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Anxiety, depression and suicide risk in students for competitive examinations

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Abstract

This study investigates the prevalence of anxiety, depression, and suicide risk in students for competitive examinations in Spain, besides assessing the effectiveness of a treatment to reduce these symptoms. The research was conducted with 45 people, all of them studying for competitive examinations, who were evaluated through the BDII-II, the STAI, and the CAQ questionnaires. Finding that more than 60% of the sample shows high levels of depression, more than 10% have high level of anxiety and 8.9% scored high on suicide risk. Subsequently, 12 people of these 45 form the experimental group, receiving a cognitive-behavioural intervention focused on negative thoughts and relaxation techniques, while other 12 people of these 45 form the control group. It is observed that the intervention is effective to reduce anxiety, depression, and suicide risk, especially in the case of depression and suicide risk, where people who received an intervention show more improvement.

Key words: anxiety, depression, suicide risk, students for competitive examinations

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Introduction

The economic crisis has provoked that people find it difficult to have a well payed job with future projection, that is why there has been an increase of people who decide to prepare for a competitive examination in Spain. There is no way of knowing the exact data of people who is preparing the competitive examinations, because it is an anonymous process.

The purpose of this study is to analyse anxiety, depression and suicide risk in students for competitive examinations, since it is a well-known fact that exists a high prevalence of anxiety, depression and suicide risk in students, nevertheless, there is no studies about students for competitive examinations. Besides, an

intervention is carried out to assess its effectiveness in reducing anxious and depressive symptoms as well as suicide risk in this population.

Anxiety

Anxiety is defined by Valdés-Díaz and Rodríguez-Testal (2011) like an unspecific response that is related to surveillance, which facilitates and prepares the person for a response or a coping, it consists of a combination of different emotions and it is typically learned. Anxiety makes us more responsive to situations and has an adaptive function (Carpi et al., 2008). Nevertheless, anxiety does not always facilitate this adaptation, in fact, people often cope with a false alarm, they feel anxiety without knowing why or they receive repeated threats that provoke high levels of anxiety and can lead to severe health problems or low efficiency (Fernández-Rodríguez, 2012). So, the term anxiety covers different manifestations that are largely due to the anticipation of unpredictable future threats, this means that an important characteristic of anxiety is its anticipatory role, its way of preparing the body for a threat (Sussman et al, 2016).

According to the WHO, 301 million people have an anxiety disorder in the world in 2019. As well as with depression, anxiety appears more in women than in men, the prevalence is almost double in women than in men. In accordance with the WHO, there are no significant differences in terms of age, although it is observed a lower prevalence within older people (World Health Organization, 2022). In contrast with the data facilitate by the WHO, some authors think that 272 million people around the world suffer anxiety disorder, which implies a prevalence of 4%. This percentage grows within people between 10 and 19 years old, where the prevalence is about 5.5% (Baxter, Vos, Scott, Ferrari & Whiteford, 2014).

On a social level, it is known that divorced, separated or widowed people have higher rates of anxiety, which means that the loss of a relation can be a risk factor, as well as in depression or other syndromes. In the same way, being in an unemployed situation or being a housewife is also related with anxiety. Likewise, being in a poor financial situation is also related with the presence of anxiety (Robles et al, 2021). Besides, some investigations have looked at the high anxiety that provokes living with divorced parents in children and adolescents, as well as living with the new partner of one of their parents. In the same way, a family with frequent argues, abuse or economic problems can make a child suffer from anxiety, because of concern for the well-being of the family. According to these studies, Mogica-Perilla et al. (2019) explain that children whose pregnancies were of risk present higher levels of anxiety, this may be caused by the overprotection that parents have towards the child. Following on with the social class, it is known that the presence of negative vital events is related with the presence of anxiety. Sexual abuse experiences, divorced parents or the death of a loved person are some of the events that have being demonstrate to be highly related with anxiety (Manyema et al., 2018).

It is an established fact that students present more stress and anxiety than general population due to the continued pressure they support (Bogardus et als., 2022). According to a study conducted by Hernández (2005) with more than 25.000 Spanish university students, nearly 21% of the student population present high levels of anxiety, which means that 1 of 4 university students suffer from anxiety throughout university.

Depression

Depression, according to the WHO, is the world leading cause of disability, it affects more than 280 million people in the world (WHO, 2021). Depression can be defined as a condition marked by a low mood and a rejection or an aversion to carry out any activity, which is commonly accompanied by misery feelings, anguish, anhedonia and guilt. This condition can turn into a chronic problem, hampering the performance of daily activities (Malinowski, Veselka & Atkinson, 2017).

