CONTEXTOS EDUCATIVOS, 34 (2024): 149-173. http://doi.org/10.18172/con.5573

THE PSYCHOLOGICAL IMPACT OF THE COVID-19 LOCKDOWN IN UNIVERSITY STUDENTS

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ABSTRACT: The COVID-19 pandemic has given rise to important changes and demands in the educational field, which in turn appear to have negatively affected the psychological wellbeing of students. The aim of the present study, which is descriptive in nature, was to analyze the psychological impact of the lockdown in a sample of 167 university students (*M*=21.28 years, *SD*=1.70) in the autonomous community of Galicia (Spain). More specifically, the psychological impact on the students was considered in relation to sociodemographic and academic factors and the most common fears associated with coronavirus. The impact was evaluated using a Questionnaire on Basic Academic and Sociodemographic Data (*ad hoc*), the Coronavirus Fears Scale and a Questionnaire on Manifestations (*ad hoc*). The results show a significant increase in the incidence of cognitive, emotional, physical and behavioural manifestations. Academic demands and the strong fears associated with COVID-19 appeared to act as risk factors for suffering these symptoms. In light of the results obtained, the influence of gender stereotypes in the observed affectation was

evaluated, along with the possible role of the lack of information and insufficient coordination in the programming of tasks given to the students. The results obtained suggest that it is necessary to follow up and implement preventive measures and psychological and educational interventions aimed at reducing the associated risk factors should be implemented.

KEYWORDS: COVID-19, anxiety, students, university, psychological affectation.

LA AFECTACIÓN PSICOLÓGICA EN ESTUDIANTES UNIVERSITARIOS DURANTE LA CUARENTENA POR COVID-19

RESUMEN: La pandemia de la COVID-19 ha dado lugar a importantes cambios y demandas en el contexto educativo, que a su vez parecen haber afectado negativamente al bienestar psicológico de los/as estudiantes. Es objeto del presente estudio, de naturaleza descriptiva, analizar la afectación psicológica durante el confinamiento en una muestra de 167 estudiantes universitarios (*M*=21.28 años, *DT*=1.70) de la comunidad autónoma de Galicia. En concreto, se ha analizado la afectación psicológica experimentada por el estudiantado y su relación con factores sociodemográficos y académicos y los miedos más comunes asociados al coronavirus, utilizando para ello un Cuestionario de Datos Académicos y Sociodemográficos Básicos (*ad hoc*), la Escala de Miedos al Coronavirus y un Cuestionario de Manifestaciones (*ad hoc*). Los resultados sugieren un incremento significativo en la incidencia de manifestaciones cognitivas, emocionales, físicas y conductuales. Las demandas académicas elevadas y un alto miedo a la COVID-19, parecen actuar como factores de riesgo a la hora de experimentar estos síntomas. A la luz de los resultados obtenidos se valora la incidencia de los estereotipos de género en la afectación constatada, así como el posible papel de la falta de información e insuficiente coordinación en la programación de las tareas encomendadas a los/as estudiantes. Los resultados obtenidos sugieren que se hace necesario realizar un seguimiento, e implementar medidas preventivas e intervenciones psicológicas y educativas orientadas a reducir los factores de riesgo asociados a los mismos.

PALABRAS CLAVE: COVID-19, ansiedad, estudiantes, universidad, afectación psicológica.

Received: 11/10/2022

Accepted: 10/02/2023

1. Introduction

On 31 December 2019, the World Health Organization (WHO) reported the existence of a new viral pneumonia originating in Wuhan (China) (WHO, 2020a). On 11 January 2020, China reported the first death by this illness, now known as COVID-19. Within a few weeks, the infection had extended to other parts of China and the rest of the world, so that on 30 January 2020, the WHO declared the new disease as "a public health emergency of international importance" (WHO, 2020b). The disease spread throughout the world at great speed, with Italy and Spain being two of the countries most affected. This situation led the Spanish Government to declare a state of emergency on 14 March 2020 (BOE, 2020). This was the first time in Spain's history that such measures had been used to control a pandemic. The changes in habits that the Spanish population had to face took place very rapidly and were extraordinary (social distancing, home isolation, suspension of educational activity, ban on children being able to go outside, etc.), giving rise to increasing interest among the scientific community about how the pandemic was affecting the physical and psychological wellbeing of the population.

One of the negative effects of COVID-19 was the fear of becoming infected. Several factors played an important role in the appearance of this emotion, including the increasing numbers of people with the disease. The excess amount of information generated by the continual news bulletins, sometimes accompanied by perturbing images, also generated high levels of fear, which may have aggravated pre-existing mental health conditions (Brooks et al., 2020; Hernández, 2020; Guevara et al., 2022). According to Hernández (2020), the fears were intensified by the uncertainty regarding how long the pandemic would last and what the future would bring (Hernández, 2020). The most frequent reasons for concern were the probability of contagion/illness/death, social isolation and problems related to work or income; the associated risk factors were intolerance to uncertainty, negative affect, exposure to the media and living with people with chronic illnesses and/or children under 12 years of age (Sandín et al., 2020).

