

## **Chapter 7 Study of socioemotional disorders in university students during the COVID-19 pandemic**

### **Capítulo 7 Estudio de padecimientos socioemocionales en estudiantes universitarios durante la pandemia de COVID-19**

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## **Abstract**

Since the COVID-19 pandemic, changes have been reported in different psychosocial aspects that affect the family, work and social spheres in society around the world. In certain family groups, confinement during the pandemic brought family members closer together, in other homes the lack of work, stress, anxiety, and the loss of family members, among other things channeled changes in the levels of different psychosocial aspects. Therefore, it is necessary to have tools that allow these changes to be assessed, for this a study was designed and carried out with students from the Universidad Tecnológica de Torreón to elucidate the differences in psychosocial conditions and their impact, and at the same time provide suggestions to the different departments involved in their emotional and educational well-being.

## **COVID-19, Psychosocial conditions, Stages of the pandemic**

### **Introduction**

As a result of the COVID-19 pandemic in 2020, there were a large number of deaths in all countries worldwide, including Brazil, Mexico, Peru and Colombia, which were the epicenter of the pandemic [1]. Facing with this situation, some families were forced to live together involuntarily, just as in certain environments that caused economic and psycho-emotional problems.

Drastic changes in teaching were reflected in the education sector, from traditional classes in classrooms to classes at home and online, forcing those involved to adapt to these new modalities, primarily ensuring the health of students and teachers. From this modality, families had to adapt the spaces of the students, in addition to acquiring the necessary technology for distance education.

The changes in the teaching-learning process caused the mood of students and teachers to be affected, along with the previously acquired disorders such as anxiety and stress, as well as the increase in the rate of depression according to the studies carried out. In some countries such as the United States, Spain and China [2, 3]. The virtual modality demands from the student some aspects such as motivation, time, ability to learn to learn and therefore requires a high intrinsic motivation, since it is the student's desire to learn that keeps him or her willing to engage in educational activities, beyond the evaluations or exams that are made regarding extrinsic motivation. According to the Self-Determination Theory (SDT) [4], when executing tasks, human beings are motivated by intrinsic and/or extrinsic components to keep developing their goals and tasks in order to bring them to fruition. In the case of the school context, there are multiple factors that can facilitate the development of the task and the continuity of energy during the training process, as well as influence the total abandonment of them, among these is motivation. When changing from classrooms to homes and due to the previously mentioned changes, it is possible that the motivation could have gone from intrinsic to extrinsic and affected the levels of interest in learning or being tied to the demands of the new modalities that have been presented throughout the years. the COVID-19 pandemic, so it is important to know the factors that are affecting student behavior in order to guide them and at the same time look for alternatives that allow changes in attitudes and a boost in their intrinsic motivation in the school environment. Within the psychosocial field, the most relevant aspects are the following:

### **A) Depression**

It is characterized by a state of profound sadness and a loss of interest or pleasure that lasts for at least two weeks and is present for most of the day [5]. The causes of depression include complex interactions of social, psychological, and biological factors. In low- and middle-income countries, care and treatment services for people with depression are often poor or non-existent. In these countries, it is estimated that between 76% and 85% of people with mental health disorders do not have access to the treatment they need [6]. Depression in adolescents presents affectations in the emotional, cognitive and physical aspects. In the former, symptoms include irritability, suicidal ideation, inappropriate guilt, lack of interest, lack of pleasure, despair, depressed mood, and anxiety. On the other hand, the symptomatology in the cognitive aspect would be the deterioration of the ability to think, poor concentration, difficulty in memorization and indecision. Finally, in the physical aspect there are headaches, stomach problems, psychomotor agitation, insomnia or hypersomnia, change in diet or weight, decreased libido, fatigue and pain [7].

It is estimated that 20% of the world's population will suffer from a disorder that requires medical care and treatment [8]. However, given the latest events related to the COVID-19 pandemic, the estimates changed. According to a study carried out in China in March 2020 with middle school students between the ages of 12 and 18 with a sample of more than 8,500 students, they have found a high prevalence of depressive and anxiety symptoms, the higher the degree of studies, the higher the prevalence, being the female gender with the highest percentage [9]. Therefore, it is possible to think that depression before and during the pandemic have undergone significant changes that may lead to finding the reasons for the development of students in classrooms with the new normal.

## **B) Eating disorders**

Eating disorders (ED) are defined as specific and severe alterations in food intake, observed in people who present distorted patterns in the act of eating and that are characterized by either overeating or not doing so [10]. Eating disorders generally appear in adolescence and early adult life and can cause physical repercussions that affect the heart, digestive system, bones, teeth and mouth, and these in turn lead to other types of diseases. The symptoms of the disorders vary depending on the type of disorder suffered; These include anorexia nervosa, bulimia nervosa, compulsive eating disorder, rumination disorder, and food avoidance or restriction disorder, and although these usually occur more frequently in adolescents and women, also men can get them [11]. A recent study published by the American Academy of Pediatrics (AAA Publications) indicates that the COVID-19 pandemic and public health precautions have been associated with negative psychological effects among adults and adolescents and that, at the beginning of the pandemic, eating disorder experts hypothesized that these effects might be particularly profound among people who suffer from them. Initial data suggested that the pandemic has been associated with worsening symptoms, including increases in restraint, binge eating, and/or purging, in adults with these disorders, in addition to affecting adolescents as due to their development they may be vulnerable to the negative social consequences of the pandemic such as isolation and adolescents with these disorders may worsen symptoms [12].

## **C) Post-traumatic stress disorder**

In post-traumatic stress disorder (PTSD) everything is focused on the psychic trauma; that is, the emotional impact of a certain event capable of provoking a series of physical and psychological manifestations [13, 14]. APA defines it as that psychologically stressful situation that exceeds the repertoire of normal life experiences, such as a simple bereavement, a chronic illness, an economic loss or a sentimental conflict, which will affect practically all people and will cause an intense fear, terror and hopelessness, with a serious threat to life or personal physical integrity or that of a third party [15]. As a result of the COVID-19 situation, studies and research have been carried out regarding mental conditions that can affect the population, among which is one carried out in Wuhan, China in which, of 2091 participants, 96 (4.6 %) reported a large number of PTSD symptoms and in health personal 4.4% were reported. The risk factors that were identified were female, having a history of exposure in Wuhan, being in high-risk groups for infection, and having poor sleep quality. People now residing in Hubei province, the most affected area, reported the highest levels of PTSD. This result is consistent with a study on the psychological impact of Severe Acute Respiratory Syndrome (SARS), which showed that residents of areas with high prevalences of SARS were more susceptible to developing PTSD [16].

## **D) Violence**

Violence is defined as the physical intervention of an individual or group, against another individual or group or against himself [17] and according to the United Nations Organization (UN), violence against women and girls is one of the most widespread violations of human rights in the world, in addition to having increased as a result of the COVID-19 pandemic [18]. The UN also classifies violence into the following types: gender violence, economic violence, psychological violence, emotional violence, physical violence, sexual violence, and online or digital violence [19]. In a recent report, UN Women Mexico states that as a result of the pandemic, the isolation and movement restriction measures dictated are having repercussions such as higher levels of stress, economic and food insecurity, decreased income and unemployment, which can increase significantly. the levels of violence against women and girls in the domestic sphere and increase the barriers they experience to get out of circles of violence, leave their aggressors or activate support networks.

