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Lockdown fatigue among college students during the COVID-19 pandemic: Predictive role of personal resilience, coping behaviors, and health

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Abstract

Objectives: This study was conducted to examine the levels of lockdown-induced fatigue and its association with personal resilience, coping skills, and health in college students.

Design and Methods: This is an online cross-sectional study involving 243 college students in the Central Philippines during the 6th month of the lockdown measure implementation.

Findings: College students experience moderate levels of fatigue during the mandatory lockdown period. Increased personal resilience and coping skills were associated with lower levels of lockdown fatigue.

Practice Implications: Lockdown fatigue may be addressed by formulating and implementing interventions to enhance personal resilience and coping skills among college students.

KEYWORDS

coping, COVID-19, health, lockdown, pandemic, resilience, students

1 | INTRODUCTION

The COVID-19 pandemic is a global health issue that has significant health and economic implications. Since its emergence in China in November 2019, as of February 2021, the disease has infected over 111 million people worldwide, claimed at least 2.4 million lives, and been reported in 215 countries or territories. Among the nations around the world, the United States of America, Brazil, India, and Russia remain the most affected, together comprising approximately 30% of the overall confirmed cases of coronavirus. In the Western Pacific Region, the Philippines recorded the highest number of confirmed cases and deaths, with more than 50% of the cumulative cases and 40% of the cumulative deaths (WHO, 2020).

In an effort to mitigate the transmission of the coronavirus, many countries around the world have adopted various disease control measures, including strict social distancing and mandatory lockdown or stay-at-home orders.^{2,3} In the Philippines, the government imposed a nationwide mandatory lockdown, also referred to as 'community

quarantine', starting in March 2020, forcing people to stay home and restricting all forms of physical and social activities outside the home, with exceptions made for frontline and essential workers. In addition, schools were physically closed in mid-March 2020 and remain closed as of this writing, with remote teaching and learning environments being implemented as a temporary solution. These measures, along with other disease control strategies, were found to effectively reduce the number of confirmed cases and deaths associated with COVID-19 in the country,⁴ as well as in other countries.^{5,6}

Though the lockdown policies effectively mitigated or slowed the transmission of the coronavirus disease, they have adversely affected people's way of life, with serious consequences for mental and psychological health and well-being, particularly among young people. ^{7,8} Fatigue or a mental or physical state of tiredness and lack of energy ⁹ is one of the most common reported consequences of the lockdown or home confinement measures during the COVID-19 pandemic. ¹⁰ Lockdown fatigue occurs due to the overwhelming disruptions on an individual's routines and activities, social isolation,

lack of security, imminent threat to health, and unpredictability of what is ahead, and may manifest as a mix of physical, mental, and/or emotional signs. 10 Though fatigue is subjective, it is generally an undesirable experience in which an individual is engulfed with an overpowering sense of tiredness that is not relieved by rest or food intake, intense yearning to rest, lack of physical and mental energy, and decreased motivation and sense of enjoyment. 11 It diminishes an individual's ability to function normally on a daily basis and may consequently lead to a decreased quality of life. 12 Previous research has provided compelling evidence of lockdown-related fatigue among Australian citizens after a few months of the nationwide lockdown mandate¹³ which appears to worsen as time passes.¹⁴ Manifestations of lockdown-related fatigue included sadness, physical exhaustion, reduced interest in previously enjoyed activities, emotional outbursts, and anxiety and fear. 10 Other signs indicating increasing fatigue during the lockdown period included tiredness, 15 sleep disturbance, 16 uncertainty, loneliness, 3 irritability, 15 fear and increased worry. 17 lack of motivation. 18 and loss of interest in previously enjoyed activities. 19

Since young adults value greater social connectedness and highly engage in social activities than other ages, they are heavily affected by the lockdown or home confinement measures during the pandemic. ^{20,21} This may result in loss of connection to their peers and friends, increased social isolation, emotional loneliness, leading to increased risk of fatigue and other mental health problems. ^{3,22} Evidence has shown significant increases in the prevalence of mental issues such as anxiety, depression, and psychological distress, ²³ and symptoms of physical exhaustion, including tiredness, headaches, insomnia, fatigue, and muscle pain, ^{16,24} in young people during the mandatory lockdown period. Hence, measures should be implemented to better support young people during the pandemic to reduce the ill effects of the lockdown on their mental, psychological, and physiological well-being.

