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Exploring the mental health of university students in Spain: What can we do to preserve and improve their mental health and wellbeing?

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Abstract
The university stage represents an important change in life that is usually associated with various mental health problems which may have potentially been aggravated by the consequences of COVID-19. The objective of this study is to draw a clearer picture of the mental health of university students which may help to develop and implement interventions best suited to their needs. The sample of this study was composed of 433 university students, recruited through the snowball sampling method, who provided data about their depression, anxiety, social anxiety, obsessive-compulsive, trauma, and avoidance symptomatology and personality traits scores. The sample was divided according to the severity of the depressive and anxious symptoms into non-clinical (47.34%), subclinical (34.64%) and clinical groups (18.01%). From subclinical and clinical samples, less than 20% were receiving psychological help. Regarding the comparison with prevalence data prior to COVID-19, social anxiety and obsessive-compulsive symptoms may have increased seriously, while trauma symptoms showed similar prevalence. The strongest associations of the variables among the three groups were the relationship between neuroticism with social anxiety and obsessive-compulsive symptoms, and between depression and avoidance. This study provides an overview of the mental health of university students in Spain, who seem to have a clear need for psychological support. We hope this data contributes to the debate about the role universities should play in ensuring services that address the mental health needs of students.

Keywords University students · Mental health · Psychological interventions · Prevention programs

Introduction

The university stage is characterized by significant shifting roles, lifestyle and social groups changes and academic-related choices, which can be highly stressful (Auerbach et al., 2019). These stress factors in university students can lead to poorer quality of life, insomnia, high levels of depression symptoms and maladaptive coping strategies (Ribeiro et al., 2018). Therefore, it is not surprising to find studies that show high prevalence of mental disorders in university students, some of them highlighting students' mental health as a public health concern (Auerbach et al., 2019). Additionally, it has been reported that most mental health problems, such as mood, anxiety and substance use disorders, arise in this life period (McGorry et al., 2011) and that the incidence of mental disorders is higher in university students than in the general population (Limone & Toto, 2022).

Concerning the global prevalence of mental disorders in university students, it has been reported that 20.3% of university students across 21 countries were suffering from 12-month disorders (Auerbach et al., 2016). More specifically, prevalence data for major depression disorder ranging from 21.2 to 33.6% and for generalized anxiety disorder ranging from 18.6 to 39% can be found (Auerbach et al., 2019; Li et al., 2022). Focusing on Spain, the prevalence of anxiety and mood disorders has been reported to range from 12.7 to 25.8% for the former and 18.1–28.8% for the latter, these being the most prevalent mental disorders

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among university students and in both cases more prevalent in women than men (Miranda-Mendizabal et al., 2019; Ramón-Arbués et al., 2020).

However, following the COVID-19 pandemic, data suggest that the prevalence of anxiety and depression disorders could be even higher (Vintila et al., 2022), and its consequences could have increased the prevalence of obsessive-compulsive (Silverman et al., 2022) and traumatic symptoms (Feiler et al., 2022) in university students.

Despite the high prevalence data discussed above and the associated negative consequences, studies show that a low proportion of university students receive mental health care, with data showing that only 16.4% of students suffering from a mental health disorder receive treatment (Auerbach et al., 2016). In relation to this, an increase in the number of university students requesting psychological assistance has been observed (Tabor et al., 2021), with the number of students in need of treatment exceeding the resources offered by most university centers (Auerbach et al., 2019). In this sense, there are questions about the role that universities should play in guaranteeing services that address the mental health needs of students, with proposals from universities that are different from each other and have not been systematically evaluated (Duffy et al., 2019).

In Spain, higher education is divided into three main cycles: grade, postgraduate (Máster), and doctoral studies. The grade typically requires four years of study, equivalent to a bachelor's degree. Upon completion, students may pursue a master's degree, which usually takes one to two years and offers specialized knowledge in various fields. Following a master's degree, students can embark on doctoral studies, focusing on advanced research and culminating in a doctoral thesis, whose completion can take between 3 and 8 years, the average being about 5.