It also ensures that there is an increase in violence against girls, greater exposure to sexual exploitation of women and young people in contexts of labor informality or precarious working conditions, increased violence against children and adolescents who may see their rights violated. rights to live in well-being conditions, to a healthy integral development, to a life free of violence and to personal integrity, among others [20]. It also reports that, in Mexico, during the confinement of more than 100 days due to the Covid-19 pandemic in Mexico, calls to 911 for violence against women increased by around 20% and attention in state and municipal instances grew. between 20% and 30% percent. According to the National Network of Shelters in Mexico, in the two months of quarantine, the care provided in cases of violence against women increased, which represents an increase of more than 70% compared to the same period in 2019 [21].

## **E) Anxiety**

Generalized anxiety disorder (GAD) is characterized by excessive anxiety and worry about a series of events and activities that happen around the person who suffers from it, worry and anxiety are difficult to control and are associated with three of the following symptoms occurring most days and for at least 6 months: restlessness or impatience, easy fatigue, difficulty concentrating or going blank, irritability, muscle tension, and sleep disturbances (difficulty falling asleep or staying asleep). According to the APA, joint anxiety disorders are the most common type of psychiatric disorder. Many patients with anxiety experience physical symptoms related to anxiety and as a consequence go to primary care, unfortunately treatment is given for the physical symptoms and not for the underlying psychiatric disorder. Despite the high prevalence of this disorder, they are often underrecognized and undertreated [22]. In the first year of COVID-19, the global prevalence of anxiety and depression increased by 25%, according to a scientific report published today by the World Health Organization (WHO). The report also highlights who has been most affected and summarizes the effect of the pandemic on the availability of mental health services and how this has changed during the pandemic. Concerns about potential increases in mental health conditions had already led 90% of countries surveyed to include mental health and psychosocial support in their COVID-19 response plans, but significant gaps and concerns remain [23].

In the present investigation, these aspects were taken into account to evaluate socio-emotional conditions in higher level students in the time of COVID-19.

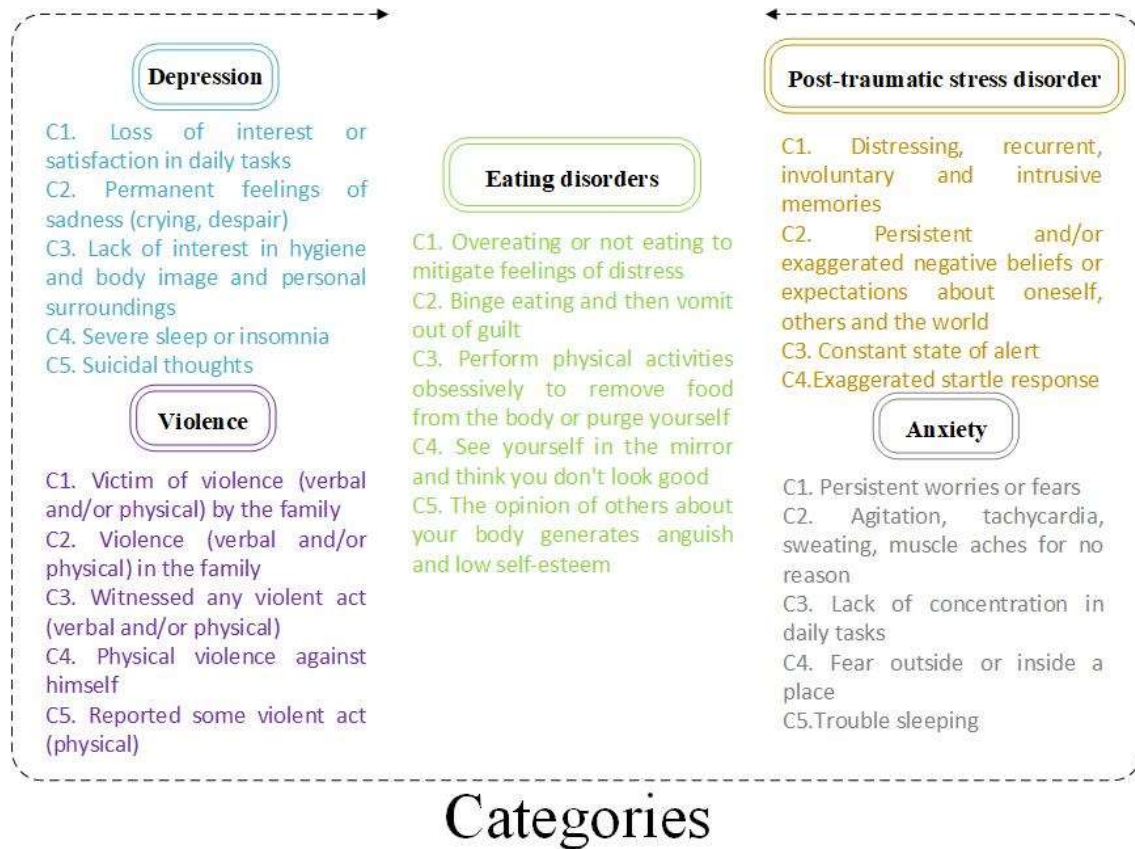
## **Methodology**

### **Subjects of study**

A stratified random sample of 509 students belonging to Universidad Tecnológica de Torreón was selected, from which 274 are students of the associate degree program (ADP), 60 women and 214 men. And 235 students of the engineering level (ENG), 80 women and 155 men. The students belong to the different programs of the university: Bachelor of Business and Project Administration (B&PM), Production technology Engineering (PT), Software Development and Management Engineering (SD&M), Metal Mechanics Engineering (MM), Mechatronics Engineering (MT) and Industrial Maintenance Engineering (IM).

### **Qualitative study design**

The survey was designed and conducted in Google Forms. Where the conditions to be evaluated were divided into five categories with different criteria, each one as can be seen in Figure 1.

**Figure 1** Evaluated psychosocial categories and their criteria

*Consultation Source: Own Source*

To carry out the study ethically in the first and second sections, an informed consent form was prepared where the volunteer is informed about the objective of the study, background and benefits, the procedure, the associated risks, clarifications and a space for the consent, in which the student must authorize to continue with the survey. This process is fundamental for the protection of the people who participate in the investigation.

Once the informed consent form has been signed, the third section continues, where some questions are asked to obtain general information about the student. This part of the survey acts as a clinical background file with the following data: family history, personal history and habits. In the fourth section, the volunteers were asked to fill in their general information and the educational program they are currently studying.

The fifth section determines what type of psychosocial conditions developed taking into account three stages of the COVID-19 pandemic: before COVID-19 (PreC19), during confinement due to COVID-19 (CC19) and the new normal (NNC19). In the sixth section, it was asked if the students tried or implemented solutions to their condition by consulting a specialist during the three stages of COVID-19.

The survey was validated by the expert in psychosocial disorders (Psychologist Delia Lizeth Tarango Enríquez ced. 6949518). This is available with the following QR code (Figure 2).