The formal education of young people has also been greatly affected by the effects of the pandemic. With the closure of educational institutions, a rapid transition from physical learning (face-to-face classes) to the digital sphere (virtual classes) took place (Kapasia et al., 2020), generating changes in teaching-learning strategies and tools. The unprecedented home quarantine experience negatively affected more than 60% of the university student body (Hossain et al., 2021), with a negative impact on mental health and well-being that has significantly influenced academic performance (Vásquez et al., 2021).

The first studies on psychological wellbeing revealed notable increases in the rates of prevalence of depression, generalized anxiety and insomnia, among other symptoms (Cao et al., 2020; Chen et al., 2020; Wang and Zhao, 2020), although not

all sociodemographic groups were affected in the same way. Thus, women appear to have been more strongly affected, with more pronounced effects on their academic performance and mental health (Conversano et al., 2021; Prowse et al., 2021), as well as higher rates of anxiety, depression and acute stress (Duan et al., 2020; García-Fernández et al., 2020; Wang et al., 2020; Zhou et al., 2020). Age also appears to have a moderating effect, as young people report a greater perception of loneliness (Luchetti et al., 2020) and higher rates of problems such as insomnia, claustrophobia and somatization (Justo-Alonso et al., 2020), among others. Among the possible short-medium term consequences of the COVID-19 pandemic, one of the most worrying is suicidal ideation, as stressful life events are considered a psychosocial risk factor for suicidality (Carballo et al., 2020, Ogilés et al., 2020).

The perception of loneliness may be, according to Orgilés et al. (2020), one of the main risk factors associated with the psychological repercussions of the pandemic. These authors reported that lack of social contact has a significant effect on most people, particularly on young people who are at an age when social contact is extremely important, with the educational environment being the place where they develop their social and affective relationships. In this respect, the study of the psychological effects of the pandemic on university students is particularly relevant. Specifically, this group of young adults faces numerous challenges and demands (e.g. abandonment of the family home, adjusting to new family and social environments, etc.) typical of this evolutionary period (Beiter et al., 2015), and the adaptive response largely depends on correct vocational training and career development. From a developmental perspective, it is expected that the institutional measures implemented with the aim of containing the pandemic (e.g. social distancing, online teaching, etc.) will have altered the normal functioning of the systems within which students develop (Rauthmann, 2021).

Likewise, there is evidence that a high proportion of mental health problems begin during emerging adulthood (Kessler et al., 2001; Eisenberg et al., 2007), with an average age of onset of between 18 and 25 years of age (Solmi et al., 2022). By contrast, the most prevalent disorders are adaptive disorders (48.3%), mood disorders (22.8%) and anxiety disorders (20.9%) (Micin and Bagladi, 2011). The data indicate university students as one of the groups of young people most vulnerable to the negative impact of COVID-19 on mental health and well-being.

It is important, therefore, to know how the student body coped with such a new situation that drastically broke with social relationships, turned teaching into a virtual experience and confronted students with important uncertainties and fears (Sandín et al., 2020). It is to be expected that the impact of the pandemic on the well-being of young people will be prolonged, insofar as the health situation has not yet been normalized and the readjustments needed to overcome the damage will take time. In this sense, having data on the affective well-being of university students during quarantine can guide the practice of health and educational personnel. There is a lack

of research that covers more transversal manifestations of affectation, rather than only specific disorders. This type of research could establish indicators of vulnerability to serious disorders that hinder the proper development of young people. The following research is descriptive in nature and was developed with the main objective of examining the emotional wellbeing in university students during the lockdown imposed by the government to prevent transmission of COVID-19. The specific aims were to determine the following: (a) the immediate psychological responses during the lockdown; (b) the emotional impact of the lockdown; (c) the most common fears associated with the pandemic situation; and (d) the general level of psychological impact on the students during the first stage of the confinement, considering sex, academic demands and fears experienced as possible moderating variables.

2. METHOD

2.1. Participants

A convenience sample 167 of students (see Table 1) enrolled in different degree courses in one of the three universities in the Galician University System was used in the present study. Most of the participants were women (86.2%), which is consistent with the most recent University Indicator statistics (Spanish Ministry of Science, Education Innovation and Universities, 2018) showing that greater numbers of women than men are enrolled in Educational degree courses. The mean age of the participants was 21.28 years, with a standard deviation (SD) of 1.70 years.

