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Emotional, academic and sociodemographic characteristics of irregular University Students in Guanajuato, Mexico

Abstract

The study of the emotional and social variables involved in academic performance has recently received a lot of attention.

Aim: To identify, in irregular students at a public university in the state of Guanajuato, their sociodemographic, academic, and emotional characteristics.

Method: Without a specific sample size, a non-probabilistic, descriptive, transversal study was carried out. Students of both sexes; with high levels of failure where included. In them, academic and sociodemographic characteristics, levels of stress, anxiety and depression were measured.

Results: A total of 70 students participated, belonging to all majors and semesters offered for one division of a public university at Guanajuato, México. They had 3 failed subjects on average. Over 90% were single, had no children, were of a medium socioeconomic level and did not practice relaxation. On average, their level of depression was *Mild*, anxiety was *Moderate*, and they perceived the environment to be *moderately stressful*. In general, the sociodemographic variables did not correlate with the students' grade point average; However, correlations were found between anxiety and the level of stress (rs = 0.713; p= .000); and between anxiety and depression (rs = 0.814; p= .000); indicating that students with high levels of anxiety also present high levels of stress and depression.

Conclusion: the academic, sociodemographicE and emotional characteristics of irregular students must be considered when implementing psychological interventions as they significantly influence their permanence at the university.

Keywords: sociodemographic characteristics, irregular students, academic stress, stress, anxiety, depression

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Introduction

Some students' experiences produce emotional states and motivations that can affect their learning process; their personal life and their academic performance, even resulting in dropping out of school,[1] which is why the study of the psychological and social variables involved in academic performance has grown exponentially.[2,3] Typically, maladaptive emotional functioning begins in the form of academic stress, which occurs when the student perceives the situations negatively in such a way that he believes or is certain that he does not have the tools or behavioral resources to confront them.[4] Very frequently, academic stress leads to physical or psychological symptoms or illnesses;[1,5] poor school performance and even dropout from the educational program.[6,7] Furthermore, it negatively correlates with feelings of academic satisfaction and well-being.[8]

On the contrary, it has been documented that adequate emotional control is positively correlated with academic performance[9] and that interventions in this sense, for example, those aimed at reducing perceived stress, anxiety and depression; They improve problem solving, exam performance and positive reappraisal,[6] in addition, better physical and mental health, and greater satisfaction with life.[10] On the other hand, emotional processes are highly influenced by sociodemographic aspects, which determine the way of interpreting reality.[11,12]

As part of the university services that most institutions offer to students, it has been recommended to implement interventions that promote positive emotional management. However, it is common that standardized intervention programs to be developed, which often do not consider those psychosocial factors that are directly related to the emotional perception of the environment and that play a fundamental role for good academic performance.[13] In this study the objective was to identify the sociodemographic, academic and emotional characteristics of irregular students from a public university in Guanajuato, Mexico.

The specific objectives were to know the following from the participants:

a) Age, sex, marital status, number of children, occupation, and socioeconomic level

b) Major, semester, number of failed subjects and academic average

c) Anxiety level

d) Depression level

e) Perceived stress level

Knowing this information will make it possible to design psycho-emotional interventions that consider the specific characteristics of irregular students (It means, those students who had failed subjects or whose levels of stress, anxiety or depression are high and interfere with their studies), and it will provide evidence of the need to consider these aspects when developing psychological interventions in different higher education institutions.

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Materials and Method

Students of both sexes were included, regardless of the university educative program to which they belonged; who had failed subjects or who experienced high levels of stress, anxiety or depression. Students with cardiac or respiratory problems or those who were pregnant were not included. Likewise, incomplete records were not analyzed.

Variables

1. Academic and sociodemographic characteristics. They are the academic, social and demographic characteristics that identify an individual. Age, sex, marital status, number of children, major, semester, occupation, number of failed subjects, and socioeconomic level were considered. An ad hoc questionnaire was carried out to collect this information.
2. Anxiety. It is the constant presence of chronic tension, excessive worry and recurrent anxiety symptoms, which keeps the individual in an attitude of excessive avoidance or nervous activation. The scores obtained on the Beck Anxiety Inventory for the Mexican population were considered.[14] Anxiety was considered present if the raw score was greater than 16 points.
3. Depression. It is the loss of positive affectivity and a loss of interest in the activities of daily living.[15] The existence of depression was considered when the score was greater than 17 points on the Beck Depression Inventory for the Mexican population.[16]
4. Stress. It is a physical and psychological adaptive response to demands and threats of environment.[17] The presence of stress is considered when a person reports perceiving their life as stressful. To measure this perception, the Spanish version of the Perceived Stress Scale was used. The possible scores on this scale range from 0 to 40, the higher the score, the greater the perception of stress in your daily life.