Figure 2. Survey QR code



Consultation Source: Own Source

### Statistical tests

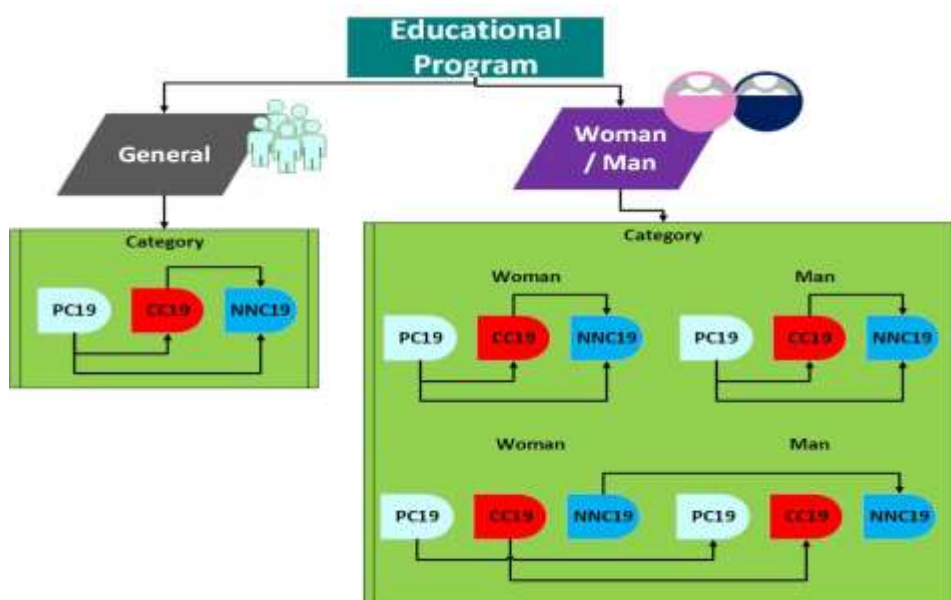
In statistics, the Mann-Whitney U test (also called Mann-Whitney-Wilcoxon, Wilcoxon rank-sum test, or Wilcoxon-Mann-Whitney test) is a nonparametric test applied to two independent samples. It is the non-parametric version of the usual Student's t-test. From this statistical method, changes in the behavior of a sample before and after a treatment can be contrasted [24]. To calculate the U statistic, each of the values of the two samples is assigned its range to construct

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1 \quad (1)$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2 \quad (2)$$

Where  $n_1$  and  $n_2$  are the respective sizes of each sample;  $R_1$  and  $R_2$  is the sum of the ranks (the sum of the relative position of each individual in the sample) of the observations of samples 1 and 2, respectively. The U statistic is defined as the minimum of  $U_1$  and  $U_2$ . A Wilcoxon rank sum test was performed with the data obtained from the surveys. To evaluate the changes in psychosocial conditions within the teaching experience in the three stages of COVID-19 (PreC19, CC19 and NNC19) according to the perception that students had in the three modalities. Statistical tests were performed according to Figure 3.

Figure 3 Order of statistical tests



Consultation Source: Own Source

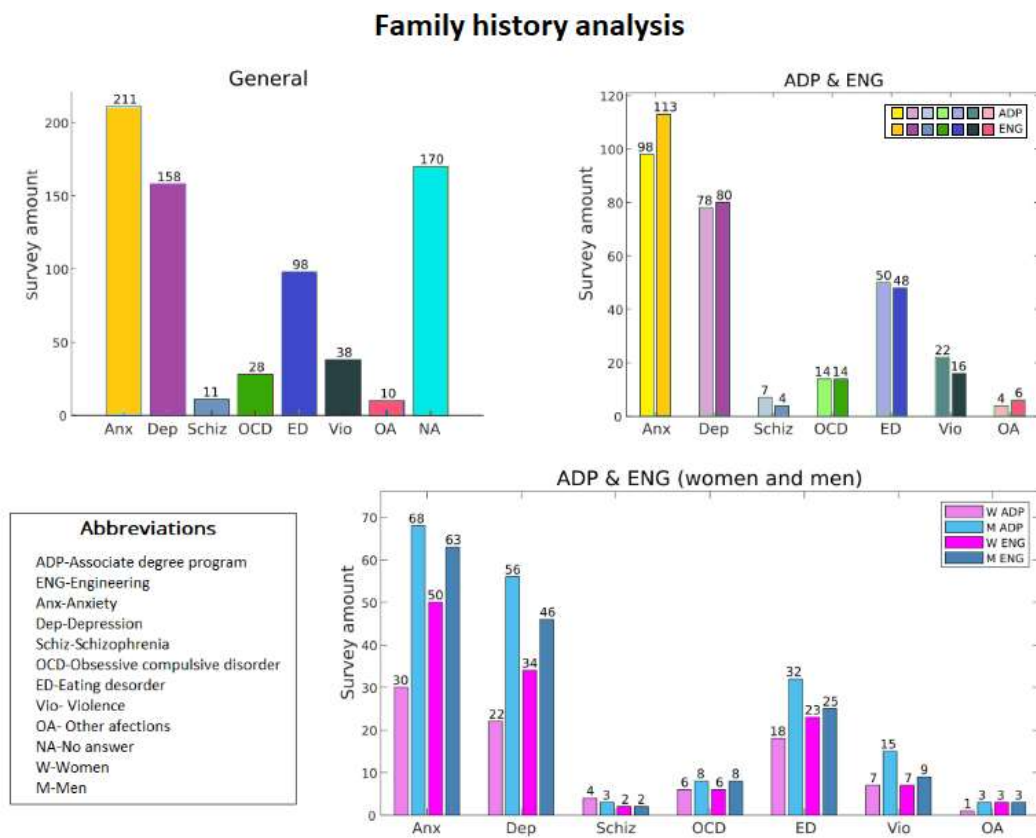
## Results and Discussion

The analysis of the data is presented in three sections, where an observational analysis of what was found is carried out, and in the third section an analysis of the statistical tests carried out is added.

### 1) Family history

As seen in Figure 4, in the **general** part, it was found that in the family circles of the students who were part of the study, there was already a history of certain mental illnesses, with anxiety, depression and eating disorders taking the first places. followed by episodes of violence, obsessive compulsive disorders and schizophrenia. Other conditions such as diabetes, hypertension, etc. may appear as well. In the separation of the data in ADP and ENG, it was observed that those who tend to suffer with the greatest impact, even if it is for a small difference or in most of the categories, are the families belonging to the students of the engineering study level, and this can be due, perhaps, to the fact that in them there is a greater degree of pressure and responsibility, or because, in addition to working, some students on the night shift provide study to another member of their family, and therefore have more responsibilities than just studying. And finally, when separating the data in women and men, we elucidate that the relatives of the men, manifest feeling depressed or anxious, this is contrary to what the WHO reports [25], that is to say that this type of ailments (related to feelings and emotions), are manifested more frequently in women. However, it does not mean that men are not prone to them or do not suffer from them, but it is rare for them to express it, so perhaps we are facing a new precedent, where they (grandparents, parents, uncles, brothers, etc.) give themselves the opportunity not only to express their feelings and thoughts, but also to attend to each other in a professional way.