On a social class, depression is considered to be produced by an excessive generalization of stimulus-response, despite not being directly linked with a trigger event, it has a main symptom and a lot of secondary ones (Soriano, 2009). Besides, some studies have drawn a link between a dysfunctional family pattern and the presence of depressive symptoms (Vergara et al., 2013). On the other hand, according to

Hankin et al. (2018), cognitive vulnerability, support and interpersonal conflict are the three main risk factors of depression. In respect of social contact, it has been noted that women usually have more social support and better quality of relationships than men, even though women have more probability of having depression (Salk et als., 2017).

It has been proved that some sociodemographic factors like feminine sex, adulthood and low education level are linked with an increase in the presence of anxiety and depression. Besides, the loss of a husband (widowhood, separation or divorce) and being a housewife are related with anxiety and mood disorders. Likewise, these disorders are also related with economic or health problems (Salk et al., 2017).

Suicide

According to the WHO, suicide is considered as diverse acts committed to the detriment of those who perform it, with different degrees of lethal intention and consequences (WHO, 1969). Lee and Kim (2011) define suicide as a self-destruction behavior that has the goal of end with one's life. Under the WHO, about 800000 people kill themselves every year in the world, what means 10.7 suicides per 100000 citizens. Moreover, this is considered as the second cause of death among people between 15 and 29 years old (WHO, 2018).

To understand suicide, some concepts must be distinguished: (a) suicidal ideation, which consists on some thoughts about committing suicide, they usually precede the suicidal act, although this is not always the case; (b) not lethal suicidal behaviour or suicide attempt, a self-destructive behaviour that does not end in suicide; and (c) completed suicide, when the person ends their life by a self-destructive behaviour (Vega-Piñero et als., 2002). There are different definitions and classifications of suicide, so, some investigators value more simplistic aspects of the suicidal act, while others consider all the causes and intentions or distinguish between attempt and suicide (Giner-Jiménez, 2010).

From a sociological point of view, Durkheim defends, through his work "Suicide", that it occurs as a result of the social structure. He sees it like a self-destructive behaviour that has as objective to end with one's life, while attempted suicide is when this act is interrupted before the goal is attained. What this means is that the suicidal behaviour can be considered like a social act, a way of communicating something to himself and others (Durkheim, 1989). Durkheim differentiates three types of suicide according to the person's integration in society: egoistic, altruistic and anomic. The egoistic suicide is the result of the lack of social integration of the person, the altruistic one occurs in highly structured societies, where the important thing is the community rather than the "self", and, finally, the anomic suicide is the one that appears in situations of social disintegration, when there is a lack of rules (Giner-Jimémez, 2010).

González-Fuentes and Palos (2013) have made an investigation in which they have found that the main reasons a person has which leads them wanting to end their life come from the interpersonal field, this is to say, due to family issues. It has been proved that having strong and structured family and social ties is a protective factor, building resilience in people. This is for the sense of belonging into a group, which is a basic necessity of human being, and for the emotional support that those groups provide (Sánchez-Teruel & Robles-Bello, 2014). Besides, being in a dysfunctional family is a risk factor of suicide for young people, where some of the parents are absent (Vega-Piñero et al., 2002). Apart from that, when analysing the economical or employed level, according to Blakely et als., (2003), the risk of suicide is higher in unemployed people, in both men and women. Although the age with a heightened risk of suicide is not the same in both sexes, unemployed men have more risk of suicide between 25 and 64 years old, whereas unemployed women tend to have more risk of suicide between 25 and 44 years old, when compared with people of the same age and employed situation. However, according to this investigation, the association between suicide risk and unemployment decreases when some variables like income, ability to purchase a family car, deprivation or marital status are controlled.

Hempstead (2006) observed that suicide attempts occur more often within the areas with high unemployment rates even when the person is not unemployed, however the completed suicide is not very common in these areas. Besides, this fact can be appreciated in the increase of suicide in Spain in 2011,

when economic crisis began, according to the INE (Spanish Statistical Office).

Anxiety, depression and suicide in students

Most students present high levels of anxiety, especially during examination periods (Rodríguez et al., 2014). According to Rosário et al. (2008), one possible reason why students have more anxiety than the rest of the population may be caused by the continuous learning of new concepts, the necessity to adapt to new classmates or the pressure of the constant evaluations. In the case of university students, they can be affected by other aspects like the beginning of the adult and work life (Miralles & Sanz, 2011). According to several authors, health and legal science students are the university students with the highest risk of anxiety and depression (Schofield et al., 2016).

Due to the close connection between anxiety and depression, many studies have been carried out that analyse the prevalence or the relation between them on students, noting that university and secondary students are at risk of having anxiety and depression (Gómez-Romero et al., 2017; Schofield et al., 2016).