Coping skills and personal resilience are key factors that may protect an individual from lockdown-induced fatigue and other mental and psychological health consequences of the pandemic and the measures implemented to control the disease. Although multiple definitions of coping have been proposed, 25,26 the definition of Lazarus & Folkman²⁷ which identifies coping as thoughts and actions that individuals use to manage and reduce the impacts of traumatic and stress-inducing situations was used. The literature has identified two coping strategies: problemfocused coping targets the root causes of stress to reduce the stress and its impact; the other is emotion-focused coping, which aims to lessen or reduce adverse emotional reactions to stressful events.^{27,28} In the context of a pandemic, adequate coping skills are vital to help an individual cope with the negative effects of the mandatory lockdown and support their mental health.^{22,29} Studies have shown that individuals with poor coping skills³⁰ and a negative mindset characterized by excessive worrying, hopelessness, and pessimism³¹ are at higher risk for developing mental and psychological issues related to the pandemic, possibly including lockdown-induced fatigue.

Personal resilience is defined as an individual's capacity to rebound from adversity or stressful situations.³² During the pandemic, adequate resilience is important for a successful recovery from stressful circumstances and effectively endure the stress caused by the pandemic and other restrictions including the lockdown measure.³³ Prior reports associated adequate personal resilience with improved mental health and reductions in psychological issues such as loneliness, anxiety, depression, and stress across populations during the height of the coronavirus pandemic.^{34,35} Strengthening resilience and enforcing healthier coping skills may therefore help an individual combat fatigue related to the lockdown or home confinement measures and other stressors associated with the inevitable changes brought about by the pandemic.

Despite evidence showing the increased tendency of young people to develop fatigue related to lockdown measures, no studies examining how individual resilience and coping skills reduce fatigue in college students have yet been conducted. Therefore, this study was conducted to examine the levels of lockdown-induced fatigue and its association with personal resilience, coping skills, and health in college students. Specifically, the following hypotheses were tested:

Hypothesis 1. Younger and female students, and those in the lower year level of education are more likely to report increased lockdown fatigue than older and male students, and those in the higher year level of education.

Hypothesis 2. Increased personal resilience, coping skills, and general health are associated with decreased lockdown fatigue.

2 | METHODS

2.1 | Research design

A cross-sectional study utilizing an online data collection approach was conducted during the 6th month of the mandatory lockdown implemented in the Philippines due to the coronavirus pandemic.

2.2 | Samples and settings

This study included college students enrolled in different colleges and universities in Western Samar, Philippines. Using the G^* power program software, an estimation of required sample size was performed. A sample size of 222 was found to be required for five predictors to attain an 80% power, with an effect size of 0.05 and an alpha set at 0.05. Three hundred students were initially invited; however, only 243 responded to our online survey. To qualify for the study, students had to: (a) be currently enrolled in a college or university; (b) be a full-time student; and (c) consent to participate in the study.

2.3 | Instrumentation

Four standardized scales were used to gather data including the Lockdown Fatigue Scale (LFS³⁷), Brief Resilience Scale (BRS³⁸), Coping Behaviors Questionnaire (CBQ; Carver et al., 1997), and a

single-item measure of general health. The LFS was developed primarily to measure fatigue during the COVID-19 pandemic, while the BRS, CBQ, and the single-item measure of general health were developed before the pandemic. Minor adjustments or modifications were made to some items including the use of lockdown-specific terminologies.

2.3.1 | Lockdown/Pandemic Fatigue Scale

This scale was used to evaluate signs of exhaustion associated with the lockdown or home confinement measures to slow the spread of coronavirus. The LFS was designed based on an extensive review of the literature and structured interviews of 15 individuals who were affected by the mandatory lockdown during the pandemic. Sample items are "I have been experiencing headaches and body pains" and "I frequently felt weak or tired as a result of the pandemic." The 10-item scale was answered by the participants on a five-point Likert-type scale that ranged from 1 (never) to 5 (always). The scale had an excellent concurrent validity, as evidenced by its positive association with fatigue Assessment Scale, ³⁹ and acceptable criterion validity, demonstrated by its positive correlation with turnover intention. ²² The internal consistency value of the scale in the original study was 0.80, while in the present study, the Cronbach's alpha was 0.86. The test-retest reliability value of the scale was 0.87.

2.3.2 | Brief Resilience Scale

This scale determined students' ability to bounce back from traumatic or unpleasant events associated with the pandemic and the imposed lockdown measure. Participants answered the scale by responding to a five-point Likert-type scale ranging from 0 (does not describe me at all) to 5 (describes me very well). Previous research supported the validity and reliability of the measure, ^{29,38} and in the current study, the internal consistency value of scale was 0.90. The test-retest reliability value of the scale was 0.91.