**Figure 4** Analysis of family history



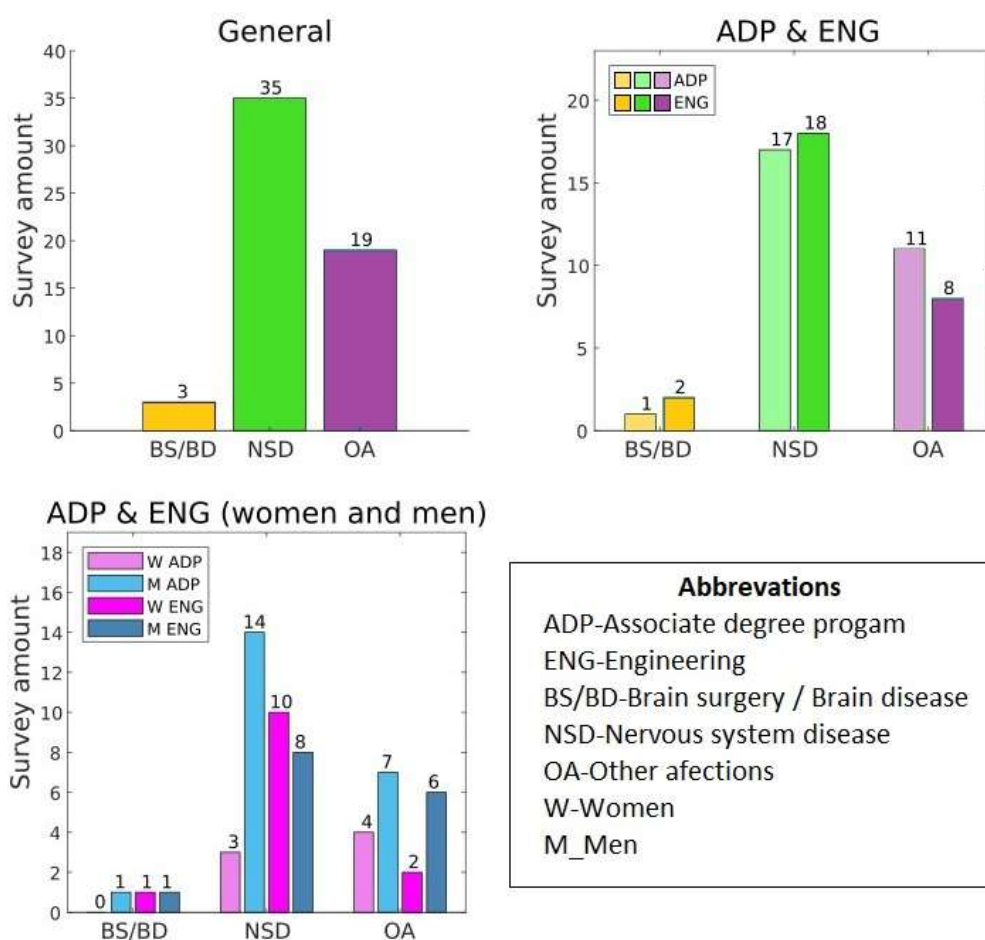
Reference Source: Own Source

## 2) Personal history

In Figure 5, as can be seen in the general part, 0.6% of the student report having had high-risk operations or medical treatments (chemotherapy, hemodialysis, rehabilitation, etc.), 7% express having suffered or suffering from diseases that they affect their nervous system (epilepsy, certain tumor formations or neuralgia, etc.) and 4% present other affections (stress, some allergies and even anxiety or depression already contemplated). Regarding the part of ADP and ENG, it was found that in both educational programs the figures are very similar, except for other conditions where they are higher in ADP. In the Woman-Man-ADP-ENG separation, it can be seen that it is the men belonging to the level of higher university technician who show that they suffer to a greater extent the ravages of some disease of the nervous system or intense stress; followed by women, however, these are made up of those who are at the engineering and undergraduate levels.

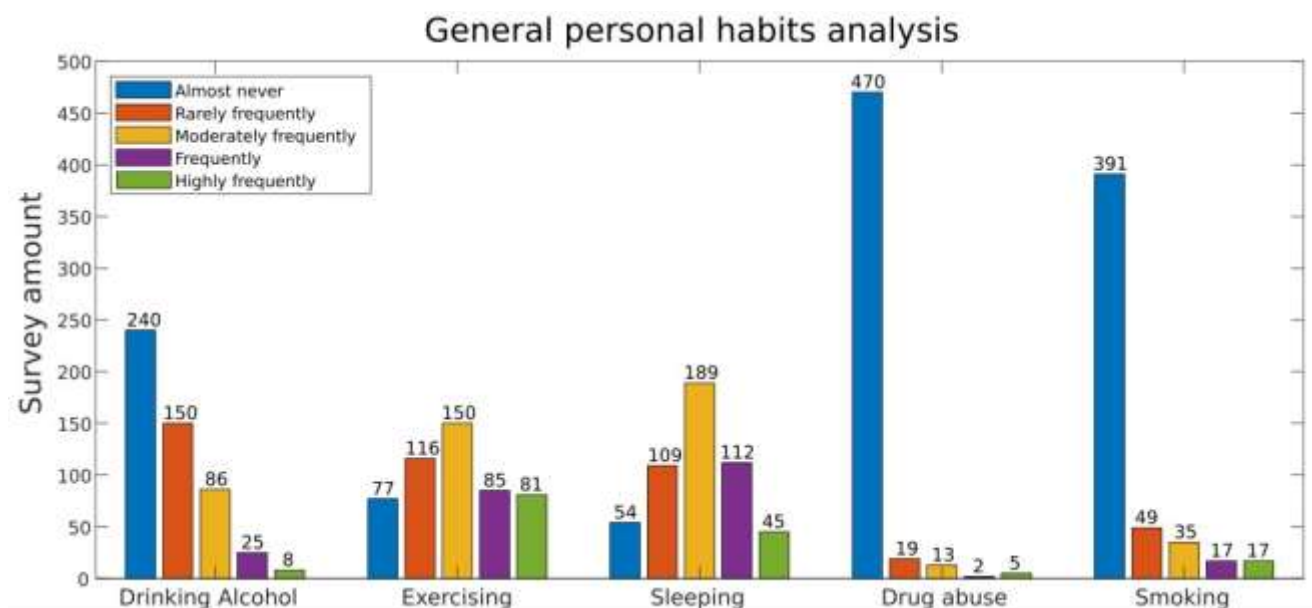
Regarding the habits in Figure 6, it can be seen that the most affected habits in the students who participated in the research were those related to sleep and exercise, having incidences of "Almost never", "Rarely frequently", "Moderately frequently", "Frequently" and "Highly frequently", leaving aside, according to their testimony, the consumption of tobacco, other substances or the intake of alcohol.

**Figure 5** Analysis of personal history



Reference Source: Own Source



**Figure 6** Analysis of personal habits

*Reference Source: Own Source*

### 3) Psychosocial conditions

The data in this section was analyzed in two ways, first as a percentage to find the trends in the categories and their criteria in each of the stages of COVID-19. In the first instance, the percentage of students who presented each of the category criteria was analyzed. In Table 1, percentages  $\geq 25\%$  can be seen highlighted in blue.

