Prevalence Of Depression And Anxiety In Bachelor Nutrition Students. A Longitudinal Study

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Abstract:
Background*: Various studies report a higher prevalence of anxiety and depression in university students in health areas.* ***Objective:*** *Determine the prevalence of depression and anxiety in first-year students of the Nutrition Degree of the Autonomous University of Yucatán.*
Materials and Methods*: A descriptive and longitudinal study was carried out to determine the prevalence of depression and anxiety in nutrition students. Two hundred seventeen students were included: 54 from the 2019-2020 generation, 55 from 2020-2021, 54 from 2021-2022, and 54 from the 2022-2023 school year. The Beck Depression Inventory was applied to each student to determine the prevalence of depressive indices, and the Hamilton Anxiety Scale was used to measure anxiety levels.*
Results*: Mild and moderate levels of depression and anxiety were found in the nutrition students of the four generations. The frequencies of depression were 18.52, 18.18, 20.37, and 16.67%, respectively. The anxiety frequencies were 33.33, 36.36, 37.03 and 35.19% respectively. It was found that there were no significant differences between anxiety and depression indexes in female Vs. Males.* (10)
Conclusion: *Students of Nutrition have a high prevalence of anxiety and depression. Students' Mental health problems must be taken seriously, and timely detection and follow-up of these cases are recommended.*
Key Word*: Prevalence, Anxiety, Depression, Nutrition Students, Mental Health.*

I. Introduction

Depression and anxiety are mood disorders that significantly affect those suffering from them, reducing their quality of life, occupational performance, and work. Both psychiatric disorders have become a global concern since statistics from the World Health Organization [1] estimated that 4.4% of the world population suffers from depression (322 million) and 3.6% from anxiety (264 million) and a greater extent, these data fall on women. [2]

In Mexico, the picture is similar, and the WHO reported a prevalence of 4.2% for depression and 3.6% for anxiety [1]. However, worldwide, studies have shown a higher prevalence of depression and anxiety in university students compared to the general population.[3-5] For example, in a meta-analysis review study, they reported that the prevalence of symptoms of depression and anxiety among university students was 33.6% and 39.0%, respectively.[6] The highest prevalence of depressive symptoms was found in students from Africa (40.1) and in university medical students (39.4%).[6] Concerning anxiety levels, the highest prevalence was found in North American students (48.3%) and medical students (47.1%).[6] A remarkable result showed that students had higher prevalences of depression and anxiety in studies conducted after the 2019 coronavirus disease (COVID-19) outbreak.[6] Other studies also reported that during the COVID-19 pandemic, the prevalence of both psychiatric disorders increased.[7-9] In particular, these studies reported that during the COVID-19 pandemic, students' fear of becoming infected, sick, or dying increased, increasing stress and anxiety levels. Similarly, the fear of contracting COVID-19 led to mental disorders such as anxiety, depression, and even suicide.[10] That is why, to reduce and mitigate the consequences of depression and anxiety on the student's mental health, it is essential to detect adverse psychological problems (for example, anxiety and depression) and implement strategies and interventions in the early stage of its appearance.

This study aims to contribute to determining the prevalence of depression in Nutrition students at the Autonomous University of Yucatán, with the certainty that this knowledge will help design preventive strategies and effective interventions to improve student's quality of life. For this, some research questions were raised that concern the mental health of the students: What is the prevalence of anxiety and depression in Nutrition students

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of four different generations? Does the prevalence of anxiety and depression change between the different student generations? Moreover, are there gender differences in the prevalence of anxiety and depression among students?

II. Material And Methods

A descriptive and longitudinal study of four generations of new students of the Nutrition Degree of the Faculty of Medicine of the Autonomous University of Yucatán was carried out from 2019-2023. For this, two hundred seventeen students were considered, 54 from the 2019-2020 generation, 55 from 2020-2021, 54 from 2021-2022, and 54 from the 2022-2023 school year. Each student has been explained what the study consisted of and the objective that she pursued. At the same time, consent was requested to be part of the study. They were given a detailed letter with accessible language emphasizing the absolute confidentiality of their data, which was used exclusively for the study. The anonymity of the students was always guaranteed. The research was based on the Codes of Ethics established in the Declaration of Helsinki (2003) and compliance with the General Regulations of the General Health Law on Health Research in Mexico (RLGS, 1987).

The study was completed with two hundred seventeen students who met the criteria for inclusion in the study and volunteered to participate. Study inclusion criteria were volunteering to participate in the study and being 18 years old or older.