2.3.3 | Coping Behaviors Questionnaire

This scale was originally designed to measure ways of coping with stressful life events in an individual. In the current study, the CBQ was used to examine the degree to which college students utilize a specific coping strategy during the mandatory lockdown period. The scale comprised eight items that were categorized into four dimensions: seeking information and consultation, use of humor, mental disengagement, and spirituality/sources of support. Participants answered the items using a five-point Likert-type scale that ranged from 1 (strongly disagree) to 5 (strongly agree). The previous research⁴⁰ established excellent criterion validity, demonstrated by its negative correlation with anxiety-related to COVID-19 pandemic, and excellent reliability of the scale, reporting an internal consistency value of 0.85. The internal consistency value for this

scale obtained in the present study was 0.89. The test-retest reliability value of the scale was 0.84.

2.3.4 | Perceived general health

This single-item measure of general health was used to assess the overall personal health of the college students. Participants were asked to rate their overall health using a five-point Likert-type scale (1 = poor, 5 = excellent). The test–retest reliability value of the item in the present study was 0.91, which was higher than the value previously reported ($\alpha = 0.89^{22}$).

2.4 Data collection and ethical considerations

The Review Board for Research of Public State University granted the ethical clearance for this study. Before the actual data collection, the survey questionnaires were pilot tested to 50 college students over a period of 2 weeks through an online survey online to check the reliability of the scales. Since the schools were closed during the data collection period, an online survey was created using Google Forms and sent to email addresses of the students within the Province. Basic information about the study, along with the letter seeking their consent, were contained in the introductory page of the online form. To ensure the anonymity of the participants, names were not requested during submission. The online survey was conducted for a period of one month from August to September 2020, which corresponds to the 6th month of the mandatory lockdown measure in the Philippines. Follow-up emails were sent to students on a weekly basis to remind them to complete the survey.

3 | DATA ANALYSIS

Data completeness was checked before entering data into SPSS version 25. To quantify the data, we calculated frequencies, standard deviations, and means. Bivariate analysis was facilitated using the independent t-test, Pearson's correlation coefficient (r), and analysis of variance to examine correlations between key study variables. Bonferroni's test was used for post hoc analysis. Variables that yielded significant correlations with the outcome variable were entered into the multiple linear regression. The level of statistical significance was set as p < 0.05.

4 | RESULTS

Two hundred forty-three college students from different schools and colleges in the region participated in the study. The average age was 20.77 years, with a standard deviation of 2.66 years. The majority of the participants were female (n = 198, 81.5%), and more than half (n = 153, 62.9%) were in their 1st and 2nd years of college education. More than half of the participants were enrolled in public schools

TABLE 1 Students' characteristics (*n* = 243)

Characteristics	Categories	N	Percent
Gender	Male	45	18.5
	Female	198	81.5
Year level	1	62	25.5
	2	91	37.4
	3	59	24.3
	4	31	12.8
Type of school	Private	79	32.5
	Public	164	67.5
Location of school	Urban	167	68.7
	Rural	76	31.3
		Mean	SD
Age		20.77	2.66
Personal resilience		3.949	0.722
General health		3.843	0.843
Coping skills		3.818	0.372

(n = 164, 67.5%) in urban areas (n = 167, 68.7%) (Table 1). The mean scale scores for the personal resilience and psychological well-being measures were 3.949 and 5.377, respectively. For the perceived general health and coping skills measures, the mean scale scores were 3.843 and 3.818, respectively.

Table 2 shows the responses of the participants on the LFS. The mean scale score of the LFS was 31.54 (*SD*: 6.930) out of a maximum possible score of 50. Among the different items on the scale, the items "I frequently felt weak or tired as a result of this lockdown" (m = 4.588), "I worry a lot about my personal and family's safety during this pandemic" (m = 3.588), and "I have been experiencing headaches and body pains" (m = 3.338) obtained the highest

TABLE 3 Relationship between students' characteristics and lockdown/pandemic fatigue

Characteristics	Categories	Mean	SD	Test statistics	р
Gender ^a	Male	26.082	6.271	-2.357	0.021
	Female	28.552	7.920		
Year level ^b	1	29.646	8.517	3.745	0.012 ^c
	2	27.91	6.981		
	3	28.646	8.262		
	4	24.226	5.433		
Type of school ^a	Private	28.298	7.825	0.300	0.764
	Public	27.989	7.642		
Location of school ^a	Urban	28.028	7.566	-0.183	0.855
	Rural	28.22	7.992		
Age^d				-0.115	0.064
Personal resilience ^d				-0.180	0.002
General health ^d				-0.035	0.571
Coping skills ^d				-0.177	0.004

^at test for independent group.

mean values. The items that obtained the lowest mean values were "I have been feeling irritable" (m = 2.721), "I have been experiencing a general sense of emptiness" (m = 2.691), and "I have difficulty falling or staying asleep over thinking about this pandemic" (m = 2.838) (Table 2).