**Table 1.** General percentage analysis of psychosocial conditions.

	Depression					Eating disorders					Post-Traumatic stress disorder			
	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5	C1	C2	C3	C4
PC19	16.9	7.5	2.6	14.1	3.3	18.9	2.9	7.7	15.1	11.8	20.2	12.6	11.4	6.7
CC19	25.7	15.7	6.5	17.3	2.6	25.3	5.3	8.1	21	9.4	23	19.4	18.7	8.6
NNC19	20.4	10.6	0.4	22.2	2	21	3.1	5.3	16.7	12.4	21.4	13.8	14.9	7.1
	Violence					Anxiety								
	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5				
	10.6	4.9	10	3.7	5.1	26.9	7.5	14.5	5.9	14.7	PC19			
	7.3	7.3	8.1	4.9	4.1	31.6	13.4	28.1	8.3	23	CC19			
	5.5	2.8	8.1	3.5	3.1	26.9	10.6	24.4	6.5	21.4	NNC19			

*Reference Source: Own Source*

The same analysis was carried out with a separation first in ADP and ING in general, then in women and men in general and finally by general program, women and men. Results are only mentioned if their percentages are  $\geq 25\%$  between stages PC19 - CC19 - NNC19. The data found for ADP in the *Depression* category in C1 was 18.6% - 25.9% - 16.4%. In the category of *GAD* in C1 25.2% - 30.3% - 24.8% and in C3 14.6% - 26.3% - 26.3%. In the case of ENG in the *Depression* category in C1, 14.9% - 25.5% - 25.1%. In the category of *ED* in C1 21.3% - 29.4% - 24.3%. In the category of *PTSD* in C1, 23.4% - 27.2% - 24.3%. In the category of *GAD* in C1 28.9% - 33.2% - 29.4% and in C3 14.5% - 30.2% - 22.1%. As for women in the category of *ED* in C1 32.1% - 34.3% - 28.6% and in C4 16.4% - 28.6% - 21.4%. In the category of *PTSD* in C1 UN 28.6% - 34.3% - 27.1% and in C2 19.3% - 25.7% - 20.7%. In the category of *GAD* in C1 38.6% - 37.9% - 32.1%; in C3 19.3% - 35% - 27.9% and in C5 23.6% - 31.4% - 26.4%. On the other hand, in men in the *Depression* category in C1 17.3% - 26.8% - 20%. In the *GAD* category in C1 38.6% - 37.9% - 32.1%; in C3 19.3% - 35% - 27.9% and in C5 23.6% - 31.4% - 26.4%.

The percentage results per educational program are described below:

a) **B&PM**

In general, in the category of *ED*, 20% - 40.7% - 25% were observed in C2. In the category of *Violence* in C2 28% - 13.5% - 14.2%, while in C5 19.2% - 38.1% - 25%. As for women, in the *Depression* category, 31.8% - 43.7% - 40% were registered in C1; in C2 28.5% - 33.3% - 34.7%; in C3 33.3% - 18.1% - 0%; in C4 15% - 44.8% - 38.4% and in C5 33.3% - 20% - 50%. In the category of *ED* in C1 33.3% - 39.5% - 40%; in C2 22.2% - 72.7% - 37.5%; in C3 25% - 28.5% - 71.4%; in C4 21.7% - 35% - 43.3% and in C5 25% - 40% - 29.6%. In the category of *PTSD* in C1 32.5% - 37.5% - 36.8%; in C2 40.7% - 33.3% - 37.9%; in C3 25% - 37.5% - 43.4%; in C4 42.8% - 38.1% - 28.5%. In the category of *Violence* in C1 28% - 29.4% - 28.5%; in C2 46.1% - 26.3% - 50%; in C3 30% - 35.7% - 20%; in C4 30% - 36.3% - 20% and in C5 16.6% - 45.4% - 33.3%. In the *GAD* category in C1 35.2% - 39.6% - 42.2%; in C2, a range between 36.3% - 36.3% - 33.3% was maintained; in C3 33.3% - 32.6% - 38.4%; in C4 35.7% - 11.1% - 15.4% in NN19 and in C5 30.3% - 38.6% - 40.5%. As for men, only in the category of *Violence* in C5 was 21.4% - 30% - 20% reflected.

b) **PT**

In general, in the category of *Depression* in C3, 38.4% - 18.1% - 50% were registered in NN19; in C5 11.7% - 30.7% - 20%. In the category of *ED* in C2, 26.6% - 18.5% - 25%. As for women, in the *Depression* category, 31.8% - 28.1% - 26.6% appeared in C1; in C2 14.2% - 36.3% - 30.4%; in C3 50% - 27.2% - 0% and in C5 11.1% - 40% - 0%. In the category of *ED* in C2, 33.3% - 9% - 12.5%; in C3 33% - 21.4% - 14.2%; in C4 30.4% - 25% - 26.6% and in C5 28.5% - 20% - 25.9%. In the category of *PTSD* in C1, 27.5% - 25% - 21%. In the category of *Violence* in C1 32% - 23.5% - 14.3%; in C2 7.6% - 31.5% - 25%; in C3 20% - 14.3% - 30% and in C5 16.6% - 18.1% - 33.3%. In the category of *GAD* in C4 21.4% - 27.7% - 38.4%. As for men, in the *Depression* category in C3, 28.5% - 13.6% - 50% were noted and in C5 12.5% - 25% - 33.3%. In the category of *ED* in C2, 16.6% - 25% - 37.5%.

c) **SD&M**

In general, in the category of *Depression*, only in C3 was 15.3% - 15.1% - 50% manifested. In the category of *Violence* in C2 28% - 21.6% - 7.1%. In the category of *GAD* in C2 7.8% - 20.6% 26%. As for women, in the category of *Violence*, 23% - 26.3% - 0% were observed in C2. As for men, in the *Depression* category, in C3 a 28.5% - 22.7% - 50% was established. In the category of *ED* in C5 it started with 12.5% - 26% - 22.2%. In the category of *PTSD* in C3, 26.4% - 15.8% - 22.6%. In the category of *Violence* in C2, 33.3% - 16.6% - 10%. In the category of *GAD* in C2 18.7% - 28.6% - 36.3%; in C3 12.7% - 20.2% - 28.2% and in C5 14.3% - 21.9% - 27.7%.

d) **MM**

In general, in women and men no percentages were found => 25%.

e) **MT**

In general, in the category of *ED* in C3, 30.7% - 17% - 22.2% were reached and in C4 28.5% - 25.2% - 28.24%. In the category of *PTSD* in C2, 25% - 28.2% - 22.8%; in C3 15.5% - 18.9% - 26.3% and in C4 23.5% - 22.7% - 30.5%. In the category of *GAD* in C3 27% - 22.3% - 20.1% and in C4 30% - 26.1% - 24.2%. As for women, in the *Depression* category, only in C3, 16.6% - 27.2% - 0% was achieved. In the category of *PTSD* in C4, 14.3% - 28.5% - 35.7%. In the category of *Violence* in C1 8% - 11.7% - 28.5%; in C4 30% - 9% - 0% and in C5 33.3% - 9% - 16.6%. In the category of *GAD* in C2 27.7% - 12.1% - 23.8%; in C3 25.9% - 16.3% - 20.5%; in C4 21.4% - 33.3% - 23% and in C5 27.7% - 22.7% - 27%. As for men, in the category of *Depression* only in C3 was 26.9% - 15.2% - 22.9%. In the category of *ED* in C3, 33.3% - 22.3% - 30%; in C4 33.3% - 31.3% - 36.3% and in C5 25% - 30.4% - 27.7%. In the category of *PTSD* in C2, 29.7% - 31.7% - 24.3%; in C3 14.7% - 19% - 30.2%; in C4 30% - 17.4% - 27.2%. In the category of *Violence* only in C3 25.8% - 29.6% - 22.6%. In the category of *GAD* in C3 27.7% - 25.5% - 20% and in C4 37.5% - 20.8% - 25%.