A study concerning medicine students of the military academy found that the prevalence of depression, assessed by BDI, is around 37%, while the prevalence of anxiety is more than 45% and the prevalence of stress is more than 41%. This investigation suggests that people that are constantly under evaluation are at high risk of suffering from anxiety and depression (Ventura & Morales, 2009). This can be exacerbated if the student does not have enough time to rest, has a workload which is too much or a deficient academic performance (Ibrahim & Abdelreheem, 2015; Vergara et al., 2013). Furthermore, a study conducted by Balanza et al. (2009) have studied the prevalence of depressive and anxious symptoms in university students, analysing which academic, social and domestic factors

can have a great impact. They have found that legal science students have the highest rates of anxiety and depression, while technical university students have the lowest rates. They also found that students that live within their family house during the academic year have lower anxiety and depression rates than the ones that live in other accommodation. Apart from that, having other duties aside from studying, like having a job or taking care of children has been found to be a risk factor of suffering from anxiety, in comparison with the students that do not have these obligations.

Gómez-Romero et al. (2017) studied the prevalence of suicide risk in college freshmen, finding that almost the 12% of them are at risk of suicide, in fact, 5.6% of them attempted previously. On the other hand, Galán et als, (2014), have found a close relation between burnout, depression and suicide risk in dental students.

Method of the investigation

Participants

45 students for competitive examinations in Spain participated in the study. At first it was a sample of 84 people, but at the end this sample was reduced to just 45 on the pre- assessment (Table 1). The sample consisted of 28 women (62.2%) and 17 men (37.8%), aged between 20 and 51 years (M=26.80; TD=5.50). The study participants live in several locations in Spain, Andalusia (62.22%), Madrid (22.2%), Castile-La Mancha (6.7%), Asturias (4.4%), Canary Islands (2.2%) and Castile and Leon (2.2%). Regarding how long the participants have been studying for competitive examinations, the average is

21.44 months (TD=19.78) and, on average they have had to take the exam 1.11 times.

In terms of the examination prepared, they have been categorized on arts and science, considering the subjects of every exam:

- Arts (73.3%). In this category are included the examinations for National Police Force, Legal Proceeding and Judicial Assistance, School Teacher, Economist of the State, Technical Corps within the Ministry of Finance, Procedural and Administrative Management, Property Registrar, Administrative and Supervision of Public Works, State Attorney, Psychologist of Penitentiary Institutions, Lawyer at the Court of Auditors, Notaries, Teacher of Therapeutic Pedagogy and Lawyer of Penitentiary Institutions.

- Science (26.7%). In this category are included Resident Internal Psychologist, Resident Internal Doctor and architect within the ministry of finance.

Table 1: Characteristics of the participants

Variables	n=45	
	TD	$\bar{X}$
Age	26.80	5.50
Times they have made the exam	1.11	1.33
How long they have been studying	21.44	19.77
Sex		
Men	17 (37.8%)	
Women	28 (62.2%)	
Localization		
Andalusia	28 (62.2%)	
Madrid	10 (22.2%)	
Castile-La Mancha	3 (6.7%)	
Asturias	2 (4.4%)	
Canary Islands	1 (2.2%)	
Castile and Leon	1 (2.2%)	
Type of examination		
Arts	33 (73.3%)	
Science	12 (26.7%)	

Afterwards, the participants of the control and experimental groups were selected. The participants who had successfully passed the examinations since the first assessment or the ones who had dropped out were excluded, as well as the ones who did not want to participate (Table 2). On the one hand, the sample of the experimental group consisted of 12 students of competitive examinations, 6 men and 6 women of 25.33 years old on average (TD=1.56). In this group, 7 people are studying for an arts examination, while the other 5 study for a science exam, they have been preparing the examination for a total of 14 months on average (TD=9.28). The members of this group live in Andalusia (50%), Madrid (41.7%) and Canary Islands (8.3%). On the other hand, the sample of the control group consisted of 12 people, 9 women and 3 men of 26.75 years old on average (TD=7.84). 75% of the participants of this group study for an arts examination, while the other 25% study for a science one, they have been studying an average of 17.50 months in total (TD=11.20). The participants of this group live in Andalusia (66.7%), Casile-La Mancha (16.7%), Castile and Leon (8.3%) and Madrid (8.3%).

Table 2: Characteristics of experimental and control groups

Experimental Group	Control Group n=12		n=12	
	TD		TD	
Age	25.33	1.56	26.75	7.84
Times they have made the exam	.50	.80	.083	.094
How long they have been studying	14	9.28	17.50	11.20
Sex				
Men	6 (50%)		3 (25%)	
Women				
Localization				
Madrid				
Andalusia				
Canary Islands				
Castile-La Mancha				
Castile and Leon				
Type of examination				
Arts				
Science				

Research objectives and hypotheses

The objectives of this study are:

- To observe the relation between the three variables that measure the three types of depression according to the CAQ (Suicidal depression, Anxious depression and Low energy depression) and the variable depression of the BDI-II; as well as the relation between the two variables of the STAI (State anxiety and Trait anxiety) and the anxious depression variable of the CAQ, in order to analyse if they are measuring the same factors.
- To determine the presence of anxiety, depression and suicide risk in students for competitive examinations and assess the effectiveness of a cognitive-behavioural treatment to reduce these symptoms in the sample.