Instruments

1. *Initial interview.* Registers sociodemographic identification data, it is a propose-built interview that consists of ten closed questions.
2. *Beck's Anxiety Inventory for Mexican population.* It consists of 21 items that indicate physical and cognitive symptoms of anxiety, rated according to a Likert-type scale with valences from 1 "slightly or not at all" to 4 "severely." It has a high internal consistency (α = 0.84) and a high reliability coefficient (r=.77) which is why it is used consistently in university students either in clinical or research contexts.[18]
3. *Beck Depression Inventory for Mexican Population.* It consists of 21 groups of five sentences, which are numbered from 0 to 4, the order indicating levels of cognitive appraisals regarding depression. The scores obtained indicate the level of depression. It has a high internal consistency (α = 0.89) and reliability (r= 0.72) and is one of the most used scales, both in research and in clinical settings.[19]
4. *Perceived Stress Scale (EEP-10).* It consists of 10 questions that evaluate the perception of stress during the last month. It has a response pattern of five options: *never, almost never, occasionally, often* and *very often* giving scores from 0 to 4. Questions 6,7,9,10 have a reverse scoring pattern of 4 to 0. It is one of the most widely used scales internationally to measure stress.[17] It has a good internal consistency (α = 0.83) and has validity to evaluate stress in university students.[20]

Procedure

An open call was launched for irregular students to participate in the study. The call was pasted on the building's wall newspapers. Also, the call and the objectives of the study were shared with the coordinators of the different departments, so that they could inform and send to the study all of those who met the participation criteria.

Those who responded to the call were told what was related to the study. Those who agreed to participate signed an informed consent. Subsequently, the forms and inventories were provided so that they could be answered in a self-administered manner. To resolve doubts, a psychologist and nursing students who carried out their social service and who received adequate training for this purpose were present. They themselves qualified the instruments and created the databases, which were analyzed using the statistical analysis software IBM SPSS version 24.

Experimental design

A non-probabilistic, descriptive, cross-sectional and correlational study was carried out, without a specific sample size.

Statistics

Descriptive statistics were used: range, mean, median, mode and standard deviation. At the inferential level, Spearman's Rho (rs) was used to establish correlations and ANOVA to establish differences between groups.

Ethical considerations

To carry out this research, the Helsinki protocols and the guidelines of the Ethical Principles and Code of Conduct of the American Psychological Association were followed. Additionally, participants signed an informed consent in which were specified: the objectives of the study, no remuneration, no cost and that they could abandon the research at any time.

Results

Participants

70 undergraduate students aged 18 to 27 years participated in the study (Mean=21.7;DS=23); the majority were women (82.8%), and one person stated that they were transgender (1.4%) (Figure 1).

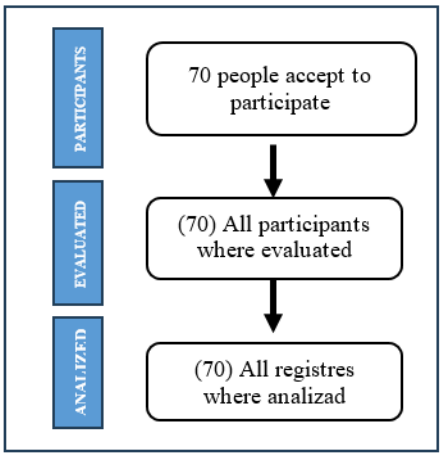

Figure 1 "Participants flow".

Note: All recruited people participated in the study and there were no exclusions.

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Academic and sociodemographic characteristics

47% of the participants belonged to the Engineer of Foods; 21.4% to a Nursing career; 15.7% to Veterinary Medicine; 4.3% to Engineer on Agronomy; 2.9% to Environmental Engineer, and 1.4% to Bachelor's degree on Agribusiness. They belonged to all semesters of the different degrees on university; The majority (42.9%) belonged to the fourth semester, 15.7% to the seventh, 12.6% belonged to the second semester and a similar percentage to the eighth, 8.6% to the third, 2.9% belonged to the fifth semester, the same percentage belonged to the ninth and, Finally, 1.4% were in the first semester and the same percentage in the tenth semester.

