate	125	23.1
Undergraduate	183	33.9
Postgraduate	189	35.0
Economic status		
Low Income	74	13.7
Lower Middle Income	257	47.5
Higher Middle to High Income	210	38.8
Children		
With child/children	213	39.6
Without child	325	60.4
Domicile		
Urban	442	84.5
Rural	81	15.5
Anxiety level		
Normal	218	40.8
Mild	137	25.6
Moderate	74	13.8
Severe	106	19.8

being indicators, the mean score for anxiety was  $7.68 \pm 6.69$ , well-being ( $13.17 \pm 5.28$ ), boredom ( $25.67 \pm 10.42$ ), loneliness ( $4.78 \pm 1.89$ ) and coping was  $3.60 \pm 0.83$ .

Pearson’s correlation analysis results showed that well-being, boredom, loneliness, and coping were significantly correlated with anxiety scores (Table 2). Multiple logistic regression was conducted to examine factors associated with moderate to

severe anxiety and showed significant,  $\chi^2(21) = 94.83$ ,  $p < 0.001$ , explaining 24.3% (Nagelkerke  $R^2$ ) of the variance in anxiety and 70.6% of the cases were classified correctly. The Hosmer and Lemeshow test indicated that the model was of good fit ( $p = 0.243$ ). The results indicated that higher odds of moderate to severe anxiety was reported among those divorced/separated/widowed (aOR 6.778, 95% CI [1.200, 38.296]), adults aged 25 to 34 years (aOR 2.038,

Table 2: Correlation analysis between anxiety, well-being, boredom, loneliness, and coping among the participants

Variable	Mean (SD)	1	2	3	4	5
Anxiety (1)	7.68 (6.69)	1	-0.204***	.267***	0.162***	-0.151***
Well-being (2)	13.17 (5.28)		1	-0.501***	-0.456***	0.480***
Boredom (3)	25.67 (10.42)			1	0.542***	-0.448***
Loneliness (4)	4.78 (1.89)				1	-0.391***
Coping (5)	3.60 (0.83)					1

Note. \*\*\*p < 0.001

95% *CI* [1.049, 3.958]), 35 to 44 years (aOR 2.279, 95% *CI* [1.064, 4.882]), and with higher boredom levels (aOR 1.063, 95% *CI* [1.035, 1.092]). Those within the 55 to 64 age bracket had lower odds of reporting moderate to severe anxiety (aOR 0.073, 95% *CI* [0.016, 0.330]) (Table 3).

## DISCUSSION

Since this study aimed to examine the prevalence of anxiety among Malaysians from all age groups and factors associated with moderate to severe anxiety, this findings revealed that one in two (55.2%) Malaysians surveyed reported at least mild anxiety since the COVID-19 pandemic and 33.6% reported experiencing moderate to severe anxiety. The proportion of individuals reported to experience anxiety was higher in this study, compared to a pre-COVID-19 study conducted among the general population in Selangor despite utilising a lower cut-off of 8 and above on the GAD-7 questionnaire, with a prevalence of 8.2% (Kader Maideen et al. 2015). However, the prevalence of anxiety in this study was lower compared to another Malaysian study

involving university students during the COVID-19 pandemic, whereby 62.2% of the students experiencing moderate to severe anxiety (Irfan et al. 2021). Compared to other countries, the prevalence of anxiety symptoms in our study is higher than the pooled anxiety prevalence of 17 studies reviewed in a meta-analysis (31.9%,  $N = 63,439$ ) (Salari et al. 2020), and specific countries such as Hong Kong (14.0%,  $N = 774$ ) (Choi et al. 2020) and Ireland (20.0%,  $N = 1,041$ ) (Hyland et al. 2020). However, the prevalence was lower than in China (35.1%,  $N = 7,236$ ) (Huang & Zhao 2020), Taiwan (52.1%,  $N = 3555$ ) (Wong et al. 2020) and Turkey (45.1%,  $N = 343$ ) (Özdin & Bayrak Özdin 2020). The variability of anxiety prevalence could be due to cohort and methodological differences, and therefore should be interpreted with caution.