Table 1. *Sociodemographic characteristics of the sample*

	n	**%**
Age		
≤ 20 years	77	46.1
21-23 years	70	41.9
24-28 years	20	12.0
Sex		
Male	23	13.8
Female	144	86.2
Course of study		
Degree in Infant Education	72	43.1
Degree in Primary Education	91	54.5
Dual Degree in Infant Education and Primary Education	4	2.4
Place of residence before lockdown		
Family home	49	29.3
Shared apartment	102	61.1
Student residence	7	4.2
Own house	1	0.6
Own flat	8	4.8

Type of residence during lockdown		
Flat with own bedroom	45	26.9
Flat with shared bedroom	12	7.2
House with own bedroom, with garden/vegetable plot	70	41.9
House with own bedroom, no garden/vegetable plot	18	10.8
House with shared bedroom, with garden/vegetable plot	18	10.8
House with shared bedroom, no garden/vegetable plot	4	2.4
Family economic level		
Low (≤ 10.000€ year)	14	8.4
Intermediate (10.000-25.000€ year)	134	80.2
High (25.000-40.000€ year)	12	7.2
No reply given	7	4.2

2.2. Instruments

Questionnaire covering Basic Sociodemographic and Academic Data. An *ad hoc* questionnaire was designed to collect sociodemographic data, including a total of 12 items regarding the following information: age, sex, title, place of residence (before and during lockdown), family economic level, number of course subjects, number of subjects retained from the first semester of the current academic year, number of subjects retained from previous years, frequency at which study tasks are assigned and number of hours dedicated to studying per day.

Coronavirus Fears Scale (*Escala de Miedos al Coronavirus, EMC*: Sandín et al., 2020). The scale includes 18 items referring to fears and preoccupations about different psychosocial aspects of coronavirus, or fears/concerns about not having important products/items at home, such as food. The instrument has a Likert-type scale with a total of 5 possible responses regarding the intensity of the fears, where 1 = zero or very low and 5 = high or very high. Two categories were established in order to dichotomize the response options for presentation of the results (Sandín et al., 2020): a) nothing or little, which includes the response options "nothing or almost nothing" (1) and "little" (2); and b) quite a lot or a lot, which includes the response options "quite a lot" (4) and "very much or extremely" (5). The factorial structure of the scale is consistent and revealed the following four factors regarding fears associated with coronavirus: (F1) Fear of infection, disease or death (items 1, 2, 3, 4, 5, 7, 10, 11, 17); (F2) Fear of not having basic products for consumption (items 12, 13, 14); (F3) Fear of social isolation (items 15, 16, 18); and (F4) Fears related to work and economic income (items 6, 8, 9). The scale reliability coefficients are as follows: Cronbach's alpha (α) = .89, rho (ρ) = .89 (EMC-total); α = .87, omega (ω) = .88 (subscale F1); α = .79, ω = .81 (subscale F2); α = .72, ω = .74 (subscale F3); α = .80, ω = .83 (subscale F4).

Questionnaire on Manifestations. An ad hoc questionnaire was designed with the aim of carrying out an exhaustive analysis of the possible manifestations of the psychological impact caused by the COVID-19 pandemic. The following were taken

into account in creating the scale: the symptoms included in the Generalized Anxiety Disorder Scale (F41.1), described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) and in the International Classification of Diseases (ICD-10), as well as in different generalized anxiety scales, of contrasting reliability and validity, such as the Generalized Anxiety Scale (GAD-7; García-Campayo et al., 2010) and the Generalized Scale for detecting Anxiety Disorder (Bobes et al., 2006). In addition to the manifestations included in these documents, we were interested in establishing whether the lockdown increased the rate of manifestations such as crying and panic (in response to a totally new, unknown situation, never lived before), inability to experience pleasure, and feelings of loneliness (both related to the social isolation brought about by the lockdown) and/or feelings of inferiority. The instrument was validated by an external committee comprised of experts (PhDs) from different disciplines, who supervised the scientific and ethical questions. After the expert revision, various items were modified, and the final version, comprising 20 items as indicators of psychological impact (see Table 2) and structured in two parts, was obtained. In the first part, the participants were asked to answer questions such as "Before the lockdown, did you have/feel X (manifestation)?" and in the second part, they had to answer questions such as "During the lockdown, did you have/feel X (manifestation)?". The responses to both parts were scored on a Likert-type scale, with three response options (1 = No; 2 = Yes; 3 = Sometimes). The scale reliability was determined using Cronbach's alpha coefficients, with a value of .90 considered acceptable (Kerlinger & Lee, 2022). The Cronbach's alpha values indicated that the instrument was suitable for use in accordance with the study objectives.