The participants had failed between one and eleven subjects (Mean=3; SD±3.2); However, (32.9%) had not failed, but felt that their academic performance was unsatisfactory and wanted help. 14.3% had failed two subjects, 11.2% three. 8.5% had either five, six, or even seven subjects. 5.7% failed four; while 4.3% failed ten or eleven subjects. 1.4% eight subjects and a similar percentage nine. As a result of this performance, only 11.4% of people were thinking about dropping out of school and 88.6% were not.

Almost all participants were single (95.7%), one (1.4%) was married and two were in a common law union. They did not have children (94.3%) and only four people reported having one. Furthermore, only 11.4% stated that they had another occupation besides being a student. Nearly all participants (90%) mentioned having a medium socioeconomic level, 8.6% low, and 1.4% mentioned it was high.

Emotional state

Most people (78.6%) did not practice relaxation. Regarding depression, the participants expressed scores that were between zero and 37 points (M=13.29; SD=8.98); That is, on average the participants scored at a mild level of depression. Almost half of the people (40%) had a minimum level; 28.6% a moderate level; 25.7% a mild level and 5.7% a severe level of depression. Regarding anxiety, the scores were between zero and 43 (M= 17.97; SD= 11.97), which is equivalent on average to a moderate level of anxiety. 44.3% reported a mild level; 22.9% a severe level; 17.1% a moderate level and 15.7% a minimum level. Regarding perceived stress, the minimum score was 36 and the maximum 34 (M = 20.3; SD= 6.84), which means that on average the participants perceive a medium level of stress, that is, they perceive the environment as threatening to an intermediate degree. The following Tables 1 & 2 presents the academic characteristics and emotional state of the participants grouped by major.

Correlations

The following Table 3 shows the correlations obtained. They are grouped into low, moderate and high magnitude. It is important to highlight that high magnitude positive correlations were presented between the depression score and the anxiety score (rs = 0.814; p= .000). That is, those who felt anxious also tended to feel depressed.

Table 1 Academic and emotional characteristics of the participants grouped by major

Career	Failed	Drop out	Depression		Anxiety		Stress
			Points	Level	Points	Level	
Agronomy	4	No	12.67	Mild	14.67	Mild	18
Agribusiness	6	No	10	Mild	9	Minimum	19
Foods	4.73	No	16.06	Mild	22	Moderate	22
Ren Energies	5	No	5	Min.	3	Mild	14
Nursing	0.41	No	12.20	Mild	17.93	Moderate	21.47
Mechanics	2.75	No	11.50	Mild	16.75	Moderate	23.25
Veterinary	.64	No	8.09	Mild	9.18	Mild	12.64
Environmental	2	No	14.5	Mild	19.5	Moderate	28

Note: Average data are presented. "Failed", failed Subjects. "Drop Out", think about abandoning the university

Table 2 Academic and emotional characteristics of participants grouped by gender

Gender	Failed	Drop out	Depression		Anxiety		Stress
			Points	Level	Points	Level	
Man	4	No	9.91	Min	12.68	Mild	18.82
Women	2.74	No	14.72	Mild	20.13	Moderate	21
Transgender	2	No	twenty	Mod	33	Severe	20

Note: Average data are presented. "Failed", failed Subjects; "Drop Out", think about abandoning university; "Min", minimum; "Mod", moderate

Table 3 Correlations between the different variables

Correlation type	Drop out	Depression score	Depression level	Anxiety Score	Anxiety level	Perceived stress
Low magnitude						
Failed	(rs = 0.319;*p*=.007)	(rs = 0.375; p= .001)	(rs = 0.352; p= .003)	(rs = 0.323; p= .006)		(rs = 0.386; p= .001)
Career		(rs = -0.246; p= .040)	(rs = -0.255; p= .033)	(rs = -0.253; p= .034)		
Moderate magnitude						
Score Depre					(rs = .772; p= .000)	(rs = 0.661; p= .000)
Depression Level				(rs = 0.772; p= .000)	(rs =0.690; p= .000)	(rs = 0.515; p= .000)
Score Ans						(rs = 0.713; p= .000)
Ans Level						(rs = 0.595; p= .000)
High magnitude						
Score Depre				(rs = 0.814; p= .000)		

Note: Spearman's rho (rs) was calculated. "Failed", failed Subjects; "Drop Out", think about quitting university; "Ans", Anxiety; "Depre", depression. See text

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Comparisons between groups

Applying a one-factor analysis of variance (ANOVA), only taking into consideration the majors that had more than ten elements, that is, the majors of Engineering of Foods (33 students), Nursing (15 students) and Veterinary Medicine (11 students); Significant differences were obtained between the means of the three groups in the number of subjects failed (F= 17.238; df= 2, 56; p= 0.000). Also, significant differences were found between the Food and Veterinary careers (p= 0.000) and between Food and Nursing (p= 0.000). The average number of subjects failed in the Food major was 4.73 subjects, 0.64 for Veterinary Medicine and 0.40 for Nursing.