The hypotheses of the current research are:

- H1: The students for competitive examinations have high rates of Suicide risk as well as Suicidal Depression, Anxious Depression and Low Energy Depression, measured by the CAQ.
- H2: The students for competitive examinations with high levels of trait anxiety of the STAI, will also have high levels of Depression of the BDI-II, as well as, high levels of Suicidal Depression, Anxious Depression and Low Energy Depression of the CAQ.

- H3: Women have higher levels of anxiety, depression and suicide risk than men
- H4: The control group has an increase of State and Trait Anxiety of the STAI, Depression of the BDI-II and Suicidal Depression, Anxious Depression and Low Energy Depression of the CAQ, as they have been studying for a longer time than when the first assessment was done and they have not received any intervention.

Materials of assessment

Spanish version of the Beck Depression Inventory, BDI-II. It assesses the depressive mood by means of 21 items where each one is scored on a four-point Likert scale, ranging from 0 to 3. This inventory evaluates the three main concepts that explain depression according to Beck's cognitive theory of depression: the negative thinking about oneself, about the world and about the future (Sanz & Vázquez, 2011).

Spanish version of the State-Trait Anxiety Inventory, STAI. The temporary (state) and chronic (trait) anxiety were assessed via this inventory, which has 40 items and each one is scored on a four-point scale ranging from 0 to 3. This Inventory has two scales: State Anxiety (SA) and Trait Anxiety (TA). (Buela-Casal et al., 2011).

Spanish version of the Clinical Analysis Questionnaire, CAQ. It assesses personality psychopathological traits with 144 items of three different answers each one. This questionnaire is suitable for adults and teenagers and it takes between 30 and 45 minutes to complete it. It has 12 scales of different traits of personality (Seisdedos, 2005):

- Hypochondriasis (D1): It evaluates the concern of the person about the disruptions of some functions of the body.
- Suicidal Depression (D2): This scale focuses on the person's thoughts of self-harm, considering some aspects like the wish of death or the dissatisfaction with life. Usually, depressed people get high points on this scale.
- Agitation (D3): It evaluates the necessity to try new and risky things. This pursuit of risk can be hiding a wish of death. Therefore, high rates in D2 and D3 in the same person show a wish of death, so it indicates a suicide risk.
- Anxious Depression (D4): When a person has high rates of D4, it means that they have low self-confidence and find themselves disoriented. It also indicates that the person does not believe in their own capabilities of managing immediate demands. Moreover, this scale assesses some aspects of depression that are highly disruptive and annoying for the person.
- Low Energy Depression (D5): The person that has a high rate on this scale reflects a lack of energy or strength to begin a new day, blue or with a bad mood. High rates in D5 and D1 means that the person needs immediate medical and psychological care.
- Guilt and Resentment (D6): This scale focuses on the feelings of having done something unforgivable, leading to useless and powerless feelings, which makes the person not able to sleep because of these thoughts. It is related with anxiety and insecurity, where guilt and rumination play important roles.
- Boredom and Withdrawal (D7): It assesses the feelings of the person that believes that life is not worth living for, as well as observing the tendency of the person to avoid contact with other people.
- Paranoia (Pa): This is the first scale to appear that is not related with depression. It focuses on the syndrome commonly known as paranoid syndrome and assesses some aspects like suspicion, persecution, or jealous feelings towards others.
- Psychopathic Deviate (Pp): Having high rates on this scale means that not only is the person not hurt by critics but also, they accept themselves as they are. So, this scale assesses the inhibition of a person with

regard to danger, physical pain or criticism. High rates indicate antisocial personalities, people with an elevated cultural or work level usually have high rates.

- Schizophrenia (Sc): The questions that comprise this scale, are about the strange impulses of a person, the difficulty of expressing the ideas or the belief that no one understands them. So, when a person has high rates of Sc, it means that they have a loss of memory, hallucinations or unrealistic feelings.
- Psychasthenia (As): This dimension is generally considered to evaluate obsessive- type behaviours and compulsive habits. This scale contributes to anxiety, as well as neuroticism.
- Psychological Inadequacy (Ps): High rates of this scale mean a deviation in the person's self-valuation of reality, with inferiority feelings, considering that the person is not worthy or they are unsuccessful. It has an elevated correlation with depression.

Procedure

The current investigation is quasy-experimental with a pre-post design and a non-random sample. The collecting data was carried out on two occasions, the first one was between December 2020 and April 2021. The participants (n=45) took STAI, BDI-II and CAQ. These evaluations were taken in person and by email, besides, personal data were taken in a semi structured interview. Afterwards, between 30 April and 12 May 2021, interventions were conducted individually to 12 people out of the first group of 45. All the interventions were conducted about 7 pm and 9 of them were face-to-face, while the other 3 were online. These interventions last between 80 minutes and 95 minutes.