As presented in Table 3, several of the variables correlated significantly with lockdown fatigue. An independent t test showed a significantly higher mean score on the LFS in female compared to

TABLE 2 Responses on the Lockdown/Pandemic Fatigue Scale

Lockdown/Pandemic Fatigue Scale items	Rank	Min	Max	Mean	SD
1. I worry a lot about my personal and family's safety during this pandemic.	2	2.00	5.00	3.588	1.011
2. I have felt sad and depressed as a result of the pandemic.	5	1.00	5.00	3.044	1.343
3. I frequently felt weak or tired as a result of the pandemic.	1	3.00	5.00	4.588	0.629
4. I have difficulty concentrating and distracted easily.	6	1.00	5.00	2.912	1.168
5. I have been feeling irritable.	9	1.00	5.00	2.721	1.118
6. I have difficulty falling or staying asleep over thinking about this pandemic.	8	1.00	5.00	2.838	1.300
7. I have been losing my interests to do the usual things I love.	4	1.00	5.00	3.118	1.216
8. I have been experiencing a general sense of emptiness.	10	1.00	5.00	2.691	1.296
9. I have been experiencing headaches and body pains.	3	1.00	5.00	3.338	1.253
10. I have thoughts that this pandemic will never end soon.	7	1.00	5.00	2.882	1.333
Lockdown/Pandemic Fatigue Scale (mean score)		15.00	48.00	31.544	6.930

^bAnalysis of variance.

 $^{^{}c}1 > 4 (p < 0.05); 3 > 4 (p < 0.05).$

^dPearson *r* correlation.

TABLE 4 Regression analysis on factors associated with lockdown/ pandemic fatigue

						95.0% Confidence interva	
Variables	В	Std. Error	Beta	t	р	Lower bound	bound
(Constant)	32.623	5.014		6.506	0.001	22.748	42.497
Gender (reference: female)							
Male	-2.397	1.200	-0.122	-1.998	0.047	-4.759	-0.034
Year level (reference: fourth Year)							
First	4.979	1.617	0.281	3.080	0.002	1.795	8.163
Second	3.596	1.523	0.228	2.360	0.019	0.595	6.596
Third	3.895	1.628	0.220	2.393	0.017	0.689	7.101
Coping skills	-3.634	1.583	-0.176	-2.295	0.023	-6.752	-0.515
Personal resilience	-1.286	0.629	-0.155	-2.045	0.042	-2.525	0.047

Note: F = 4.130, p < 0.000, $R^2 = 15.7\%$.

Abbreviations: β , standardized regression coefficient; CI, confidence interval; Std. Error, standard error.

male students (t = -2.357, p = 0.021). Further, analysis of variance showed a significant difference in the LFS mean score in participants grouped according to the level of education, and post hoc analysis using the Bonferroni test showed significantly higher mean scores in the LFS in 1st-year and 3rd-year students compared to 4th-year students (all p < 0.05). Pearson's correlation coefficient showed a significant negative relationship between personal resilience and lockdown fatigue (r = -0.180, p = 0.002). A similar pattern was observed between coping skills and lockdown fatigue (r = -0.177, p = 0.004).

Variables that were significantly correlated with the outcome variable were entered into the multiple linear regression model (Table 4). The model explained 15.7% in the variance of the LFS, which was statistically significant (F = 4.130, p < 0.001). Among the different variables, gender and level of education predicted lockdown fatigue, with female students ($\beta = -0.122$, p = 0.047) and those in the lower levels reporting increased lockdown fatigue. Further, increased scores on the personal resilience ($\beta = -2.295$, p = 0.023) and coping skills ($\beta = -2.045$, p = 0.042) measures were associated with a significant decrease in scores on the lockdown fatigue measure.

5 | DISCUSSION

The current study examined the extent of fatigue experienced by college students during the mandatory COVID-19 lockdown period and the influence of students' demographic variables, personal resilience, coping skills, psychological well-being, and perceived general health in the development of lockdown fatigue.

The mean scale score of the lockdown fatigue measure was 31.54 (SD: 6.930) out of a possible score of 50, suggesting a moderate level of lockdown fatigue in the sample studied. Due to the absence of a similar

tool to measure fatigue before the mandatory lockdown period, comparing and contrasting our study findings with previous studies is not possible. However, this result was in line with that of a previous study by Nitschke et al. 13 who, using the Chalder Fatigue Questionnaire observed a significant level of fatigue in Australian citizens a few months after the mandatory lockdown was enacted. Using Google Trends to examine the effects of the home confinement measures implemented in Europe and America, Brodeur et al.41 found compelling evidence of substantial increases in sadness, boredom, worry, loneliness, and fatigue in the general population from the initial weeks until the 4th months of the implementation of the measures. Reports from India, the USA, and Saudi Arabia also showed substantial evidence that individuals become increasingly tired and fatigued as time lapses, suggesting that efforts should be made to effectively support this group of individuals and to prevent the adverse consequences of prolonged lockdown or home confinement. 14,16 As higher levels of fatigue may adversely affect the physical, mental, behavioral, and cognitive functions of an individual, 11 it is critically important to develop strategies to address this issue through evidence-based approaches.

