

Prevalence Of Anxiety And Stress Due To Covid-19 In Adolescents From An Educational Institution In Sincelejo

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ABSTRACT

Objective: To determine the prevalence of anxiety and stress generated by social isolation measures by Covid-19 in the adolescent population of a public educational institution in the municipality of Sincelejo. Methodology: A descriptive-correlational cross-sectional study with a quantitative approach was carried out; where a sample of 320 students between 12 and 17 years old was used. For its development, a sociodemographic file, an information sheet on compliance with mandatory social isolation due to covid-19 and the activities carried out during it, the Sisco Pandemic Stress Inventory and the Beck Anxiety Inventory were implemented. Results: 37.8% of the students were 13 years old, 67.19% were male, 45.31% had a socioeconomic level of stratum 1 and 2, respectively, and 52.5% lived with their parents. fathers. It was identified that 70.63% did not suffer from covid19 and 91.25% stated that they complied with all the measures, with 38.75% in isolation for more than 4 months, when evaluating the levels of

stress and anxiety that 32.5% presented a moderate level of stress and 98.75% presented a low level. Regarding the relationship between the variables of measures of social isolation and the levels of stress and anxiety, the Chi square and Cramer's V tests showed that there is a statistical relationship between these variables. Conclusion: Social isolation measures contributed to increasing the stress levels of the population.

Keywords: Stress, Physiological, Anxiety, COVID-19, Social Isolation, Young Adult (source: MeSH).

INTRODUCTION

The World Health Organization (WHO) has equated mental health with subjective well-being, self-perceived efficacy, autonomy, competence, intergenerational dependence, and self-realization of intellectual and emotional capacities. It includes the ability to cope with normal life stressors, work productively and fruitfully, and make contributions to the community (Haquin et al., 2004). In crisis or emergency situations, individuals experience some form of psychological distress that has consequences for mental health, which can escalate without adequate coping mechanisms (Pan American Health Organization [PAHO], 2020a). Adolescence, being a crucial stage in human development characterized by various profound physical, social, and psychological changes, can be substantially affected. The World Health Organization defines this stage as the period of growth and human development that occurs after childhood and before adulthood (World Health Organization [WHO], 2020; WHO, 2022).

With the onset of the acute respiratory illness SARS-CoV-2 (Covid-19), the world faced an exceptional situation due to what has been termed the first global pandemic in history (Allen and Waterma, 2020). This situation became an international public health emergency of unprecedented impact in the 21st century, posing significant challenges to mental health (Ramírez-Ortiz et al., 2020). The preventive and obligatory social isolation measures implemented by several countries to prevent and control Covid-19 undoubtedly disrupted the socio-family dynamics of populations (WHO, 2019). In Colombia, the national government applied these measures starting from March 24, 2020, with the aim of preventing and controlling the disease's spread and mitigating its effects (PAHO, 2020b). These measures have brought about rapid changes and significant transformations in economic, political, social,

cultural, and environmental domains for current society; all these changes have affected the physical and mental health of the population, leading to stress, anxiety, and depression reactions (Allen and Waterma, 2020). In the context of adolescents, these preventive measures also generate and intensify levels of stress, anxiety, confusion, and anger. They are unable to meet their peers, forced to change their study methods, kept under constant parental supervision for an indefinite period, and unable to engage in their favorite pastimes. Additionally, socioeconomic variations, differing access to the internet or technological resources, varying educational levels of parents/caregivers, and diverse needs for in-person work or remote work requirements further complicate the situation (Forbes Magazine, 2020).

Mental health is considered a state of mental well-being that allows individuals to enjoy a good quality of life. Adolescents with good mental health can transition into adulthood with the necessary mechanisms and skills to deal with moments of stress and life's adversities (Ribot-Reyes et al., 2020). Mental health disorders account for 16% of the global burden of disease and injury among individuals aged 10 to 19; it is estimated that between 10 and 20% of children and adolescents worldwide experience mental health problems (WHO, 2022b). Globally, anxiety is the ninth leading cause of disease and disability for adolescents (WHO, 2021). According to the latest National Mental Health Survey (NMHS) in Colombia, 12.2% of adolescents between 12 and 17 years old experienced mental health problems at some point in their lives. The report also revealed that 1 in 25 adolescents has suffered from a mental disorder. Additionally, 13% of respondents reported experiencing three or four symptoms of anxiety, and 16% exhibited more than four symptoms of depression (Zhou et al., 2020).