Table 2. *Items in the Questionnaire on Manifestations*

Item	Definition/Manual	Item	Definition/Manual
1. Headache	Muscular tension (shaking and psychomotor agitation, tension headaches, tremors, inability to relax) [ICD-10]	11. Vomiting	Epigastric discomfort [ICD-10]
2. Dizziness	Vegetative hyperactivity (dizziness, sweating, tachycardia or tachypnoea, epigastric discomfort, vertigo, dry mouth, etc.) [ICD-10]	12. Tension	Muscular tension [DSM-V and ICD-10] Muscular tension (shaking and psychomotor agitation, tension headaches, tremors, inability to relax) [ICD-10]
3. Palpitations	Vegetative hyperactivity (dizziness, sweating,	13. Difficulty in relaxing	Finds difficulty in controlling

	tachycardia or tachypnoea, epigastric discomfort, vertigo, dry mouth, etc.) [ICD-10]		preoccupation [DSM-V] Muscular tension (shaking and psychomotor agitation, tension headaches, inability to relax) [ICD-10]
4. Sensation of drowning/suffocation	Sensation of drowning/suffocation [ICD-10]	14. Difficulty in concentrating	Difficulty in concentrating or keeping the mind blank [DSM-V] and ICD-10]
5. Tightness in chest	Restlessness or sensation of being trapped or on edge [DSM-V] Pain or discomfort in the chest [ICD-10]	15. Anger	Persistent irritability [DSM-V and DC-10]
6. Muscular pain	Tension, muscular pains and discomfort [ICD-10]	16. Inability to experience pleasure	
7. Stomach ache	Epigastric discomfort [ICD-10]	17. Panic	
8. Insomnia	Sleep-related problems (difficulty in falling asleep or staying asleep, or restless or unsatisfactory sleep) [DSM-V]	18. Crying	
9. Unrefreshing sleep	Sleep-related problems (difficulty in falling asleep or sleeping for long, restless or unsatisfactory sleep) [DSM-V]	19. Feeling of loneliness	
10. Nausea	Nausea or abdominal discomfort (e.g. upset stomach) [CIE-10]	20. Feelings of inferiority	

2.3. Procedure

The link to the questionnaire was disseminated via the Microsoft TEAMS platform, by the group created to continue interactive teaching during the lockdown. The questionnaire was published on 13 April 2020, i.e. one month after the lockdown was decreed and during stage 3 (from 10 April to 21 May 2020), and was available

for a period of three weeks. At the end of this period, a total of 167 valid, completed questionnaires was obtained.

Once the students accessed the questionnaires, they received information about the aim of the research and the conditions under which the data would be collected and treated (anonymity, confidentiality, and respect for the Organic Law 3/2018 regarding the protection of personal data and guarantee of digital rights). Before completing the questionnaires, all students gave their written consent to participate in the study, as recommended in the Declaration Helsinki on the ethical principles of medical research involving human subjects (World Medical Association, 2013). Likewise, the questionnaires were configured so that questions could not be answered until the previous question had been answered, thus guaranteeing the consent, interest and free, voluntary participation of the students. The time taken to complete the questionnaire was about 15 minutes.

2.4. Data analysis

The data were processed using the IBS statistical package SPSS version 27.0 for Windows (IBM Corp., 2020). Descriptive analysis, including the mean values and standard deviations (SD) for quantitative variables and the frequency and percentage of subjects in each of the categories, were carried out. The relationships between variables were estimated using Phi's coefficient for nominal variables. To determine differences between groups, the chi-squared test (χ^2) for categorical variables was applied.

2.5. Ethical considerations

During collection of the data, permission was obtained from the students for participation in the study, and the ethical principles and code of conduct published by the American Psychological Association (APA) were taken into account, i.e. that during the research the wellbeing and rights of the study participants will be safeguarded, and any situations that arise will be treated in an ethical, responsible manner; in accordance with fidelity and responsibility, the privacy and anonymity of the research subjects will be respected, attending to truthfulness and honesty during the process (APA, 2010). None of the participants was forced to take part in the study and identificatory data were not collected.

3. RESULTS

3.1. Academic demands during the COVID-19 lockdown

During the COVID-19 lockdown, 19.8% of the students were assigned tasks every day, 19.8% were assigned tasks once a week and the other 60.4% were assigned online learning tasks several times a week (Table 3). Most of the tasks were designed to be carried out individually or in groups (indistinctly) and at different times (asynchronously or without any interaction, so that the teacher provided the materials and/or educational resources required to carry out the tasks, and each student accessed these as and when required, without prior appointment). This type of organization led to heavy workloads. The time dedicated to carrying out academic tasks varied between one hour (1.8%) and more than five hours (37.0%) a day; the time dedicated to studying different subjects varied between one hour (55.7%) and two hours (29.9%) a day (Table 3).