Among the different manifestations of fatigue, the participants in this study reported tiredness or physical exhaustion, headaches and body pain, decreased motivation, and increased worry as the most pronounced symptoms. The reported symptoms of lockdown fatigue in this study were similar to those previously identified in a report by the Australian Psychological Society, which included sadness, physical exhaustion, reduced interest in previously enjoyed activities, emotional outbursts, and anxiety and fear. This result is similar to that of a study by Majumdar et al. in which Indian professionals and students exhibited various indicators of fatigue, including tiredness, higher stress, and anxiety levels, and increased worry for their personal security and the safety of their families, after a few months of the home confinement measure.

Regression analysis identified gender as an important predictor of lockdown fatigue, with female students experiencing an increased level of fatigue compared to male students. This result should be interpreted with caution due to the disparity in the proportion of male and female participants in this study. Nevertheless, this result may indeed be due to gender disparity with regard to expression of feelings and emotions, including worry, fear, sadness, and anxiety, and even in their expression of pain and bodily discomfort. Mounting evidence has shown that men tend to suppress their emotions and feelings, while women are more vocal when expressing their emotions. 42,43 This result is a corroboration of the long-standing gender stereotype within the Philippine culture in which the expression of thoughts, feelings, and emotions is more acceptable for women than for men. In addition to fatigue, previous evidence has also shown that women had a higher inclination to develop other mental and psychological issues such as stress disorders, major depression, and anxiety and panic disorders than men during the height of the COVID-19 pandemic. 34,44 Findings of the study also suggest the dire need for the implementation of gender-tailored strategies to effectively manage the adverse impact of the lockdown measure and reduce fatigue. Results of this study differ from those of the study by Nitschke et al. 13 in which gender did not contribute to the development of fatigue in Australian citizens during the pandemic.

Another important finding was the direct influence of college students' year level on the development of lockdown fatigue. In particular, graduating students reported decreased levels of fatigue compared to students in the lower levels. This result was expected, as during the course of their education, students acquire adaptive behaviors, positive coping abilities, and higher resilience⁴⁵ that are vital when confronted with stress-inducing situations such as the coronavirus pandemic. Previous studies have demonstrated a significant decline in stress levels and marked improvement in coping abilities in college students as they progress to higher levels of education. This finding calls for a greater need to support college students, particularly those earlier in their college careers, through relevant interventions to improve their coping skills and personal resilience so that they can effectively handle the mental, physical, and psychological consequences associated with home confinement measures or lockdown.

Regression analysis also revealed a significant negative association between personal resilience and lockdown fatigue, suggesting the protective role of individual resilience against the consequences of the mandatory home confinement measure. To our knowledge, this study is the first to report a relationship between personal resilience and fatigue associated with the lockdown measure, hence adding new knowledge to nursing science. Increasing individual resilience has been shown to be an important strategy to help an individual bounce back from adversity when faced with various stressors and stress-inducing events and traumatic situations.³² Our result is in accordance with earlier studies that linked personal resilience with positive psychological and mental health outcomes across populations during the height of the coronavirus pandemic.^{29,35,48}

In the current study, students who reported higher coping skills reported having significantly lower levels of lockdown fatigue. Adequate coping skills have been identified in the literature as a vital defense for an individual, offering long-term stress reduction effects during stressful or traumatic situations.⁴⁹ Previous studies involving college students have also identified problem-focused coping behaviors, including seeking social support, and problem-solving behaviors as equally vital to increase their adaptability and hardiness against stressful events. 50,51 Further, adequate coping skills have been found to minimize the mental and psychological consequences of traumatic events, emergency and disaster events, and disease outbreaks.^{22,29,52} Higher levels of coping skills were found to contribute to a significant reduction in psychological issues (e.g., stress, anxiety, depression) related to the COVID-19 pandemic among college students in China,⁵³ the USA,⁵⁴ and Switzerland.³⁴ In a recent study involving college students, high levels of fatigue due to social distancing measures were attributed to lower social connectedness with peers and friends and lower coping skills. 13 It is therefore vital that measures towards reducing lockdown fatigue among college students be focused on strengthening their coping skills, thus improving their mental and psychological well-being and overall health. Increasing communication and connections with friends and family is essential to reduce the negative impact of home confinement,⁵⁵ and this can be accomplished with the aid of technology or social media.