Each student was asked to answer the Beck Depression Inventory, one of the most widely used scales worldwide, to measure the severity of depression in both inpatient and outpatient samples. The instrument consists of 21 items of symptoms and attitudes. Of these, 14 items correspond to symptoms of a cognitive and affective nature. The remaining seven refer to somatic and behavioral symptoms. Each scored on a scale of 1-4: very rarely, sometimes, many times, and almost always. The scale has Cronbach's alpha = 0.87 in the Mexican population.[11] According to this Inventory, the Depression Indices were taken as follows: 0-9 represent mood changes that are considered normal, 10-16 mild depressive states, 17-29 with moderately depressive states, 30 or more indicate indices of severe depression.[11]

The Hamilton Anxiety Scale [12] was applied to measure anxiety levels. This instrument has 14 items. Each item is scored on a scale of 0 (absent) to 4 (severe), with a total score range of 0 to 56, with scores <6 indicating no anxiety, 6 to 14 mild anxiety, and greater than 14 moderate to severe anxiety.

Statistical analysis

The descriptive analysis of the data was carried out with the PAST program version 4.13 (University of Oslo, Norway). Qualitative data were expressed in percentages and frequencies. For the age variable, the data is presented with the mean and standard deviation. To examine the possible differences in the prevalence of depression and anxiety between the four generations, a χ^2 or Fisher´s exact test analysis was used. The Kruskal-Wallis test was used after checking the normal distribution of the data with the Shapiro-Wilk test to determine the possible differences in age between the four generations of students.

III. Result

The present study was carried out on 217 students of 4 generations, newly admitted to the nutrition degree of the Autonomous University of Yucatán, 54 of the 2019-2020 generation (37 women [68.52%] and 17 men [31.48%]), 55 from 2020-2021 (45 women [81.82%] and ten men [18.18%]), 54 from 2021-2022 (40 women [74.07%] and 14 men [25.93%]), and 54 from the 2022-2023 school year (41 women [75.93%] and 13 men [24.07%]). The average age of the participants of the 2019-2020 generation was 20.2 ± 4.69 years. The 2020-2021 generation was 19 ± 1.81 years and 19.3 ± 2.14 years for the 2021-2022 generation. Finally, 19.3 ± 2.07 years for the 2022-2023 generation, with no significant differences between the different groups of students (Figure 1, p=0.557, H=1.883, Kruskal-Wallis, after normality verification with Shapiro Wilk).
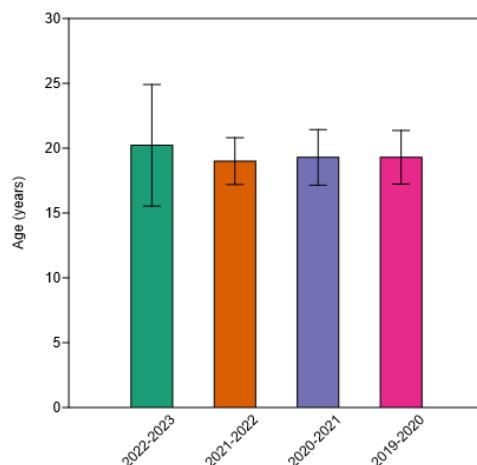
Figure 1. Average Age of the students at the time of admission to the university. There were no significant statistics between the groups (p>0.05, Kruskal-Wallis, n=217).

Depressive indices in nutrition students

The prevalence of depression found in the four generations of students included in the study is reported in Table 1. Note that the prevalence of depressive indices did not have statistically significant changes in all the years studied concerning the 2019-2020 generation (before the COVID-19 pandemic; p=0.9415 generation 2020-2021; p=0.8871 generation 2021-2022; P=0.7664 generation 2022-2023 χ2 test).

Table 1. Prevalence of depressive indices in four generations of nutrition students.

Students Generation	Depression (Fr, %)	No Depression (Fr, %)
2019-2020	10 (18.52%)	44 (81.48%)
2020-2021	10 (18.18%)	45 (81.82%)
2021-2022	11 (20.37%)	43 (79.63%)
2022-2023	9 (16.67%)	45(83.33%)

Figure 2 shows the severity of depressive symptoms. For the 2019-2020 generation of nutrition students, it was found that mild symptoms predominated in 70% of the cases, followed by 30% of moderate depression. Similar results were found for the 2020-2021 generation (70 mild depression, 20% moderate) and a single case of severe depression index (10%). For the 2021-2022 generation, it was obtained that 63.64% of the students presented mild depressive indices, 36.36% moderate. Finally, for the 2022-2023 generation, only mild depressive (66.67%) and moderate (33.33%, see Figure 2) indices were found.
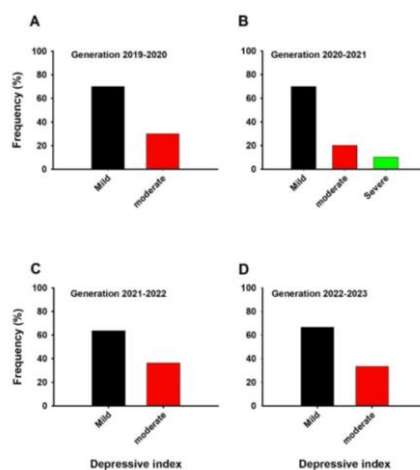

Figure 2. Frequency of the severity of depressive symptoms in 4 different generations of UADY Nutrition students.