## f) IM

In general, in the *Depression* category in C1, 26.7% - 20.6% - 22.1% were noted; in C3 a 0% - 30.3% - 0% was registered and in C5 a 23.5% - 15.3% - 30% was registered. In the category of *ED* in C1, 21.9% - 25.6% - 21.5% manifest; in C2, 33.3% - 18.5% - 31.2% were registered; in C3 23% - 31.7% - 25.9% and in C4 27.3% - 22.4% - 18.8%. In the category of *PTSD* in C1 28.1% - 23% - 20.2% and in C3 17.2% - 26.3% - 22.4%. In the category of *Violence* in C1, 22.2% - 27% - 32.1%; in C2 16% - 29.7% - 35.7%; in C3 17.6% - 21.9% - 29.3% and in C4 15.8% - 36% - 27.8%. As for women, in the category of *Depression* in C3, 0% - 27.3% - 0% was reflected. In the category of *Violence* in C1 16% - 17.6% - 28.6%. As for men, in the *Depression* category in C1, 32.8% - 24.2% - 29.7% were registered; in C2 20.8 - 25.5% - 16.1%; in C3 0% - 31.8% - to 0%; in C4 25% - 32.2% - 28.7% and in C5 50% - 25% - 33.3%. In the category of *ED* in C1, 31.4% - 35.8% - 31.3%; in C2 66.7% - 25% - 37.5%; in C3 29.6% - 40.7% - 35%; in C4 31.5% - 29.8% - 25.4% and in C5 21.9% - 17.4% - 27.8%. In the category of *PTSD* in C1 39.7% - 34.8% - 28.2%; in C2 24.3% - 27% - 21.9%; in C3 it was reflected 20.6% - 33.3% - 26.4%; in C4 20% - 26% - 18.2%. In the category of *Violence* in C1, 27.6% - 35% - 33.3%; in C2 25% - 50% - 40%; in C3 26% - 30% - 35.4%; in C4 22.2% - 50% - 30.8% and in C5 28.6% - 40% - 30%. In the category of *GAD* in C2 31.3% - 22.9% - 18.2%; in C4 25% - 29.2% - 10% and in C5 31% - 20.6 - 25%.

The second analysis was statistical to find the significant differences as specified in Figure 3, for each of the categories. A summary of each of the categories in a general way is found in Table 2, where it is observed that the B&PM students showed a significant change (decrease) in the violence that was experienced or exercised in the family and with oneself (self-harm), in the CC19 stage, but above all in NNC19. This is perhaps due to the fact that, with the return to daily activities, and the freedom to go outside, both stress and pressure are channeled in healthier and more socially accepted ways.

**Table 2** General analysis of psychosocial conditions.

	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19
<b>B&amp;PM</b>	0.595238	0.595238	0.896825	0.198413	0.420635	0.388889	0.342857	0.4	0.971429
<b>PT</b>	0.333333	0.84127	0.896825	0.84127	0.595238	0.888889	0.485714	0.571429	0.971429
<b>SD&amp;M</b>	0.285714	0.738095	1	0.666667	0.801587	0.690476	0.228571	0.971429	0.4
<b>MM</b>	0.539683	0.380952	1	0.730159	0.896825	0.896825	0.771429	0.685714	0.628571
<b>MT</b>	0.809524	0.730159	0.801587	0.857143	0.84127	0.801587	0.085714	0.885714	0.228571
<b>IM</b>	0.547619	0.690476	0.880952	0.746032	0.809524	0.896825	0.628571	0.4	0.914286
	<b>Depression</b>			<b>Eating disorders</b>			<b>Post-Traumatic Stress Disorder</b>		
	<b>PC19- CC19</b>	<b>CC19- NNC19</b>	<b>PC19- NNC19</b>	<b>PC19- CC19</b>	<b>CC19- NNC19</b>	<b>PC19- NNC19</b>	<b>PC19- CC19</b>	<b>CC19- NNC19</b>	<b>PC19- NNC19</b>
	0.722222	0.015873	0.015873	0.539683	0.444444	0.984127			
	0.769841	0.904762	0.595238	0.293651	0.134921	0.801587			
	0.952381	0.063492	0.055556	0.079365	1	0.079365			
	1	0.833333	0.52381	0.809524	1	0.626984			
	0.412698	1	0.357143	0.309524	0.420635	0.746032			
	0.444444	0.301587	1	0.166667	0.460317	0.444444			
	<b>Violence</b>			<b>Anxiety</b>					

P Value

Reference Source: Own Source

Table 3 shows the statistical results of the *Depression* category. It can be elucidated that there was a significant difference ( $p < 0.05$ ) in the SD&M program during CC19 between women and men, where in the latter a greater affectation was seen. Although depression can affect both men and women, men's willingness to talk about their feelings can be very different. For example, some men with depression hide their emotions and may appear angry, irritable, or aggressive, while many women appear sad or express sadness. Men with depression may feel very tired and lose interest in work, family or hobbies. They may also have more trouble sleeping than women who have depression. Sometimes your mental health symptoms appear to be physical problems. Many men are more likely to see their doctor about physical symptoms than emotional ones. Some men may turn to drugs or alcohol to try to cope with their emotional symptoms. Furthermore, while women with depression are more likely to attempt suicide, men are more likely to die by that cause, as they tend to use more lethal methods [25].

**Table 3** Depression category analysis

		Depression category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.5794	0.4524	0.5794	0.8254	0.7381	0.881	0.1429	0.2857	0.3016
	PT	0.3571	0.4524	0.9841	0.4444	0.8889	0.6587	1	0.8889	0.7302
	SD&M	0.881	0.9048	0.9524	0.3571	0.6032	0.873	0.246	0.0397	0.1667
	MM	1	1	1	0.381	0.381	0.8889	0.119	0.0794	0.4127
	MT	1	0.8254	0.6587	0.8413	0.6032	0.8651	0.3651	0.127	0.5159
	IM	0.8095	0.2619	0.6905	0.5476	0.7302	0.8095	0.119	0.0714	0.1587

Reference Source: Own Source

Table 4 shows the statistical results of the ED category. Significant differences ( $p < 0.05$ ) between women and men in CC19 and NNC19 were recorded in the B&PM program, with an increase and prevalence in women, this can be reinforced by the study ED in adolescents, a comprehensive look, and in which it mentions that there are socio-environmental risk factors, both proximal and distal, that would play a role in the initiation and maintenance of eating disorders. Examples of the former are critical comments about appearance and diet by parents, and unresolved family conflicts. Among the latter, having been teased is found, in addition to the perceived pressure to be thin, the internalization of a "thin ideal" and the positive expectations associated with thinness, typical of Westernized cultures, which increase the risk of eating pathology especially in adolescent and young adult women. However, in recent decades its diagnosis in men has increased [26].