Such intervention consists of one session and the following phases and techniques:

1. Psychoeducation phase. The first phase focused on psychoeducation on test anxiety and how it affects efficiency, mood, behaviour and relation with others, besides explaining a general idea of the intervention. In addition, they were informed that they would be contacted every day if they needed some help or had any doubts, in this way we can check if they are doing the techniques as instructed.
2. Jacobson's progressive muscle relaxation training. In this phase, this technique is explained, including how the muscle groups have to tense and relax with supporting images. Besides, the benefits of this technique in reducing and dealing with anxiety are explained.
3. Diaphragmatic breathing training. Participants learn to control their anxiety with this technique, the training is performed in a relax state, although the goal is to learn to use it in high anxious situations.
4. Cognitive restructuring. The concepts of negative thoughts and irrational beliefs are explained, after that, they carried out a technique to convert negative and irrational beliefs into neutral ones. So, they learn how to objectify and to query the veracity of the thoughts that are generating discomfort. This technique is used to modify irrational beliefs of patients.
5. Stop thinking technique training. This phase focuses on the explanation of this technique, whose objective is to eliminate obsessive thoughts that are so common in evaluation situations. These thoughts are usually unrealistic, repetitive, negative and not adaptive.
6. A review of the numerous techniques learned, so that they can do them by themselves, as well as giving them a summary of the techniques learned so that it is not forgotten.
7. After the intervention, they were indicated to make these techniques every day during the following five days, during which time a tracking was carried out in order to verify that they were actually performing them and to solve any doubts that were not

answered. Later, the second data collection was done during two weeks to these 12 people that form the experimental group as well as the other 12 of the control group, retaking the STAI, the BDI-II and the CAQ.

Data analysis

The SPSS program has been used to process and tabulate the data. Descriptive and frequency rates of the different variables of the investigation were calculated and their distribution was calculated through Kolmogorov-Smirnov or Shapiro-Wilk tests.

Parametrical Student's t test was used to compare the means of independent variables in those whose results were adjusted to normality criteria, or the non-parametrical Mann- Whitney U when variables did not follow normality criteria. Besides, Wilcoxon matched pairs test was used to analyse related variables. Finally, Pearson correlation was used to carry out the analysis between variables and chi-squared test of qualitative variables.

Results

In this section, the results obtained are presents to check if the several hypotheses are verified or not:

Table 3.Correlations between the variable Anxious Depression of the CAQ and the variables State Anxiety and Trait Anxiety of the STAI.

		State Anxiety	Trait Anxiety	Anxious Depression
Pearson correlation		**.234**	**.407****	**1**
Anxious	**Sig. (bilateral)**	**.122**	**.006**	
Depression	**N**	**45**	**45**	**45**

The correlation is significant with a 99% confidence interval

Table 3 highlights the correlations between the variables of the STAI and the variable Anxious Depression of the CAQ, where it is appreciated a significant positive association between State Anxiety and Anxious Depression (r=0.407; p=.006). However, there is no significant correlation between Anxious Depression and State Anxiety.

Table 4: Correlations between the variable Depression of the BDI-II and the three variables of depression of the CAQ

Sui	**cidal Depression**	**Anxious Depression**	**Low Energy Depression**
Pearson correlation	.747**	.378*	.786**
Depression Sig. (bilateral)	.000	.010	.000
N	45	45	45

The correlation is significant with a 99% confidence interval The correlation is significant with a 95% confidence interval

As it can be seen in table 4, there is a significant positive correlation between the variable depression of the BDI-II and the three variables that test the three types of depression according to the CAQ, that are the Suicidal Depression (r=0.747; p=.000), Anxious Depression (r=0.378; p=.010) and Low Energy Depression (r=0.786; p=.000).

Table 5: Trait Anxiety and State Anxiety of the sample

Variables		quency n=45	
	x̄	Pc	
State Anxiety	30.53	<75	23 (51.1%)
		>75	22 (48.9%)
	x̄	Pc	
Trait Anxiety	25.71	<75	30 (66.7%)
		>75	15 (33.3%)

As seen in table 5, 48.9% of participants have higher State Anxiety than the 75th percentile, while the results of Trait Anxiety show that 33.3% of the sample is greater than 75th percentile.

Table 6: Depression of the BDI of the sample

Variables	x̄	ecquency n=45	
Depression	16.78	Mínimal	19 (42.2%)
		Mild	11 (24.4%)
Moderate			9 (20.0%)
Severe			6 (13.3%)

Table 6 highlights the frequency and rates of the participants that have minimal depression (42.2%), mild depression (24.4%), moderate depression (20.0%) and severe depression (13.3%) of the BDI.