Studies have demonstrated that during an epidemic outbreak, the population experiences negative emotional responses, such as anxiety and depression symptoms. Many recent studies have shown how Covid-19 has a significant impact on the mental health of Colombian adults (Ministry of Health and Social Protection, 2022). The World Health Organization and the National Health Commission have published various guidelines promoting psychological interventions in crisis states. However, it is not clear about the occurrence and distribution of anxiety and stress symptoms among adolescents, highlighting the importance of

assessing anxiety and stress symptoms related to the Covid-19 emergency (Sanabria-Mazo et al., 2021; Resolution number 1841 of 2013). The aim of this study was to assess the prevalence of two specific symptoms, anxiety and stress, and their sociodemographic correlations among adolescents in the Sincelejo population during the Covid-19 pandemic.

METHODOLOGY

This study is a descriptive-correlational cross-sectional design conducted from a quantitative perspective.

Population and Sample: The study population consisted of 1,856 adolescents enrolled at the "Institución Educativa Normal de Sincelejo," aged between 12 and 17 years.

The sample size comprised 320 students, calculated using a probabilistic sampling technique, with a margin of error of 5% and a confidence level of 95%, ensuring a sample with reduced probability of biases.

Instruments: Se recolectaron los datos utilizando los siguientes instrumentos de medición: Data was collected using the following measurement instruments:

Pandemic Stress Systemic-Cognitivist Inventory (SISCO), which involves individually administering a scale that assesses stress caused by the demands of the Covid-19 pandemic environment. It is measured through three factors: Stressors, Reactions, and Coping Strategies. Items are responded to using a 5-point Likert-type scale, and responses are coded and captured based on the assigned values in the questionnaire (ranging from zero to five). The data obtained is then transformed into percentages using simple proportional calculation. The interpretive range is as follows: 1% to 20% (very mild level), 21% to 40% (mild level), 41% to 60% (moderate level), 61% to 80% (strong level), and 81% to 100% (very strong level). The Cronbach's Alpha coefficient was applied to assess the internal consistency of the items in this instrument, resulting in an Alpha value of 0.86. Higher Alpha values indicate greater internal consistency. Values above 0.7 are generally considered acceptable, values above 0.8 are considered good, and values above 0.9 are excellent (Quero, 2010).

Beck Anxiety Inventory (BAI) for emotional and affective mood states. This inventory assesses somatic symptoms of anxiety through 21 questions, providing a score range between 0 and 63. Interpretation cutoffs are as follows: 00-21: very low anxiety, 22-

35: moderate anxiety, above 36: severe anxiety. The total score is the sum of all items; symptoms pertain to the past week and the current time.

Data Collection and Analysis: Written informed consent was obtained from parents, and adolescents' assent was obtained, acknowledging voluntary participation, freedom to withdraw from the study, confidentiality of information, and its purely academic use. Adolescents completed the instruments mentioned, along with sociodemographic aspects such as age, gender, type of affiliation to the General Social Security System in Health (GSSSH), sociodemographic stratum, educational level, and more, using a "Socio-demographic Sheet." Information related to the Covid-19 pandemic, such as illness status, adherence to mandatory social isolation rules, duration of isolation, etc., was gathered through an "Information Sheet on Compliance with Mandatory Social Isolation due to Covid-19 and Activities Conducted During the Same."

These sheets underwent expert validation to ensure quality criteria of validity and reliability for research use. Experts were selected based on their academic and professional profiles in the mental health field. Once all required data was collected, it was transferred to an Excel spreadsheet and analyzed using the Statistical Package for Social Sciences (SPSS) version 21. To establish the relationship between stress and anxiety with Covid-19 social isolation measures, Pearson's chi-square test was used to determine the independence between variables, along with Cramer's V coefficient to quantify the strength of association between two or more variables.

Ethical and Legal Implications: This research project adhered to Resolution 008430 of October 4, 1993, Title II regarding Research in Human Beings, Chapter 1 on Ethical Aspects of Research in Human Beings (Ministry of Health, 1993), and the Declaration of Helsinki, ensuring the respect for human dignity, human integrity, protection of rights, and well-being of participants. The research was classified as level 1 risk, signifying low risk, as it did not jeopardize the health of participating adolescents.

RESULTS

Characterization of Sociodemographic Aspects of the Study

Population: The obtained data is presented in Table 1, where it can be observed that a higher proportion, 37.8% of the respondents, are 13 years old. Regarding gender, males predominate (67.2%).