The findings revealed that socio-demographic factors such as being separated/divorced/widowed and adults between 25 and 44 years old were at higher odds of developing anxiety, with the highest odds among the separated/divorced/widowed group, while those between 55 and 64 years old had lower odds of anxiety.

Table 3: Multiple logistic regression of factors predicting anxiety among participants during the movement control order

Variable	Wald	aOR	95% CI		p-value
			Lower	Upper	
Constant	7.390	0.074			
Age					
18 to 24*					
25 to 34	4.420	2.038	1.049	3.958	0.036
35 to 44	4.491	2.279	1.064	4.882	0.034
45 to 54	0.292	1.288	0.514	3.226	0.589
55 to 64	11.535	0.073	0.016	0.330	0.001
65 and above	0.000	0.000	0.000	0.000	0.999
Gender					
Male*					
Female	0.182	0.901	0.557	1.457	0.670
Marital status					
Single*	0.117	1.156	0.503	2.659	0.732
Married	4.691	6.778	1.200	38.296	0.030
Separated/Divorced/ Widowed					
Education					
Primary/Secondary*					
Diploma/ Certificate	0.034	0.918	0.370	2.278	0.854
Undergraduate	0.019	1.063	0.444	2.546	0.891
Postgraduate	0.003	0.977	0.402	2.374	0.958
Economic status					
Lower Middle Income*					
Low Income	0.263	1.183	0.622	2.250	0.608
Higher Middle to High Income	0.822	0.799	0.492	1.298	0.365
Children					
Without child*	3.692	2.271	0.984	5.244	0.055
With child/children					
Domicile					
Urban*					
Rural	0.909	1.322	0.745	2.346	0.340
Well-being	0.007	1.002	0.954	1.053	0.935
Boredom	20.265	1.063	1.035	1.092	< 0.001
Loneliness	0.334	0.961	0.838	1.101	0.564
Coping	0.042	0.970	0.727	1.294	0.837

Note. \*Reference group; aOR = adjusted Odd Ratio

Those who were separated/divorced/widowed had higher odds of anxiety, and this was also observed in past studies during pre-pandemic phase. A systematic review revealed that the estimated pooled prevalence of anxiety among widowed individuals was 27.0% (Kristiansen et al. 2019),

and the risk of heightened anxiety remained two years after the spouses' death (Feng et al. 2019). Another study indicated that divorced individuals had higher level of anxiety than the general population before the COVID-19 pandemic (Hald et al. 2020) and during the COVID-19 pandemic (Lei

et al. 2020; Zhao et al. 2020). These populations may be vulnerable due to pre-existing lack of emotional support or grief from the loss of a partner (Hald et al. 2020; Zhao et al. 2020).

Adults aged between 25 and 45 years old had higher levels of anxiety in this study compared to university students, upon controlling for employment and marital status. Past studies on anxiety during the COVID-19 pandemic generally found that people from younger age group were more affected (Shevlin et al. 2020). However, in this study, further findings showed that there was a difference between the youngest age group (18 to 24 years old), which had significantly lower odds of developing anxiety compared to the age group associated with the workforce (i.e., 25 to 44 years old). This was associated with heavy responsibilities towards family and workplace among adults from this age group, thus engendering higher levels of anxiety when faced with the challenges caused by the pandemic, compared to those who is still as students in university. As mentioned by Zhao et al. (2020) adults in the working age range are the “backbones” of the family in Asian culture, and therefore face heavier burdens, with regards the concept of *filial piety* is widely practiced by Asian culture, thus accounting for higher prevalence of anxiety in this studied population. Finally, this study is also consistent with Shevlin et al. (2020) suggesting that older adults during the COVID-19 pandemic had lower odds of generalised anxiety and the general study also found that older adults had

less worried compared to younger age cohorts (Gonçalves & Byrne 2013).