6 | LIMITATIONS OF THE STUDY

This study has several limitations that should be considered when interpreting the findings. First, due to the design of the study, it is impossible to establish causality between students' variables and lockdown fatigue. We could not determine whether people that are more resilient and those with better coping experience lesser fatigue during the lockdown period than those with poor coping and nonresilient people. Hence, future studies may utilize rigorous methods (e.g., experimental research design) to examine and test the effectiveness of a resilience intervention and other measures to increase coping skills in reducing lockdown fatigue. Second, since most of the study variables are dynamic (e.g., fatigue, resilience, health) and may therefore change over time, it is important to use longitudinal research designs in future studies. Third, to improve the generalizability and representativeness of the study, future studies should include more samples from other areas of the country. Finally, the use of self-reported scales is a possible limitation of the study, as it may cause response bias.

7 | IMPLICATIONS FOR NURSING PRACTICE

The study results highlight the relevance of instituting interventions to foster personal resilience and coping strategies in students to reduce the occurrence of lockdown-related fatigue and other negative mental and psychological consequences associated with the pandemic. Government planners should periodically review the effectiveness of the lockdown measures being implemented and consider ways to ease the measure without compromising the health of the population.

8 | CONCLUSION

Mandatory lockdown or home confinement measures to slow the transmission of COVID-19 may cause considerable levels of fatigue in college students. Female students, as well as those in the lower levels of education, were found to experience more fatigue than male and graduating students. Further, this study provided empirical evidence linking higher personal resilience and coping skills with decreased levels of lockdown-induced fatigue in students. Strategies to manage or reduce lockdown fatigue among college students should consider the factors identified to effectively address this growing problem among this group of the population during the coronavirus pandemic. Future studies testing the efficacy and effectiveness of interventions to reduce fatigue in college students should be undertaken.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- World Health Organization. (2021). Coronavirus disease (COVID-19)
 weekly epidemiological update. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20201005-weekly-epi-update-8.pdf. Accessed January 10, 2021.
- Ren X. Pandemic and lockdown: a territorial approach to COVID-19 in China, Italy and the United States. Eurasian Geog Econ. 2020;61: 423-434. https://doi.org/10.1080/15387216.2020.1762103
- Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G. Impact of COVID-19 and lockdown on mental health of children and adolescents: a narrative review with recommendations. *Psychiatry Res.* 2020;293:1-10. https://doi.org/10.1016/j.psychres.2020.113429
- Department of Health. (2020). Updates on novel coronavirus disease (COVID-19). https://www.doh.gov.ph/2019-nCoV. Accessed January 10, 2021.
- Fowler JH, Hill SJ, Levin R, Obradovich N. The effect of stay-athome orders on COVID-19 infections in the United States. arXiv:2004.06098. 2020.
- Chen MK, Zhuo Y, dela Fuente M, Rohla R, Long EF. Causal Estimation of Stay-at-Home Orders on SARS-CoV-2 Transmission. arXiv:2005.05469. 2020.
- Marroquín B, Vine V, Morgan R. Mental health during the COVID-19 pandemic: effects of stay-at-home policies, social distancing behavior, and social resources. *Psychiatry Res.* 2020;293:113419. https://doi.org/10.1016/j.psychres.2020.113419
- Volkan E, Volkan E. Under the COVID-19 lockdown: rapid review about the unique case of North Cyprus. Psychol Trauma: Theory, Res, Pract, Policy. 2020;12(5):539-541. https://doi.org/10.1037/tra0000809