Despite the structured and comprehensive nature of higher education, a significant concern has emerged regarding the mental health support available to university students. Between 52.9% and 56.6% of university students in Spain perceived the need for psychological support for a mental health problem, yet only one third (34.2–35.9%) were aware of the existence of the psychological assistance service at their university, and a mere 4.4–5.2% of students reported having accessed it (Ministry of Universities of the Spanish Government, 2023). University students have consequently demanded improvements in the dissemination of information about university psychological assistance services, as well as easier and quicker access to these professional resources (Ministry of Universities of the Spanish Government, 2023). In order to guarantee the efficiency of these types of services, several models have been proposed, highlighting a step-care approach, which would be based on offering the most effective approach with fewer resources or sessions for those users with milder symptomatology and, if this is not sufficient, intensifying the intervention and the number of sessions (Ho et al., 2016). This type of approach has proven to be a cost-effective alternative to conventional mental health care (Davison, 2000), and in the academic context, it would make it possible to personalize the resources offered to the characteristics of the users.

Considering all the above mentioned, the aim of the present study is to explore the mental health status of university students in Spain. For this purpose: (1) we will analyse the psychosocial characteristics of the participants; (2) we will classify the participants according to the intensity of their depressive and anxiety symptoms; (3) we will explore if there are differences between the different groups, with the aim of personalising and adapting possible intervention programs according to the profile of the participants. Thus, we will obtain a more complete picture of this issue that will help to develop and implement services or programs that improve the availability of and access to mental health services in the university context in Spain, ensuring that all students receive the necessary support to preserve and improve their mental health and wellbeing.

Method

Participants

Our sample for this study was composed of 433 participants, all of them students from different universities in Spain, with a mean age of 23.03 years ($SD = 5.73$, range 18–55), with 371 (85.7%) being female. Most students were pursuing undergraduate studies (75.05%), followed by master's degree students (17.78%) and finally doctoral students (7.15%). Most of the participants were single (65.82%) and unemployed (67.44%). Although the majority had received psychological treatment in the past, currently only a minority were receiving psychological support (10.39%). All sociodemographic information can be found in Table 1.

Measures

Sociodemographic data questionnaire Questionnaire developed ad hoc. Information was collected from the participants on sex, age, marital status, employment status, university where they were studying and name of degree, and whether they had received psychological treatment in the past or were currently receiving it.

The NEO-FFI inventory (NEO-FFI; Costa & McCrae, 1999) The neuroticism and extraversion dimensions were assessed through 24 items (12 items for each dimension). The

Table 1 Sociodemographic characteristics of the participants of the total sample (N = 433), the non-clinical participants (n=205), the subclinical participants (n=150) and the clinical participants (n=78) along with chi-squared test for differences between groups

		Non-Clinical		Subclinical		Clinical		Total		χ^2	
		n	%	*n*	%	*n*	%	*n*	%	χ^2	*p*
Sex	Man	176	85.85	130	86.67	65	83.33	371	85.68	0.155	.925
	Woman	29	14.15	19	12.67	13	16.67	61	14.09		
Age	17–22	128	62.44	102	68.00	44	56.41	274	63.28	7.501	.058
	23–29	59	28.78	41	27.33	29	37.18	129	29.79		
	30 or more	17	8.29	7	4.67	4	5.13	28	6.47		
Marital status	Single	135	65.85	101	67.33	49	62.82	285	65.82	3.675	.299
	In couple/married	65	31.71	48	32.00	29	37.18	142	32.79		
	Separate/divorce	5	2.44	1	0.67	0	0.00	6	1.39		
Employment situation	Employed	70	34.15	44	29.33	27	34.62	141	32.56	3.979	.46
	Unemployed	135	65.85	106	70.67	51	65.38	292	67.44		
Previous treatment	Yes	54	26.34	71	47.33	39	50.00	164	37.88	13.842	p <.001*
	No	151	73.66	79	52.67	39	50.00	269	62.12		
Currently receiving treatment	Yes	9	4.39	20	13.33	16	20.51	45	10.39	14.977	p <.001*
	No	196	95.61	130	86.67	62	79.49	388	89.61		

χ^2 = chi-squared test; *p <.05

instrument uses a five-point Likert-type response scale ranging from 0 to 4 (Strongly Disagree - Strongly Agree). A Cronbach's Alpha of 0.88 was obtained in the present sample for both neuroticism and extraversion dimensions.