Regarding the levels of depression, statistically significant differences were found between the groups analyzed (F= 3.467; gl= 2, 56; p= 0.038) with effect size h^2= 0.11. Applying the Bonferroni Post-Hoc test, this difference was only statistically significant between Food and Veterinary (p=0.042). The mean depression score was 16.06 for the first major, 8.09 for the second, and 12.20 for Nursing. Regarding anxiety levels, significant differences were also found between groups (F= 5.166; df= 2, 56; p= 0.009). The effect size was h^2= 0.15. The Bonferroni test indicates that this difference occurred between food and veterinary (p= 0.007). The mean anxiety score was 22 points for Food and 9.18 for Veterinary; The Nursing score was 17.93.

Finally, the levels of perceived stress were also different between groups (F= 9.157; df= 2, 56; p= 0.000), with an effect size h^2= 0.24. The Bonferroni test indicated a difference between Food and Veterinary Medicine (p= 0.000), as well as between Veterinary Medicine and Nursing (p= 0.004). The mean perceived stress score was 22.24 in Food, 21.47 in Nursing, and 12.64 in Veterinary Medicine.

Because in the one-factor ANOVA there were no significant differences between the levels of anxiety and depression of the Food and Nursing majors, it was decided to apply t-tests to see if any differences were detected between these two majors. Levene's test indicated that the variances were equal in all variables (p> 0.05) and, importantly, that there were no statistically significant differences between the mean levels of anxiety (t= 1.119; df= 46; p= 0.269) , depression (t= 1.339; df= 46; p= 0.1879) and perceived stress (t= 0.368; df= 46; p= 0.715) of students in Food and Nursing majors.

This is very interesting if we consider that in the Food major students have failed many more subjects than in Nursing; It can even be said that, in the latter, there are practically no irregular students; However, the levels of anxiety, depression and stress are very similar in these two programs.

Discussion

The objective of this study was to identify the emotional, academic and sociodemographic characteristics of university students who failed subjects. The students belonged to all majors and all semesters taught in one Division of a public university at Guanajuato, México, although there were more students from the Food Engineering major. Likewise, most of the participants were enrolled in the fourth semester and failed between one and eleven subjects, although only a few were thinking about abandoning their studies.

On average, the state of depression presented by the participants was mild, although the anxiety was moderate and the participants perceived the environment and the academic demands as moderately stressful. Importantly, most people did not practice relaxation.

In other studies, it has been found that level of depression that students presented was minimum,[21] that is, lower than what we found, however, Fischer and Arce[22] report a systematic analysis of the literature and mention that, in the studies reviewed, the students' level of depression tended to be mild, although not major. This indicates that students experience levels of depression that are not yet at a clinically significant level, but that could lead to it if intervention is not offered to treat this emotional state.[23]

In this sense, some authors establish that between 30 and 36.9% of students have some disorder related to depression; from 20 to 53.2% with anxiety and from 19.8 to 47.80% with stress; and that in addition, these emotional alterations are related to academic stress,[24,25] we were able to document that the mildest disorder was depression, followed by anxiety and stress, which had the highest scores, so there is agreement between our results and these studies.

It is interesting to note that, although there was only one person from the Agribusiness major in our study, this was the one who failed the most subjects of all the participants. However, she was not thinking about abandoning her career and her levels of stress, anxiety and depression were among the lowest. On the other hand, the Food Engineering students were the participants who ranked second in number of subjects failed, likewise, their depression, anxiety and stress scores were the highest. Silva-Ramos et al.,[4] documented that academic stress is directly related to the educational program, and although in the present study the highest levels of stress were related to the Nursing, Veterinary and Food careers, it is necessary to corroborate these findings by carrying out studies that involve a larger number of students, and also that not only include at those who failed subjects, since the results are ambiguous. For example, Cobiellas, Anazco & Góngora[26] documented that 63.11% of students experience excessive stress and 58.85% a level of depression, this being more pronounced among students in the health area compared to other areas. In any case, emotional functioning results in this studies are higher than those we found in our study. On the other hand, the same Silva-Ramos et al.,[4] report that in general, the average stress experienced by university students is moderate, which coincides with our study, so it is necessary to clarify these results.