- Jorgensen R. Chronic fatigue: an evolutionary concept analysis. J Adv Nurs. 2008;63(2):199-207.
- Australian Psychological Society2020. Managing lockdown fatigue. The Australian Psychological Society Limited. https://www.psychology.org. au/getmedia/74e7a437-997c-4eea-a49c-30726ce94cf0/20APS-IS-COV ID-19-Public-Lockdown-fatigue.pdf. Accessed October 5, 2020.
- Trendall J. Concept analysis: chronic fatigue. J Adv Nurs. 2000;32(5): 1126-1131. https://doi.org/10.1046/j.1365-2648.2000.01583.x
- Ream E, Richardson A. Fatigue: a concept analysis. Int J Nurs Stud. 1996;
 33(5):519-529. https://doi.org/10.1016/0020-7489(96)00004-1
- Nitschke JP, Forbes P, Ali N, et al. Resilience during uncertainty? Greater social connectedness during COVID-19 lockdown is associated with reduced distress and fatigue. Br J Health Psychol. 2020. https://doi.org/10.31234/osf.io/9ehm7
- Meo SA, Abukhalaf AA, Alomar AA, Sattar K, Klonoff DC. COVID-19 pandemic: impact of quarantine on medical students' mental wellbeing and learning behaviors. *Pak J Med Sci.* 2020;36:1-6. https://doi. org/10.12669/pims.36.COVID19-S4.2809
- Jiao WY, Wang LN, Liu J, et al. Behavioral and emotional disorders in children during the COVID-19 epidemic. *J Pediatr.* 2020;221: 264-266. https://doi.org/10.1016/j.jpeds.2020.03.013
- Majumdar P, Biswas A, Sahu S. COVID-19 pandemic and lockdown: cause of sleep disruption, depression, somatic pain, and increased screen exposure of office workers and students of India. *Chronobiol Int.* 2020; 37(8):1191-1200. https://doi.org/10.1080/07420528.2020.1786107
- Dangi R, Dewett P, Joshi P. Stress level and coping strategies among youth during coronavirus disease lockdown in India. Aegaeum J. 2020;8(7):605-617. https://doi.org/10.2139/ssrn.3649289
- Kapasia N, Paul P, Roy A, et al. Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. Child Youth Serv Rev. 2020;116: 105194. https://doi.org/10.1016/j.childyouth.2020.105194
- Margaritis I, Houdart S, El Ouadrhiri Y, Bigard X, Vuillemin A, Duché P. How to deal with COVID-19 epidemic-related lockdown physical inactivity and sedentary increase in youth? Adaptation of Anses' benchmarks. Arch Public Health. 2020;78(1):1-6. https://doi. org/10.1186/s13690-020-00432-z
- Arslan G. Psychological maltreatment, social acceptance, social connectedness, and subjective well-being in adolescents. *J Happiness Stud.* 2018;19(4):983-1001.
- Savci M, Aysan F. A hypothetical model proposal for social connectedness in adolescents. Türk Psikolojik Danışma ve Rehberlik Dergisi. 2019;9(54):589-621.
- Labrague LJ, De los Santos JAA, Falguera C. Social and emotional loneliness among college students during the COVID-19 pandemic: the predictive role of coping behaviours, social support, and personal resilience. Perspect Psychiatr Care. 2020.
- Husky MM, Kovess-Masfety V, Swendsen JD. Stress and anxiety among university students in France during Covid-19 mandatory confinement. Compr Psychiatry. 2020;102:152191. https://doi.org/ 10.1016/j.comppsych.2020.152191
- Branquinho C, Kelly C, Arevalo LC, Santos A, Gaspar de Matos M. "Hey, we also have something to say": a qualitative study of Portuguese adolescents' and young people's experiences under COVID-19. J Community Psychol. 2020;48:2740-2752. https://doi.org/10.1002/jcop. 22453
- 25. Keil RM. Coping and stress: a conceptual analysis. *J Adv Nurs*. 2004; 45(6):659-665.
- Carver CS. You want to measure coping but your protocol's too long: consider the brief cope. Int J Behav Med. 1997;4(1):92-100.
- 27. Lazarus RS, Folkman S. Transactional theory and research on emotions and coping. *Eur J Pers.* 1987;1(3):141-169.
- 28. Labrague LJ, McEnroe-Petitte DM, Al Amri M, Fronda DC, Obeidat AA. An integrative review on coping skills in nursing