In the MM program there were significant differences ( $p < 0.05$ ) between women and men in the CC19 stage. In this case, this affectation was more noticeable in men. The National Association of Eating Disorders of the United States that one in three people with a disorder of this type is a man, and almost all behaviors or attitudes that appear as fasting, purging or restrictions are common in all genres. Many studies suggest that the risk of dying is higher in men than in women because they receive treatment later because it is more difficult to seek help for a problem that has been characterized as female or gay. Plus, there are studies that show that men fall into these because they want to gain a lot of muscle and expose themselves more to dangerous eating patterns to achieve it. The main causes are:

- A misconception of body image that is believed should be thin and muscular.
- Sexual objectification and a muscular image spread by the media.
- The desire to increase muscle. 25% of normal weight men perceive themselves as underweight and 90% of adolescents exercise to increase volume.
- Muscle dysmorphia, which is a type of body shape disorder that leads them to obsess over being muscular enough.
- Failure to recognize the symptoms of eating disorders in men.
- Excessive caloric restriction that instead of making them gain volume makes them lose weight and affects their eating behavior. [28]

In the IM program there were significant differences ( $p < 0.05$ ) between women and men in the three stages. This again was more noticeable in the male participants, the MNC. Nancy García, an academic from the Universidad del Valle de México, indicated that in the last three decades eating disorder problems have increased to 30% in men, that is, currently, out of every ten men, three have an eating problem. In the last two years, the incidence of binge eating disorder has increased, a consequence is the anxiety and depression caused by the pandemic [29].

**Table 4** Analysis of Eating disorders

		Eating disorders category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.2222	0.5952	0.4127	0.3571	0.2857	1	0.0635	0.0159	0.0238
	PT	1	0.6905	0.3651	1	0.5238	1	0.4603	0.9048	0.7143
	SD&M	1	0.6667	0.8333	0.5635	0.7937	0.7222	0.627	0.4127	0.5159
	MM	1	1	1	0.8571	0.8889	0.9841	0.127	0.0317	0.1349
	MT	0.8651	0.754	0.9365	0.8413	0.9841	0.7302	0.2302	0.246	0.1429
	IM	1	0.4762	0.4841	0.8333	0.7937	1	0.0238	0.0476	0.0159

Reference Source: Own Source

Table 5 shows the statistical results of the PTSD category. It can be seen that in the B&PM program there were significant differences ( $p < 0.05$ ) between women and men in CC19 where, although there was an increase in both, it was more noticeable in women. People who are in quarantine are particularly vulnerable to neuropsychiatric complications because people gradually distance themselves from each other. In addition, quarantine reduces the availability of timely psychosocial intervention. The entire family of stress-related disorders should be given special consideration: from acute stress disorder to PTSD, which can occur in up to 30-40% of affected people, as has occurred in the context of other disasters. Evidence also tells us that women are more likely to experience PTSD symptoms [30].

In the MM program significant differences ( $p < 0.05$ ) were found between women and men in PC19 and in the IM program significant differences ( $p < 0.05$ ) between women and men in PC19 and NN19. In both educational programs this affectation was more noticeable in the male sex. The literature suggests that women are more likely to suffer from and express the symptoms of this disorder, but it does not rule out that men experience it in the same way. The difference is that while the female sex fits the most common established criteria for it, men are more likely to experience addictive or irritable behaviors; however, and as our study shows, we can appreciate that these are giving themselves the opportunity to express more what you feel and what you think, this perhaps as a result of all the affectations that were experienced by COVID-19, we can observe that they also begin to express. Women may experience PTSD differently than men. Women with PTSD may be more likely than men with PTSD to:

- Startle easily
- Have more difficulty feeling emotions or feeling paralyzed
- Avoid what reminds them of the trauma
- Feeling depressed and anxious

Women tend to have PTSD symptoms longer than men (on average, 4 years versus 1 year) before diagnosis and treatment [30]. Women with PTSD are less likely than men to use drugs or alcohol after trauma. Both women and men with PTSD can also develop physical health problems [32].

**Table 5** Post-Traumatic stress disorder category analysis.

		Post-Traumatic Stress Disorder category								
		Woman			Man			Woman-Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.3714	0.4571	1	0.5714	0.6286	1	0.0857	0.0286	0.0571
	PT	0.9714	0.4857	0.8857	0.4571	0.6571	0.7143	1	0.8286	0.5429
	SD&M	0.5714	0.8	0.9714	0.2286	0.8857	0.4	0.4571	0.1143	0.1714
	MM	1	0.4	0.5714	1	0.9714	1	0.0286	0.0571	0.0571
	MT	0.1143	0.4	0.4571	0.3429	0.6286	0.6286	0.1429	0.3143	0.0857
	IM	0.7429	0.4	0.7714	0.6857	0.3429	0.8571	0.0571	0.0286	0.0286

Reference Source: Own Source

Table 6 shows the statistical results of the Violence category. Significant differences ( $p < 0.01$  and  $p < 0.05$ ) were obtained in the B&PM and SD&M program in women in CC19-NNC19 and PC19-NNC19. Contrary to what was expected and because of how it was reported in the media, there was a gradual decrease in violence between the evaluated stages, or at least this is what this part of the sample that responded to the instrument manifests, especially in relation to the female sex, and it is even more notable in the stage of the new normal because it seems that the return to school and work activities represents an opportunity to solve this problem [33].

In the B&PM program in women and men in CC19 there was a significant difference ( $p < 0.01$ ), the part of violence is more marked in women prior to the beginning of the stages, but as mentioned previously there was a favorable decrease in this affectation. In the MM and IM program in women and men in the CC19 and NNC19 stages, a significant difference was seen ( $p < 0.05$  and  $p < 0.01$ ), with the men expressing greater involvement in their family environment.

Domestic violence is one of the expressions of aggression and mistreatment that most affects the formation and integral development of the personality of an individual, be it a child, adolescent or adult. According to Pavón and Santamaría, domestic violence is a problem that is within a social organization and inserted in a system of cultural beliefs that dominate the way of being and the relationship style. Similarly, according to Whaley, domestic violence is not only a social problem, but has now become a health problem for all members of the family system.

From a psychological perspective, Lorenz's theory of aggressiveness exposes, in regard to violent attitudes, whether of adults, adolescents, boys or girls, it can be shown that it is an innate behavior of the human being, therefore, the author affirms that aggression, like hunger, sexuality, etc., is not a response to environmental stimuli, but rather occurs spontaneously when instinctive aggressive energy accumulates and demands a discharge.

However, Lewis refutes this theory pointing out that there are no reasons to suppose that man is moved by instinctive impulses, but, on the contrary, the influence of the environment and the situational is much more relevant in the reasons for violence. On the other hand, the cycle of violence, proposed by Walker, explains that, to understand domestic violence in couple relationships, three phases must be taken into account: the first phase is the accumulation of tension, the second phase is the of the aggression itself and the third phase is known as reconciliation, in this phase the man gets scared, he feels that the woman is going to abandon him, so he will say or do anything to make her forgive him. The abuser thinks he will be able to control himself. Finally, it is considered that the context of confinement can generate new violent dynamics or an increase in them, within the family.

That is why it is of special interest, everything related to prevention and intervention of this type of situation [34]. Many families have experienced an increase in violence during the COVID-19 lockdown. This is shown by an investigation carried out by Olán, where 89.5% of the participants claimed to have been the victim of psychological violence by an angry family member, usually the spouse. Likewise, 94.4% of women and 91.6% of men have exercised, while angry, some type of psychological violence towards a family member during these more than 16 months of the pandemic.

This work, which included proposals for the creation of public policies that contribute to reducing the problem, revealed that during the pandemic one in five people has been the victim of physical violence by an angry family member, especially a partner. The research included a sample of 665 adults, and reveals that during the pandemic, 33.5% exercised physical violence against a family member, most of the time towards their partner, but also towards their children.