Table 3. *Aspects related to academic demands*

	n	**%**
Subjects retained from the first semester		
None	149	89.2
One	15	9.0
Two	2	1.2
Three	1	0.6
Subjects retained from previous courses		
None	141	84.4
One	18	10.8
Two	5	3.0
Three	3	1.8
Number of subjects taken in the 2º semester		
Three	1	0.6
Four	6	3.6
Five	9	5.4
Six	120	71.9
Seven	21	12.6
Eight	7	4.2
Nine	1	0.6
Eleven	1	0.6
Reply not given	1	0.6
Frequency with which teachers assign tasks		
Every day	33	19.8
Once a week	33	19.8
Several times a week	101	60.4

Number of hours dedicated to academic tasks per day		
One	3	1.8
Two	12	7.2
Three	28	16.8
Four	37	22.2
Five	25	15.0
More than five	62	37.0
Number of hours dedicated to studying per day		
One	93	55.7
Two	50	29.9
Three	10	6.0
Four	4	2.4
Five	4	2.4
More than five	6	3.6

3.2. Most common fears associated with coronavirus in university students

With the aim of identifying the most common fears associated with coronavirus, the participants' responses to the Coronavirus Fears Scale (CFS) were examined. After dichotomizing the response options, the relative frequency of having experienced some or a great deal of fear for each item on the scale was computed (see Table 4).

As expected, not all of the fears expressed in the items had the same emotional impact on the study participants. Thus, the items with greatest emotional impact were fear of death, fear of contagion and fear of illness (items 4, 3, 5 and 1 of the scale), although there were differences between these, with fear of death or infection of a family member (68.8% and 54.5% respectively) and of the continued spread of coronavirus (37.7%) having greater impacts than being infected oneself (30.0%). In addition, the fears associated with social isolation (items 15, 16 and 18), particularly fear of not being able to see family and/or close friends (23.4%), had a greater impact than fear of lacking basic consumer products (items 12 and 14). In regard to fears associated with work and economic income, none of the participants expressed fear of losing their jobs or having the number of hours they worked reduced, although some expressed fear that family members might be affected in this way (13.2%). In summary, the dimension most affected was that related to possible contagion or death of a family member (F1), followed by the dimensions related to social isolation (F3) and work-income (F4).

Table 4. *Most frequent fears associated with coronavirus during the lockdown*

Item of CFS	**Proportion of participants who have experienced item with moderate or high intensity**						χ^2
	Total sample (*N* = 167)		Males (*N* = 23)		Females (*N* = 144)		
	n	%	*n*	%	*n*	%	
1. (4) Death of a family member	115	68.8	14	60.9	101	70.1	1.853
2. (3) Infection of family member	91	54.5	11	47.8	80	55.6	1.311
3. (5) Continued spread of coronavirus	63	37.7	10	43.5	53	36.8	5.934
4. (1) Catching coronavirus	50	30.0	5	21.7	45	31.3	1.820
5. (15) Not being able to see family and/or close friends	39	23.4	3	13.0	36	25.0	5.227
6. (10) Infecting a family member	32	19.2	1	4.3	31	21.5	5.419
7. (8) Loss of income	30	18.0	2	8.6	28	19.4	4.469
8. (18) Being socially isolated	27	16.2	1	4.3	26	18.1	5.320
9. (17) Seeing/hearing news about coronavirus	24	14.4	1	4.3	23	16.0	2.863
10. (13) Having to attend an Accident and Emergency Unit (due to accidents, illness, etc.)	23	13.8	1	4.3	22	15.3	2.829
11. (9) Family member losing their job	22	13.2	1	4.3	21	14.6	2.887
12. (7) Having to leave home (you or family member)	16	9.6	1	4.3	15	10.4	1.896
13. (11) Becoming ill or aggravation of prior illness	8	4.8	1	4.3	7	4.9	1.347
14. (16) Not being able to celebrate important events (baptisms, weddings, etc.)	5	3.0	---	---	5	3.5	2.476
15. (2) Death due to coronavirus	4	2.4	--	---	4	2.7	1.110
16. (12) Food or basic products becoming scarce	4	2.4	---	---	4	2.8	0.957
17. (14) Not having important items at home (food, etc.)	3	1.8	---	---	3	2.1	2.259
18. (6) Losing job or reduction in hours	---	---	---	---	---	---	2.949

Note. The fears are ranked in accordance with the frequency in the total sample (the number of the item in the CFS is given in brackets). The most common fears are highlighted (> 50%). The χ^2 test refers to the comparison between males and females (no significant differences were observed).

3.3. Perceived wellbeing before and during the lockdown

In the Psychological Manifestations Questionnaire (parts I and II), comparison of the participants' responses revealed significant differences for 18 of the 20 manifestations considered (perceived wellbeing) before and during the lockdown (Table 5).