Concerning socioeconomic status, analysis shows that 45.3% belong to stratum 1, and another 45.3% fall under stratum 2. Based on the respondents' educational level, 51.6% are in the eighth grade, and 48.4% are in the ninth grade. The majority of respondents, representing 85.9%, do not belong to any ethnic group. When determining the ethnic group type the respondents belong to, it was identified that only a smaller proportion, 5.3%, are indigenous, 4.7% are mestizos, and 4.1% are Afro-Colombians. [Table 1]

Regarding the type of health insurance affiliation, it was observed that 76.3% are affiliated with the subsidized scheme, followed by 19.1% contributing to the contributory scheme, with a lower percentage of 4.1% affiliated with the uninsured scheme, and 0.6% with the special scheme. When inquiring about the family members the respondents live with, 52.5% live with their parents, followed by 29.1% living with maternal grandparents, 10.6% with uncles, and a lower proportion of 7.8% living with paternal grandparents. Regarding having siblings, 93.8% affirm having siblings, and only 6.3% state not having siblings. Concerning the position based on the number of siblings, it was determined that 37.5% are older siblings, followed by 34.1% being younger siblings, while 21.8% are middle siblings, and 6.3% are only children, as observed in Table 1.

Identifying the Levels of Anxiety and Stress in the Study Population: To identify the levels of anxiety and stress in the population due to mandatory social isolation measures, a survey called the "Information Sheet on Compliance with Mandatory Social Isolation due to Covid-19 and Activities Conducted During the Same" was administered. The results obtained from this sheet are presented in Table 2. It can be observed that concerning Covid-19 affliction among the respondents, 70.6% indicated not having Covid-19, and only 29.4% affirmed having tested positive for the disease. Regarding symptomatology, 16.6% experienced symptoms, while 12.8% were asymptomatic. [Table 2]

In terms of compliance with isolation measures, 91.3% adhered to these measures. When inquiring about the duration of social isolation, the majority, 38.8%, reported being isolated for over 4 months. Regarding access to the internet during social isolation, 81.9% indicated having access, while only 18.1% reported not

having internet access during that period. Among the respondents, 83.7% attended virtual classes, while 16.3% did not attend. As for the activities conducted, 40.6% engaged in homemade or virtual games, 15.6% preferred sleeping more than 8 hours, 14.4% engaged in physical activity, 12.5% read recreationally, and a lower proportion, 9.1%, did nothing, and 7.8% pursued online courses.

Subsequently, after obtaining these results, the Pandemic Stress Systemic-Cognitivist Inventory (SISCO) and the Beck Anxiety Inventory (BAI) were applied to determine anxiety and stress levels among students. The results are presented in Figures 1 and 2. Analyzing the pandemic stress level according to the SISCO inventory and conducting respective calculations, it was determined in Figure 1 that a significant portion of respondents exhibited a moderate stress level.

[Figure 1]

[Figure 2]

Based on the anxiety level, results were calculated according to the BAI data as shown in Figure 2. It is observed that most respondents exhibited a low level of anxiety, with only a small percentage falling within the moderate anxiety range.

Estimating the Frequency of Anxiety and Stress and Their Relationship with Covid-19 Social Isolation Measures: To establish the relationship between social isolation measures and anxiety and stress levels among respondents, a statistical analysis was performed using the Pearson chi-square test and Cramer's V coefficient to determine if there was a statistically dependent relationship between these variables. The results obtained are presented in Table 3. Analyzing the social isolation variables in relation to stress levels (ranging from very mild to very strong) and anxiety levels (low and moderate), Chi-square test values ranged from 64.647 to 487.775 for stress levels and from 20.876 to 43.957 for anxiety levels. Since these values are greater than the expected Chi-square values and the resulting p-values are below 0.05, it indicates a statistically significant relationship between social isolation variables (such as duration of isolation, internet access, compliance with isolation measures, attendance to virtual classes, activities during isolation, and disease development) and stress and anxiety levels. However, the variable "disease development" in relation to anxiety levels had a Chi-square value of 0.073, greater

than 0.05, indicating no statistical relationship between these two variables.

In the case of Cramer's V coefficient, the calculated p-value is 0.000 for all variables, confirming the statistical relationship of social isolation variables with stress and anxiety levels, consistent with Chi-square results. Similarly, a result of 0.431 for the variable "disease development" confirms the absence of statistical relationship with anxiety levels among adolescents.