Among the psychological variables that were investigated in this study (well-being, boredom, loneliness, and coping), only boredom was significantly associated with higher odds of anxiety. This was consistent with another study conducted in China, whereby boredom was linked with higher levels of anxiety during the COVID-19 pandemic (Chao et al. 2020). This study provided an insight in comparing other important psychological factors such as loneliness and coping, boredom may be most prominent in the context of a pandemic which required movement control measures, as the participants were constrained to limit their activities and movement (Brooks et al. 2020). Therefore, we need to take seriously the impact of boredom towards anxiety in the new normal of lockdowns and quarantine situations.

Several limitations were identified in this study. As this is an online survey, we could only reach participants who have internet access. Due to the urgency of the research and limitations imposed by the lockdown, we had used a non-probability sampling method through an online survey. Henceforth, we could not ensure a diverse representation of our participants. As a result, this study has a larger representation of highly educated individuals, which may skew the findings, even though the influence of education attainment was controlled in the multivariate model. The cross-sectional nature of this study prevented us from making causal inferences on the study results. In addition, as this questionnaire was not administered

face-to-face, we could not verify that the individuals who responded were Malaysian citizens. As this was an online survey, we did not control the possibility of multiple responses by the same individual, as we did not collect their IP address so that full participant anonymity was assured. Several important confounding factors were not considered in this paper, such as COVID-19 related factors, and the history of pre-existing mental health conditions. Future studies should attempt to obtain a representative sample while working within the constraints of the COVID-19 pandemic.

## CONCLUSION

This study showed that socio-demographic features such as being divorced/separated/widowed and within working age were associated with higher odds of moderate to severe anxiety symptoms. Among the psychological factors measured, boredom emerged as the significant factor which increased the odds of anxiety symptoms, compared to loneliness, well-being and coping. Therefore, there is a need to address the risk factors above through public health messages in the identified populations, including coping skills that increase the resilience of the family unit and alleviating boredom in the context of an infectious disease pandemic.

## ACKNOWLEDGEMENT

This research did not receive any specific grant from funding agencies

in the public, commercial or not-for-profit sectors.

## REFERENCES

- Alzahrani, F., Alshahrani, N.Z., Abu Sabah, A., Zurbah, A., Abu Sabah, S., Mamun, M.A. 2022. Prevalence and factors associated with mental health problems in Saudi general population during the coronavirus disease 2019 pandemic: a systematic review and meta-analysis. *Psych J* 11(1): 18-29.
- Aylie, N.S., Mekonen, M.A., Mekuria, R.M. 2020. The psychological impacts of COVID-19 pandemic among university students in Bench-Sheko Zone, South-west Ethiopia: a community-based cross-sectional study. *Psychol Res Behav Manag* 13: 813.
- Bozdağ F. 2021. The psychological effects of staying home due to the COVID-19 pandemic. *J Gen Psychol* 148(3): 226-48.
- Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., Rubin, G.J. 2020. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 395(10227): 912-20.
- Chao, M., Chen, X., Liu, T., Yang, H., Hall, B.J. 2020. Psychological distress and state boredom during the COVID-19 outbreak in China: the role of meaning in life and media use. *Eur J Psychotraumatol* 11(1): 1769379.
- Chew, N.W.S., Ngiam, J.N., Tan, B.Y., Tham, S.M., Tan, C.Y., Jing, M., Sagayanathan, R., Chen, J.T., Wong, L.Y.H., Ahmad, A., Khan, F.A. et al. 2020. Asian-Pacific perspective on the psychological well-being of healthcare workers during the evolution of the COVID-19 pandemic. *BJPsych Open* 6(6): e116.
- Choi, E.P.H., Hui, B.P.H., Wan, E.Y.F. 2020. Depression and anxiety in Hong Kong during COVID-19. *Int J Environ Res Public Health* 17(10): 3740.
- Deng, Y., Chen, Y., Zhang, B. 2021. Different prevalence trend of depression and anxiety among healthcare workers and general public before and after the peak of COVID-19 occurred in China: a meta-analysis. *Asian J Psychiatr* 56: 102547.
- El-Zoghby, S.M., Soltan, E.M., Salama, H.M. 2020. Impact of the COVID-19 pandemic on mental health and social support among adult Egyptians. *J Commun Health* 45: 689-95.
- Feng, Z., Dibben, C., Everington, D., Williamson, L., Raab, G. 2019. Does the risk of poor mental health rise before widowhood? *Int J Popul Data Sci* 4(3).
- Gonçalves, D.C., Byrne, G.J. 2013. Who worries most? Worry prevalence and patterns across the