A very important aspect that should be highlighted is that nursing students present a negative emotional state, characterized by high levels of stress, anxiety and depression, although curiously, these students had practically no failed subjects, but their experienced stress levels were the same of those students who in other majors had more failed subjects. Some authors have already pointed out that students in the medical area, and specifically in the nursing area, suffer from negative emotional states.[8,12,26] Attention should be paid to this aspect, since our study confirmed that nursing students do indeed suffer from high levels of stress, anxiety and depression, even if they do not have failed subjects. In relation to sociodemographic characteristics, most students were women, were single, did not have children and had no other occupation apart from studying; Furthermore, almost all of the participants stated that they had a medium socioeconomic level.

This is in accordance with other studies,[21] but in addition, it has been established that these variables, together with a high academic load, are factors associated with the presence of depression, among which gender and age stand out.[12] We were able to corroborate that woman, although they have failed fewer subjects than men, present higher levels of depression and anxiety and perceive the environment as more stressful than they do. The same results have been reported by different authors[12,24] and even by those who have carried out systematic reviews of the literature[22] and it has been established that one explanation could be that this sex tends to experience symptoms to a greater extent than men.[27] However, this should be studied further since there are those who report that gender does not influence the appearance of emotional disorders.[4,26]

Regarding this, a transgender person participated in our study and it is interesting to note, that although the number of failed subjects is slightly lower than that of women, their levels of depression and anxiety are among the highest in the general sample and that women in particular. More research is needed to evaluate the role of social factors and the experience of her sexual orientation on her emotional state.

Regarding work activity, other studies document that up to a third of the people who study also work.[4] We did not obtain these results, but it is a factor that must be considered when evaluating students' stress. It is important to highlight that in different studies it has been found that the levels of stress, anxiety and depression are highly correlated with each other, and that they condition each other in their appearance,[26,28] even Tijerina-González et al.,[24] report significant levels of the presence of different combinations of these variables among new university students.

The Polyvagal theory[29] stipulates that organisms face the demands of the environment through a neuro-behavioral organization that allows them to issue the most appropriate responses to face the stressors that altered homeostasis. In the specific case of humans, it is believed that this neuro-behavioral organization causes us to first experience a state of stress, then anxiety, and finally depression.[30] This has also been described by Sapolsky.[31,32] This would explain why in our study correlations were found (although of low magnitude) between failed subjects and the thought of dropping out; depression scores; anxiety scores; as well as perceived stress. Which means that those who failed more subjects, experienced a more negative emotional state. Furthermore, depression scores, anxiety levels, and stress levels were also moderately correlated, meaning that those who experienced depression also tended to experience anxiety and perceive the environment as threatening. Finally, a large directly proportional correlation was found between anxiety and depression scores, indicating that those who felt depressed also felt anxious. Altogether we were able to document that the students perceived their environment as stressful, had a moderate degree of anxiety and began to develop depression, just as the theory presented in the previous paragraph predicts.

The study developed here presents limitations that restrict the made observations to the sample; It is recommended to use a larger number of participants, include people who do not fail subjects to function as a control group and finally, carry out psychophysiological measurements that complement the records, in addition to an intervention that allows participants to balance or reverse the effects of stress on their nervous and functional organization.

Conclusions

The participants on average failed three subjects, and although a third had not failed, they felt that their academic performance was not satisfactory. In general, the students showed significant levels of stress and anxiety and incipient depression. This is especially significant for nursing students and attention should be paid to it.

This corroborates the assumptions of the Polyvagal theory in the sense that people first appear stressed, then anxious, and finally depressed. In different studies, we have documented the relationship that exists between the autonomic activity of participants with chronic disorders and how nervous functioning that promotes better emotional management can easily be achieved (for example[7,23,33]), which is why it is recommended to treat this negative emotional state before it becomes a serious health problem.[12] It is recommended that psychological services have preventive programs that address the emotional state of students with low academic performance. In addition, these programs must consider the efficient use of time to preventing stress from leading to anxiety or depression.

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Conflicts of interest

We don`t have any conflict of interest.

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