- students: implications for policymaking. Int. Nurs. Rev. 2018;65(2): 279-291.
- Labrague LJ, De los Santos JAA. COVID-19 anxiety among front-line nurses: predictive role of organisational support, personal resilience and social support. J Nurs Manag. 2020;28(7):1653-1661.
- Liang L, Ren H, Cao R, et al. The effect of COVID-19 on youth mental health. *Psychiatr Q*. 2020;91(3):841-852. https://doi.org/10. 1007/s11126-020-09744-3
- Moore SA, Faulkner G, Rhodes RE, et al. Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Activity*. 2020;17(1):85. https://doi.org/10.1186/s12966-020-00987-8
- Cooper AL, Brown JA, Rees CS, Leslie GD. Nurse resilience: a concept analysis. Int J Ment Health Nurs. 2020;29(4):553-575. https://doi.org/10.1111/inm.12721
- Hart PL, Brannan JD, De Chesnay M. Resilience in nurses: an integrative review. J Nurs Manag. 2014;22(6):720-734. https://doi.org/10.1111/j.1365-2834.2012.01485.x
- Elmer T, Mepham K, Stadtfeld C. Students under lockdown: comparisons
 of students' social networks and mental health before and during the
 COVID-19 crisis in Switzerland. Plos one. 2020;15(7):e0236337.
- Ye Z, Yang X, Zeng C, et al. Resilience, social support, and coping as mediators between COVID-19-related stressful experiences and acute stress disorder among college students in China. Appl Psychol: Health Well-Being. 2020. https://doi.org/10.1111/aphw.12211
- Soper DS. A-priori sample size calculator for multiple regression.
 2020. http://www.danielsoper.com/statcalc/calculator.aspx?id=1.
 Accessed November 5, 2020.
- Labrague L. Psychological resilience, coping behaviors, and social support among healthcare workers during the COVID-19 pandemic: a systematic review of quantitative studies. medRxiv. 2020.
- Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. *Int J Behav Med.* 2008;15(3):194-200.
- Michielsen HJ, De Vries J, Van Heck GL. Psychometric qualities of a brief self-rated fatigue measure: the Fatigue Assessment Scale. J Psychosom Res. 2003;54(4):345-352.
- Savitsky B, Findling Y, Ereli A, Hendel T. Anxiety and coping strategies among nursing students during the covid-19 pandemic. Nurse Educ Pract. 2020;46:102809.
- Brodeur A, Clark AE, Fleche S, Powdthavee N. Covid-19, lockdowns and well-being: evidence from Google trends. J Public Econ. 2021; 193:104346.
- Chaplin TM, Hong K, Bergquist K, Sinha R. Gender differences in response to emotional stress: an assessment across subjective, behavioral, and physiological domains and relations to alcohol craving. *Alcoholism: Clin Exp Res.* 2008;32(7):1242-1250. https://doi.org/10. 1111/j.1530-0277.2008.00679.x
- Tolin DF, Foa EB. Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. Psychol Trauma: Theory, Res, Pract, Policy. 2008;S(1):37-85. https://doi.org/10.1037/1942-9681.S.1.37
- 44. Pouralizadeh M, Bostani Z, Maroufizadeh S, et al. Anxiety and depression and the related factors in nurses of Guilan University of

- Medical Sciences hospitals during COVID-19: a web-based cross-sectional study. *Int J Africa Nurs Sci.* 2020;13:100233. https://doi.org/10.1016/j.ijans.2020.100233
- Benner P. Using the Dreyfus model of skill acquisition to describe and interpret skill acquisition and clinical judgment in nursing practice and education. *Bull Sci Technol Soc.* 2004;24(3):188-199. https://doi.org/10.1177/0270467604265061
- Fornes-Vives J, Garcia-Banda G, Frias-Navarro D, Rosales-Viladrich G. Coping, stress, and personality in Spanish nursing students: a longitudinal study. *Nurse Educ Today*. 2016;36:318-323. https://doi. org/10.1016/j.nedt.2015.08.011
- 47. Kumar R, Nancy O. Stress and coping strategies among nursing students. *Nurs Midwifery Res J.* 2011;7(4):141-151.
- Ran L, Wang W, Ai M, Kong Y, Chen J, Kuang L. Psychological resilience, depression, anxiety, and somatization symptoms in response to COVID-19: a study of the general population in China at the peak of its epidemic. Soc Sci Med. 2020;262:113261. https://doi.org/10.1016/j.socscimed.2020.113261
- Labrague LJ, McEnroe-Petitte DM. Job stress in new nurses during the transition period: an integrative review. *Int. Nurs. Rev.* 2018; 65(4):491-504.
- Farrell M, Langrehr KJ. Stress, social support, and psychosocial functioning of ethnically diverse students. *J Coll Counsel*. 2017;20(3): 208-223. https://doi.org/10.1002/jocc.12070
- Labrague LJ, McEnroe-Petitte DM, Gloe D, Thomas L, Papathanasiou IV, Tsaras K. A literature review on stress and coping strategies in nursing students. J Ment Health. 2017;26(5):471-480.
- 52. Hou T, Zhang R, Song X, et al. Self-efficacy and fatigue among non-frontline health care workers during COVID-19 outbreak: a moderated mediation model of posttraumatic stress disorder symptoms and negative coping. *PloS one.* 2020;15(12):e0243884.
- Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res.* 2020;287:112934. https://doi.org/10.1016/j.psychres.2020.11 2934
- Tull, MT, Edmonds KA, Scamaldo K, Richmond JR, Rose JP, Gratz KL. Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. Psychiatry Res. 2020;289:113098. https://doi.org/10.1016/j. psychres.2020.113098
- Bu F, Steptoe A, Fancourt D. Loneliness during a strict lockdown: trajectories and predictors during the COVID-19 pandemic in 38,217 United Kingdom adults. Soc Sci Med. 2020;265:113521.

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