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Escuela Profesional de Psicología



Una Institución Adventista

Impact of the fear of catching COVID-19 on anxiety, depression, and insomnia in undergraduate students

Trabajo de Investigación para obtener el Grado Académico de
Bachiller en Psicología

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Lima, diciembre del 2020

DECLARACIÓN JURADA DE AUTORÍA DEL TRABAJO DE INVESTIGACIÓN

Lindsey Wildman Vilca Quiro, de la Facultad de Ciencias de la Salud, Escuela Profesional de Psicología, de la Universidad Peruana Unión.

DECLARO:

Que la presente investigación titulada: **“IMPACT OF THE FEAR OF CATCHING COVID-19 ON ANXIETY, DEPRESSION AND INSOMNIA IN UNDERGRADUATE STUDENTS”** constituye la memoria que presenta las estudiantes Blanca Victoria Chávez Cerna y Yoselin Shara Fernández Quispe para aspirar al Grado Académico de Bachiller en Psicología, cuyo trabajo de investigación ha sido realizado en la Universidad Peruana Unión bajo mi dirección.

Las opiniones y declaraciones en este informe son de entera responsabilidad del autor, sin comprometer a la institución.

Y estando de acuerdo, firmo la presente declaración en la ciudad de Lima, a los 16 días del mes de diciembre del año 2020



Lindsey Wildman Vilca Quiro

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Re: "Impact of the fear of catching COVID-19 on mental health in undergraduate students: A Predictive Model for anxiety, depression, and insomnia"
Full author list: Lindsey W. Vilca; Blanca V. Chávez; Yoselin Shara Fernández; Tomás Caycho-Rodríguez; Michael White

Dear Ms Yoselin Fernández,

We have received the submission entitled: "Impact of the fear of catching COVID-19 on mental health in undergraduate students: A Predictive Model for anxiety, depression, and insomnia" for possible publication in Current Psychology, and you are listed as one of the co-authors.

The manuscript has been submitted to the journal by Dr. Prof. Lindsey W. Vilca who will be able to track the status of the paper through his/her login.

If you have any objections, please contact the editorial office as soon as possible. If we do not hear back from you, we will assume you agree with your co-authorship.

Thank you very much.

With kind regards,

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Impact of the fear of catching COVID-19 on anxiety, depression, and insomnia in undergraduate students

Abstract

The objective of the study was to evaluate the impact of the fear of catching COVID-19 on the level of anxiety, depression, and insomnia in 1002 university students of both sexes (41.4% males and 58.6% females) between the ages of 17 and 35 ($M=21.4$; $SD=3.4$). The Fear of catching COVID-19 Scale, the Generalized Anxiety Disorder Scale (GAD-7), the Patient Health Questionnaire (PHQ-9) and the Insomnia Severity Index (ISI) were used to measure the variables. The results of the study show that the concern about getting COVID-19 significantly influences the level of anxiety ($\beta = .52$; $p < .01$), insomnia ($\beta = .44$; $p < .01$) experienced by university students ($\chi^2 = 2210.39$; $df = 371$; $p = .000$; $RMSEA = .070$ [IC90% .068 – .073]; $SRMR = .053$; $CFI = .95$; $TLI = .94$). The descriptive results show that a notable percentage of university students present significant symptoms of anxiety (22.7%), depression (23.7%) and insomnia (33%).

It is concluded that the concern about getting COVID-19 is a serious health problem since it influences the appearance of anxiety, depression and insomnia symptoms.

Keywords: Fear of catching COVID-19, COVID-19, Anxiety, Depression, Insomnia, Undergraduate students

Introduction

The SARS-CoV-2 (COVID-19) pandemic is the largest public health emergency the world has ever faced in recent memory. Various studies have described the mental health

problems associated with this pandemic in different groups such as healthcare workers (Muller et al., 2020), clinic patients (Hu et al., 2020), adults (Wang et al., 2020; Xiong et al., 2020), police (Caycho-Rodríguez, Carbajal-León, Vilca, Heredia-Mongrut, & Gallegos, 2020), school children (Chen et al., 2020), and university students (Khan et al., 2020). Regarding this last group, the closure of universities, social isolation, the switch to virtual learning platforms, difficulties in technological access and economic problems have led to a drastic change in the life of university students. A study carried out in China on medical students reported that 21.3% of those surveyed experienced moderate anxiety (Cao et al., 2020). Another longitudinal study, also conducted in China, estimated a prevalence of 12.4% and 16.8% for anxiety and insomnia respectively in university students (Ge, Zhang, Wu, & Mu, 2020). In Bangladesh, a study reported that 33.3% of university students surveyed experienced anxiety and 46.9% experienced depression (Khan et al., 2020). Similarly, another study in New Jersey reported high levels of anxiety and depression (Kecojevic, Basch, Sullivan, & Davi, 2020).