And he affirms that emotional management becomes essential to reduce these episodes of violence. According to the specialist and creator of the Anger Thoughts Scale recognized by the APA, although this is not a new problem, many families have suffered an increase in violence from a series of causes derived from confinement by COVID -19 [35].

**Table 6** Violence category analysis.

		Violence category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.6667	0.0079	0.0397	0.5635	0.6032	0.119	0.0556	0.0079	0.0873
	PT	1	0.2381	0.2381	0.1349	0.1349	1	1	0.1349	0.2381
	SD&M	1	0.0238	0.0476	0.8095	0.5238	0.2381	0.8095	1	0.0794
	MM	1	0.119	0.3651	0.8413	0.8095	1	0.0714	0.0476	0.0476
	MT	0.1032	1	0.0794	0.9841	0.9841	0.8095	0.9683	0.2381	0.0873
	IM	0.9206	0.4048	0.7222	0.373	0.4048	0.754	0.0556	0.0079	0.0079

Reference Source: Own Source

Table 7 shows the statistical results of the GAD category. Significant differences ( $p < 0.05$ ) in PC19 between women and men were found in the B&PM program, where it was appreciated that there was a prevalence and increase in the female population. Women are at higher risk of their mental health worsening in the context of the pandemic, due to risk factors such as:

- Inequalities and discrimination in the professional field.
- Burden of family and care responsibilities: women are the ones who have had to combine teleworking the most with caring for their children, caring for them and helping them with their schoolwork, as well as with household chores.
- Violence against women: confinement implies in some cases having to live with the aggressor 24 hours a day, with the consequences that this has for the mental health of women.

A study indicates that, during the months of the pandemic, the prevalence of anxiety was 33% and that of depression, 28%, and one of the main risk factors for suffering from anxiety and depression was being a woman. Some of the professional groups most affected by the pandemic and confinement are mostly female. These groups include: the health field, such as nurses, doctors and other support professionals, the education field and the care of the elderly, both in retirement places and at home [36]. In the SD&M and MM program, significant differences ( $p < 0.05$ ) were seen in NNC19 in women and men, the latter being the most affected. Men, unlike women, prefer to experience mental illness in silence rather than ask for help for fear of appearing weak, said Benjamín Guerrero López, from the Department of Psychiatry and Mental Health of the UNAM School of Medicine.

This type of disease does not make a gender difference, some are more frequent in them, such as stress and sleep disorders. In the case of men, schizophrenia, attention deficit, addictions and sexual paraphilias appear as the most recurrent. The expert explained: it is necessary to accept that there are mental problems in both, which have nothing to do with strength and weakness. The most serious thing is that they are not given the required importance and can be complicated if they are not given treatment, for example, leading to suicidal ideas from depression. "Those who are most at risk of committing suicide are men, they consume it." In addition, he commented that men, "to demonstrate their manhood", are strong and do not talk about their feelings, therefore, they do not receive adequate attention and, instead, take refuge in alcoholism or other addictions. For the specialist, it is essential to end the taboo that men have to be vigorous and not complain. He added that there are warning signs such as changes in attitude, isolation, lack of interest, etc. It must be accepted, he continued, that men and women can suffer from some mental illness and this is not a sign of weakness, since in most cases they are transitory illnesses, but if we do not attend to them, they can get complicated and become serious. Naming feelings and accepting them is essential to recognize when things are not going well and, above all, to seek specialized care [37].

In the IM program, significant differences ( $p < 0.05$  and  $p < 0.01$ ) were seen in PC19 and CC19 between women and men, where once again men expressed more affectation. Although the literature speaks that women are more likely to experience and express the difficulties that this condition causes them, this does not rule out that men suffer from it in the same way, and as our study shows, we can appreciate that they are giving themselves the opportunity to express more what you feel and what you think, this perhaps as a result of all the affectations that were experienced by COVID-19, we can observe that they also begin to express.

A survey of 8,444 adolescents and young people between the ages of 13 and 29 in nine countries and territories in Latin America and the Caribbean reports the feelings they faced in the first months of response to the pandemic and the situation in September. Among the participants, 27% reported feeling anxiety and 15% depression in the last seven days. For 30%, the main reason that influences their current emotions is the economic situation. The general situation in the countries and their localities has affected the day-to-day life of young people, since 46% report having less motivation to carry out activities that they normally enjoyed. 36% feel less motivated to carry out usual activities. Their perception of the future has also been negatively affected, particularly in the case of young women who have and are facing particular difficulties. 43% of women feel pessimistic about the future compared to 31% of participating men. A situation that generates great concern and is a call to the national health authorities, is that 73% have felt the need to ask for help in relation to their physical and mental well-being. Despite the above, 40% did not ask for help. This value increases to 43% in the case of women. Health centers and specialized hospitals (50%) followed by worship centers (26%) and online services (23%) are the main mechanisms where they would seek help if they needed it [38].

**Table 7** Anxiety category analysis

		Anxiety category								
		Woman			Man			Woman-Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.4206	0.5794	0.8492	0.5159	0.2778	1	0.0159	0.0873	0.0635
	PT	0.4921	0.0794	0.4365	0.1905	0.873	0.1746	0.246	0.8333	0.2857
	SD&M	0.0794	0.2302	0.746	0.0873	0.5873	0.0556	0.1905	0.0714	0.0238
	MM	1	1	1	0.754	1	0.5556	0.0556	0.127	0.0397
	MT	0.9841	0.8889	1	0.381	0.5079	0.6905	0.5714	0.1587	0.2143
	IM	0.1746	0.2063	0.3889	0.3095	0.5159	0.4603	0.0238	0.0079	0.0873

*Reference Source: Own Source*

## Conclusions

It was possible to conclude from the study, in each of the three sections different situations. In relation to the category of family history it is concluded in a general way that in the students' families there were already different affectations, in a percentage way 41.1% anxiety was observed, 31% depression, 2.1% schizophrenia, 5.5% OCD, 19.2% eating disorders, 7.4% violence, and 1.9% other conditions (blood pressure, diabetes, etc.). Regarding personal background, it was found that 0.6% of the students expressed having BS/BD, 6.8% nervous system conditions and 3.7% other conditions (blood pressure, diabetes, etc.). Reviewing the data separately in ADP and ENG in these two sections, the trend of conditions was more noticeable in ENG and in the male participants. From the results of the analysis of habits, it can be seen that the most accentuated ones are sleep and exercise in contrast to the consumption of tobacco and alcohol.

In the last section, in general, only a significant decrease ( $p < 0.05$ ) was found in the category of violence. Analyzing each of the categories by educational programs, it is concluded that in all categories significant changes were observed in the comparison of women and men, this shows that in this study both lived and therefore expressed their conditions differently, this being a good reference given that men allowed themselves to be more expressive of their affectations experienced during the pandemic. Another issue to highlight is that in the category of Violence in women it was where a significant decrease was reported ( $p < 0.05$  and  $p < 0.01$ ) in CC19 as in NN19, contrary to what the literature mentions and also, in something that could become contradictory, the male population shows that they have been more likely to suffer from it or witness it.

Studies like this not only give us the opportunity to identify the needs of students, but also allow us to develop strategies that address them, encompassing them not only from the medical side (in the case of disorders), and including the psychosocial and comprehensive of the subject, who must be prepared to face other possible contingencies that life presents along his way, it is not just a matter of knowing and knowing how to do, but of knowing how to be a full human and in constant adaptation.



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