On the other hand, the depression indices in the four generations of new students were analyzed by gender. In the 2019-2020 generation, 9 of 37 women (24.32%) and 1 of 17 men (5.88%) presented depressive symptoms(Table 2). For the 2020-2021 generation, 8 of 45 women (17.77%) and 2 of 10 men (20%) presented depressive symptoms, with no statistically significant differences between both sexes (Table 2). While for the 2021-2022 generation, 8 of 40 women (20%) and 3 of 14 men (21.42%) presented depressive symptoms. Finally, for the 2022-2023 generation, 8 of 41 women (19.51%) and 1 of 13 men (7.69%) presented depressive symptoms, suggesting that women obtained higher depressive indices compared to men (Table 2).

Table 2. Prevalence of depressive symptoms by gender in 4 different generations of nutrition students.

Student Generation	Depression in men (%)	Depression in woman (%)	p (Fisher´s Exact)
2019-2020	1/17 (5.88)	9/37 (24.32)	0.1441
2020-2021	2/10 (20)	8/45(17.77)	1
2021-2022	3/14 (21.42)	8/40 (20)	1
2022-2023	1/13 (7.69)	8/41(19.51)	0.4284

Anxiety indices in nutrition students

Table 3 shows the prevalence rate of anxiety symptoms found in the four generations of newly admitted nutrition students. Note that the prevalence of anxiety indices did not have statistically significant changes in all the years studied.

Table 3. Prevalence of anxiety symptoms in four generations of nutrition students.

Student Generation	Anxiety (Fr, %)	No Anxiety (Fr, %)
2019-2020	18 (33.3%)	36 (66.7%)
2020-2021	23 (36.36%)	32(63.64%)
2021-2022	20(37.03%)	34 (62.97%)
2022-2023	19 (35.19%)	35(64.81%)

Figure 3 shows the severity of anxiety symptoms for the four generations studied, it was found that mild symptoms predominated.
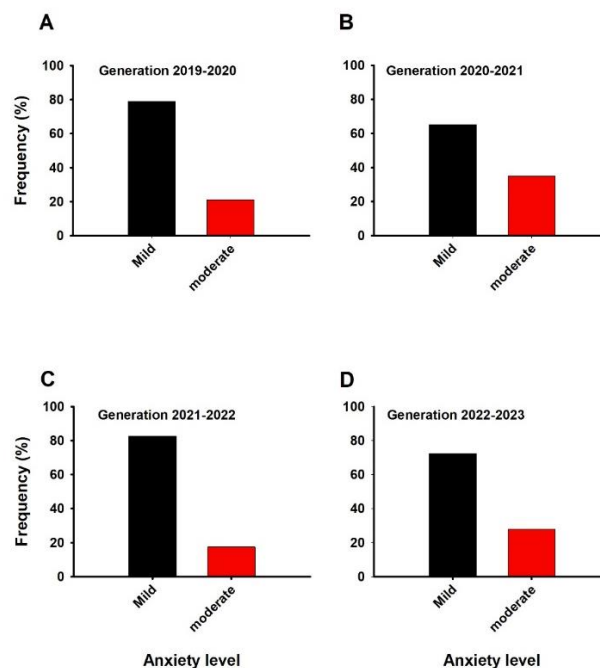

Figure 3. Frequency of the severity of anxious symptoms in four different generations of UADY Nutrition students.

On the other hand, the anxiety indices in the four generations of new students were analyzed by gender. In the 2019-2020 generation, 16 of 37 women (43.24%) and 2 of 17 men (11.76%) presented anxiety symptoms, with no statistically significant differences between both sexes. For the 2020-2021 generation, 21of 45 women (45.66%) and 2 of 10 men (20%) presented anxiety symptoms. While, for the 2021-2022 generation, 14 of 40 women (35%) and 6 of 40 men (20.00%) presented anxiety symptoms. Similar ocurred for the 2022-2023 generation, 17 of 41 women (41.46%) and 2 of 13 men (15.38%) presented anxiety symptoms. The statistics of the comparisons by gender are shown in Table 4.

Table 4. Prevalence of anxious symptoms by gender in four different generations of nutrition students.