A review of the scientific literature reported some limitations in studies conducted in university populations. First, most research studies analyze mental health only in health care students such as doctors and nurses. Therefore, little is known about mental health in college students from other disciplines. Second, most studies have descriptive and relational designs which only describe mental health indicators and the risk factors associated with these indicators during the pandemic. However, no explanatory studies have been found that assess the impact of variables associated with COVID-19, such as fear or concern about its contagiousness. Third, no explanatory studies assessing the impact of variables associated with COVID-19 on mental health status have been found in the Latin American region, despite the fact that to date, as of the time of the submission of

this article, there are 19,855,519 confirmed cases of COVID-19 in the Americas, the region with the highest infection rates (World Health Organization, 2020).

Against this background, this study aims to assess the impact of the fear of catching COVID-19 on the level of anxiety, depression, and insomnia in undergraduate students.

Method

Participants

A non-probability sample was used for data collection, employing the following inclusion criteria: (a) informed consent of participants, (b) no more than 40 years old, (c) ability to read and write in Spanish, (d) being enrolled in a university program. A sample of 1002 Peruvian undergraduate students of both sexes (41.4% males and 58.6% females) between 17 and 35 years old was collected ($M = 21.4$; $SD = 3.4$). With respect to the region of origin, the majority came from the highlands (47.5%), while 26.2% came from the coast and an equal percentage came from the jungle.

Instruments

The Fear of catching COVID-19 Scale

Created by Caycho-Rodríguez, Ventura-León, and Barboza-Palomino (2020) with the objective of evaluating the concern about the spread of COVID-19 and the impact that this concern can have on people's daily functioning (specifically on their mood and their ability to carry out their daily activities). It is made up of six items that have four Likert response options (1=Never or rarely to 4=Nearly all the time), where high scores indicate more frequent concern. In the present study, the one-dimensional model presented adequate indices of reliability ($\alpha = .92$; $\omega = .89$) and validity based on internal structure ($\chi^2 = 163.76$; $df = 9$; $p = .000$; $CFI = .99$; $TLI = .98$; $RMSEA = .131$; $SRMR = .037$).

Generalized Anxiety Disorder Scale (GAD-7)

Developed by Spitzer, Kroenke, Williams, and Löwe (2006) and adapted to Spanish by García-Campayo et al (2010), this scale is made up of seven items that have four response categories ranging from "never" (0) to "almost every day" (3), where a higher score indicates a greater presence of the disorder. A cut-off point of 10 points was used to assess the presence of significant symptoms of generalized anxiety disorder (GarcíaCampayo et al., 2010). In the present study, the one-dimensional model presented adequate indices of reliability ($\alpha = .93$; $\omega = .89$) and validity based on internal structure ($\chi^2 = 174.73$; $df = 14$; $p = .000$; $CFI = .99$; $TLI = .99$; $RMSEA = .107$; $SRMR = .033$).

Patient Health Questionnaire (PHQ-9)

Developed by Spitzer, Kroenke, and Williams (1999) and adapted into Spanish by Zhong, Gelaye, Fann, Sanchez, and Williams (2014), this questionnaire consists of nine items that have four categories ranging from "not at all" (0) to "almost every day" (3). A 10-point cut-off point was used to assess the presence of significant symptoms of depression (Manea, Gilbody, & McMillan, 2012). In the present study, the onedimensional model presented adequate indices of reliability ($\alpha = .92$; $\omega = .90$) and validity based on internal structure ($\chi^2 = 132.39$; $df = 27$; $p = .000$; $CFI = .99$; $TLI = .98$; $RMSEA = .062$; $SRMR = .032$)

Insomnia Severity Index (ISI)

Developed by Bastien, Vallières, and Morin (2001) and adapted into Spanish by Fernandez-Mendoza et al (2012), this instrument consists of seven items that have five response categories ranging from "nothing" (0) to "very much" (4). A 10-point cut-off was used to assess the presence of significant symptoms of insomnia (Morin, Belleville,

Bélanger, & Ivers, 2011). In the present study, the one-dimensional model presented adequate indices of reliability ($\alpha = .88$; $\omega = .91$) and validity based on internal structure ($\chi^2 = 503.58$; $df = 14$; $p = .000$; $CFI = .94$; $TLI = .91$; $RMSEA = .187$; $SRMR = .072$).

Procedure

For this study, the approval of the ethics committee of the Center for Research and Innovation in Health (CIISA) of the Universidad Peruana Unión and was obtained and the standards of the Declaration of Helsinki (World Medical Association, 2013) were met. The informed consent and data collection was done through a virtual form, where the objectives of the study were explained.