The Brief version of the Fear of Negative Evaluation Scale (BFNE: Pitarch, 2010) This instrument assesses the fear of negative evaluation by others through 8 items, with a Likert-type response scale ranging from 1 (Not at all characteristic of me) to 5 (Extremely characteristic of me). Internal consistency in the present study was high, with a Cronbach's Alpha of 0.95.

Overall Depression Severity and Impairment Scale (ODSIS; Osma et al., 2019) It consists of 5 items that assess the severity and interference of depressive symptomatology. It uses a Likert-type response scale ranging from 0 (Little or none) to 4 (Extreme). A Cronbach's Alpha value of 0.94 was obtained.

Overall Anxiety Severity and Impairment Scale (OASIS; Osma et al., 2019) It consists of 5 items that assess the severity and interference of anxious symptomatology. It uses a Likert-type response scale ranging from 0 (Little or none) to 4 (Extreme). A Cronbach's Alpha value of 0.91 was obtained.

The Obsessive-Compulsive Inventory– Revised (OCI-R; Fullana et al., 2005) This instrument consists of 18 items that assess obsessions and compulsions related to obsessive-compulsive disorder. It uses a Likert-type response scale ranging from 0 (Not at all/None) to 4 (Very much). Internal consistency was adequate with a Cronbach's Alpha value of 0.88.

The Davidson Trauma Scale (DTS; Bobes et al., 2000) This instrument assesses the intensity and frequency of post-traumatic stress disorder symptoms through 18 items, with a Likert-type response scale ranging from 0 (Never) to 4 (Daily). In this study a Cronbach's Alpha value of 0.95 was obtained.

The Brief Experiential Avoidance Questionnaire (BEAQ; Vázquez-Morejón et al., 2019) This questionnaire assesses experiential avoidance. It consists of 15 items using a Likert-type response scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The internal consistency of the instrument was adequate with a Cronbach's Alpha value of 0.88.

EUROQOL (Badia et al., 1999) Questionnaire that assesses self-perceived health status. Specifically, a visual scale was used, ranging from 0 (worst imaginable state of health) to 100 (best imaginable state of health). Since only one item was used, the internal consistency of the instrument could not be calculated.

Procedure

A total of 455 students were evaluated, but only 433 completed all the evaluation instruments and were part of the sample of the present study. We recruited the participants in this study through an advertisement distributed in 27 different Spanish public universities (n=371, 85.7%) and private universities (n=62, 14.3%), specifically the Universidad

de Zaragoza, Universitat Jaume I, Universitat de València, Universidad Autónoma de Madrid, Universidad de Málaga, Universidad Alfonso X El Sabio, Universidad Complutense de Madrid, Universidad Autónoma de Barcelona, Universidad Pública de Navarra, Universidad de Oviedo, among others. The corresponding author of this study contacted some of his colleagues working in different universities in Spain to ask for help with the recruitment. We recruited participants through the snowball sampling method, for which purpose the possibility of participating in this study was publicized through the usual communication channels of their universities. The advertisement contained a QR code that they had to scan, which directed them to the online survey platform Qualtrics. Before completing the battery of questionnaires, participants had to read information about the study, as well as the inclusion criteria for participation, which consisted of being over 18 years of age, being a student at a Spanish university, and signing the informed consent form. Once the information had been read and the informed consent form had been signed, the battery of questionnaires was displayed for completion.

Next, we classified participants according to the presence and severity of anxious and/or depressive symptomatology, similarly to other studies (Osma et al., 2014). For this purpose, we used the cut-off points of the ODSIS/OASIS instruments (scores ≥ 10, Osma et al., 2019) to identify the clinical sample (scores ≥ 10), half standard deviation below the cut-off point (scores ≥ 7), for the subclinical sample, and scores below as non-clinical sample. Accordingly, we defined the clinical sample as all those participants with anxiety and/or depression symptomatology scores equal to or greater than 10. Along these lines, we defined the subclinical sample as all those participants with anxiety and/or depression symptomatology scores between 7 and 9, both included. Finally, we defined the non-clinical sample as all those participants with anxiety and/or depression symptomatology scores below 7.

The participants did not receive financial or any other type of compensation for participating. The study was approved by the Research and Ethics Committee of Aragon (Nº. CP.-C.I. PI20/053).