Student Generation	Anxiety men (Fr, %)	Anxiety woman (Fr, %)	p (Fisher´s Exact or χ^2)
2019-2020	2/17(11.76)	16/37 (43.24)	0.20332
2020-2021	2/10(20)	21/45 (46.66)	0.16607
2021-2022	6/14 (42.85)	14/40 (35)	0.6003 (χ^2)
2022-2023	2/13 (15.38)	17/41 (41.46)	0.10711

IV. Discussion

Depression and anxiety are two of the most prevalent psychiatric disorders worldwide. This study included two hundred seventeen nutrition students from four generations (2019-2023). The prevalence rates for the anxiety and depression indices were 33-37% and 16-20%, respectively. There were no statistically significant differences regarding the prevalence of anxiety and depression between the different generations of students (2019-2023). Similarly, these results suggest that during confinement, due to the COVID-19 pandemic, the prevalence of depressive and anxiety indices did not increase in nutrition students at the Autonomous University of Yucatán. Furthermore, this study found that of the 18.5% of the students who presented depression indices, less than 1% presented moderate to severe symptoms.

It was possible to observe that the prevalence rate of depression in students of the Nutrition Degree was high (16-20%). These results suggest a higher prevalence of depressive indices compared to the general population [2,3]. This is probably because their education stresses students subjected to strenuous studies and activities. Other factors may explain the high prevalence of anxiety and depression. Factors include academic load, sleep deprivation, financial problems, exposure to deaths during the COVID-19 pandemic, and abuse or bullying by other students.[13-15]

These results are similar to those reported by Gan and Ling in 2019 in Malaysia, where they obtained an 11% prevalence rate of depression in medical students.[16] In contrast, the results of this study differ from the prevalence of depression reported for Chinese medical students, where the reported prevalence was 29% [17] or in Pakistani medical students, where 37.46% of medical students presented mild depression and 14% moderate to severe depression[18] or 27. 2% in Swiss[19] and 32% in Italy medical students.[20]

On the other hand, the gender of the students was not significantly associated with anxiety and depression in all generations studied. Similar to what was reported in the study by Bertani et al., 2020, men and women presented a 7% prevalence of depression, while for anxiety, men presented a prevalence of 22% and women 20%.[20] In contrast, some studies have reported that in the USA and Canada found higher rates of psychiatric problems in female students.[21] In Mexico was reported a higher prevalence of both problems in female students, 62.6% anxiety and 54.6% moderate depression.[22]

On the other hand, this study showed that between 33 and 37% of nutrition students had some level of anxiety. In the present study, the prevalence of anxiety was the same in the four generations studied, with no statistically significant changes In this sense, anxiety is the second most common mental health problem in medical students worldwide.[5,7] This prevalence coincides with other studies conducted in the United States, where anxiety in medical students was 30.6%.[23] In addition, the results of this study differ from a study carried out in Mexico, where a prevalence of anxiety was reported in 70.5% of medical students.[24] In turn, no statistically significant differences concerning anxiety were found between men and women. This finding differs from the results obtained in other studies where women present the most significant prevalence.[23,24] This can be explained because women are more likely to present higher levels of anxiety than men.[25] In addition, other factors that may be related to gender violence that occurred during the confinement by COVID-19 can also be included. However, more studies are required to correctly identify the main characteristics of the participants (financial situation, domestic violence, loss of a family member, among others) associated with greater vulnerability in the female gender to present anxiety and depression.

In general, the high rates or prevalence of anxiety and depression in health students are noteworthy since, even though they have been reported for a long time, mainly in first-world countries, attention should be paid to students in the areas of health in developing countries such as Mexico. According to the results of this study, bachelor Nutrition students have a high prevalence of anxiety and depression, which must be taken seriously since they can have many negative consequences for students (low academic performance, consumption of addictive substances, and suicidal ideation, among others). Therefore, it is recommended that these problems be diagnosed

promptly to determine support strategies for educators, promote the comprehensive development of medical students, favor the training of emotionally balanced doctors, and benefit the quality of work in health care.

Through the literature search, we found that previous studies on mental health problems among health students focus mainly on depression, anxiety, and suicidal ideation. Therefore, further studies are required to investigate other mental health problems, such as burnout, stress, eating disorders, etc. Furthermore, more stratified and subgroup analyses are suggested in future research to investigate mental health problems more clearly and comprehensively.

On the other hand, health schools can help students by addressing some of the modifiable factors listed above. For example, strategies on sleep hygiene and its effect on mental health can be created through emails to students. Health schools should also have a robust and anonymous platform for students to provide feedback on academic stressors, violence, or bullying and programs that provide psychological support to affected students. In this sense our Faculty has the Department of Guidance and Psychopedagogical Support, which deals with the detection of these primary problems, providing support to students through a series of sessions with psychologists from Cognitive-Behavioral Guidance, likewise, has external support and follow-up institutions for complex cases, which in recent years has allowed close monitoring of these problems.

V. Conclusion

This study confirmed that nutrition students have a high prevalence of anxiety and depression. These results highlight the importance that higher education institutions need to design strategies to identify students at risk of mental disorders and try to improve the quality of helth education.

Acknoeledgments

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