Table 7: Depressive variables and suicide risk of the CAQ

Variables	x̄	equency n=45

Suicide risk	**No Yes**	**41 (91.1%)**	
		4 (8.9%)	
Anxious Depression Low		2 (4.4%)	
10.38	Medium	19 (42.2%)	
High	24 (53.3%)		
Suicidal Depression	**6.49**	**Medium**	**17 (37.8%)**
High	**28 (62.2%)**		
Low Energy		**Low**	**1 (2.2%)**
Depression	**12.42**	**Medium**	**13**
(28.9%)			
High			**31 (68.9%)**

Table 7 shows the rates of suicidal risk and depression according to the CAQ. It can be seen that 8.9% of participants are at high risk of suicide, 53.3% have high levels of Anxious Depression, 62.2% show high levels of Suicidal Depression and 68.9% have high levels of Low Energy Depression.

Table 8: Correlation between Trait Anxiety and the four variables of depression of this study

Depression	**Suicidal**			**Anxious**	**Low**	**Energy**
Depression				**Depression**	**Depression**	
	Pearson correlation	**.692****	**.750****	**.407****	**.799****	
Trait Anxiety	**Sig. (bilateral)**	**.000**	**.010**	**.006**	**.000**	
	N	**45**	**45**	**45**	**45**	

The correlation is significant with a 99% confidence interval

Table 8 shows significant positive correlations between Trait Anxiety and Depression of the BDI (r=0.692; p=.000) and Suicidal Depression (r=0.750; p=.000), Anxious Depression (r=0.407; p=.006) and Low Energy Depression (r=0.799; p=.000) of the CAQ.

Table 9: T Test for sex and depressive and anxious variables of the study

	t	**gl**	**Sig (Bilateral)**	**Mean differences**	**Standard error of the mean**	**% confidence interval**	
						Lower	**Upper**
Depression	.399	43	.692	1.155	2.894	-4.681	6.992
Suicidal Depression	.019	43	.985	0.29	1.578	-3.154	3.213
Anxious Depression	1.753	25.172	.092	2.214	1.263	-.386	4.880
Low Energy Depression	.569	25.256	.574	1.151	2.023	-3.014	5.316
Trait Anxiety	-0.22	43	.983	-.088	4.023	-8.202	8.026

State Anxiety	.086	43	.932	.292	3.386	-6.536	7.120

Tabla 10: Chi-Squared test for sex and suicide risk

Pearson Chi-Square	gl	Sig. (bilateral)	Sig. e (unilateral)
.279	1	.626	.489

Tables 9 and 10 present the relations between sex and the variable depression of the BDI, State and Trait Anxiety of the STAI y the variables of the CAQ, that are Suicide risk, Suicidal Depression, Anxious Depression, Anxious Depression and Low Energy Depression. Significant differences were not observed in these variables between men and women.

Table 11:Changes in anxiety and depression of the experimental group

		$\bar{x}$	Z	Sig. (bilateral)
Depression	pre post	19.00 10.25	-2.805	.005**
Suicidal Depression	Pre Post	6.75 4.75	-1.260	.208
Anxious Depression	Pre Post	10.58 10.25	-.462	.644
Low Energy Depression	Pre Post	13.00 9.83	-1.661	.097
Trait Anxiety	Pre Post	28.67 25.33	-1.329	.184
State Anxiety	Pre post	35.50 23.42	-2.802	.005**

In the table 11 it is observed that the group that received the intervention shows differences in the variables State Anxiety of the STAI (Z=2.802; p≤.01) and Depression of the BDI (Z=-2.805; p≤.01) between the first and the second assessments. Although the rest of the variables do not show significant differences, there is a decrease in the mean of the depressive variables of the CAQ (Suicidal Depression, Anxious Depression and Low Energy Depression) and Trait Anxiety of the STAI occurs.

Table 12: Changes in anxiety and depression of the control group

		$\bar{x}$	Z	Sig. (bilateral)
Depression	pre	15.33	-.312	.755
	post	15.67		
Suicidal Depression	Pre	5.92	-.359	.720
	Post	5.33		
Anxious Depression	Pre	10.50	-.086	.931
	Post	10.67		
Low Energy Depression	Pre	11.42	-.227	.821
	Post	10.92		
Trait Anxiety	Pre	25.50	-.089	.929
	Post	21.42		
State Anxie ty	Pre	30.33	-.903	.367

Figure 1: Changes in the variable suicide risk of the CAQ in the control and the experimental groups