Data analysis

We performed statistical analyses using SPSS 21.0 (SPSS 21.0; IBM, 2012). First, we carried out descriptive statistical analyses to analyse the sociodemographic data of the sample. Once this was done, we performed a normality test using the Kolmogorov-Smirnov test. Next, we conducted mean comparison analyses using Chi-square tests (categorical variables) and the Kruskal-Wallis test to compare both the sociodemographic information and the scores on the variables under study between the clinical, subclinical, and non-clinical samples. Finally, we conducted Spearman's correlations to analyse how the different variables are related to each other in each of the samples.

Ethical issues

The study was approved by the Research and Ethics Committee of Aragon (Nº. CP.-C.I. PI20/053).

Results

Sociodemographic characteristics among nonclinical, subclinical, and clinical groups

The total sample consisted of 433 participants, divided into the non-clinical population group ($n = 205$), the subclinical population group ($n = 150$), and the clinical population group ($n = 78$). Using the chi-square test to study differences between non-clinical, subclinical and clinical groups through the different sociodemographic variables, no significant differences were found for any of the variables ($p > .05$), except for whether they received treatment in the past or if they were currently receiving it ($p < .001$). In both cases, the lowest percentage of people who received treatment in the past, or were currently receiving it, corresponded to the non-clinical group, and the highest percentage to the clinical group.

As to the variables that did not show differences between the groups, 63.3% of the participants were aged between 17 and 22, 65.8% were single and 67.4% were not combining their studies with a job.

Concerning whether they had previously received treatment, 26.3% of the non-clinical population stated that they had received prior treatment compared to 47.3% and 50% of the subclinical and clinical population, respectively.

For the non-clinical sample, 4.39% of the participants stated that they were currently receiving treatment, while in the subclinical group it was 13.3% and for the clinical group 20.5%.

In addition, we analyzed the differences between participants who studied at private or public universities, finding differences in favor of students at private universities only in the variables age ($t = 4.51$, $p < .001$), employment status ($X^2 = 8.02$, $p = .005$), whether they have received psychological treatment in the past ($X^2 = 6.41$, $p = .011$) and whether they are currently receiving psychological treatment ($X^2 = 7.69$, $p = .006$). For the rest of the variables, no statistically significant differences were found ($p > .05$).

Table 2 Kruskal-Wallis test for the comparison between the non-clinical participants (n=205), the subclinical participants (n=150) and the clinical participants (n=78)

	Normative data	Non-clinical	Subclinical	Clinical	H[J]	*p-Value*
	M (SD)	M (SD)	M (SD)	M (SD)	(gl = 2)	
N[A]	20.53 (7.46)	15.92 (7.32)	23.84 (7.36)	31.06 (7.65)	159.18	p <.001*
E[B]	31.72 (6.74)	32.01 (7.22)	28.54 (7.95)	25.44 (9.11)	37.29	p <.001*
BFNE[C]	21.35 (6.68)	18.18 (7.71)	23.30 (8.74)	27.40 (8.92)	65.12	p <.001*
ODSIS[D]	2.79 (4.06)	0.61 (1.08)	3.42 (3.16)	9.65 (4.71)	200.99	p <.001*
OASIS[E]	3.92 (4.13)	0.93 (1.11)	5.33 (2.22)	11.32 (3.52)	320.87	p <.001*
OCI-R[F]	15.59 (9.34)	9.77 (8.23)	15.03 (10.41)	21.38 (12.41)	69.69	p <.001*
DTS[G]	11.83 (22.24)	4.21 (8.84)	11.27 (17.96)	27.83 (36.13)	29.50	p <.001*
BEAQ[H]	47.73 (11.42)	36.74 (11.70)	40.31 (12.70)	46.63 (14.77)	28.22	p <.001*
EUROQL[I]	75.80 (16.60)	84.55 (12.17)	77.58 (14.41)	64.55 (17.13)	88.97	p <.001*

A = Neuroticism subscale from the NEO-Five Factor Inventory; B = Extraversion subscale from the NEO-Five Factor Inventory; C = Brief version of the Fear of Negative Evaluation Scale; D = Overall Depression Severity and Impairment Scale; E = Overall Anxiety Severity and Impairment Scale; F = Obsessing scale of the Revised Obsessive–Compulsive Inventory; G = Davidson Trauma Scale; H = Brief Experiential Avoidance Questionnaire; I = EuroQol's thermometer; J = Kruskal-Wallis test; *p <.05