[Table 3]

DISCUSSION

The conducted research revealed the presence of adolescents experiencing different levels of pandemic stress due to Covid-19, with significant representation in the range between moderate and very strong stress levels. Regarding anxiety levels, a high percentage of adolescents exhibited low levels of anxiety. Concerning age and gender, the majority of surveyed adolescents were between 13 and 15 years old, with a male bias of 67.2%. Similar results were found by Castillo (2021), who identified a prevalence of participants, 34% and 26%, within the ages of 13 and 14, respectively, with 62% of respondents being female. The emergence of stress and anxiety cases among adolescents correlates with age, as noted by Reyes (2021), who considers an average age of 13.5 years as the risk point where young individuals start showing initial symptoms. As for gender, it is not identified as a risk factor for stress or anxiety development, as stated by Santamaria (2021), due to the universal impact of the Covid-19 pandemic on all genders. Furthermore, it is associated that these conditions can affect both males and females equally, given that they arise as a consequence of changes inherent to adolescence (Ten-Year Public Health Plan, 2020).

Regarding socioeconomic status, this research determined that 45.3% of adolescents belong to strata 1 and 2. The majority, 52.5%, live with their parents, and 93.8% have siblings. These findings align with Quispe (2021), who reported that 95% of adolescents spent the quarantine or isolation period with their families. Similarly, Lazo (2021) reported in their study that 64.3% of students live with both parents, indicating that being underage, they are financially dependent on their parents and more vulnerable than adults, leading to their being safeguarded by family members.

Concerning Covid-19 infections, 70.6% did not contract the disease, and 91.3% adhered to social isolation measures, with 38.8% enduring isolation for over 4 months. Similar results were reported by Lazo (2021), where 92.4% of students respected isolation measures, driven by the adolescents' fear of infecting their families, motivating them to follow all precautions. Due to the widespread infection, parents subjected their children to extended periods of isolation, devoid of contact with friends and school, resulting in boredom, reduced physical activity, and restricted space for activities, impacting their psychological well-being and quality of life (Canto and Engracia, 2020). In terms of education, 83.7% attended virtual classes, resembling the results of Canto and Engracia (2020), where 65.78% of students attended virtual classes during isolation. However, students express a lack of interest in this virtual system, as they find it challenging to fully comprehend the subjects, affecting their educational development (Martos, 2022). Based on anxiety and stress levels, this research revealed that 98.75% of surveyed adolescents exhibited low levels of anxiety, while the remaining 1.25% showed moderate anxiety levels during the past week, including the day of the survey. These findings contrast with Martos (2021), where 46% displayed moderate anxiety levels, and similarly Chulca and Sarango (2021), who found that 61.74% of students experienced moderate anxiety levels. Anxiety emerges as a complex of emotions that can incapacitate individuals to confront threatening events, manifesting through negative behavioral, psychological, and physical changes in adolescents. The observed low anxiety levels in students can be attributed to their resumption of in-person classes, where they received guidance and support from teachers, administrators, and other staff members, helping them cope with negative feelings expressed through anxiety.

Concerning stress, 32.5% of respondents exhibited moderate stress levels, followed by 32.19% with very strong stress levels. These stress levels in adolescents during the Covid-19 pandemic resulted from exposure to various stressors (fear of family members contracting the virus, health system collapse, among others), symptoms (anxiety, uncertainty, sleep disturbances, sadness), and coping strategies (adhering to state recommendations, staying informed through reliable sources, engaging in schoolwork from home, among others). These results resemble those of Quispe

(2021), where 56.45% of students occasionally felt stressed. According to Livia, Aguirre, and Rondoy (2021), stress was evident among young individuals during the Covid-19 pandemic due to the fear of infection, which prevented them from leaving isolation to avoid contagion. This led to the development of irritability as a common symptom among the youth, primarily driven by nervousness. Additionally, Vizioli and Crespi (2020) suggested that primary stressors during the pandemic included the fear of infection, feelings of frustration, boredom, lack of interaction with close individuals, and the presence of Covid-19-related symptoms, aligning with the findings of this study. The overexposure to media contributed to increasing stress and anxiety in the population. On the other hand, Rodríguez et al. (2022) suggested that isolation measures created an atmosphere of tension, conflicts, and routine changes, as confinement and uncertainty led to anguish, worry, and fear—emotional conditions prevalent during a pandemic marked by unknown duration. Similarly, Ortiz, Puentes, and Vergaño (2020) affirmed that measures adopted during the Covid-19 pandemic made people feel isolated and lonely. News from media and social networks amplified tension, triggering anxiety and stress disorders as cognitive, behavioral, and physiological responses to the perceived threat.