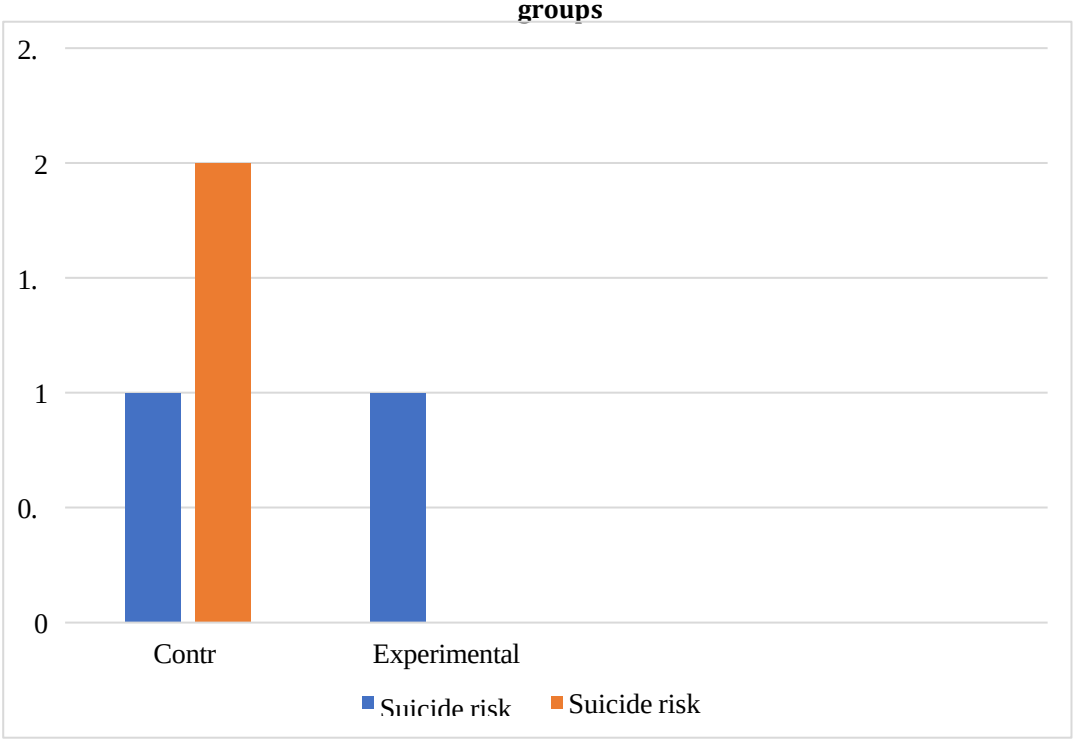
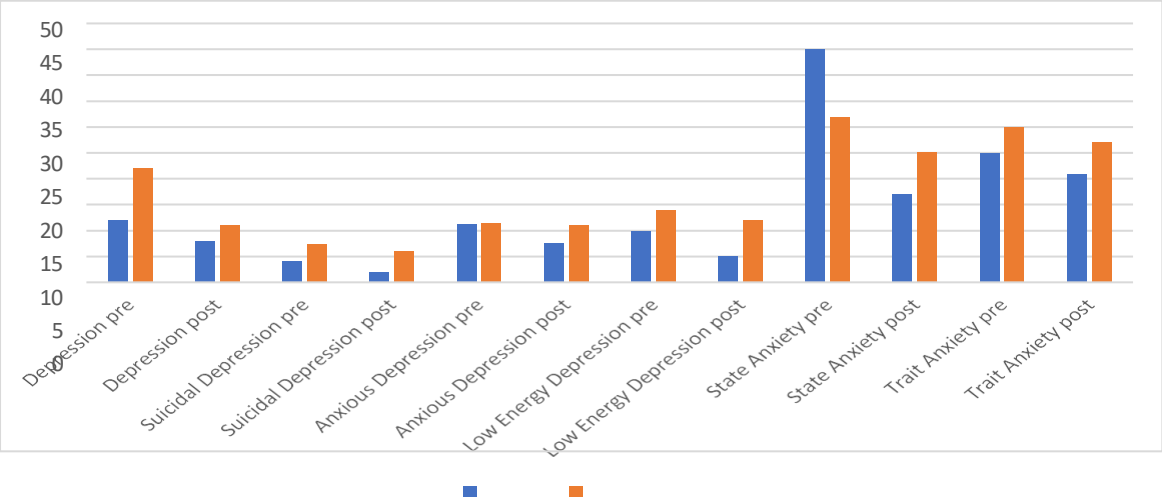


Table 12 shows the differences in anxiety and depression between the first and the second assessment in the group that did not received the intervention. No significant differences were found between both evaluations in this group.

Figure 1 shows that there are differences between the experimental and the control groups in terms of suicide risk of the CAQ, decreasing when the participants have received intervention and increasing when they have not.

Figure 2: Values reached in anxiety and depression of participants that received online intervention or face-to-face one



shows the differences between the variables of depression and anxiety of the study, before and after the intervention of the online and face-to-face groups. Significant difference is found between those groups in the variable State Anxiety of the STAI ($U=2.000$; $p \leq .05$).