Table 3 Prevalence of clinical scores in the variables studied for the total sample (n = 433)

Measure	Prevalence	
	n	%
ODSIS[A]	50	11,55%
OASIS[B]	66	15,24%
BFNE[C]	39	9,01%
OCI-R[D]	26	6,00%
DTS[E]	22	5,08%

A = Overall Depression Severity and Impairment Scale; B = Overall Anxiety Severity and Impairment Scale; C = Brief version of the Fear of Negative Evaluation Scale; D = Obsessing scale of the Revised Obsessive–Compulsive Inventory; E = Davidson Trauma Scale

Differences between the non-clinical, subclinical and clinical population in psychological variables

The results of the Kolmogorov-Smirnov test showed that the normality criterion was not met, so non-parametric analyses were carried out. Using the Kruskal-Wallis test, all variables showed significant differences (p<.05) between the three conditions. The variables of neuroticism, fear of negative evaluation, depression, anxiety, obsessive-compulsive, trauma and avoidance symptoms showed highest scores in the clinical sample and the lowest scores in the non-clinical sample. Otherwise, for extraversion and quality of life, the non-clinical group showed the highest scores and the clinical group the lowest scores (Table 2).

Prevalence of clinical scores in the variables studied

Of the total 433 participants, 203 participants showed clinical scores for some of the variables analysed. Specifically, 11.55% of the total sample showed clinical scores in depression, 15.24% in anxiety and 9.01% in social anxiety. In addition, 6% of the participants showed clinical scores related to obsessive-compulsive symptoms and 5.08% related to trauma (Table 3).

Correlations between variables in the non-clinical, subclinical and clinical population

In the non-clinical group, we found that the largest associations (with weak-to-moderate correlations) occurred between neuroticism and the variables of social anxiety (r=.42, p<.001) and obsessive-compulsive symptoms (r=.33, p<.001). Depression and anxiety symptoms were positively correlated with neuroticism (r=.25, p<.001; r=.26, p<.001). A positive correlation was also found between anxiety and depression (r=.20, p<.001), and the latter in turn with avoidance (r=.30, p<.001). Anxious symptomatology also correlated positively with social anxiety (r=.20, p<.001). Concerning extraversion, it correlated weakly and positively with quality of life and avoidance (r=.25, p<.001; r=.16, p=.024) and negatively with social anxiety (r = -.25, p<.001) and neuroticism (r = -.25, p<.001) (see Figure 1 in supplementary information).

Regarding the subclinical group, the largest associations (with small-to-moderate correlations) were also found between neuroticism and social anxiety (r=.47, p<.001) and obsessive-compulsive symptoms (r=.40, p<.001). Both depression and anxiety symptoms were positively correlated with neuroticism (r=.18, p=.03; r=.26, p<.001) and obsessive-compulsive symptoms (r=.19, p=.021; r=.24, p<.001). Anxious symptomatology also correlated positively with social anxiety (r=.21, p=.011), but negatively with avoidance (r = -.20, p=.013). On the other hand, depression correlated positively with avoidance (r=.40, p<.001). Neuroticism also correlated negatively with quality of life (r=.17, p=.039) and extraversion (r = -.23, p<.001). Extraversion correlated negatively with social anxiety (r = -.25,

Table 4 Spearman's R correlations between the study outcomes in the subclinical, non-clinical and clinical participants