From another perspective, Padilla et al. (2020) indicated that anxiety levels decreased in some groups of youth during confinement due to a reduction in bullying victims. This notably diminished anxiety levels, especially among young individuals. However, stress levels rose due to separation or loss of family members, social isolation, and the limitation on going out or engaging in recreational activities. These factors fostered increased reliance on electronic devices and sleep disorders.

Regarding the relationship between anxiety and depression levels and social isolation measures, Chi-square and Cramer's V tests yielded a p-value of 0.000, indicating a statistically significant relationship between these variables, in line with Pérez (2020), who found a dependency relationship between anxiety and social isolation, supported by a Spearman's Rho value of 0.000. This suggests that social isolation prompted youths to feel overwhelmed and incapable of fulfilling their social roles. Negative thoughts and emotional changes are associated with threatening events that affect their susceptibility, prompting changes in their

bodies, behaviors, and biological systems. However, the level of stress or anxiety an individual experiences will depend on their perception of the threat, the surrounding environment, and familial relationships.

Regarding internet access, it was found that 18.1% had no access to the internet, and 16.3% did not attend virtual classes. According to Zapata et al. (2022), disadvantaged populations were more affected by the pandemic, not only due to economic and nutritional limitations but also due to restricted educational access caused by the lack of internet connectivity. This obstacle hindered many children from continuing their academic progress, leading to increased stress, anxiety, despair, and sadness among children and adolescents, as their education was stalled by these limitations.

CONCLUSIONS

Throughout the course of this research, it can be concluded that upon evaluating stress levels using the Pandemic Stress Inventory (PSI), it was identified that due to the Covid-19 pandemic, the majority of adolescents exhibited a moderate level of stress. This was closely followed by a significant presence of very strong stress levels. Factors such as confinement, limited opportunities for free movement, inability to interact with peers, and the inability to pursue favorite pastimes contributed to triggering these reactions, ultimately affecting their mental well-being. In contrast, when assessing anxiety levels using the Beck Anxiety Inventory (BAI), it was determined that the vast majority of adolescents displayed low levels of anxiety. Analyzing the relationship between variables of social isolation measures and stress and anxiety levels leads to the conclusion that a statistical connection exists between these factors. Social isolation measures triggered fears, sleep disturbances, irritability, among others, which collectively contributed to an increase in stress levels among adolescents. Their inability to engage socially or leave their homes due to fear of contagion significantly impacted their stress levels.

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Table 1. Characterization of Sociodemographic Aspects

Variables in the Equation	Frequency	Percentage
Age (years)		
12	15	4,7
13	121	37,8
14	110	34,4
15	53	16,6,
16	14	4,4
17	7	2,2
Sex		
Female	105	32,8
Male	215	67,2
Stratum		
1	145	45,3
2	145	45,3
3	25	7,8
4	3	0,9
5	2	0,6
Grade Level		
Eighth Grade	165	51,6
Ninth Grade	155	48,4
Ethnic Group Membership		
Yes	45	14,1
No	275	85,9
Ethnic Group		
Afro-Colombian	13	4,1
Indigenous	17	5,3
Mestizo	15	4,7
None	275	85,9
Health Regimen		
Subsidized	244	76,3
Contributory	61	19,1
Special	2	0,6
Not Insured	13	4,1
Coexistence		
Parents	168	52,5
Paternal grandparents	25	7,8

Maternal grandparents	93	29,1
Uncles	34	10,6
Has siblings		
Yes	300	93,8
No	20	6,3
Position among siblings		
Oldest	120	37,5
Youngest	109	34,1
Middle	70	21,8
Other	1	0,3
None, I am an only child	20	6,3

Source: Research database.

Table 2. Results of the form for information about compliance with mandatory social isolation due to COVID-19 and activities carried out during the same.

Variables in the equation	Frequency	Percentage
Had COVID-19		
Yes	94	29,4
No	226	70,6
How the disease developed		
Symptomatic	53	16,6
Asymptomatic	41	12,8
Did not have the disease	226	70,6
Complied with isolation measures		
Yes	292	91,3
No	28	8,8
Duration of social isolation		
1 to 2 months	99	30,9
2 to 3 months	33	10,3
3 to 4 months	37	11,6
More than 4 months	124	38,8
Did not apply isolation measures	27	8,4
Had internet access:		
Yes	262	81,9
No	58	18,1
Attended virtual clases		
Yes	268	83,7

No	52	16,3
Activities carried out during isolation		
Home or virtual games	130	40,6
Online courses	25	7,8
Recreational reading	40	12,5
Sleeping more than 8 hours	50	15,6
Exercise or physical activity	46	14,4
None	29	9,1

Source: Research database.