Table 5. *Indicators of affect*

		Before lockdown		During lockdown		
		N	%	*N*	%	χ^2
Cognitive manifestations						
Difficulty in concentrating	No	43	25.7	8	4.8	5.453
	Yes	36	21.6	125	74.9	
	Sometimes	88	52.7	34	20.4	
Feelings of inferiority	No	96	57.5	89	53.3	30.985***
	Yes	25	15.0	43	25.7	
	Sometimes	46	27.5	35	21.0	
Inability to experience pleasure	No	109	65.3	45	26.9	21.963***
	Yes	15	9.0	50	29.9	
	Sometimes	43	25.7	72	43.1	
Panic	No	128	76.6	73	43.8	20.201***
	Yes	13	7.8	47	28.1	
	Sometimes	26	15.6	47	28.1	
Emotional manifestations						
Feelings of loneliness	No	100	59.9	54	32.3	20.780***
	Yes	27	16.2	62	37.1	
	Sometimes	40	24.0	51	30.5	
Difficulty in relaxing	No	47	28.1	17	10.2	11.755**
	Yes	49	29.3	97	58.1	
	Sometimes	71	42.5	53	31.7	
Anger	No	34	20.4	17	10.2	17.116***
	Yes	44	26.3	94	56.3	
	Sometimes	89	53.3	56	33.5	
Physical manifestations						
Headaches	No	40	24.0	20	12.0	10.415*
	Yes	52	31.1	116	69.5	
	Sometimes	75	44.9	31	18.6	
Dizziness	No	118	70.7	87	52.1	24.053***
	Yes	14	8.4	41	24.6	
	Sometimes	35	21.0	39	23.4	
Nausea	No	142	85.0	134	80.2	12.818**
	Yes	5	3.0	16	9.6	
	Sometimes	20	12.0	17	10.2	
Vomiting	No	152	91.0	152	91.0	9.978*

	Yes	5	3.0	7	4.2	
	Sometimes	10	6.0	8	4.8	
Palpitations	No	125	74.8	84	50.3	14.189**
	Yes	12	7.2	41	24.6	
	Sometimes	30	18.0	42	25.1	
Tightness in chest	No	111	66.5	63	37.7	14.260**
	Yes	17	10.2	58	34.7	
	Sometimes	39	23.4	46	27.5	
Sensation of drowning/suffocation	No	111	66.5	69	41.3	20.634***
	Yes	14	8.4	61	36.5	
	Sometimes	42	25.1	37	22.2	
Muscular pains	No	84	50.3	53	31.7	20.787***
	Yes	35	21.0	70	41.9	
	Sometimes	48	28.7	44	26.3	
Stomach ache	No	76	45.5	59	35.3	6.405
	Yes	28	16.8	55	32.9	
	Sometimes	63	37.7	53	31.7	
Tension	No	54	32.3	23	13.8	19.096***
	Yes	48	28.7	105	62.9	
	Sometimes	65	38.9	39	23.4	
Behavioural manifestations						
Insomnia	No	81	48.5	28	16.8	17.128***
	Yes	36	21.6	95	56.9	
	Sometimes	50	29.9	44	26.3	
Crying	No	81	48.5	46	27.5	10.036*
	Yes	31	18.6	68	40.7	
	Sometimes	55	32.9	53	31.7	
Unrefreshing sleep	No	72	43.1	33	19.8	23.646***
	Yes	40	24.0	90	53.9	
	Sometimes	55	32.9	44	26.3	

* $p < .05$; ** $p < .01$; *** $p < .001$

3.4. Individual differences in psychological affect during the COVID-19 lockdown

With the aim of evaluating the impact of the lockdown in each of the manifestations analysed, an *indicator of affect* was generated, as follows: a) the responses obtained in the different parts of the Psychological Manifestations Questionnaire (before and during the lockdown) were compared; b) the differences between the scores for each item (score during the lockdown minus the score before the lockdown); and c) an ordinal scale was established in order to evaluate the degree of agreement between the responses provided (-2 = much lower than before the lockdown; -1 = less than before the lockdown; 0 = the same as before the lockdown; 1 = greater than before the lockdown; 2 = much greater than before the lockdown).

The results obtained show that the affect due to the lockdown was very variable, particularly in regard to the behavioural manifestations (*SD* ≥ 0.94) (Table 6).

Table 6. *Indicators of psychological affect*

	Frequency					*M*	*SD*
	-2	-1	0	1	2		
Cognitive manifestations							
Difficulty in concentrating	---	9	55	73	30	0.74	0.81
Feelings of inferiority	3	28	90	33	13	0.14	0.85
Inability to experience pleasure	---	15	62	66	24	0.59	0.84
Panic	5	4	84	45	29	0.53	0.91
Emotional manifestations							
Feelings of loneliness	3	15	72	52	25	0.48	0.91
Difficulty in relaxing	2	18	66	62	19	0.46	0.87
Anger	1	17	76	60	13	0.40	0.79
Physical manifestations							
Headaches	4	13	67	61	22	0.50	0.90
Dizziness	3	14	92	38	20	0.34	0.86
Nausea	3	13	122	20	9	0.11	0.68
Vomiting	4	7	144	7	5	0.01	0.54
Palpitations	2	14	86	42	23	0.41	0.87
Tightness in chest	2	16	69	51	29	0.53	0.92
Sensation of drowning/suffocation	1	14	76	47	29	0.53	0.89
Muscular pains	4	20	74	44	25	0.39	0.96
Stomach ache	8	26	65	50	18	0.26	1.00
Tension	2	13	71	57	24	0.52	0.87
Behavioural manifestations							
Insomnia	5	7	61	59	35	0.67	0.95
Crying	5	19	68	49	26	0.43	0.98
Unrefreshing sleep	6	8	71	55	27	0.53	0.94

Note. -2 = much less than before the lockdown; -1 = less than before the lockdown; 0 = the same as before the lockdown; 1 = more than before the lockdown; 2 = much more than before the lockdown.