		1	2	3	4	5	6	7	8	9
Non Clínical	1. ODSIS[A]		.201**	.254**	-.069	.094	.102	.135	.302**	-.084
	2. OASIS[B]			.260**	-.059	.202**	.132	.116	.032	.028
	3. NEOFFI_N[C]				-.213**	.423**	.330**	.229**	.034	-.082
	4. NEOFFI_E[D]					-.253**	-.081	.096	.158*	.256**
	5. BFNE[E]						.332**	.102	.000	-.035
	6. OCI-R[F]							.176*	-.020	-.049
	7. DTS[G]								.004	-.092
	8. BEAQ[H]									.072
	9. EUROQoL[I]									
Subclinical	1. ODSIS[A]		-.015	.177*	-.140	.101	.188*	.005	.400**	-.129
	2. OASIS[B]			.264**	-.066	.207*	.240**	-.002	-.202*	.013
	3. NEOFFI_N[C]				-.232**	.470**	.403**	.101	-.108	-.169*
	4. NEOFFI_E[D]					-.245**	-.168*	.072	.052	.066
	5. BFNE[E]						.333**	.013	-.072	-.003
	6. OCI-R[F]							.113	.000	.054
	7. DTS[G]								.038	-.130
	8. BEAQ[H]									.125
	9. EUROQoL[I]									
Clinical	1. ODSIS[A]		.260*	.419**	-.389**	.106	.268*	.104	.599**	-.325**
	2. OASIS[B]			.307**	-.011	.139	.168	.266*	.149	.102
	3. NEOFFI_N[C]				-.448**	.484**	.509**	.139	.257*	-.142
	4. NEOFFI_E[D]					-.146	-.119	-.056	-.283*	.284*
	5. BFNE[E]						.289*	.029	.071	.083
	6. OCI-R[F]							.229*	.281*	.115
	7. DTS[G]								.177	.023
	8. BEAQ[H]									-.167
	9. EUROQoL[I]									

A = Neuroticism subscale from the NEO-Five Factor Inventory; B = Extraversion subscale from the NEO-Five Factor Inventory; C = Brief version of the Fear of Negative Evaluation Scale; D = Overall Depression Severity and Impairment Scale; E = Overall Anxiety Severity and Impairment Scale; F = Obsessing scale of the Revised Obsessive–Compulsive Inventory; G = Davidson Trauma Scale; H = Brief Experiential Avoidance Questionnaire; I = EuroQol's thermometer; *p <.05**p <.001. *p <.05

p<.001) and obsessive-compulsive symptoms (r = -.17, p=.039) (see Figure 2 in supplementary information).

In relation to the clinical group, low-to-moderate correlations were obtained. The association between neuroticism with social anxiety (r=.48, p<.001) and obsessive-compulsive symptoms (r=.51, p<.001) remained the strongest, along with the positive correlation between depression and avoidance (r=.60, p<.001). Depression and anxiety symptoms were positively correlated with neuroticism (r=.42, p<.001; r=.31, p<.001), the same as with the other groups. Depressive and anxious symptomatology also showed positive correlation between them (r=.26, p<.022). In the specific case of depression symptoms, they correlated positively with obsessive-compulsive symptoms (r=.27, p=.018), and correlated negatively with extraversion (r = -.39, p<.001) and quality of life (r = -.33, p<.001). On the other hand, anxious symptomatology also correlated positively with traumatic symptoms (r=.27, p=.019). Neuroticism had a negative correlation with extraversion (r = -.51, p<.001). Finally, extraversion correlated negatively with avoidance (r = -.28, p=.012) and positively with quality of life (r=.28, p=.012) (see Figure 3 in supplementary information).

The other significant correlations in all groups can be found in Table 4.

Discussion

The aim of this study was to explore the mental health status of university students in Spain. Of the total sample, 11.55% of participants had clinical symptoms of depression, a prevalence rate lower than expected in this population based on previous studies (Ramón-Arbués et al., 2020). As to clinical anxiety, 15.24% of the participants showed clinical scores, data consistent with previous research (Ramón-Arbués et al., 2020). However, when it comes to the classification based on the emotional symptomatology proposed by this study, the clinical emotional symptoms were similar to previous data from the Spanish university population (Miranda-Mendizabal et al., 2019; Ramón-Arbués et al., 2020). As for the other symptoms measured, 9.01% of the total sample showed

clinical scores in social anxiety, which, in comparison with previous data from Spanish university students, could represent an increase of up to eight times (Vázquez et al., 2011). Although there is little data to compare it to and the range of prevalence previous to COVID-19 in other European countries could be between 1 and 11% (Russell & Shaw, 2009), which shows great variability. Concerning obsessive-compulsive symptoms, 6.00% of the students showed clinical scores, which could represent an increase of double the prevalence compared to data previous to COVID-19 in the Spanish general population (Alonso et al., 2021), and even a greater increase compared specifically with prevalence in Spanish university students (Vázquez et al., 2011). On the other hand, 5.08% of the total sample showed clinical scores in traumatic symptoms, with scores within the values previously found, 1.2–5.2%, (Bados et al., 2012; Vázquez et al., 2011), but with an important variability.