- lifespan. *Int J Geriatr Psychiatr* **28**(1): 41-9.
- Groarke, J.M., Berry, E., Graham-Wisener, L., McKenna-Plumley, P.E., McGlinchey, E., Armour, C. 2020. Loneliness in the UK during the COVID-19 pandemic: Cross-sectional results from the COVID-19 Psychological Wellbeing Study. *PLoS One* **15**(9): e0239698.
- Hald, G.M., Cipri, A., Sander, S., Strizzi, J.M. 2020. Anxiety, depression and associated factors among recently divorced individuals. *J Ment Health* **31**(4): 462-70.
- Ho, C.S., Chee, C.Y., Ho, R.C. 2020. Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. *Ann Acad Med Singap* **49**(3): 155-60.
- Huang, Y., Zhao, N. 2020. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. *Psychiatr Res* **288**: 112954.
- Hughes, M.E., Waite, L.J., Hawkey, L.C., Cacioppo, J.T. 2004. A short scale for measuring loneliness in large surveys: results from two population-based studies. *Res Aging* **26**(6): 655-72.
- Husky, M.M., Kovess-Masfety, V., Swendsen, J.D. 2020. Stress and anxiety among university students in France during COVID-19 mandatory confinement. *Compr Psychiatr* **102**: 152191.
- Hyland, P., Shevlin, M., McBride, O., Murphy, J., Karatzias, T., Bentall, R.P., Martinez, A., Vallières, F. 2020. Anxiety and depression in the Republic of Ireland during the COVID-19 pandemic. *Acta Psychiatr Scand* **142**(3): 249-56.
- Irfan, M., Shahudin, F., Hooper, V.J., Akram, W., Abdul Ghani, R.B. 2021. The psychological impact of coronavirus on university students and its socio-economic determinants in Malaysia. *Inquiry* **58**: 469580211056217.
- Kader Maideen, S.F., Mohd Sidik, S., Rampal, L., Mukhtar, F. 2015. Prevalence, associated factors and predictors of anxiety: a community survey in Selangor, Malaysia. *BMC Psychiatry* **15**: 262.
- Kristiansen, C.B., Kjær, J.N., Hjorth, P., Andersen, K., Prina, A.M. 2019. Prevalence of common mental disorders in widowhood: a systematic review and meta-analysis. *J Affect Disord* **245**: 1016-23.
- Lee F.K., Zelman D.C. 2019. Boredom proneness as a predictor of depression, anxiety and stress: The moderating effects of dispositional mindfulness. *Pers Ind Differen* **146**: 68-75.
- Lei, L., Huang, X., Zhang, S., Yang, J., Yang, L., Xu, M. 2020. Comparison of prevalence and associated factors of anxiety and depression among people affected by versus people unaffected by quarantine during the COVID-19 epidemic in Southwestern China. *Med Sci Monit* **26**: e924609-1.
- Löwe, B., Spitzer, R.L., Gräfe, K., Kroenke, K., Quenter, A., Zipfel, S., Buchholz, C., Witte, S., Herzog, W. 2004. Comparative validity of three screening questionnaires for DSM-IV depressive disorders and physicians' diagnoses. *J Affect Disord* **78**(2): 131-40.
- Luchetti, M., Lee, J.H., Aschwanden, D., Sesker, A., Strickhouser, J.E., Terracciano, A., Sutin, A.R. 2020. The trajectory of loneliness in response to COVID-19. *Am Psychol* **75**(7): 897-908.
- Malesza, M., Kaczmarek, M.C. 2020. Predictors of anxiety during the COVID-19 pandemic in Poland. *Pers Individ Dif* **170**: 110419.
- Moghanibashi-Mansourieh, A. 2020. Assessing the anxiety level of Iranian general population during COVID-19 outbreak. *Asian J Psychiatr* **51**: 102076.
- Okruszek, Ł., Aniszewska-Stańczuk, A., Piejka, A., Wiśniewska, M., Żurek, K. 2020. Safe but lonely? Loneliness, anxiety, and depression symptoms and COVID-19. *Front Psychol* **11**: 579181.
- Özdin, S., Bayrak Özdin, Ş. 2020. Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: the importance of gender. *Int J Soc Psychiatr* **66**(5): 504-11.
- Petzold, M.B., Bendau, A., Plag, J., Pyrkosch, L., Mascarell Maricic, L., Betzler, F., Rogoll, J., Große, J., Ströhle, A. 2020. Risk, resilience, psychological distress, and anxiety at the beginning of the COVID-19 pandemic in Germany. *Brain Behav* **10**(9): e01745.
- Prime Minister's Department. 2020, March 18. Kenyataan Media MKN: Perincian Perintah Kawalan Pergerakan [MKN Media Statement: Details of the Movement Control Order]. <https://www.pmo.gov.my/2020/03/kenyataan-media-mkn-18-mac-2020/> [27 October 2022]
- Saladino, V., Algeri, D., Auriemma, V. 2020. The psychological and social impact of COVID-19: new perspectives of well-being. *Front Psychol* **11**: 2550.
- Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., Khaledi-Paveh, B. 2020. Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Global Health* **16**(1): 57.
- Shevlin, M., McBride, O., Murphy, J., Miller, J.G., Hartman, T.K., Levita, L., Mason, L., Martinez, A.P., McKay, R., Stocks, T.V.A., Bennett, K.M., Hyland, P., Karatzias, T., Bentall, R.P. 2020. Anxiety, depression, traumatic stress, and COVID-19 related anxiety in the UK general population during the COVID-19 pandemic. *BJPsych Open* **6**(6): e125.
- Shi, C., Guo, Z., Luo, C., Lei, C., Li, P. 2020. The psychological impact and associated factors of COVID-19 on the general public in Hunan,