Data analysis

For the SEM model the WLSMV estimator was used and to evaluate the adjustment of the proposed model the CFI ($>.90$), TLI ($>.90$), RMSEA ($<.08$) and SRMR ($<.08$) coefficients were used. In order to evaluate the adjustment indexes, the criteria proposed by Kline (2015) and Schumacker and Lomax (2015) were used. As for the measurement models, a Confirmatory Factor Analysis (CFA) was carried out using the WLSMV estimator and the adjustment indicators carried out in the SEM model were taken into account.

Results

Descriptive analysis of anxiety, depression and insomnia in university students

Table 1 shows that 22.7% of the university students present significant symptoms of anxiety. Similarly, 23.7% and 33% show significant symptoms of depression and insomnia respectively.

Table 1

Descriptive analysis of anxiety, depression and insomnia

	Absence / Minimal symptoms		Significant symptoms	
	n	%	n	%
Anxiety	775	77.3%	227	22.7%
Depression	765	76.3%	237	23.7%
Insomnia	765	76.3%	331	33%

Explanatory model

Table 2 shows that the structural model has adequate adjustment indexes ($\chi^2 = 2210.39$; $df = 371$; $p = .000$; $RMSEA = .070$ [CI 90% .068–.073]; $SRMR = .053$; $CFI = .95$; $TLI = .94$) and the measurement models are adequately represented by their items.

Table 2

Structural model and measurement models

Measurement model							
χ^2	Df	P	RMSEA	90% CI	SRMR	SRMR	TLI
2210.39	371	.000	.070	.068–.073	.053	.95	.94
Structural models							
Items	Fear of catching COVID-19		Anxiety	Depression	Insomnia		
	λ (error)		λ (error)	λ (error)	λ (error)		
1	.77 (.41)		.81 (.35)	.72 (.48)	.85 (.29)		
2	.87 (.24)		.81 (.34)	.82 (.34)	.83 (.32)		
3	.81 (.34)		.93 (.13)	.81 (.34)	.53 (.72)		
4	.88 (.23)		.82 (.32)	.76 (.42)	.72 (.49)		
5	.90 (.18)		.79 (.38)	.73 (.47)	.78 (.39)		
6	.74 (.45)		.73 (.47)	.81 (.34)	.74 (.45)		
7			.81 (.35)	.75 (.44)	.81 (.35)		
8				.78 (.40)			
9				.68 (.54)			

Note: λ : Factorial load

Figure 1 shows that the degree of concern about getting COVID-19 significantly influences the level of anxiety ($\beta = .52$; $p < .01$), insomnia ($\beta = .44$; $p < .01$) and depression ($\beta = .49$; $p < .01$) experienced by university students.