Table 3. Results of Pearson's Chi-Square Test and Cramer's V with regard to the variables of social isolation measures and the levels of anxiety and stress in adolescents.

Variables in the equation	(Frequency)							Stress Level		Anxiety Level													
								Pearson's Chi-Square Test	Cramer's V Test	Pearson's Chi-Square Test	Cramer's V Test												
	Stress	Anxiety						Value	Asymptotic Significance (Two-Sided)	Value	Approximate Significance.	Value	Asymptotic Significance (Two-Sided)	Value	Approximate Significance.								
	ML	L	M	F	MF	B	M																
Duration of social isolation																							
1 a 2 months	22	6	17				99	485,189a	0,000	0,616	0,000	43,957	0,000	0,371	0,000								
2 a 3 months			33			33																	
3 a 4 months			37			37																	
More than 4 months			17	31	76	12	4																
Did not apply isolation measures					27	23																	

Access to													
the		6	1	3	45								
internet	22	0	0	1		262	149,245a	0,000	0,683	0,000	18,298	0,000	0,239
Yes			4								a		0,000

No					58	54	4								
Compliance with isolation measures															
Yes	22	6	4	3	75	292		64,647a	0,000	0,449	0,000	42,242	0,000	0,363	0,000
No					28	24	4					a			

Source: Research database.

Continuation of Table 3. Results of Pearson's Chi-Square Test and Cramer's V Test Regarding the Relationship Between Social Isolation Measures and Levels of Anxiety and Stress in Adolescents.

Variables in the equation	(Frequency)							Stress Level		Anxiety Level					
								Pearson's Chi-Square Test		Cramer's V Test		Pearson's Chi-Square Test		Cramer's V Test	
	Stress			Anxiety				Value	Asymptotic Significance (Two-Sided)	Value	Approximate Significance.	Value	Asymptotic Significance (Two-Sided))	Value	Approximate Significance.
	ML	L	M	F	MF	B	M								
Attendance to virtual classes															
Yes	22	6	0	3	51	26		130,810	0,000	0,63	0,000	20,876	0,000	0,25	0,000
		0	4	1		8		a		9		a		5	
No					52	48	4								

Activities carried out during isolation													
Home or virtual games	22	6	4	13									
		0	8	0	487,775	0,000	0,61	0,000	40,646a	0,000	0,356	0,000	
Online courses			2	25	a		9						
			5										
Recreational reading			3	40									
			1										
Sleeping more than 8 hours			2	28	50								
			2										
Exercise				46	46								

Nothing			29	25	4					
Disease progression		3								
Symptomatic	22	1			53					
Asymptomatic	2	1			41	334,709	0,000	0,72	0,000	1,685a
c		9	2			a		3		0,431
Did not have the disease		9	3	10	22					
		2	1	3	2					

Stress levels: Very mild (ML) - mild (L) - moderate (M) - high (F) - very high (MF) and anxiety levels low (B) and moderate (M).

Source: research database

Figure 1. Percentage distribution of the Systemic Inventory of Pandemic Stress (SISCO)

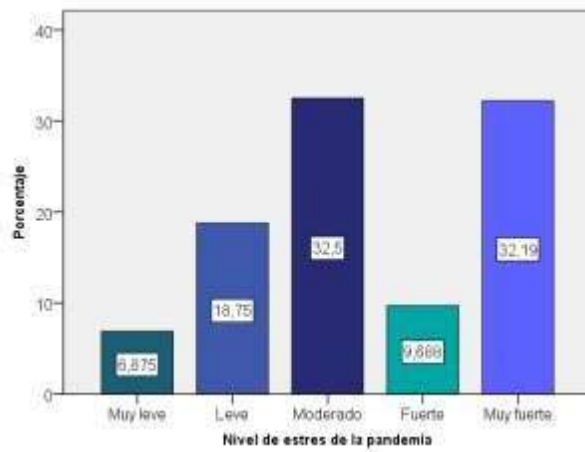


Figure 2. Percentage distribution of Beck Anxiety Inventory (BAI)