- China. *Risk Manag Healthc Policy* **13**: 3187-99.
- Sidik, S.M., Arroll, B., & Goodyear-Smith, F. 2012. Validation of the GAD-7 (Malay version) among women attending a primary care clinic in Malaysia. *J Prim Health Care* **4**(1): 5-11.
- Spitzer, R.L., Kroenke, K., Williams, J.B., Löwe, B. 2006. A brief measure for assessing generalized anxiety disorder: the GAD-7. *JAMA Intern Med* **166**(10): 1092-7.
- Struk, A.A., Carriere, J.S., Cheyne, J.A., Danckert, J. 2017. A short boredom proneness scale: development and psychometric properties. *Assessment* **24**(3): 346-59.
- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G.M., Khoshaim, H.B., Hossain, S.F.A., Sukayt, A. 2020. Psychological impact of COVID-19 and lockdown among university students in Malaysia: implications and policy recommendations. *Int J Environ Res Public Health* **17**(17): 6206.
- White, R.G., Van Der Boor, C. 2020. 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* **6**(5): e90.
- Wong, L.P., Hung, C.C., Alias, H., Lee, T.S. 2020. Anxiety symptoms and preventive measures during the COVID-19 outbreak in Taiwan. *BMC Psychiatry* **20**(1): 376.
- Xiong, J., Lipsitz, O., Nasri, F., Lui, L., Gill, H., Phan, L., Chen-Li, D., Iacobucci, M., Ho, R., Majeed, A., McIntyre, R.S. 2020. Impact of COVID-19 pandemic on mental health in the general population: a systematic review. *J Affect Disord* **277**: 55-64.
- Zhao, H., He, X., Fan, G., Li, L., Huang, Q., Qiu, Q., Kang, Z., Du, T., Han, L., Ding, L., Xu, H. 2020. COVID-19 infection outbreak increases anxiety level of general public in China: involved mechanisms and influencing factors. *J Affect Disord* **276**: 446-52.

Received: 13 Jul 2022

Accepted: 04 Nov 2022