Concerning the classification of the participants based on the severity of their depression and anxiety symptoms, we can distinguish three population groups with significant differences between them. Of the 433 students, 47.34% presented non-clinical scores, 34.64% presented subclinical symptoms and 18.02% presented clinical scores in depression or anxiety symptoms. Considering the subclinical and clinical population, 52.66% of the students could benefit from psychological intervention. Of this percentage of students, less than half had received treatment in the past, and more importantly, less than 20% were currently receiving psychological help, presenting a percentage similar to the previous data (Auerbach et al., 2016), which could lead to the chronification of the symptoms, with important consequences for the quality of life of those affected. In this sense, as can be seen in the results of this study, as the severity of the emotional symptoms increased among the three groups, scores on social anxiety, obsessive-compulsive, and trauma symptoms increased, along with an increase in maladaptive regulation strategies such as avoidance, and a worsening of perceived quality of life.

Regarding the relationships found between the variables included in this study, the significant associations that occurred in the three groups, no matter of the severity of the emotion's symptoms, were the positive correlations of neuroticism with anxiety (ranged 0.26 to 0.31), depression (ranged 0.18 to 0.42), social anxiety (ranged 0.42 to 0.47), and obsessive-compulsive symptoms (ranged 0.33 to 0.51), along with the negative relationship between neuroticism and extraversion (ranged −0.45 to −0.21). Lastly, the positive association between depression and avoidance were also maintained in all groups (ranged 0.30 to 0.60). These associations were shown to be stronger depending on the severity of the anxiety and depressive symptoms, with the clinical group presenting the strongest correlations and the non-clinical group the weakest in almost all cases. Likewise, the relationship between neuroticism and social anxiety and obsessive-compulsive symptoms, and the relationship between depression and avoidance, showed the strongest associations among the three groups. Another common relationship between the groups was the positive relationship between anxiety and social anxiety within the nonclinical and subclinical groups (ranged 0.20 to 0.21). On the other hand, the non-clinical group and the clinical group maintained the same relationships between anxiety and depression (ranged 0.20 to 0.26) and extraversion and quality of life (ranged 0.26 to 0.28).

Considering all the above, we can propose different types and formats of interventions from a step-care approach depending on the population group (Rizvi et al., 2022).

Early detection and access to resources

The first step involves offering students the possibility to assess their emotional state and personality characteristics. This approach would help to obtain an early assessment and intervention and would be a response to the student requests for easy and quick access to these resources and professional services (Ministry of Universities of the Spanish Government, 2023).

Mental health promotion and preventive programs

The second step focuses on non-clinical students and subclinical students who are not receiving any type of psychological support. These students represent about 75% of the university population and could benefit from interventions that are less intensive than a conventional psychological intervention for individuals with clinical diagnoses. Mental health promotion programs, along with primary and secondary preventive programs, could be a beneficial option to offer emotional counselling and to improve student's well-being (Stockings et al., 2016), and its application could be feasible within the university context itself. This type of intervention would facilitate the capacity of the universities to respond to the demands and emotional needs of the majority of the students on campus (Auerbach et al., 2019), avoiding the stigma of pathologizing the patients, which stops students from requesting help (Dagani et a., 2023). Moreover, these preventive interventions should consider adding components to work on social anxiety, since it appears to be related to general anxiety in the non-clinical and subclinical groups. Furthermore, components related to obsessive-compulsive thoughts should also be addressed, since their relationship with the rest of the variables is maintained in the three groups, and it could be due, like social anxiety, to

the COVID-19 pandemic (Silverman et al., 2022; Wathelet et al., 2020).

Transdiagnostic vulnerability dimensions

Additionally, other noteworthy aspects are that the strongest correlations were around transdiagnostic vulnerability dimensions such as neuroticism and avoidance (Barlow et al., 2014; Spinhoven et al., 2014), and in the case of the former, it was also closely associated with the rest of the emotional symptoms. Lastly, there were many associations between the rest of the variables evaluated. Thus, these programs could include cross-cutting skills such as the acquisition of social skills (e.g., assertiveness, problem solving) or interventions that allow to improve extraversion, since it seems to play a protective role and is related to a higher quality of life (Pocnet et al., 2017). For this reason, transdiagnostic interventions could be a promising option to be adapted into preventive programs focused on enhancing quality of life and emotional management (Sauer-Zavala et al., 2017) for non-clinical or subclinical population.