Discussion

After analysing the results, a significant correlation can be seen between Trait Anxiety of the STAI and Anxious Depression of the CAQ. However, there is no significant correlation between State Anxiety and Anxious Depression. Furthermore, it can be said that the participants of the study have high levels of State and trait Anxiety of the STAI. Similarly, they present high levels of depression, in this respect, it should be considered that, according to Eikelenboom et al. (2018), high rates of depression may predict future suicidal behaviours.

The first hypothesis addresses the prevalence of the depression variables and suicide risk in the participants. In respect of the first part of the hypothesis, results show that more than half of the participants have high rates of Suicidal Depression, Anxious Depression and Low Energy Depression, which means that the largest part of the sample have depression, according to the CAQ. This differs from the results found in relation with the variable depression of the BDI, since the participants have lower rates of depression of the BDI than the depressive variables of the CAQ. This difference may be produced by the greater subtlety on how the questions related to suicidal thoughts are asked in the CAQ than the BDI, since the second one has more direct questions that may provoke rejection or social desirability in the person. In respect of the second part of the hypothesis, the sample shows a similar prevalence of suicide risk to other investigations, like the study made for Gómez-Romero et al. (2017) with university students. Furthermore, studies such as that of Aguirre-Flórez et al. (2013) with Colombian students, find higher rates of suicide risk than the current study, though none of them evaluates the

suicide risk with the CAQ, as it has been made in this investigation. The probability of committing suicide in students can be characterized by the tendency to pessimism produced by a permanent stressor, apart from some pronounced agitation traits. To sum up, it can be assumed that participants of the study show high rates of depression according to the CAQ, beside similar rates of suicide risk to other studies with students.

In the second hypothesis, results obtained show a significant positive correlation between Trait Anxiety and the four variables of depression of the study, namely Depression of the BDI and Suicidal Depression, Anxious Depression and Low Energy Depression of the CAQ. These results coincide with the current literature, that finds close relation between anxiety and depression.

According to Hankin et al. (2018), cognitive vulnerability that interacts with the stressor factors is associated with an increase of depressive symptoms. Some studies with students conclude that the relation between anxiety and depression in this population may be closer than in others due to the constant stress they support. Besides, according to Vergara et al. (2013) this could be aggravated if the student thinks that there is not enough time to rest, like students for competitive examinations, that only have one day a week to rest from the study.

After analysing the results obtained from the third hypothesis, no differences between men and women with regard to depression, anxiety or suicide risk are seen. These results differ from the current literature, since women usually are more at risk of suffering from anxiety and depression than men. Although, Rosário et al. (2008) also found no relation between sex and depression in students. In the same way, Gómez-Romero et al. (2017) do not find differences in relation to suicide risk between men and women in a student population. The fact that no significant differences appear in depression, anxiety and suicide risk between men and women in the current study, may be because the process of preparing for a competitive examination is equally psychologically exhausting for both sexes, since they are involved in a continuous study process that can last several years.

To test the fourth hypothesis, differences between the first and the second assessments in the control group, the one that did not receive an intervention, were calculated. In order to prove if they had higher levels of anxiety according to the CAQ and depression according to the BDI and the CAQ in the second assessment than in the first one. Although, results obtained show no significant differences between the first and the second assessments in the control group with regard to anxiety and depression. These results lend support to the idea that the decreasing of anxiety and depression levels in the experimental group after the intervention made, cannot be explained for other reasons than the effectiveness of the treatment received.

To conclude, it is noteworthy that the current study has some limitations. The main one is the sample size, since, despite having contact with more than 80 students for competitive examinations, it just consisted of 45 participants. Besides, just 12 of these 45articipants participated in the post-assessment, even though they knew that they had to take a retest since the beginning. Another limitation is that proximity to the exam was not considered at assessments and interventions, and it could be affecting the results obtained. Furthermore, another limitation found is that the same time had not passed between the first and the second assessment for all participants, the same happened with the time passed between the first assessment and the intervention. Finally, it would have been interesting to select a group made up of people who were not preparing for a competitive examination, so that variables of the current study could have been compared with another population.

Conclusions

1. The variable Anxious Depression of the CAQ correlates in a positive way with Trait Anxiety of the STAI.

2. The three variables that assess the three types of depression according to the CAQ, correlate positively with the variable depression of the BDI.

3. Students for competitive examinations have high rates of State Anxiety and Trait Anxiety, what can affect their academic performance and their well-being.

4. Students for competitive examinations have high levels of depression, according to the BDI and the CAQ.

5. Around 10% of students for competitive examinations are at risk of committing suicide according to the CAQ.

6. No differences were found between men and women studying for competitive examinations for the variables of anxiety, depression and suicide risk of the current study.

7. The effectiveness of the cognitive-behavioural treatment done is demonstrated to decrease depression, anxiety and suicide risk levels in students for competitive examinations.

8. It shows that the therapy received online is more effective than face-to-face therapy.

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