We were also interested in determining whether diverse factors such as sex, academic demands and fear of coronavirus moderated the degree of psychological affect during the lockdown. We found that the women's scores were significantly higher than the men's scores for panic, sensation of drowning/suffocation, unrefreshing sleep ($p < .05$), angry feelings and tension ($p < .001$). Regarding academic demands, the degree course studied by the participants was not associated with any significant differences in the responses, whereas retaining subjects from the first term and/or from previous years was related to a more intense affect, particularly in physical manifestations. Likewise, a heavy workload was associated with difficulty in relaxing (Table 7). Finally, fear that coronavirus would continue to spread was statistically

significantly related to an increase in feelings of tightness in the chest [$\chi^2(8) = 17.051$; $p = .030$] and also to a higher incidence of dizziness [$\chi^2(8) = 16.855$; $p = .032$]. Fear of losing a job and/or having number of working hours reduced was associated with vomiting [$\chi^2(4) = 23.646$; $p = .000$] and nausea [$\chi^2(4) = 12.456$; $p = .014$]. Both fear of having to leave home [$\chi^2(8) = 18.026$; $p = .021$] and fear that a family member would lose their job [$\chi^2(8) = 17.963$; $p = .022$] were related to palpitations.

Table 7. *Chi-squared test indicators for affect, sex and academic demands*

	Sex $\chi^2(4)$	**Degree course $\chi^2(8)$**	**Subjects carried over from 1st term $\chi^2(3)$**	**Subjects carried over from previous courses $\chi^2(3)$**	**Study load $\chi^2(8)$**
Cognitive manifestations					
Difficulty in concentrating	2.471	4.701	0.345	2.439	0.662
Feelings of inferiority	3.136	3.232	3.359	9.541	9.245
Inability to experience pleasure	1.245	8.182	3.904	9.246*	8.556
Panic	9.937*	4.251	1.456	7.552	7.677
Emotional manifestations					
Feelings of loneliness	0.662	8.616	7.704	3.172	5.832
Difficulty in relaxing	6.382	3.949	12.763***	2.866	16.976**
Anger	19.621***	4.957	8.287	5.563	8.455
Physical manifestations					
Headaches	2.124	5.007	3.163	0.401	7.122
dizziness	2.191	5.5.65	0.703	1.809	6.183
Nausea	1.982	12.109	14.161**	8.714	4.761
Vomiting	2.423	8.541	22.311***	12.786**	3.710
Palpitations	7.135	8.107	3.534	4.938	8.380
Tightness in chest	3.781	6.451	7.172	13.528**	9.374
Sensation of drowning/ suffocation	9.543*	8.862	3.483	4.927	3.437
Muscular pains	8.487	3.956	1.335	12.113**	9.629
Stomach pains	4.457	3.537	1.782	4.224	5.265
Tension	13.261***	1.668	0.789	2.727	8.779
Behavioural manifestations					
Insomnia	6.479	10.295	4.406	2.608	8.762
Crying	5.119	3.092	4.022	15.708**	10.295
Unrefreshing sleep	9.157*	4.618	4.038	2.004	11.044

* $p < .05$; ** $p < .01$; *** $p < .001$

4. Discussion and conclusions

The present study aimed to examine, on the one hand, the psychological impact on university students of the exceptional circumstances of the lockdown imposed by the Spanish Government in March and April 2020 in response to the COVID-19 pandemic, and, on the other hand, the moderating effects of sex, academic demands and the most common fears associated with coronavirus.

The results show that levels of stress indicators increased considerably during the period of confinement, particularly as regards cognitive and behavioural symptoms. Sleep-related problems occupied a prominent position, in line with previous findings (Cao et al., 2020; Liu et al., 2020; Roy et al., 2020; Sandín et al., 2020). In a study on sleep-related problems in the general population, Sandín et al. (2020) found that the problems were much greater (more than twice as high) in the group aged 19-30 years than in other age groups. Interruption of usual routines may make it difficult to maintain circadian rhythms. In addition, the uncertainty regarding the duration of the pandemic and/or the new, unknown situation may have had an effect at the academic and personal and family levels in the short and medium term.