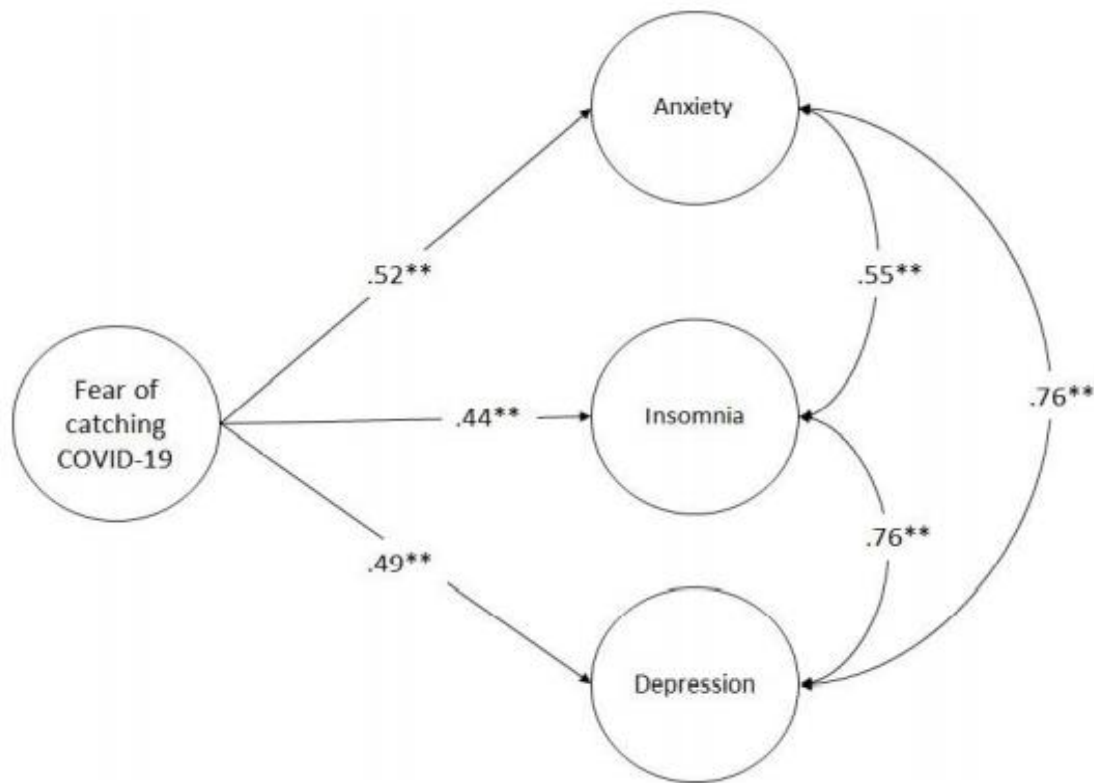


Figure 1. Influence model of fear of catching COVID-19

Discussion

The results of this study show that a notable percentage of university students present significant symptoms of anxiety (22.7%), depression (23.7%) and insomnia (33%). It was found that the prevalence of anxiety is higher than that reported by Ge et al. (2020) and Cao et al. (2020) in China (12.4% and 21.3% respectively) and it is also higher than the levels reported by Saraswathi et al. (2020) in India (21.2%). However, it is lower than that found by Khan et al. (2020) in Bangladesh (33.3%). Regarding the prevalence of depression, the present results are lower than those reported by Khan et al. (2020) and Saraswathi et al. (2020) in Bangladesh (46.9%) and India (33.2%), respectively. The prevalence of insomnia was found to be higher than that estimated by Ge et al. (2020) in

China (16.8%). It is worth noting that there are few studies that evaluate the prevalence of insomnia in the university population.

The variability observed with respect to the different studies, could be explained by the degree program that university students study. Previous studies show that medical students are more likely to suffer from anxiety and depression (Dyrbye, Thomas, & Shanafelt, 2006). Also, it could be explained by the type of instruments used to measure the variables and the cultural context to which the university students belong.

The main result of this study shows that the concern about COVID-19 has a negative impact on some mental health indicators in university students ($\chi^2 = 2210.39$; $df = 371$; $p = .000$; $RMSEA=.070$; $CFI=.95$; $TLI=.94$). This result is consistent with previous studies that indicate that long periods of infectious epidemics can negatively affect the people's psychological state (Pappas, Kiriaze, Giannakis, & Falagas, 2009).

Specifically, it was found that the concern about catching the virus explains 52% of the anxiety symptoms and 49% of the depression symptoms experienced by undergraduate students. These symptoms could be explained by the negative consequences that getting COVID-19 would have on one's own health, their family's health, their educational progress and their professional future. Also, it could be related to the fear of being stigmatized by their social circle.

It was also found that the fear of catching the virus explains 44% of the symptoms of insomnia. This is because fear and constant worry cause a serious cognitive impairment which affects the quality of sleep (Kalmbach et al., 2018). In addition, this result coincides with that found in an adult population (Kokou-kpolou, Megalaki, Laimou, & Kousouri, 2020; Voitsidis et al., 2020).

Regarding the limitations of this study, firstly, non-probabilistic sampling was used, which limits the generalizability of the results. Future studies should use representative samples

to confirm the results. Second, only self-report measures were used, which can be affected by the participants' perception of social desirability. Thus future studies should use qualitative interviews or case studies to overcome this limitation. Third, a cross-sectional design was used, so the model should be studied using a longitudinal design in future studies in order to better understand the variables. Fourth, the model did not include variables such as cognitive flexibility (Pakenham et al., 2020), social support (Lee & You, 2020), and knowledge about COVID-19 (Rodríguez-Rey, Garrido-Hernansaiz, & Collado, 2020) which could mediate the effect of concern about becoming infected on mental health indicators. Despite these limitations, this study provides a conceptual and statistical basis for a better understanding of the psychological impact of COVID-19 in the university population.

In conclusion, worrying about getting COVID-19 is a serious health problem since it influences the appearance of symptoms of anxiety, depression and insomnia. In addition, it was found that a significant percentage of college students present clinical symptoms of anxiety, depression and insomnia. Therefore, governments and universities should work together to provide timely and quality psychological services to address this public health problem.

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Title Page (Must Include: Authors Information; May also Include: Conflict of Interest, Informed Consent, Human and Animal Rights)

Impact of the fear of catching COVID-19 on anxiety, depression, and insomnia in undergraduate students

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Compliance with ethical standards

Conflict of Interest: The authors state that they have no real, potential or apparent conflict of interest.

Ethical Approval: All procedures performed in the study were approved by the university's ethics committee and conformed to the requirements of the 1975 Declaration of Helsinki.

Informed Consent: Informed consent was obtained from all participants.