Transdiagnostic interventions for clinical population

As for the third step, the results of this study showed how these relationships between variables (i.e., neuroticism) turned out to be stronger in students with clinical symptoms, making more intensive interventions necessary. Consequently, transdiagnostic interventions could also be a good option for this population. In fact, we have large evidence that transdiagnostic interventions such as the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2018) has been shown to be effective and efficient in different contexts and delivery formats (Carlucci et al., 2021). Based on the multiple relationships between the variables and the weight of the transdiagnostic vulnerability dimensions, the UP is an option to be considered by public institutions in healthcare contexts (Peris-Baquero & Osma, 2023; Peris-Baquero et al., 2022) and community or social care (Osma et al., 2022) such as psychological care services at universities, and could represent the last step of intervention within the university campus before assessing a referral (Duffy et al., 2019; Ho et al., 2016).

Limitations

Finally, it should be noted that this study has certain limitations. On the one hand, the sample was mostly composed of women. In this regard, according to the report of the Ministry of Education and Vocational Training (2022), 55.7% of undergraduate university students were women. However, if we analyze the fields of study, in degrees such as education, health or social services this percentage rises to more than 70%, and it is in these degrees from which the sample was mainly collected. In addition, different studies have shown that both depression and anxiety are more prevalent in women, presenting prevalences of more than double compared to men (9.2% vs. 4.0% for depression and 9.1% vs. 4.3% for anxiety) (National Institute of Statistics, 2020), which may also have affected their greater participation in this type of study. On the other hand, the instruments used were not interviews or diagnostic tests, and the non-clinical, subclinical, and clinical categories were assigned based on the severity of depression and anxiety symptoms obtained from self-administered questionnaires. Additionally, the changes observed in mental health indicators could be due to multiple factors, not only the COVID pandemic. Other factors that could have affected are the growing use of social networks and electronic devices or the growing tension and political polarization. Moreover, the sampling method employed, specifically snowball sampling, introduces potential biases. Selection bias may occur as the sample can be homogenous, with participants tending to refer individuals similar to themselves. The non-random nature of the sampling may limit the ability to generalize the results to the total population. Finally, the comparison with prevalence studies prior to COVID-19 is indicative, given that the methodology and samples may differ.

However, while acknowledging the aforementioned limitations, this study has several strengths. First, the data was collected from the students from different Spanish universities from different regions, including public and private universities, and from all degrees and university stages (undergraduate, master's and doctorate). Second, the study of the characteristics of each sample and the relationships between the variables was revealing, and could help in the design and development of more appropriate intervention programs for the university population.

Conclusions

The objective of this study was to explore the mental health status of university students in Spain. The results obtained not only underline the severity of the issue locally but also hold international relevance due to the growing global prevalence of mental health challenges in higher education. Therefore, the findings and suggested interventions are applicable to international contexts, underscoring their broader significance.

This study highlights a clear need for psychological assistance among university students, emphasizing the importance of developing accessible and tailored interventions.

Early intervention could be key to rapid recovery and prevention of symptomatic chronicity. This could have an impact not only on the well-being of students, but also on academic performance. The findings presented here can contribute to the design of prevention and intervention programs that not only enhance the availability and accessibility of treatment within the university context in Spain but also foster students' academic and personal well-being.

Future studies could investigate the integration of digital tools, such as mobile apps and online counselling, in university mental health programs to provide scalable solutions. Research should focus on their feasibility, cost-effectiveness, and student acceptance. Finally, exploring how interventions can be customized based on personality traits (e.g., neuroticism) or coping styles (e.g., avoidance) may enhance their effectiveness. Future research could also focus on targeted approaches for different risk profiles.

In conclusion, it is hoped that the results of this study will contribute to show a clearer picture of the mental health of university students in Spain and help to open the debate on what involvement universities should have regarding the emotional well-being of their students.

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Declarations

We confirm that this manuscript is original (i.e., not published elsewhere), has not previously been reviewed by Current Psychology journal before, and is not currently under review elsewhere

Ethical approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Research and Ethics Committee of Aragón (no. CP.-C.I. PI20/053).

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest Hence, we declare no conflict of interest and give permission to reproduce material from other sources.

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