In accordance with previous studies (Conversano et al., 2021; Prowse et al., 2021), the female students scored significantly higher than the male students in relation to experiencing panic, sensation of drowning/suffocation, unrefreshing sleep and feelings related to anger or tension. The female students also reported a more pronounced negative effect on their academic performance and mental health, reflecting greater emotional vulnerability to the effects on the lockdown. In this respect, the intensification of gender roles regarding caregiving during the pandemic (Cortés-Álvarez et al., 2020; Ruiz, 2021; Wenham et al., 2020) may have crystallized in a greater psychological impact in this group.

The possibility of conducting online evaluations has enabled greater flexibility and has decentralized the educational process (Cidral et al., 2018; Moss and Hendry, 2002; Siddig et al. 2017), although in most universities the widespread implementation of online assessments did not occur until the implementation of measures aimed at controlling the COVID-19 pandemic. Considering the results obtained in the present study, it appears that this type of evaluation led to an increase in academic demands relative to those usually faced by university students, and this had a negative effect on the students' mood. Likewise, having subjects pending (from the first semester and/or other courses) and having a heavy study load could act as risk factors for experiencing stress. These results are congruent with those obtained in a study prior to COVID-19, conducted with 520 university students, in which it was found that students with less academic difficulty exhibited better mental health and lower levels of stress (Chau and Vilela, 2017), indicating the relevance of these variables in relation to vulnerability to the pandemic.

In the present study, it was observed that university students strongly perceived real and/or imaginary dangers caused by the pandemic and that this had a negative impact on the psychological well-being of these young adults (Rodríguez-Hidalgo et al., 2020; Şimşir et al., 2021). Specifically, it appears that the uncertainty experienced in relation to spread of the coronavirus, as well as concern about the possible loss of work by a family member are fears that are mainly related to physical manifestations of anxiety. This valuable finding should be borne in mind since, according to Vázquez et al. (2021), "the aftermath of such a pandemic illness not only damages physical but also mental health, and the effects of mental damage are more widespread and long-lasting than those of physical damage" (p. 121).

The results obtained in the present study have important clinical and educational implications. In regard to clinical implications, the findings confirm a high incidence of anxiety in young adults, in whom the consumption of anxiolytics has increased in recent years (Spanish Ministry of Health, 2021). It is therefore important to consider implementing prevention and intervention programmes, with the aim of preventing possible problems that the levels of anxiety experienced during the lockdown may cause in the future, as there is evidence suggesting that a high proportion of mental health problems are initiated during emerging adulthood (Kessler et al., 2001; Eisenberg et al., 2007). In addition, the life expectancy of people with mental disorders is reported to be 10-15 years lower than that of the general population (Hjorthøj et al., 2017; Nordentoft et al., 2013; Saha et al., 2007; Walker et al., 2015). Regarding the educational setting, the data obtained in the present study suggest different measures that could be taken to lessen the impact caused by the pandemic. In particular, as much information as possible on the development of the subjects and/or the evaluation system must be obtained. This could be accompanied by chronograms including the most important dates. This would help to reduce the uncertainty experienced by students. It is also worth mentioning the need for coordination among teachers regarding deadlines for the delivery of assignments, in order to avoid overloading students. The implementation of such measures would favour the well-being and mental health of the students, with a view to their progressive recovery and in the event of having to experience a similar situation again in the future.

The COVID-19 pandemic continues to be an unprecedented public health concern worldwide. The pandemic is thought to be having effects on mental health in the general population and in young people in particular (Gómez-Gómez et al., 2020). Thus, COVID-19-related psychological distress in students puts them at great risk of a negative impact on their own health, academic performance and professional identity, among other effects (Attarabeen et al., 2021). Therefore, knowing the impact that the confinement has had on the mental health of university students is necessary in order to create and implement effective preventive programmes, focused on educating in adaptive coping strategies and discomfort

management, which can act as protective factors by favouring adequate psychosocial development in the face of the uncertain panorama generated by this new normality.

4.1. Study limitations

The use of a convenience sample and the greater number of females in the sample are limitations which hamper generalization of the study findings to other university populations. Likewise, prior diagnoses of anxiety and/or depression were not considered. Similarly, it should be taken into account that access to retrospective information ("Before quarantine, did you have X (manifestation)?") can sometimes be difficult, reducing the reliability and casting doubt on the veracity of the information provided. To understand how the COVID-19 pandemic has affected the psychological and academic well-being of students, it would be interesting to conduct longitudinal follow-up studies and combine them with qualitative methods to complement the information collected in the self-report questionnaires.

Future research should place greater emphasis on emotional well-being, including protective factors as well as risk factors.

ACKNOWLEDGMENTS

We would like to thank all the subjects who collaborated in this research.

FUNDING

This study is part of Project PID2021-126981OB-I00, funded by MCIN/ AEI/10.13039/501100011033/ and by ERDF "A way of making Europe".

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